

# 2005

Year Book Australia



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**2005**

**YEAR BOOK  
AUSTRALIA**



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Australian Statistician

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#### Cover

In December 2005 the Australian Bureau of Statistics will celebrate a century of providing a statistical service to the Australian, state and territory governments and to the Australian community. As the range of economic, social and environment statistics published by the Bureau has evolved over the past 100 years in response to the changing needs of users, so too has the use made of technology in producing official statistics and servicing users.

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# Preface

Year Book Australia is the principal reference work produced by the Australian Bureau of Statistics. It provides a comprehensive and detailed statistical overview of various aspects of the economy and social conditions in Australia. In addition, it contains descriptive matter dealing with Australia's government, international relations, defence, social security, geography and climate.

The Australian Bureau of Statistics (ABS) and its predecessor, the Commonwealth Bureau of Census and Statistics (CBCS), have been providing a statistical service to the Australian, state and territory governments and to the Australian community for 100 years.

The first Official Year Book of the Commonwealth was published in 1908, although individual Australian states and colonies had been producing year books for several decades previously.

In recent years, Year Books have had an underlying theme for the articles contained within. This 87th edition of Year Book Australia has a number of articles which mark the centenary of the national statistical service, including a feature article which traces the development of the CBCS and the ABS over the past 100 years. Other articles look at the history of some of the agency's major collections, including the population census and retail/consumer price indexes, and at some of the important uses made of ABS statistics in public administration. The opportunity is also taken in this edition of Year Book Australia to provide, where available, lengthy time series of key economic and demographic statistics, often stretching back 100 years.

The statistics contained in this edition are the most recent available at the time of its preparation. In many cases, the ABS web site <<http://www.abs.gov.au>> and the web sites of other organisations provide access to more recent statistics. The ABS *Catalogue of Publications and Products* (1101.0) lists all current publications of the ABS.

Further information on the operations of government and non-government organisations referred to in this edition of the Year Book, including their administrative and legislative background, may be obtained from their individual web sites, the addresses of which are provided throughout and at the end of chapters of the Year Book.

ABS publications draw extensively on information provided freely by individuals, businesses, governments and other organisations. Their continued cooperation is very much appreciated.

Particular thanks and appreciation are extended to those Australian Government and other organisations which have kindly supplied material for inclusion in this edition of Year Book Australia.

I also take the opportunity to extend my thanks to the many ABS staff who contributed to the preparation and production of *Year Book Australia 2005*.

Australian Bureau of Statistics  
Canberra  
January 2005

Dennis Trewin  
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# Introduction

Year Book Australia provides a comprehensive overview of the economic and social conditions of contemporary Australia. It is a statistically oriented publication with sufficient background information to establish a context for the statistics and to assist in understanding and interpreting them.

Many of the statistics are derived from the Australian Bureau of Statistics (ABS), the official statistical agency which produces the Year Book. However, a great deal of the information is also contributed by other, predominantly government, organisations. The official nature of the contributors to the Year Book ensures a high degree of objectivity and reliability in the picture presented of contemporary Australia.

This current (87th) edition is the latest in a long series of Year Books extending back to the first edition in 1908. This series provides a valuable source of information on the state of Australia at any point in this period. In recent years, Year Books have had an underlying theme for the articles contained within. This edition of Year Book Australia has a number of articles which mark the centenary of the national statistical service, including a feature article which traces the development of the Commonwealth Bureau of Census and Statistics and the ABS over the past 100 years. Other articles look at the history of some of the agency's major collections, including the population census and retail/consumer price indexes, and at some of the important uses made of ABS statistics in public administration. The opportunity is also taken in this edition of Year Book Australia to provide, where available, lengthy time series of key economic and demographic statistics, often stretching back 100 years.

*Year Book Australia 2005* is also available on CD-ROM. The Year Book is also the source for *Australia at a Glance* (1309.0).

## Finding information

The contents pages at the beginning of the Year Book provide a guide to the broad subjects contained in each chapter. The index assists in locating information on more specific subjects. A list of articles which have appeared in the previous ten editions of Year Book Australia is contained at the end of this edition. A collection of articles is included in *Australia Now* on the ABS web site.

The tables and graphs in a chapter are numbered and the text is cross-referenced, as necessary, to the table or graph to which it relates.

## Further information

While the statistics and descriptive information contained in the Year Book provide a comprehensive overview of Australia, they represent only a relatively small part of the statistics and other information available. The Year Book is aimed primarily at providing a ready and convenient source of reference, both to those familiar and unfamiliar with a particular subject. In other words, because of the range of subjects, and limitations on the size of the Year Book, it aims at breadth rather than depth of information.

For those requiring information in greater depth, the Year Book also serves as a directory to more detailed sources, with the source shown for each statistical table, graph and map. Where the ABS is the source, the title and catalogue number of the relevant publication are quoted. For other sources, the name of the organisation is shown, and the publication title where appropriate. Relevant ABS and other publications are also listed at the end of each chapter, together with a selection of relevant web sites. A useful complementary publication is the *ABS Catalogue of Publications and Products* (1101.0) which lists all current publications and products of the ABS.

As well as the information included in this Year Book, the ABS may have other relevant data available on request. Charges are generally made for such information. Inquiries should be made to the National Information and Referral Service on 1300 135 070.

The annual reports of government departments and agencies also provide a valuable source of more detailed information on subjects covered in the Year Book. Information may be obtained from the relevant web sites, the addresses of which are provided throughout and at the end of chapters of the Year Book.

For a variety of reasons, it is not possible for all statistics in the Year Book to relate to the latest or the same year. Readers wishing to obtain or clarify the latest available statistics should contact the relevant source or access the relevant web site.

## Reference to the national government

Australia has a federal system of government comprising a national government, the governments of the six states and two territories, and local governments. In *Year Book Australia 2005* the national government is referred to as either 'the Australian Government' or 'the Commonwealth Government'. On occasions the shortened term 'the Commonwealth' or 'the Government' is used when referring to the national government.

## Symbols and abbreviations

The following symbols and abbreviations are shown in tables and graphs:

'000	thousand
\$	dollar
\$'000	thousand dollars
\$m	million dollars
\$b	billion dollars
%	percentage
—	nil or rounded to zero (including null cells)
..	not applicable
^	estimate has a relative standard error of between 10% and 25% and should be used with caution
*	estimate has a relative standard error of between 25% and 50% and should be used with caution
**	estimate has a relative standard error greater than 50% and is considered too unreliable for general use
°C	degrees Celsius
ABARE	Australian Bureau of Agricultural and Resource Economics
ABS	Australian Bureau of Statistics
ANZSIC	Australian and New Zealand Standard Industrial Classification
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of South East Asian Nations
bm <sup>3</sup>	billion cubic metres
COCF	consumption of fixed capital
Cwlth	Commonwealth
CO <sub>2</sub> -e	carbon dioxide equivalent

e.g.	for example
etc.	etcetera
EU	European Union
excl.	excludes/excluding
f.o.b.	free-on-board
FTE	full-time equivalent
GDP	gross domestic product
Gg	gigagram
GJ	gigajoule
GL	gigalitre
GST	Goods and Services Tax
Gt	gigatonne
GVA	gross value added
GWh	gigawatt hours
ha	hectare
HECS	Higher Education Contribution Scheme
ICD-10	International Classification of Diseases, 10th revision
i.e.	that is
incl.	includes/including
IPD	implicit price deflators
kg	kilogram
km	kilometre
km <sup>2</sup>	square kilometre
km <sup>3</sup>	cubic kilometre
kt	kilotonne
kWh	kilowatt hour
L	litre
m	metre
m <sup>2</sup>	square metre
m <sup>3</sup>	cubic metre
MB	megabyte
mill.	million
ML	megalitre
mm	millimetre
Mt	megatonne
NDP	net domestic product
NOS	net operating surplus
no.	number
n.a.	not available
n.e.c.	not elsewhere classified
n.e.i.	not elsewhere included
n.e.s.	not elsewhere specified
n.f.d.	not further defined
n.p.	not for publication
n.y.a.	not yet available
OECD	Organisation for Economic Co-operation and Development
PAYG	Pay As You Go
PJ	petajoule
SAR	special administrative region
SITC	Standard International Trade Classification
sq km	square kilometre
t	tonne
TAFE	technical and further education
TJ	terajoules
UN	United Nations
VET	vocational education and training

Abbreviations are used for the following countries and Australian states and territories:

China	China (excl. SARs and Taiwan Prov.)
Hong Kong	Hong Kong (SAR of China)
NSW	New South Wales
Vic.	Victoria
Qld	Queensland
SA	South Australia
WA	Western Australia
Tas.	Tasmania
NT	Northern Territory
ACT	Australian Capital Territory
Aust.	Australia

Yearly periods shown, for example, as 2003, refer to the year ended 31 December 2003; those shown, for example, as 2003–04, refer to the year ended 30 June 2004. Other yearly periods are specifically indicated. The range of years shown in the table headings, for example, 1901 to 2004, indicates the period covered, but does not necessarily imply that each intervening year is included or that the yearly period has remained the same throughout the series.

Values are shown in Australian dollars (\$) or cents (c) unless another currency is specified.

Where figures have been rounded, discrepancies may occur between sums of the component items and totals.

### **Comments from readers**

The ABS endeavours to keep the balance of the contents of the Year Book in line with the ever-changing nature of the nation. For this reason comments on the adequacy and balance of the contents of the Year Book are welcomed and should be directed to the attention of the Editor of the Year Book, Australian Bureau of Statistics, PO Box 10, Belconnen ACT 2616.

# Building a national statistical agency

## From the Commonwealth Bureau of Census and Statistics to the Australian Bureau of Statistics

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*The Australian Bureau of Statistics (ABS) and its predecessor, the Commonwealth Bureau of Census and Statistics (CBCS), have been providing a statistical service to the Australian, state and territory governments and to the Australian community for 100 years.*

*The ABS is a valuable institution whose work and outputs are highly respected both nationally and internationally. The role of the ABS has been described, by Sir William Deane AC KBE (Governor-General 1996–2001), being ‘... to hold a mirror to society so they could see themselves’.*

*The type of service provided and the way in which it has been delivered has changed remarkably over 100 years.*

*In the early days the key national statistics produced by the CBCS were about population, births, deaths and marriages, shipping, foreign trade, banking, insurance, cost of living, and labour and wages. Other statistics were produced by the state statistical offices which still operated at that time. The first population census conducted by the CBCS was in 1911. By way of contrast, the range of economic, social and environmental statistics available today is extensive, providing a contemporary picture of a great many aspects of Australian life and of changes over time.*

*Most statistics were provided through Year Books and the annual statistical reports in those early days. Although printed publications still exist, including the Year Book, most users obtain our statistics through electronic data services, particularly the ABS web site.*

*To commemorate its centenary, the ABS is producing a publication describing its history. To be titled ‘Informing a nation: the evolution of the Australian Bureau of Statistics’, the publication will be available in 2005. The following article draws extensively on the chapter of the publication which will provide an overview of the organisational development of the ABS. It complements previous articles appearing in the Year Book relating to the history of the ABS, most notably:*

- *the article by Colin Forster and Cameron Hazlehurst ‘Australian Statisticians and the Development of Official Statistics’, Year Book Australia 1988; and*
- *the article by Bill McLennan (Australian Statistician 1995–2000) ‘The development of official statistics in Australia, and some possible future challenges’, Year Book Australia 2001.*

## Early days

Australia has produced statistics since the beginning of European settlement. Initially, progress in the colonies was monitored in 'the mother country' through the yearly dispatch of statistical details covering mainly the population and availability of food. Over the years the statistical content became more pervasive, as populations grew, colonies multiplied and farming emerged, followed by commerce. In 1822 the British Colonial Office set up a more formal system, known as the 'Blue Books', in which statistical requirements were prescribed. This led to the development, in the Australian colonies, of statistical officers and in time, statistical offices. By the end of the 19th century, each self-governing colony had a functioning statistical office headed by a 'Statist'. Although efficacy varied considerably between colonies, some produced statistics of a very high standard.

To a considerable extent the achievement was, for a number of reasons, a legacy of British colonial rule. First, the colonies had been required to produce official statistics on an annual basis; collection was not based on periodic censuses as in the United States. Second, the statistics had to be of a range and quality to satisfy the British authorities, who required them for efficient administration. Third, the statistics had to be brought together by a single officer, the local Colonial Secretary, who took some final responsibility for their accuracy and their presentation; there was therefore a central statistical authority and this contrasted markedly with the British position. Finally the authority was required to present all the relevant statistics of the colony in a single volume – the *Blue Book*. As an offshoot of these developments, it was natural for the colonies to begin the production of a consolidated volume of annual statistics for their own use (Forster and Hazlehurst 'Australian Statisticians and the Development of Official Statistics', *Year Book Australia 1988*).

The Australian statistical landscape, prior to and immediately following Federation in 1901, was coordinated by frequent Conferences of Statisticians. These involved the Statists of each state meeting to discuss statistical issues and agree on measures to aid the consistency of statistics across the states. As early as 1861 this cooperation led to population censuses being held simultaneously in New South Wales,

Victoria, South Australia and Tasmania. Conference of Statisticians minutes show persistent attempts to reach broad agreement on the content of census questions. By Federation, the Conference of Statisticians was chiefly concerned with ensuring uniformity of statistics from all states.

To prepare for the Federation Census scheduled for 1901, (the first census for the new nation) a Conference of Statisticians was held in March 1900 in Sydney. Timothy Augustine Coghlan, the NSW Statist, reported to Sir William Lyne (NSW premier):

They consider that uniformity is especially desirable at the present time, ... as there is every probability that the figures obtained in the coming Census will ... be the basis of many important arrangements in regard to finance and electoral representation (Conference of Statisticians minutes, March 1900).

## The Census and Statistics Act 1905

Although Conferences of Statisticians were held in 1902 and 1903 to discuss unifying statistics, progress towards unification was very slow. In framing the Constitution, the founding fathers had given the Parliament 'power to make laws for the peace, order and good government of the Commonwealth with respect to: ... (xi) census and statistics'. Rather vague on detail, the Constitution leaves the best way to exercise this power to the judgement of Parliament. The Government determined that a Commonwealth Bureau of Census and Statistics (CBCS) was required to ensure fair treatment of the states.

The *Census and Statistics Act* (Cwlth) was given assent on 8 December 1905. Under the Act, the census and some Commonwealth statistics became Commonwealth functions. Other general statistics were still to be collected by the states. A role remained for the Conference of Statisticians.

George Handley Knibbs was appointed in 1906 as Australia's first Commonwealth Statistician. Knibbs was given the responsibility to set up the CBCS and to unify the states' statistical collections.

## The infant national statistical system

Two methods of procedure were open to the Federal Government. The first was the complete unification of all statistical organisations in Australia. If this had been adopted the Commonwealth would have controlled all statistical work, and would have been represented in each State by a Branch office which would have undertaken the collection and first tabulation of statistical data under the direction of the central bureau. A second method was to preserve the internal independence of the State Bureaux, and to arrange for them to furnish the Federal Bureau with data compiled according to a system agreed upon. The Federal Government chose the second method as being, at present, and in view of all circumstances, more suitable to the actual condition of Australian Statistics, and it was thereupon resolved to hold a conference of Statisticians which should discuss the arrangements to be made in order to satisfy the requirements of the State Governments as well as those of the Federal Government (unpublished and undated paper, GH Knibbs, *The Development of the Statistical System of Australia*).

The new Bureau was established along the lines of the second option. Under this system the CBCS and state bureaux shared responsibility for the collection of statistics. The role of the state bureaux is described by Knibbs in the first year book:

State Statistical Bureaux – The State Statistical Bureaux are now endeavouring, under the authority of the Census and Statistics Act, to collect and arrange all information under a common method and according to uniform categories. The State Bureaux will, therefore, have a double function, viz., they will collect – (a) for their immediate requirements as States, and (b) as integral parts of the Commonwealth (*Year Book Australia 1901–1907*).

Following a period of extensive touring of the Australian state statistical bureaux, Knibbs presided over his first Conference of Statisticians late in 1906. He submitted and gained approval for a series of prototype statistical forms to be used by each state. The intention was to streamline the statistics obtained from each state in order to maximise their ability to be compiled to form Australian statistics. Despite this in principle agreement, the states were by no means united in the promptness with which they supplied the agreed data, and the CBCS was unable to produce complete collections until all state

input was received. Knibbs was understandably frustrated by this situation. For their part, state Statisticians complained that Knibbs ignored Conference resolutions and did things his own way.

It soon became clear that the goal of uniform national statistics was not to be easily achieved and the CBCS found it necessary to undertake original compilations, and to take over responsibility for some branches of statistics where it was obvious that the state bureaux were either unable to provide the data in reasonable time, or lacked the will as the data was not critical to state priorities. The first of these was commerce statistics where it was arranged that shipping returns should be sent directly to the CBCS.

The second of these was vital statistics. It was quickly realised that these would be very late and meagre, and possibly inconsistent from one state to the next, if relying on the state bureaux. So it was arranged for state registers of vital statistics to be made available direct to the CBCS.

Within the first decade, the CBCS was also producing banking, insurance, cost of living, and labour and wages statistics. However statistics of production, that is, agricultural, pastoral, dairying, mining, manufacturing, forestry, fishing etc. continued to be controlled by states.

## Initial attempts at unification

Notwithstanding this early recognition that the Statistics of Australia should be developed on a uniform plan, the autonomy of each State led to divergencies of domestic policy and practice. These divergencies tended also to manifest themselves in the statistical technique, as well as in the facts collated. Even where there seemed to be unity of action, or identity in the data to be collected, the unity and identity were often more apparent than real. The comparative studies made by each Statistician revealed with more and more clearness, in proportion as they were thorough, the grave lack of uniformity in the statistical data and methods of the several States, however excellent these may have been considered alone (*Year Book Australia 1901–1907*).

Conferences of state premiers in 1906 and 1918, attempting to end duplication, passed resolutions in favour of combining state and federal bureaux. However, these were

frustrated by the state Statists who were '... unwilling to surrender the autonomy that they and their predecessors had enjoyed for so long' (Forster and Hazlehurst, *Year Book Australia 1988*). The state Statists would have to be coaxed to relinquish this autonomy.

Charles Henry Wickens became the second Commonwealth Statistician in 1922. He had come from the Western Australian Government Statistician's Office, where he worked on the 1901 Census, and had previously been Commonwealth Director of Census. He had experience in working directly with the states towards a common goal.

In May 1923 a Premiers' Conference again passed a resolution in favour of creating one statistical authority for the whole of Australia. Details were to be decided later at a Conference of Statisticians, October 1923.

Opinion at the Conference was divided:

... the Governments of the States of Victoria, Queensland and Tasmania were in favour of the transfer of statistical functions to the Commonwealth, and ... the Governments of the three remaining States desired to retain such functions (Conference of Statisticians minutes, October 1923).

In the period between the Premiers' Conference and the Conference of Statisticians, Tasmanian Premier JB Hayes had initiated the process of transferring the Tasmanian Statistical Bureau to the Commonwealth. A future Commonwealth Statistician, Keith Archer, later suggested that Tasmania was going through a shortage of resources at the time, which provided the political will for the transfer, and that Lyndhurst Falkiner Giblin, the then Tasmanian Statistician, '... in his wisdom, saw this was a great opportunity to start on the integration' (Keith Archer, interviewed in 1971).

Following the 1923 Conference, Wickens and Giblin negotiated a fairly straightforward path towards transfer. The *Statistical Bureau (Tasmania) Act 1924* contained precise details regarding the statistical responsibilities of the Tasmanian office and the duties to the Tasmanian state government and the Commonwealth Government.

Meanwhile, the states in the non-unification bloc maintained their stance, despite changes of government in two states (South Australia and Western Australia). By June 1924 they had all formally declined. Queensland, though originally agreeable, also declined.

Victoria came closest to transferring. The process was halted by the Commonwealth Government in September 1925 due to funding constraints. The Depression, and then the ill-health of Wickens, meant that he did not have the chance to finish the task of unifying Australian statistical offices.

## The Tasmanian connection

Following the departure of Wickens, Giblin was appointed acting Commonwealth Statistician and Chief Economic Adviser in 1931. His appointment was on the understanding '... that I should be sufficiently relieved from administrative routine to be able to give the greater part of my time to special investigations required by the Minister' (LF Giblin quoted in Forster and Hazlehurst, *Year Book Australia 1988*). During his tenure he appointed Roland Wilson as economist with the idea of quietly grooming him to be Commonwealth Statistician in the near future. He also encouraged several other young men working in the Bureau to undertake a university course. Among them were KM Archer and JP O'Neill who both went on to be Commonwealth Statisticians.

Edward Tannock McPhee, also originally from Tasmania, was appointed Commonwealth Statistician in 1932, seemingly with the aim of remaining only as long as his health permitted and hopefully long enough to get Wilson 'bedded down' (Keith Archer, interviewed in 1971). Wilson was appointed Commonwealth Statistician following McPhee's retirement in 1936.

In setting up this succession, whether deliberately or just through his ability to choose the right people, Giblin was to have enormous influence on the Bureau's direction long after he left. His emphasis on economics and economic statistics put the Bureau in an influential position as the Australian economy diversified and gathered pace, and demand for economic statistics grew.

## Expanding role of the Bureau

As Commonwealth Statisticians, Giblin, McPhee and Wilson each focused on economic and statistical issues and chose not to take on the task of unification of the remaining state statistical offices.

I would have been quite certain, had we attempted to amalgamate them or take any drastic steps like that, that we would have failed utterly and ruined the pitch for the rest of time (Roland Wilson, interviewed in 1984).

During Wilson's first six months at the Bureau he constructed the Australian Balance of Payments. Two years later, he was appointed Commonwealth Statistician and Economic Adviser to the Treasury on 29 April 1936. As Commonwealth Statistician, he embarked on an energetic development program, later interrupted by World War II, and introduced research officers to inject statistical and economic expertise into Bureau operations.

Early in 1941 Wilson was co-opted into other war-related duties, and Stanley Carver, the NSW Statistician, became acting Commonwealth Statistician. Though Wilson was to return for short periods several times after the War, this effectively marked the beginning of the end of the Wilson period.

The immediate post-War period was characterised by Keynesian-style management of the economy. The pre-War work of Giblin and his protégés in developing economic statistics, such as putting values on theoretical concepts like national income and investment, placed the Bureau in a sound position to respond to post-War demands for economic statistics. As post-War reconstruction took off, governments were interested in measuring the success of their policies.

## Amalgamation finally achieved

Under the stewardship of Carver, amalgamation of the Commonwealth and state statistical offices was finally achieved. The process of bringing the remaining state bureaus into the CBCS was initiated by Prime Minister Chifley in 1949, in discussions with the premiers, and continued under Prime Minister Menzies.

Various arrangements for war-time management of the economy had resulted in increasing responsibility for the Commonwealth Government and a decreasing role for state governments. This was compounded by the move to the Commonwealth Government, of responsibility for income tax collection. In an environment of greatly reduced budgets and no involvement in economic management, state governments' requirements for statistics diminished, and so, consequently, did the capacity of state statistical bureaus to produce them.

In the post-War period, as Commonwealth demands for statistics grew, the duplicative and cumbersome system started to crack at the seams. Conference of Statisticians minutes of 1945, 1949, 1950 and 1953 all commented on increasing demands for statistics, and lack of resources. The 1950 Conference also noted 'with approval', moves initiated to prevent various Commonwealth agencies from collecting their own statistics without reference (or deference) to the CBCS. Both issues highlighted the need to have clear authority over statistics residing in one body.

Though the need to amalgamate the various statistical agencies across Australia's states was widely recognised, it was Carver's relationship with the other state Statisticians, and their trust in him, that finally allowed this amalgamation to take place.

The *Statistics (Arrangements with States) Act* (Cwlth) was given assent in May 1956. During the second reading speech, Sir Arthur Fadden (Treasurer) referred to discussions already taking place with Western Australia, South Australia and New South Wales. Subsequently, agreements authorised under the Act were made with all the states.

The legislation allowed for the provision of statistical services by the CBCS to state governments, in the same way that such needs had been provided by state bureaus in the past. However in practice the assimilation of the state offices into the CBCS led to major changes to state level statistics.

## Relationship with the Treasury

With the move of Wilson to the Treasury, the relationship between the Bureau, Treasury and the Government began to change. Wilson took his economic acumen and a number of economists with him and proceeded to build up the economic policy skills within Treasury. The role of the Bureau changed from economic adviser to Treasury to providing statistics to Treasury's economic advisers.

While he remained in Treasury, Wilson supported the Bureau's economic expertise. However the relationship had permanently altered and, under successive Treasury heads, Treasury's economic capacity grew and the Bureau's role solidified as provider of statistics.

## Foundations for the future

In 1959 the growing need for professional statisticians led to the introduction of a Statistical Cadetship Scheme. This initiative involved the selection of around 12 outstanding students who were brought to Canberra to undertake Honours Degrees, with majors in statistics, mathematics and economics. This scheme and its later companion, the Graduate Cadetship Scheme, were to produce many leaders, both in the Bureau and more broadly in the Australian Public Service.

Following their successful use for official statistics in the United States, the 1950s saw the emergence of probability based sample surveys, an important innovation for the Bureau's official statistical work. This allowed statistically valid surveys to be undertaken by the Bureau, at a lower cost than complete enumerations.

Released from the onerous necessity of conducting a census for every collection (apart from those based on administrative data), the Bureau could produce more statistics than it had before, so satisfying the increasing demands of Treasury and the Government. The development of surveys also facilitated the growth of social statistics from the late-1960s and through the 1970s, based on the Bureau's household survey program.

While this freed resources and allowed the Bureau to establish many new collections it did not necessarily mean an improvement in the service provided to State governments.

A consequence of increased surveys was that while there was an increase in the range of available statistics, small area data became more difficult to obtain.

Under Keith Archer (Commonwealth Statistician 1961–1970) and following much research, the Bureau's first computer was installed in 1961. To properly exploit the possibilities this created, a large number of programmers were recruited from the United Kingdom. They were to form the basis of the Bureau's fledgling computing team and many remained with the Bureau pursuing their careers.

The Bureau was among the first Commonwealth agencies to acquire a computer, and the capacity of this computer was initially greater than the Bureau's need. As part of the deal, and to help justify the cost of the computer, the Bureau took on the processing of administrative records in many areas, such as health and trade. The side effect of this policy was that the Bureau was able to make use of the administrative by-product statistics thus produced. This responsibility was to remain with the Bureau for the next two decades.

## The 1960s

The 1960s was an era of great change. Although legally accomplished by the end of the previous decade, the task of assimilating the various state offices and the CBCS into one organisation took many years. In practice it was probably not completed until the late-1970s when Roy Cameron (Australian Statistician 1977–1985) made special efforts to bring closure to this issue.

The decade saw a major push within the Bureau to integrate its economic data collections, both censuses and sample surveys. It had been increasingly apparent that there was a need to provide for users a range of statistics that were comparable, so that '... you could relate employment to production and wages, and ... you could ... relate overseas investment to these other categories of macroeconomic statistics, which is partly a matter of standardising the units in which they were collected and standardising the concepts' (Frank Horner, interviewed in 2000). The twin aims of the economic integration were to provide comprehensive, related, quality

industry statistics and to provide data for use in compiling the national accounts. The model for the project was the United Nations System of National Accounts. Achievement of that goal took a lot of the energy of the Bureau for a number of years. As with many enormous and innovative undertakings, the initial results were disappointing. The first integrated economic census was run in 1969, but took far longer than envisaged to process. However in time the value of integration of economic data collections came to be fully recognised.

The introduction of household surveys was another major initiative, with the initial aim of providing comprehensive estimates of the Australian work force at quarterly intervals between population censuses. The survey estimates also supplemented the existing statistical series of employment (derived from employer surveys) and unemployment (derived from administrative data about recipients of unemployment benefits). Subsequently this became the basis for producing a much fuller range of social statistics.

## A new beginning

In 1973, the Whitlam Labor Government established the Committee on Integration of Data Systems (known as the Crisp Committee after its chairman, LF Crisp). The Government had been concerned about recent discrepancies in statistics from various Commonwealth departments and the lack of statistical data on key areas of the economy, and believed that this could interfere with its reform agenda. As a result, the Committee undertook a wide ranging examination of Australia's statistical system.

Within the Treasury portfolio, the Bureau was reliant on Treasury for funding, even though the power to collect statistics was conferred on the Bureau by the *Census and Statistics Act 1905* (Cwlth). The Commonwealth Statistician consequently had freedom to initiate new statistical collections, but he operated within the practical constraint that funding would be more assured if these collections were supported by Treasury.

The Crisp Committee reported in March 1974. It recommended the establishment of the Australian Bureau of Statistics as the central statistical authority with full statutory powers, administratively independent of any

department and thereby perceived to be policy neutral. The Australian Statistician was to be a statutory appointee vested with the powers of a 'Permanent Head' under the Public Service Act (*Crisp Report 1974*). This led to the development of the *Australian Bureau of Statistics Act 1975* (Cwlth) under the guidance of Jack O'Neill, the Commonwealth Statistician of the time.

Under the *Australian Bureau of Statistics Act 1975* (Cwlth), the Australian Bureau of Statistics (ABS) was established with the role of central statistical authority for the Commonwealth Government and, by arrangements, for the governments of the states. It provides statistical services for those governments on a number of levels:

- by collecting, compiling, analysing and disseminating statistics and related information
- by ensuring coordination of the operations of other official bodies in the collection, compilation and dissemination of statistics and related information – with particular attention to avoiding duplication, attaining compatible and integrated statistics, and compliance with standards
- by providing advice and assistance to official bodies in relation to statistics
- providing for liaison between Australia and other countries and international organisations, in relation to statistical matters.

Jack O'Neill was appointed the first Australian Statistician in 1975 having been the Commonwealth Statistician since 1970.

The *Australian Bureau of Statistics Act 1975* (Cwlth) also established the Australian Statistics Advisory Council. Its role is to advise the Minister and the Australian Statistician on the improvement, extension and coordination of statistical services provided for public purposes in Australia, and annual and longer term priorities and programs of work that should be adopted in relation to major aspects of the provision of those statistical services. The council consists of a part-time Chairman, the Australian Statistician (ex-officio), and between 10 and 22 part-time members, including one nominee of each state Premier and the Chief Ministers of the two territories. Generally, agenda papers for council meetings are prepared by Bureau employees.

As Bill McLennan (Australian Statistician 1995–2000) said in 'The development of official statistics in Australia, and some possible future challenges', *Year Book Australia 2001*,

For the first time Australia's statistical agency was organisationally independent of any department of State. Further, the Statistician was given the powers of a Departmental Permanent Head in respect of the Public Service Act. Perhaps, at this stage, it could be considered that the integrated statistical service had just reached adulthood.

In the 1970s across the public sector, emphasis started to be placed on improving responsiveness to clients and on cost-cutting. The Bureau embraced this two pronged, and potentially contradictory, approach to service provision. User consultation was introduced. At the same time the cost cutting mentality made surveys a more palatable way of providing current and new statistics. There is always a balance between new areas and the critical mass of ongoing hard core data.

In the late-1970s Bureau senior management implemented a rolling long-term management system. Designed to force the incorporation of long-range strategic planning and thinking into Bureau decision making, it enabled the Bureau to foresee changes to its external environment. This has resulted in a greater ability to quickly respond to changing community statistical needs and changing government budgetary policy. The Bureau operates on a continually re-worked three-year forward work plan.

Meanwhile, the establishment of the ABS, and implementation of the legislation, further entrenched the shift away from a decentralised, state-based statistical system. Though this trend could be said to have started with the creation of the Bureau in 1905, and certainly solidified with the merging of the state statistical bureaux into the CBCS, the *Australian Bureau of Statistics Act 1975* (Cwlth) was a major move towards centralisation of statistics in Australia. As such, it reflected the belief of key players in the Australian community, in the efficacy of a centralised system of statistics. At a more practical level, the legislation, by giving the Australian Statistician permanent head status, further raised the status of that position relative to the heads of state offices, and thus giving the Australian Statistician greater authority over the statistical system.

In 1979 the Australian Law Reform Commission released a report *Privacy and the Census*. This highlighted the need for a review of the terms of confidentiality in the statistics legislation.

Substantial amendments to the Census and Statistics Act 1905 (Cwlth) were passed in 1981, in two separate amendment acts. The first of these incorporated the recommendations of the Australian Law Reform Commission. The second amendment provided the opportunity to thoroughly re-work the act, incorporating the original act and subsequent amendments into a more coherent framework, using more modern language and terminology. The amendments legislated those powers, given to the Statistician in the *Australian Bureau of Statistics Act 1975* (Cwlth), to determine the timing and method of statistics collection. They also obliged the Statistician to compile, analyse, publish and disseminate collected information, and made possible the release of data in unit record files.

The main purpose of the second amendment was to make possible, within the privacy constraints of the first amendment, the release of a wider range of information, including the release of unidentifiable microdata. There are many instances where release of data is appropriate either because no private individual details are thus exposed, or because the data in question is already within the public domain. However the legislation as it stood did not allow such releases. It was recognised that releases of data should be treated as exceptions to the privacy protections contained in the Act, and governed by very tight and specific safeguards, which might vary from one release to another. This level of detail was not considered appropriate within the legislation. The potential to release data was achieved by making provision within the Act for the Minister, in a written determination, to authorise the Statistician to make specific information releases. Determinations of this nature must be tabled in Parliament, and it remains the final decision of the Statistician, whether to release the particular information.

In the early to mid-1980s, under Roy Cameron, the Bureau subjected itself to rigorous external examination, in the form of the Joint Management Review (JMR), which was convened to examine the effectiveness of the top management structure of central office and the state offices, in terms of guiding the Bureau

soundly through current and future challenges, properly utilising state and central office resources and adequately addressing client needs. Conducted by Touche Ross and the Public Service Board, the JMR found a number of key areas in which improvement was needed. These recommendations shaped subsequent management planning, and contributed to the process of integration and of modernising the Bureau and making it more outward looking.

In 1981 the Lynch Committee Review of Commonwealth Functions (known as 'the razor gang') released its report. The report recommended wide-sweeping cuts be made to the entire public sector, and in an operational sense this translated into significant budget reductions. In 1982 the Statistician made the decision that the Bureau would no longer be a processing agent and handed the coding, data capture and editing of administrative records back to the administering authority, some of which were state government authorities. Bureau resources were thus freed to be utilised elsewhere, for example in the burgeoning household surveys. The administrative authorities, however, faced with finding an alternative means of processing their records, were less appreciative, and the repercussions were long-reaching.

In 1985, prompted by the findings of the JMR, the Statistician implemented a version of matrix management. Under this policy, division heads within the Bureau were responsible to the Statistician for the work of their division, both within central office and throughout the state offices of the Bureau. State office heads meanwhile, were seen as responsible for ensuring that the state components of each division's work were carried out effectively, that the particular needs of their state were represented in Bureau decisions, that links with state clients were adequately supported and, as the major communicators with respondents, that data quality was maintained. The document outlining this strategy paved the way for a strong corporate focus that complemented and enhanced the effectiveness of the forward work plan.

Throughout much of its history the Bureau was run with each area producing its own statistics with little reference to the work of other areas. This is understandable in the light of the level of complexity involved in producing each area of statistics, and particularly developing new statistics and new methodologies. However, as the Bureau grew and became involved in a

much wider range of statistics, it became necessary to forge a deeper relationship between these areas, both to avoid duplication of effort and to ensure a unity of purpose across the organisation. Emphasis has therefore been placed on building a corporate mentality at all levels within the Bureau.

With the new corporate identity came a questioning and reassessment of the purpose of the Bureau, and an acknowledgment that it was more than a factory for publications. Out of this process emerged the mission statement, the concept of corporate objectives and a commitment to statistical coordination and analysis. These were conveyed in the first ABS Corporate Plan which was developed under the guidance of Bill McLennan while he was Deputy Australian Statistician. Throughout this period the Bureau increasingly focused on efficiency, producing more while resources remained static.

The Bureau's first marketing plan was released in 1989. It followed a Government decision that part of the Bureau's budget should be funded through cost recovery. In producing this plan the Bureau demonstrated that it had come a long way from its statistical factory past. The plan outlined a major re-think in the way the Bureau regarded its products and its clients. The second marketing plan, which came out in 1992, maintained the emphasis on product and the importance of saleability, and out of this emerged the concept of clients. The third plan, in 1996, placed great emphasis on clients. Thus marketing was an important plank in the reinvention of the Bureau as an outwardly focused, forward looking agency.

Important in this process was the growth in the Bureau's analytical capacity. The influence of Ian Castles (Australian Statistician 1986–1994) was paramount. He strongly believed the ABS could add considerable value to its statistics by judicious use of analysis and analytical methods. At the same time, the Bureau started to devote more publication space to the interpretation of its statistics. The need for greater effort in this area had been highlighted by the mission statement in 1987, but the authority came from the *Australian Bureau of Statistics Act 1975* (Cwlth). In 1995 a special Analysis Unit was established, recognising the potential of statistical methods and models for producing official statistics, improving methods or better understanding statistical relationships.

Throughout the 1980s and into the 1990s, Conferences of Statisticians continued to be held, despite the major governance changes that had occurred to Australian statistics throughout the previous 40 years. At the 1996 Conference, the Australian Statistician concluded that the Conference in its present form was not effective and that there must be better ways for the ABS to assess state and territory statistical needs and priorities. This was driven in large part by the reducing seniority of the representatives of the states. It was subsequently decided that more thorough utilisation of the Australian Statistics Advisory Council and greater involvement of Deputy Australian Statisticians in identifying state government requirements, would render the Conference of Statisticians unnecessary.

In 1992 the Bureau introduced a new approach in terms of data processing and utilising state office resources. Under this new system, National Project Centres, with responsibility for all data collection, processing, output (of standard products) and associated support and development activities for specific areas of statistics, were set up in state offices. This enabled the realisation of the advantages of concentrating data collection and processing operations, such as economies of scale and improved data quality, and the avoidance of data quality and inconsistency problems that can arise through decentralised data collection.

Throughout the 1990s there was an increasing emphasis on the use of administrative by-product data. This was influenced by Bill McLennan's sojourn as Director of the United Kingdom National Statistical Office. He noted the much more extensive use of administrative data in the United Kingdom statistical system. The relationship with the Australian Taxation Office, in particular, grew

strong and a number of cooperative agreements enhanced the useability of taxation data to derive statistics.

In the new millennium, a number of important initiatives have been implemented with a view to the future. In 2002 the National Statistical Service was set up with the specific aim of better coordinating and utilising those statistical resources residing with other agencies. In 2003, the various fora by which communication was maintained between the state and central offices of the Bureau, were formalised into the State Statistical Forum, on the suggestion of the previous meeting of the Australian Statistics Advisory Council. This new approach involves state and territory advisory council representatives and Bureau Regional Directors meeting to discuss specific statistical matters relating to states and territories.

In 2002 the Bureau embarked on the Business Statistics Innovation Program. This is a three-year program which involves through the use of innovative technologies and methodologies, a major re-engineering to the way the Bureau conducts its business statistics processes. The program aims to result in improved provider relations and data quality, increased capacity to respond to emerging statistical needs, provision of a better National Statistical Service, enhanced opportunities for staff and significant budget savings. Similar initiatives have now commenced in the household survey program.

The last quarter century has been a period of great change. The result is a modern statistical bureau, with solid legislative underpinning, capable of meeting the challenges and needs of the information age.

# 1

## GEOGRAPHY AND CLIMATE

Australia is the lowest, flattest and, apart from Antarctica, the driest of the continents.

The first part of this chapter describes Australia's landforms and their history in terms of how they were formed. The island continent features a wide range of climatic zones, from the tropical regions of the north, through the arid expanses of the interior, to the temperate regions of the south. Australia experiences many of nature's more extreme phenomena including droughts, floods, tropical cyclones, severe storms, bushfires, and the occasional tornado. These phenomena are discussed in the second part of this chapter.

Temperatures in Australia were relatively stable from 1910 until 1950. Since then both minimum and maximum temperatures have followed an increasing trend, with an overall increase during 1910 to 2003 of approximately 0.7 degrees Celsius. This 'warming' trend is discussed in the section *Climate change*.



# Geography of Australia

## Position and area

Australia comprises a land area of almost 7.7 million square kilometres (sq km) (table 1.1). The bulk of the Australian land mass lies between latitudes 10 degrees 41 minutes (10° 41') south (Cape York, Queensland) and 43° 38' south (South East Cape, Tasmania) and between longitudes 113° 09' east (Steep Point, Western Australia) and 153° 38' east (Cape Byron, New South Wales). The most southerly point on the mainland is South Point (Wilson's Promontory, Victoria) 39° 08' south. The latitudinal distance between Cape York and South Point is about 3,180 kilometres (km), while the latitudinal distance between Cape York and South East Cape is 3,680 km. The longitudinal distance between Steep Point and Cape Byron is about 4,000 km. In a jurisdictional and economic sense, however, Australia extends far beyond this land mass.

The state of Tasmania includes numerous small islands and extends to Macquarie Island which lies approximately 1,470 km south east of the main

island. The territories of Australia include the Australian Antarctic Territory, Christmas Island, the Cocos Islands, Heard Island, the McDonald Islands, Norfolk Island, the Coral Sea Islands, Ashmore Island, and Cartier Island. In total there are some 12,000 islands. While most of these islands are small, the United Nations Convention on the Law of the Sea allows Australia jurisdiction over large tracts of the ocean and seafloor that surround them (see *Fisheries resources, Chapter 15 Forestry and fishing*).

Australia has an Exclusive Economic Zone that is 200 nautical miles wide (370.4 km). This is measured from the lowest astronomical tide – the lowest level that sea level can be predicted to fall to, under normal meteorological conditions. The Exclusive Economic Zone gives Australia jurisdiction over a marine area of some 10 million sq km.

The land area of Australia is almost as great as that of the United States of America (excluding Alaska), about 50% greater than Europe (excluding the former USSR) and 32 times greater than the United Kingdom. Tables 1.2 and 1.3 show the area of Australia in relation to areas of other continents and selected countries.

### 1.1 AREA, COASTLINE, TROPICAL AND TEMPERATE ZONES

	Estimated area		Length of coastline(a) km	Proportion of total area	
	Total sq km	Total area %		Tropical zone %	Temperate zone %
New South Wales	800 642	10.4	2 137	..	100
Victoria	227 416	3.0	2 512	..	100
Queensland	1 730 648	22.5	13 347	54	46
South Australia	983 482	12.7	5 067	..	100
Western Australia	2 529 875	33.0	20 781	37	63
Tasmania	68 401	0.9	4 882	..	100
Northern Territory	1 349 129	17.5	10 953	81	19
Australian Capital Territory	2 358	(b)	..	..	100
Jervis Bay Territory	73	(b)	57	..	100
<b>Australia</b>	<b>7 692 024</b>	<b>100.0</b>	<b>59 736</b>	<b>39</b>	<b>61</b>

(a) Includes islands. (b) Less than 0.1%.

Source: Bureau of Meteorology; Geoscience Australia 2003, *Geoscience Australia, Canberra, viewed 19 August 2003*, <<http://www.ga.gov.au>>.

## 1.2 AREA OF CONTINENTS

	'000 sq km
Continent	
Asia	44 900
Africa	30 300
North America	24 700
South America	17 800
Antarctica	14 000
Europe	9 900
Australia and Oceania	8 500
<b>Total landmass</b>	<b>150 100</b>

Source: *Encyclopaedia Britannica*.

## 1.3 AREA OF SELECTED COUNTRIES

	'000 sq km
COUNTRIES (SEVEN LARGEST)	
Russia	17 075
Canada	9 971
United States of America	9 809
China	9 556
Brazil	8 512
Australia	7 692
India	3 204
SELECTED OTHER COUNTRIES	
East Timor	14
France	547
Germany	357
Indonesia	1 904
Japan	377
Malaysia	330
New Zealand	268
Papua New Guinea	462
Philippines	299
United Kingdom	242

Source: *Encyclopaedia Britannica*.

## Landforms and their history

Australia is the lowest, flattest and, apart from Antarctica, the driest of the continents. Unlike Europe and North America, where some landscapes date back to around 20,000 years ago, when great ice sheets retreated, the age of landforms in Australia is generally measured in many millions of years. This gives Australia a very distinctive physical geography. Map 1.4 shows the elevation of the Australian continent.

The continent can be divided into three parts:

- the Western Plateau
- the Central Lowlands
- the Eastern Highlands.

The Western Plateau consists of very old rocks (some over 3,000 million years old), and much of it has existed as a landmass for over 500 million years. Several parts have individual plateau names

(e.g. Kimberley, Hamersley, Arnhem Land, Yilgarn). In the Perth area, younger rocks along a coastal strip are separated from the rest by the Darling Fault escarpment. The Nullarbor Plain is virtually an uplifted sea floor, a limestone plain of Miocene age (about 25 million years).

The Central Lowlands stretch from the Gulf of Carpentaria through the Great Artesian Basin to the Murray–Darling Plains. The Great Artesian Basin is filled with sedimentary rocks which hold water that enters in the wetter Eastern Highlands.

Much of the centre of Australia is flat, but there are numerous ranges (e.g. Macdonnells, Musgrave) and some individual mountains of which Uluru (Ayers Rock) is probably the best known. Faulting and folding in this area took place long ago. The area was worn to a plain, and the plain was uplifted and then eroded to form the modern ranges on today's plain. In looking at Uluru, one remarkable thing is not so much how it got there, but that so much has been eroded from all around to leave it there.

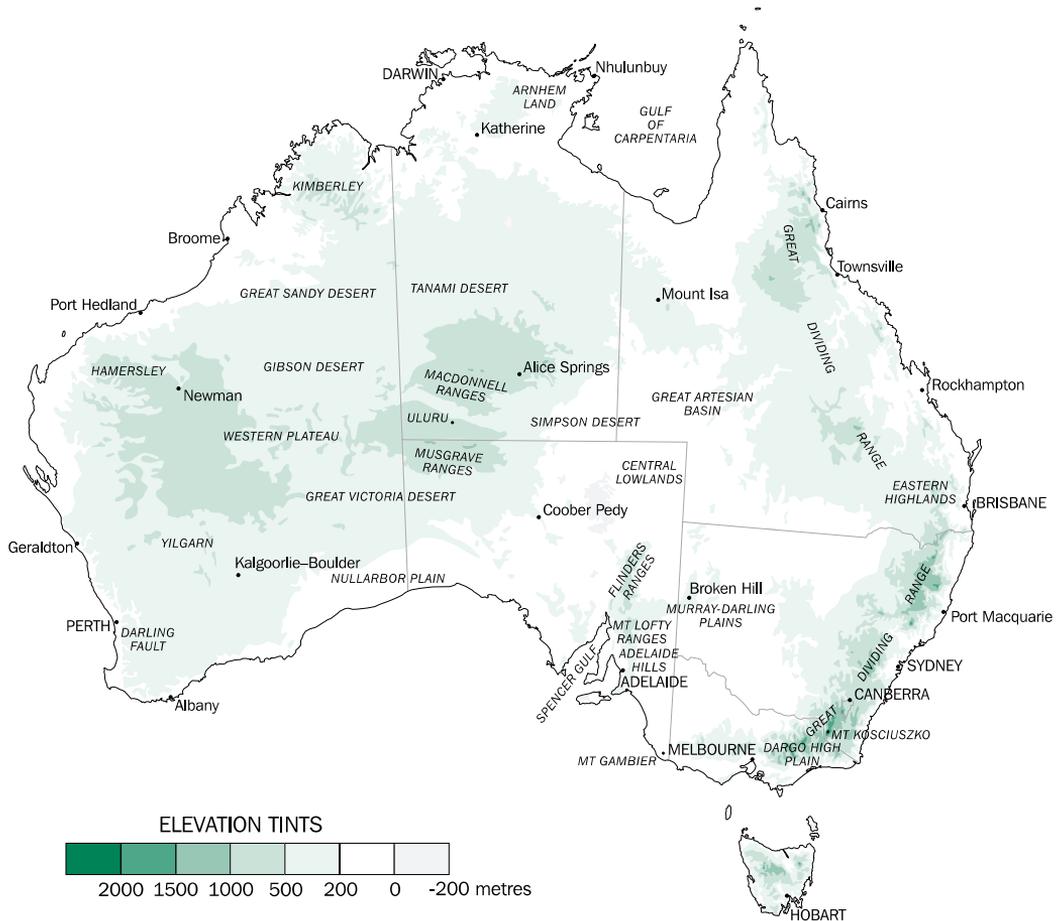
In the South Australian part of the Central Lowlands, fault movements are more recent, and the area can be considered as a number of blocks that have been moved up and down to form a series of ranges (Mt Lofty, Flinders Ranges) and hills (such as the Adelaide Hills), with the down-faulted blocks occupied by sea (e.g. Spencer Gulf) or lowlands including the lower Murray Plains.

The Eastern Highlands rise gently from central Australia towards a series of high plateaus, and even the highest part around Mt Kosciuszko (2,228 metres) is part of a plateau.

There are a few younger faults and folds, such as the Lake George Fault near Canberra, and the Lapstone Monocline near Sydney.

Some plateaus in the Eastern Highlands are dissected by erosion into rugged hills, and the eastern edges of plateaus tend to form high escarpments. Many of these are united to form the Great Escarpment that runs from northern Queensland to the Victorian border. Australia's highest waterfalls (Wollombi on the Macleay, Wallaman Falls on a tributary of the Herbert, Barron Falls near Cairns, and Wentworth Falls in the Blue Mountains) all occur where rivers flow over the Great Escarpment. For most of its length the Great Dividing Range (separating rivers flowing to central Australia from rivers flowing to the Pacific) runs across remarkably flat country. In eastern Victoria, however, the old plateau has been eroded into separate high plains (such as Dargo High Plain).

## 1.4 ELEVATION



Source: Australian Surveying and Land Information Group, 1996.

The present topography results from a long landscape history which can be started in the Permian, about 290 million years ago, when much of Australia was glaciated by a huge ice cap. After the ice melted, parts of the continent subsided and were covered with sediment to form sedimentary basins such as the Great Artesian Basin. By early Cretaceous times, about 140 million years ago, Australia was already so flat and low that a major rise in sea level divided it into three landmasses as the shallow Cretaceous sea spread over the land.

In the following Tertiary times, Australia can be regarded as a landscape of broad swells varied by a number of sedimentary basins (Murray, Gippsland,

Eucla, Carpentaria, Lake Eyre and other basins). These slowly filled up and some are now sources of coal or oil. The Eastern Highlands were uplifted at about this time.

Throughout the Tertiary, volcanoes erupted in eastern Australia. Some individual volcanoes were the size of modern Vesuvius, and huge lava plains covered large areas. Volcanic activity continued up to a few thousand years ago in Victoria and Queensland. Australia's youngest volcano is Mt Gambier in South Australia, about 6,000 years old.

Between 55 and 10 million years ago, Australia drifted across the surface of the Earth as a plate, moving north from a position once adjacent to Antarctica. There have been many changes in the climate of Australia in the past, but oddly these do not seem to be due to changing latitude (associated with global-scale plate movements). Even when Australia was close to the South Pole, the climate was relatively warm and wet, and this persisted for a long time despite changes in latitude. It was probably under this climate that the deep weathered, iron-rich profiles that characterise much of Australia were formed. Aridity only seems to have set in after Australia reached its present latitude, and the northern part was probably never arid.

Today a large part of Australia is arid or semi-arid. Sand dunes are mostly longitudinal and are aligned with dominant wind directions associated with the regular passage of high pressure cells (anticyclones). These 'highs' rotate anticlockwise and track at about 28° south in winter and 38° south in summer, resulting in predominantly south-east to easterly flows in the north and north-west to westerly flows in the south. Looking down from above, the south-east Trade Winds or 'Trades' would be those winds in the top right hand quarter of a hypothetical, stationary 'high' centred on the Australian continent.

The dunes are mostly fixed now. Stony deserts or gibber plains (covered with small stones or 'gibbers') are areas without a sand cover and occupy a larger area than the dune fields. Salt lakes occur in many low positions, in places following lines of ancient drainage. They are often associated with lunettes, dunes formed on the downwind side of lakes. Many important finds of Aboriginal prehistory have been made in lunettes. Despite the prevalence of arid conditions today, real aridity seems to be geologically young, with no dunes or salt lakes older than a million years.

The past few million years were notable for the Quaternary ice age. There were many glacial and interglacial periods (over 20) during this time, the last glacial period occurring about 20,000 years ago. In Tasmania there is evidence of three different glaciations: the last glaciation, one sometime in the Quaternary, and one in the Tertiary. On the mainland there is evidence of only the last glaciation, and the ice then covered only 25 sq km, in the vicinity of Mt Kosciuszko.

The broad shape of Australia has been influenced over long periods by Earth movements associated with large tectonic processes. However, much of the detail has been carved by river erosion. A significant number of Australia's rivers, like the Diamantina River, drain inland. While they may be eroding their valleys near their highland sources, their lower courses are filling up with alluvium, and the rivers often end in salt lakes which are dry for most of the time. Other rivers reach the sea, and have dissected a broad near-coast region into plateaus, hills and valleys. Many of the features of the drainage pattern of Australia have a very long history, and some individual valleys have maintained their position for hundreds of millions of years. The salt lakes of the Yilgarn Plateau in Western Australia are the remnants of a drainage pattern that was active before continental drift separated Australia from Antarctica.

During the last ice age, sea level was more than 100 metres lower than it is today; the current outer reef area of the Great Barrier Reef would have been the coast at that time. The rivers tended to cut down to the lower level, especially towards the sea. When the sea level rose again, some of the lower valleys were drowned, making fine harbours – like Sydney Harbour – while others tended to fill with alluvium as the sea rose, making the typical lowland valleys around the Australian coast.

Coastal geomorphology is also largely the result of the accumulation of sediment in drowned coasts. In some areas, such as Ninety Mile Beach (Victoria) or the Coorong (South Australia), there are beaches made simply from this accumulation. In much of the east there is a characteristic alternation of rocky headland and long beach, backed by plains filled with river and marine sediments.

The offshore shape of Australia, revealed in isobath contours, results mainly from the pattern of break-up of the super-continent of which Australia was once a part. In some areas, such as the Great Australian Bight, there is a broad continental shelf bounded by a steeper continental slope. In other areas, like south-east New South Wales around Merimbula and much of the Tasmanian coastline, the continental shelf is very narrow, sometimes coming to within 20 nautical miles of the coast. The Queensland coast is bounded by a broad plateau on which the Great Barrier Reef has grown in only the last two million years. In South Australia, the continental shelf is grooved by submarine canyons.

The Australian landforms of today are thus seen to result from long continued processes in a unique setting, giving rise to typical Australian landscapes, which in turn provide the physical basis for the distribution and nature of biological and human activity in Australia.

## Rivers and lakes

As can be inferred from the elevation and relief map (map 1.4), the rivers of Australia may be divided into two major classes: those of the coastal margins with moderate rates of fall, and those of the central plains with very slight fall. Of the rivers of the east coast, the longest in Queensland are the Burdekin and the Fitzroy, while the Hunter is the longest coastal river of New South Wales. The longest river system in Australia is the Murray–Darling, which drains part of Queensland, the major part of New South Wales and a large part of Victoria, finally flowing into the arm of the sea known as Lake Alexandrina, on the eastern side of the South Australian coast. The length of the Murray is about 2,520 km, and the Darling and Upper Darling together are also just over 2,000 km long. The rivers of the north-west coast of Australia, for example, the Murchison, Gascoyne, Ashburton, Fortescue, De Grey, Fitzroy, Drysdale and Ord, are of considerable length. So also are those rivers in the Northern Territory, for example, the Victoria and Daly, and those on the Queensland side of the Gulf of Carpentaria, such as the Gregory, Leichhardt, Cloncurry, Gilbert and Mitchell. The rivers of Tasmania have short and rapid courses, as might be expected from the configuration of the land.

There are many lake types in Australia, the largest being drainage sumps from the internal rivers. In dry seasons these lakes finally become beds of salt and dry mud. The largest are Lake Eyre 9,500 sq km, Lake Torrens 5,900 sq km and Lake Gairdner 4,300 sq km.

Other lake types are glacial, most common in Tasmania; volcanic crater lakes, predominantly in Victoria and Queensland; fault angle lakes, of which Lake George near Canberra is a good example; and coastal lakes formed by marine damming of valleys.

## Australia's climate

*This section was contributed by the Australian Government Bureau of Meteorology (September 2004).*

The island continent of Australia features a wide range of climatic zones, from the tropical regions of the north, through the arid expanses of the interior, to the temperate regions of the south. Australia is the world's second-driest continent (after Antarctica), with mean annual rainfall below 600 millimetres (mm) per year over 80% of the continent, and below 300 mm over 50%. Summers are hot through most of the country, with average January maximum temperatures exceeding 30 degrees Celsius (°C) over most of the mainland except for the southern coastal fringe between Perth and Brisbane, and areas at high elevations. Winters are warm in the north and cooler in the south, with overnight frosts common in inland areas south of the Tropic of Capricorn; only at higher elevations do wintertime temperatures approach those found in much of northern Europe or North America.

Seasonal fluctuations in both rainfall and temperature can be large in parts of the country. In northern Australia, temperatures are warm throughout the year, with a 'wet' season from approximately November through April, when almost all the rainfall occurs, and a 'dry' season from May through October. Further south, temperature becomes more important in defining seasonal differences and rainfall is more evenly distributed through the year, reaching a marked winter peak in the south-west and along parts of the southern fringe.

Australia experiences many of nature's more extreme phenomena, including droughts, floods, tropical cyclones, severe storms, bushfires, and the occasional tornado.

## Climatic controls

The dominant influence on Australia's climate is its latitude, with the mainland lying between 10° south and 39° south and Tasmania extending south to 44° south. This places much of Australia under the influence of the sub-tropical high pressure belt (or ridge), which is a major influence on climate near, and poleward of, the tropics in both hemispheres. The aridity of much of Australia is largely a consequence of the subsiding air associated with the high pressure ridge.

The sub-tropical ridge takes the form of areas of high pressure (anticyclones) which pass from west to east across the continent. Individual anticyclones, which can be up to 4,000 km across, can remain near-stationary for several days before moving on. The latitude of the sub-tropical ridge varies seasonally. During winter, the ridge is normally centred between latitudes 30° and 35° south, whereas in summer it moves south to between latitudes 35° and 40° south (although individual systems can form significantly further north or south than these characteristic latitudes).

As winds circulate counter-clockwise around anticyclones in the Southern Hemisphere, the flow on the southern side of the sub-tropical ridge tends to be westerly. This zone of westerly flow is strongest south of Australia (the so-called 'Roaring Forties'), but the northern part of the zone can affect southern Australia, particularly in winter and spring. Extensive depressions (lows) over the Southern Ocean have associated frontal systems embedded in the westerlies, which bring periods of rain and showers to southern parts of the country. Tasmania is under the influence of westerly flow for much of the year.

North of the sub-tropical ridge the flow is generally easterly. In winter easterly to south-easterly flow is especially persistent over the northern half of the continent, bringing dry conditions everywhere, except along the east coast. In summer, the intertropical convergence zone moves southwards over northern Australia (the exact timing and location vary from year to year), allowing warm, moist monsoonal air from the north-west to penetrate into the northern reaches of the continent. Moist easterly flow from the Pacific Ocean and Tasman Sea brings summer rain to most of the east coast.

Australia's generally low relief (map 1.4) means that topography causes less obstruction to atmospheric systems that control the climate than is the case in other more mountainous continents. This lack of topographic obstruction, and the absence of cool ocean currents (as are found at similar latitudes off Africa and the Americas) off the west coast as a stabilising influence, allows the occasional penetration of tropical moisture deep into the continent, with the result that the Australian desert, while relatively dry, does not match the extreme aridity of deserts such as the Sahara where vast areas have mean annual rainfalls below 25 mm. There are also no barriers to occasional bands of moisture and cloud extending from the warm waters of the Indian Ocean off north-western Australia across the continent to

the southern part of the continent ('northwest cloud bands'). These cloud bands can produce rainfall in their own right, sometimes in significant amounts, but their major influence is to provide an additional in-feed of moisture into frontal systems traversing southern Australia, enhancing the rainfall produced by those systems.

Topography does have a major influence on rainfall in Tasmania, where westerly winds are intercepted by the island's mountains, causing heavy rainfall on the western (windward) side, and leaving eastern and central Tasmania in a much drier so-called 'rain-shadow'. The interaction of topography with westerly winds in winter also plays a role in locally enhancing rainfall in regions such as the Australian Alps and the Adelaide Hills. The Great Dividing Range and associated ranges in eastern Australia enhance rainfall over the east coast hinterland during periods of easterly flow, and partially block moisture from penetrating further inland.

## Episodic weather events

Tropical cyclones are the most dramatic episodic weather events to affect Australia. Tropical cyclones are strong, well-organised low pressure systems that form poleward of about 5° of the Equator, over water that is warmer than approximately 26 °C. Tropical cyclones can vary significantly in size, and once formed are classified as category 1 to 5 according to their intensity at any given time. Category 4 and 5 cyclones have wind gusts exceeding 225 kilometres per hour (km/h) and can be exceptionally damaging, as in the near-total destruction of Darwin by Tropical Cyclone *Tracy* on 25 December 1974. The strongest wind gust instrumentally measured in a tropical cyclone on the Australian mainland is 267 km/h, at Learmonth (Western Australia) during Tropical Cyclone *Vance* on 22 March 1999, but it is believed that gusts in excess of 320 km/h have occurred away from instruments. The zone of most destructive winds associated with tropical cyclones is normally quite narrow, only about 50 km wide in the case of *Tracy*, and rarely more than 300 km.

Tropical cyclones bring heavy rain as well as strong winds, and are the cause of most of Australia's highest-recorded daily rainfalls. Warm water is required to maintain the strength of the winds and tropical cyclones rapidly lose their intensity on moving over land, although the rainfall with former cyclones often persists well after the destructive winds have eased, bringing occasional heavy rains deep into the inland and causing widespread flooding. (Such flooding can

also occur from tropical depressions that never reach sufficient intensity to be classified as cyclones.) Parts of inland Western Australia receive 30–40% of their mean annual rainfall from these systems, and it is not unheard of for places to receive their normal annual rainfall within a one or two-day period.

On average, about three cyclones directly approach the Queensland coast during the season between November and May, and three affect the north and north-west coasts, but the number and location of cyclones vary greatly from year to year. The most susceptible areas are north of Carnarvon on the west coast and Rockhampton on the east, but on occasions tropical cyclones have reached as far south as Perth and northern New South Wales.

Away from the tropics, 'heatwaves' can occur over many parts of Australia. In southern Australia, they are normally associated with slow-moving anticyclones. A large anti-cyclone remaining stationary ('blocking') in the Tasman Sea will result in northerly or north-westerly flow on its western flank, bringing hot air of continental origin over the south-east coastal regions (and sometimes to Tasmania). In south-western Australia heatwaves are more commonly associated with the characteristic north-south trough of low pressure along the west coast in summer moving offshore, suppressing sea breezes and causing hot north-easterly winds to blow from the interior to the coast.

'Cold outbreaks' can occur over southern Australia when intense south to south-west flow associated with strong cold fronts or large depressions directs cold air of Southern Ocean origin over the continent. These are most common in the south-east and can result in low temperatures and snow falling to quite low elevations. While principally a winter and early spring phenomenon, cold outbreaks can occur at other times of year, and the fact that the air originates over the Southern Ocean (where there is only about a 4 °C change in temperature from winter to summer) means that they can also bring cold air and 'unseasonable' snowfalls at high elevations at any other time of year.

Intense low pressure systems can form outside the tropics, most commonly off the east coast where they are known as 'east coast lows'. These systems can bring very strong winds and heavy rain, particularly where they direct moist easterly winds on their southern flank onto the coastal ranges of southern Queensland, New South Wales, eastern

Victoria and north-eastern Tasmania. Examples of systems of this type include one in June 1967 off southern Queensland which caused major flooding and severe beach erosion in the Gold Coast region, and an intense low in Bass Strait that sank or damaged many yachts in the 1998 Sydney–Hobart race.

## Interannual variability

The major driver of interannual climate variability in Australia, particularly eastern Australia, is the El Niño-Southern Oscillation phenomenon (ENSO). El Niño is an anomalous large warming of the central and eastern tropical Pacific Ocean. (La Niña, the reverse phase of the system, is an anomalous cooling.) The Southern Oscillation is a see-sawing of atmospheric pressure between the northern Australian–Indonesian region and the central Pacific Ocean. El Niño events are strongly associated with abnormally high pressures in the northern Australian–Indonesian region and abnormally low pressures over the central Pacific (the reverse is true during La Niña events).

The Southern Oscillation Index (SOI) is an index of pressure differences between Darwin and Tahiti and has traditionally been used as an indicator of El Niño events (which are very often, but not always, associated with a strongly negative SOI), although improved observation systems developed over the last 30 years now allow ocean temperature anomalies, both at and below the surface, to be monitored directly.

El Niño events characteristically develop during the southern autumn, and continue for about 9–12 months until the following autumn. The most recent El Niño followed this pattern, developing in May–June 2002 and dissipating in February–March 2003. On occasions El Niño events are followed immediately by La Niña events (or vice versa), but it is more common for them to be followed by near-normal (neutral) ocean conditions. Events lasting for more than one year are rare, but not unknown. There are typically 2–3 El Niño events per decade, but there is large variation from decade to decade in their frequency and the balance of El Niño and La Niña events; since 1980 El Niño events have been predominant, whereas La Niña events were frequent in the 1950s and 1970s.

El Niño events are generally associated with a reduction in rainfall across much of Australia, which can lead to widespread and severe drought in eastern Australia, particularly in winter and spring, as well as increased daytime temperatures and bushfire risk. Conversely, La Niña events are

generally associated with wetter-than-normal conditions and have contributed to many of Australia's most notable floods. There is considerable variation, however, in the way each El Niño and La Niña event affects rainfall patterns from the time of onset through its developmental stages to eventual decay.

Temperatures in the tropical Indian Ocean also have an influence on Australia's climate, particularly in the south-west of Western Australia, where the influences of El Niño and La Niña events are more limited. Indian Ocean conditions also have a bearing on winter rainfall in south-eastern Australia through their effects on the frequency of northwest cloud bands (see earlier section).

The article 'Climate variability and El Niño', *Year Book Australia 1998* provides further detail.

### Climate change

Temperatures in Australia were relatively stable from 1910 until 1950, and since then have followed an increasing trend, with an overall increase during 1910 to 2003 of approximately 0.7 °C. Overnight minimum temperatures have warmed more quickly than daytime maximum temperatures, but both have increased over almost the entire continent, with the largest increases occurring in north-eastern Australia. In conjunction with this trend, the frequencies of frosts and other extreme low temperatures have decreased, while the frequency of extreme high temperatures has increased, although at a slower rate.

Over the continent as a whole, rainfall has increased over the 1900–2003 period, with the largest increases occurring over northern and north-western Australia. However, since 1960, there have been substantial decreases in rainfall over three relatively small, but economically and agriculturally important, regions – south-western Western Australia, Victoria (particularly southern Victoria), and the eastern coastal fringe (particularly south-eastern Queensland).

Table 1.5 shows temperatures and rainfall averaged over Australia since the commencement of comprehensive national records. The article 'A hundred years of science and service – Australian meteorology through the twentieth century', *Year Book Australia 2001* provides further detail, including maps of temperature and rainfall trends.

### 1.5 MEAN TEMPERATURES(a) AND RAINFALL

Period(b)	Temperature deviation(a) °C	Rainfall mm
<b>10 YEAR PERIODS — ANNUAL AVERAGE</b>		
1900–09	n.a.	425
1910–19	–0.33	449
1920–29	–0.40	430
1930–39	–0.28	418
1940–49	–0.41	436
1950–59	–0.27	468
1960–69	–0.22	431
1970–79	–0.12	527
1980–89	0.23	463
1990–99	0.39	485
<b>YEARS</b>		
1970	–0.10	384
1971	–0.22	494
1972	0.18	365
1973	0.53	661
1974	–0.76	784
1975	–0.21	603
1976	0.71	528
1977	0.02	472
1978	–0.30	526
1979	0.35	456
1980	0.74	433
1981	0.25	535
1982	–0.04	421
1983	0.30	499
1984	–0.39	555
1985	0.28	399
1986	0.22	392
1987	0.21	453
1988	0.73	460
1989	0.00	484
1990	0.50	418
1991	0.68	469
1992	0.15	452
1993	0.30	499
1994	0.25	341
1995	0.18	523
1996	0.60	470
1997	0.23	527
1998	0.84	565
1999	0.21	584
2000	–0.21	727
2001	–0.10	559
2002	0.63	341
2003	0.62	487

(a) Temperatures are shown as anomalies (or deviations) from 1961–90 base period. (b) The full annual time series since 1900 (rainfall) and 1910 (temperature) are available via <<http://www.bom.gov.au/climate/change>>.

Source: Bureau of Meteorology.

## Rainfall and other precipitation

### Annual

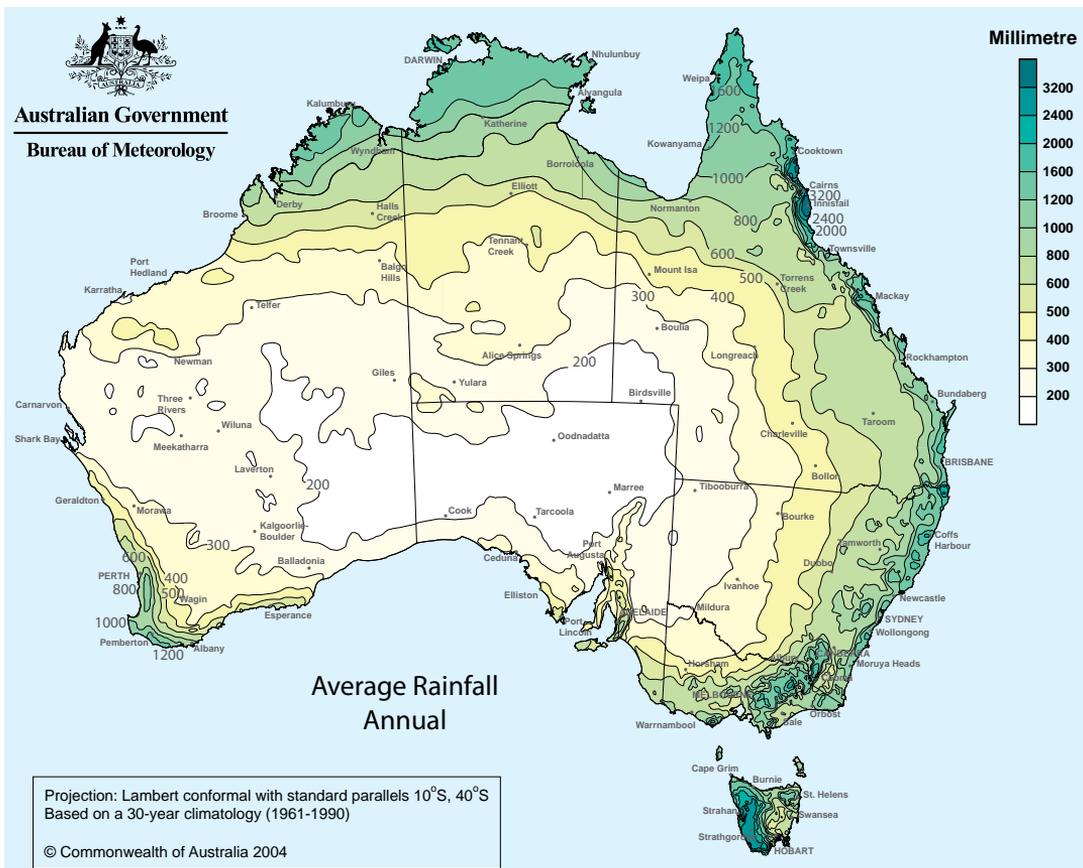
Map 1.6 shows average annual rainfall over the Australian continent.

The driest section of Australia, with an average of less than 200 mm per year, extends over a large area from the west coast near Shark Bay, across the interior of Western Australia and northern South Australia into south-western Queensland and north-western New South Wales. The driest part of this region is in the vicinity of Lake Eyre in South Australia, where average annual rainfall is below 150 mm. This region is not normally exposed to moist air masses and rainfall is irregular, averaging only around 20 days per year. Very occasionally, favourable synoptic situations (usually, but not always, disturbances of tropical origin) can bring heavy rains to many parts of this

normally arid to semi-arid region, with falls of up to 400 mm over a few days being recorded in the most extreme cases. Such heavy rainfalls often lead to widespread flooding and a subsequent short-lived 'blooming' of the desert regions.

The region with the highest mean annual rainfall is the east coast of Queensland between Cairns and Cardwell, where mountains are very close to the tropical coast. The summit of Bellenden Ker has an average of 8,068 mm over 31 years of records, while at lower elevations, Topaz has an average of 4,401 mm over 24 years, and Babinda 4,236 mm over 92 years. The mountainous region of western Tasmania also has a high annual rainfall, with Lake Margaret having an average of 2,956 mm over 59 years, and short-term records suggest that other parts of the region have an average near 3,500 mm.

1.6 AVERAGE ANNUAL RAINFALL — 1961-1990



Source: Bureau of Meteorology.

The Snowy Mountains area in New South Wales also has a particularly high rainfall. While there are no official rain gauges in the wettest areas on the western slopes above 1,800 metres elevation, runoff data suggests that the average annual rainfall in parts of this region exceeds 3,000 mm. Small pockets with averages exceeding 2,500 mm also occur in the north-east Victorian highlands and some parts of the east coastal slopes.

### Seasonal

The rainfall pattern of Australia is strongly seasonal in character, with a winter rainfall regime in parts of the south, a summer regime in the north and generally more uniform or erratic throughout the year elsewhere. Major rainfall zones include:

- The marked wet summer and dry winter of northern and north-western Australia. In this region winters are almost completely dry, except near exposed eastern coastlines (e.g. Darwin, table 1.7).

- The wet summer and relatively (but not completely) dry winter of south-eastern Queensland and north-eastern New South Wales (e.g. Brisbane, table 1.7).
- Fairly uniform rainfall in south-eastern Australia, including most of New South Wales, parts of Victoria and eastern Tasmania. The exact seasonal distribution can be influenced by local topography; for example, winter is the wettest season at Albury on the windward side of the Snowy Mountains, but the driest season at Cooma on the leeward side (e.g. Sydney, Melbourne, Canberra and Hobart, table 1.7).
- A marked wet winter and dry summer (sometimes called a 'Mediterranean' climate). This climate is most prominent in south-western Western Australia and southern South Australia, but there is also a winter rainfall maximum in some other parts of the south-east, particularly those areas exposed to westerly or south-westerly winds, such as western Tasmania and south-western Victoria (e.g. Adelaide and Perth, table 1.7).

#### 1.7 AVERAGE MONTHLY RAINFALL AND TEMPERATURES(a), Capital cities and Alice Springs

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<b>AVERAGE DAILY MAXIMUM TEMPERATURE (°C)</b>													
Sydney	26.1	26.4	25.2	23.1	20.4	17.7	17.2	18.5	20.7	22.4	23.6	25.6	22.3
Melbourne	25.8	26.5	24.0	20.5	17.3	14.4	13.9	15.3	17.3	19.7	21.8	24.2	20.1
Brisbane	29.2	28.8	28.0	26.1	23.5	21.1	20.6	21.6	23.9	25.5	27.1	28.6	25.3
Adelaide	28.7	29.3	26.1	22.2	18.8	16.0	15.2	16.5	18.7	21.7	24.7	26.8	22.1
Perth	31.9	32.2	29.8	25.9	21.8	18.9	17.9	18.4	20.2	22.5	25.8	29.2	24.5
Hobart	21.8	22.0	20.2	17.9	15.1	12.3	12.2	13.4	15.3	17.2	18.6	20.3	17.2
Darwin	31.8	31.4	31.8	32.8	32.2	30.7	30.7	31.5	32.7	33.3	33.3	32.6	32.1
Canberra	27.7	27.3	24.5	20.0	15.9	12.3	11.5	13.2	16.2	19.4	22.6	26.3	19.7
Alice Springs	36.4	35.1	32.8	27.8	23.2	19.7	20.0	23.0	27.5	30.9	33.9	35.8	28.8
<b>AVERAGE DAILY MINIMUM TEMPERATURE (°C)</b>													
Sydney	19.4	19.6	18.1	15.2	12.5	9.6	8.6	9.5	11.7	14.2	16.0	18.3	14.4
Melbourne	15.4	15.8	14.3	11.7	9.8	7.6	6.8	7.6	9.0	10.5	12.2	13.9	11.2
Brisbane	21.2	20.9	19.5	16.8	14.2	10.8	9.5	9.9	12.4	15.5	18.0	19.9	15.7
Adelaide	16.8	17.1	15.2	12.1	10.2	8.1	7.4	8.2	9.6	11.5	13.8	15.5	12.1
Perth	17.2	17.8	16.3	13.4	10.8	9.1	8.4	8.5	9.3	10.5	13.0	15.2	12.5
Hobart	12.5	12.7	11.4	9.6	7.6	5.2	4.7	5.5	6.9	8.3	9.8	11.3	8.8
Darwin	24.8	24.9	24.6	24.2	22.4	20.1	19.4	20.9	23.4	25.1	25.6	25.5	23.4
Canberra	13.3	13.3	10.9	6.7	3.7	0.8	-0.1	1.0	3.6	6.3	8.9	11.6	6.7
Alice Springs	21.3	20.7	17.4	12.3	8.2	4.8	3.8	6.2	10.4	14.6	17.9	20.2	13.2
<b>AVERAGE RAINFALL (mm)</b>													
Sydney	136.3	130.9	151.2	127.7	110.0	126.8	69.6	92.0	68.8	88.1	101.7	73.4	1 276.5
Melbourne	52.4	49.0	40.0	52.1	58.8	48.6	45.1	54.6	59.2	69.5	64.2	61.1	654.4
Brisbane	158.6	174.3	125.3	108.7	115.7	53.1	60.1	37.2	34.8	96.8	106.0	119.6	1 194.0
Adelaide	19.4	12.7	26.6	42.0	61.2	79.7	79.9	68.0	62.2	347.5	29.7	27.8	563.0
Perth	12.7	18.2	15.9	36.5	92.8	145.5	154.1	117.3	76.7	44.2	26.5	7.2	745.3
Hobart	47.3	40.0	41.9	44.2	38.6	37.5	53.7	59.2	48.7	48.3	50.6	56.5	576.4
Darwin	499.8	336.2	376.3	104.4	23.2	1.6	0.5	8.0	15.5	76.6	134.0	270.9	1 847.1
Canberra	66.3	52.7	50.3	49.3	44.6	38.4	46.4	49.2	56.7	60.9	67.4	47.8	630.0
Alice Springs	41.3	48.5	47.9	24.1	20.6	15.2	14.3	9.2	11.3	23.2	29.8	40.1	325.6

(a) Averages are for the standard climate normal period (1971–2000) except for Adelaide (1977–2000). Brisbane, Perth, Darwin, Canberra and Alice Springs averages are for observations taken at airports, others are at locations in or near the central city.

Source: Bureau of Meteorology 2003, Bureau of Meteorology, Melbourne, viewed 19 August 2003, <<http://www.bom.gov.au>>.

- Low and erratic rainfall through much of the western and central inland. Rainfall events are irregular and can occur in most seasons, but are most common in summer (e.g. Alice Springs, table 1.7).

### Rain days and extreme rainfalls

The frequency of rain days (defined as days when 0.2 mm or more of rain is recorded in a 24-hour period) is greatest near the southern Australian coast, exceeding 150 per year in much of Tasmania, southern Victoria and the far south-west of Western Australia, peaking at over 250 per year in western Tasmania. Values exceeding 150 per year also occur along parts of the north Queensland coast. At the other extreme, a large part of inland western and central Australia has fewer than 25 rain days per year, and most of the continent away from the coasts falls below 50 per year. In the high rainfall areas of northern Australia away from the east coast the number of rain days is typically about 80 to 120 per year, but rainfall events are typically heavier in this region than in southern Australia.

The highest daily rainfalls have occurred in the northern half of Australia and along the east coast, most of them arising from tropical cyclones, or further south east coast lows, near the coast in mountainous areas. Daily falls in excess of 500 mm have occurred at scattered locations near the east coast as far south as the Illawarra, south of Sydney, and falls exceeding 300 mm have occurred in north-eastern Tasmania and the Otway Ranges of southern Victoria. Most locations in temperate Australia away from the east coast have highest recorded daily rainfalls in the 75–150 mm range, although some locations have exceeded 200 mm. In these regions, extreme daily rainfalls are often associated with thunderstorms, for which rainfall recordings can vary dramatically over short distances.

The highest daily and annual rainfalls for each state and territory are listed in tables 1.8 and 1.9.

### Floods

Heavy rainfall conducive to widespread flooding can occur anywhere in Australia, but is most common in the north and in the eastern coastal areas. There are three main flood types:

- Flash floods, which are generally localised and often emanate from severe thunderstorms (see *Thunderstorms, hail and tornadoes*).

### 1.8 HIGHEST DAILY RAINFALLS(a)

	mm	Date
New South Wales		
Dorrigo (Myrtle Street)	809	21.2.1954
Cordeaux River	573	14.2.1898
Victoria		
Tanybryn	375	22.3.1983
Club Terrace	285	24.6.1998
Queensland(b)		
Beerwah (Crohamhurst)	907	3.2.1893
Finch Hatton PO	878	18.2.1958
South Australia		
Motpena	273	14.3.1989
Nilpena	247	14.3.1989
Western Australia		
Roebourne (Whim Creek)	747	3.4.1898
Roebuck Plains	568	6.1.1917
Tasmania		
Cullenswood	352	22.3.1974
Mathinna	337	5.4.1929
Northern Territory		
Roper Valley Station	545	15.4.1963
Angurugu (Groote Eylandt)	513	28.3.1953
Australian Capital Territory		
Lambrigg	182	27.5.1925

(a) The standard daily rainfall period is 9 am to 9 am.  
 (b) Bellenden Ker (Top Station) has recorded a 48-hour total of 1,947 mm on 4–5 January 1979, including 960 mm from 3 pm on the 3rd to 3 pm on the 4th. No observation was made at 9 am on the 4th.

Source: Bureau of Meteorology.

### 1.9 HIGHEST ANNUAL RAINFALLS

	Station	Year	mm
NSW	Tallowood Point	1950	4 540
Vic.	Falls Creek SEC(a)	1956	3 739
Qld	Bellenden Ker (Top Station)	2000	12 461
SA	Aldgate State School	1917	1 853
WA	Kimberley Coastal Camp	2000	2 334
Tas.	Lake Margaret	1948	4 504
NT	Darwin Botanic Gardens	1998	2 906
ACT	Bendora Dam	1974	1 831

(a) State Electricity Commission.

Source: Bureau of Meteorology.

- Short-lived floods lasting a few days that occur in shorter coastal streams, and inundate the natural or modified flood plain. These are the most economically damaging floods, affecting the relatively densely-populated coastal river valleys of New South Wales and Queensland (e.g. the Burdekin, Brisbane, Tweed, Richmond, Clarence, Macleay, Hunter and Nepean-Hawkesbury valleys), and the major river valleys of the tropics. While these floods are chiefly caused by summer rains, they can occur in any season. Floods of similar duration also occur in Tasmania, Victoria (particularly

rivers draining the north-east ranges) and the Adelaide Hills, although in these latter regions they are more common in winter and spring.

- Long-lived floods of the major inland basins. These floods usually arise from heavy summer rains in inland Queensland and New South Wales, and move slowly downstream, some ultimately draining into the lower Murray–Darling system or towards Lake Eyre. Floods of this type can take several months to move from the upper catchments to the lower Darling or to Lake Eyre. They often cover an extensive area and gradually disappear through a combination of seepage into the sandy soils and evaporation; it is only occasionally that floodwaters of Queensland origin actually reach Lake Eyre. Floodwaters can also cover large areas when heavy rains occur in a region of un-coordinated drainage such as much of western and central Australia.

## Droughts

Drought, in general terms, refers to an acute deficit of water supply to meet a specified demand. The best single measure of water availability in Australia is rainfall, although factors such as evaporation and soil moisture are also significant and can be dominant in some situations. Demands for water are very diverse, and droughts therefore can be considered on a variety of timescales. Rainfall in a single year is important for unirrigated crop and pasture growth, while for large water storages and irrigation variations on a multi-year timescale are more important, and a succession of relatively dry years that are not exceptional individually can cause severe water storages when aggregated over an extended period.

While droughts can occur in all parts of Australia, they are most economically damaging in south-eastern Australia (southern Queensland, New South Wales, Australian Capital Territory, Victoria, Tasmania and the settled parts of South Australia), an area encompassing about 75% of Australia's population and much of its agriculture. In south-western Western Australia, another economically and agriculturally significant area, interannual variability of rainfall is smaller than it is in the south-east and severe widespread droughts in individual years are a less important issue, although, in recent decades, this area has experienced a general decline in rainfall (see *Climate change*).

In terms of rainfall deficits over a 1–2 year period, the most severe droughts in recorded eastern Australian history have been those of 1901–02, 1982–83, 1994–95 and 2002–03, all of which were associated with El Niño events. Occasionally, severe droughts are embedded within more extensive dry periods; the 1901–02 drought was contained within a persistently dry period from 1895–1903 (the so-called 'Federation Drought'). The 2002–03 drought, while not quite as dry over most of eastern Australia as those of 1901–02 or 1982–83, was particularly severe in its impacts for two reasons; first, because it was accompanied by record high average maximum temperatures (and consequently increased evaporation) and, secondly, because it affected virtually the entire continent: in the earlier droughts the effects over Western Australia were more limited or non-existent. Other notable droughts on the 1–2 year timescale include those of 1888, 1914, 1919–20, 1940–41, 1944, 1946, 1965, 1967 and 1972.

Longer-term periods of persistent below-average rainfall are also often loosely referred to as 'droughts', and apart from that of 1895–1903, have generally been more regional in nature. Recent examples include the persistent dry conditions that have affected southern Victoria (including Melbourne) since 1997, south-western Western Australia since 1970, and the Sydney region and eastern Queensland since 1999–2000. Other extended dry periods of this type affected much of inland Australia between 1958 and 1968, the south-east from 1937–45, and Queensland from 1991–95.

Drought definitions, and the area of coverage and length of droughts, together with related information, may be obtained from the article 'Drought in Australia', *Year Book Australia 1988*.

## Thunderstorms, hail and tornadoes

Thunderstorms are most frequent over northern Australia, with thunder being heard at least once on 80 days or more per year near Darwin, as a result of convectional processes during the summer wet season. High frequencies (30–50 per year) also occur over the eastern uplands of New South Wales as a result of orographic uplift of moist air streams. Some parts of southern Australia receive fewer than 10 thunderstorms per year, with eastern Tasmania receiving fewer than 5. Throughout most of Australia thunderstorms are more common during the warmer half of the

year, but along the southern fringe they also occur in winter as a result of low-level instability in cold air masses of Southern Ocean origin.

Some thunderstorms can become severe, with flash flooding, large hail and damaging winds. These storms can be very destructive: the Sydney hailstorm of 14 April 1999, in which hailstones up to 9 centimetres (cm) in diameter were observed, was Australia's most costly natural disaster, with losses estimated at \$1.7b. Flash flooding associated with severe thunderstorms has caused loss of life, notably when seven deaths occurred in Canberra on 26 January 1971, and thunderstorms have also been implicated in numerous air crashes, such as when a plane crashed into Botany Bay on 30 November 1961 with the loss of 15 lives.

While thunderstorms in general are most common in northern Australia, the most damaging thunderstorms, in terms of hail and wind gusts, occur in the eastern halves of New South Wales and southern Queensland. Smaller hail (less than 1 cm in diameter) commonly occurs in southern coastal Australia in cold unstable air in the wake of cold frontal passages.

Tornadoes also occur in Australia, although not with the same frequency or severity as in the United States of America. They are associated with severe thunderstorms and are most common in the same areas. As tornado paths are narrow it is rare, but not unknown, for them to strike major population centres, with notable examples occurring in Brighton (Melbourne) in February 1918 and the southern suburbs of Brisbane in November 1973.

## **Snow**

Generally, snow covers much of the Australian Alps above 1,500 metres for varying periods from late-autumn to early-spring. Similarly, in Tasmania, the mountains are covered fairly frequently above 1,000 metres in those seasons. The area, depth and duration of snow cover are highly variable from year to year. These areas can experience light snowfalls at any time of year. Small patches of snow can persist through summer in sheltered areas near the highest peaks, but there are no permanent snowfields.

Snowfalls at lower elevations are more irregular, although areas above 600 metres in Victoria and Tasmania, and above 1000 metres in the New South Wales highlands, receive snow at least once in most winters, as do the highest peaks of Western Australia's Stirling Ranges. In most cases snow cover is light and short-lived. In extreme cases, snow has fallen to sea level in Tasmania and parts of Victoria, and to 200 metres in other parts of southern Australia, but this is extremely rare. The only major Australian cities to have received a significant snow cover at any time in the last century are Canberra and Hobart, although Melbourne experienced a heavy snowfall in 1849, and there are anecdotal reports of snowflakes in Sydney in 1836.

The heaviest snowfall in Australian history outside the alpine areas was that of 4–5 July 1900, when 50–100 cm fell around Bathurst and in the Blue Mountains, and 25 cm as far west as Forbes (only 240 metres above sea level). Other major low-elevation snow events occurred in July 1901, July 1949 and July 1984.

## **Temperature**

### **Average temperatures**

Average annual air temperatures range from 28 °C along the Kimberley coast in the extreme north of Western Australia to 4 °C in the alpine areas of south-eastern Australia. Although annual temperatures can be used for broad comparisons, monthly temperatures are required for detailed analyses.

July is the month with the lowest average temperature in all parts of the continent. In the south, the months with the highest average temperature are January or February. Due to the increase in cloudiness during the wet season, the month of highest average temperature in the north of the continent is December or, in the extreme north and north-west, November.

Temperature differences between winter and summer are least in tropical Australia. They are greatest in the southern inland, with seasonal differences along the coast being moderated by the ocean's proximity.

### Average monthly maxima

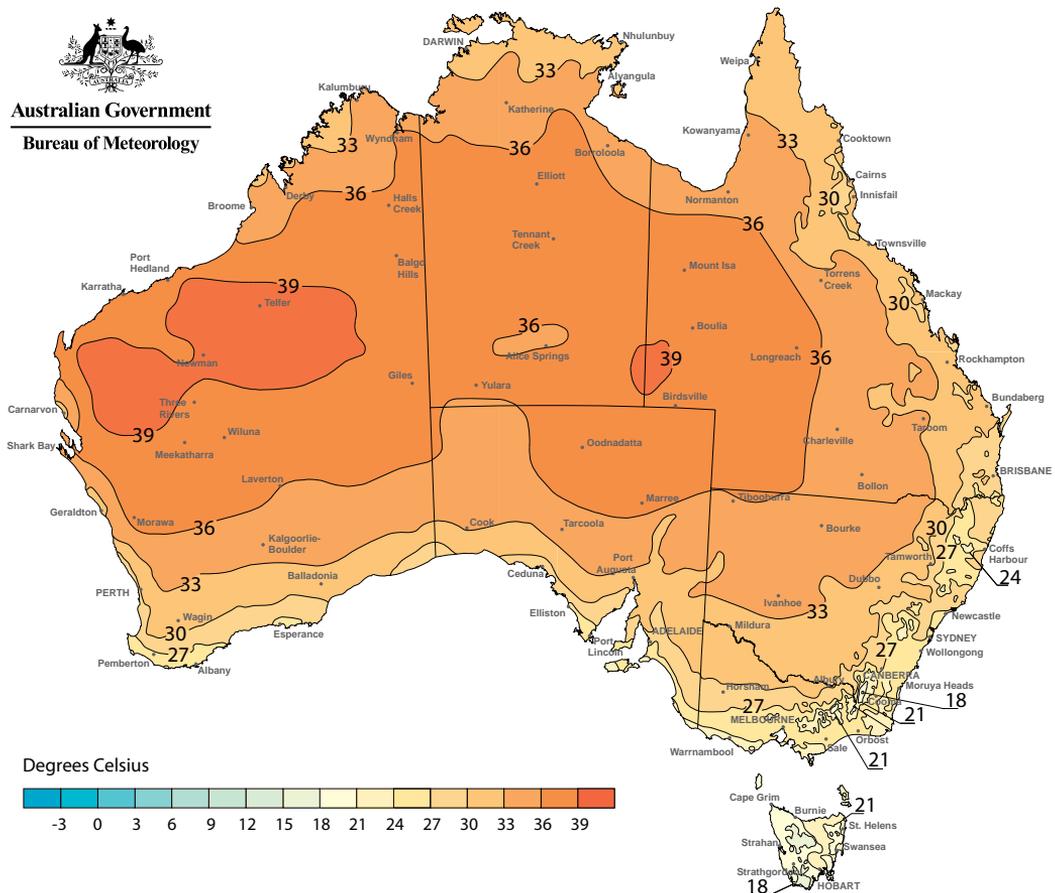
In January average maximum temperatures exceed 35 °C over a vast area of the interior and exceed 40 °C over parts of the north-west. The highest summer maxima occur in the Pilbara and Gascoyne regions of north-western Western Australia, where average January maxima are around 41 °C; in some years daily maxima exceed 40 °C for several weeks at a time. Marble Bar experienced 160 consecutive days above 37.8 °C (100° Fahrenheit) in 1923–24. At the other

extreme, average January maxima are near 15 °C on the highest peaks of the south-east ranges and near 20 °C in much of Tasmania.

In July a more regular latitudinal distribution of average maxima is evident, ranging from 30 °C near the north coast to below 3 °C in the alpine areas of the south-east.

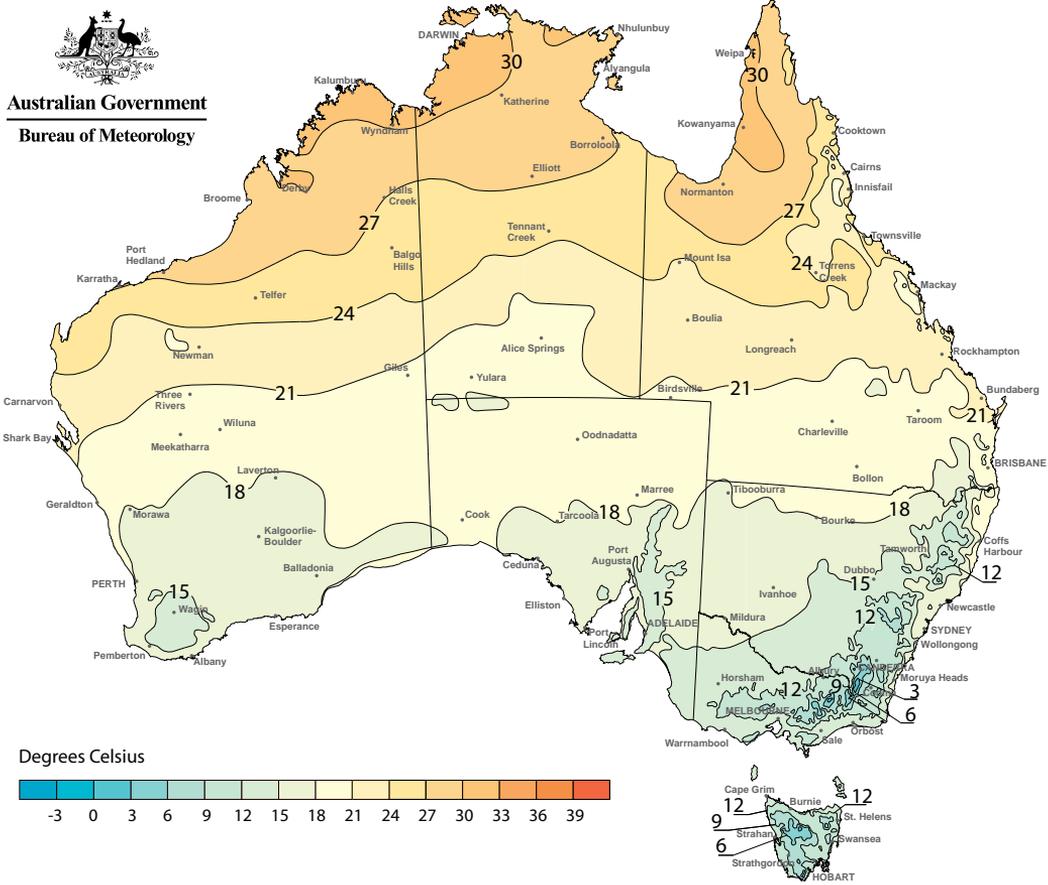
Maps 1.10 and 1.11 show average monthly maximum temperatures for January and July.

**1.10 AVERAGE MAXIMUM TEMPERATURE(a) — January**



(a) Based on the 30-year period 1961–1990.  
Source: Bureau of Meteorology, National Climate Centre, Melbourne.

**1.11 AVERAGE MAXIMUM TEMPERATURE(a) — July**



(a) Based on the 30-year period 1961–1990.  
Source: Bureau of Meteorology, National Climate Centre, Melbourne.

## Average monthly minima

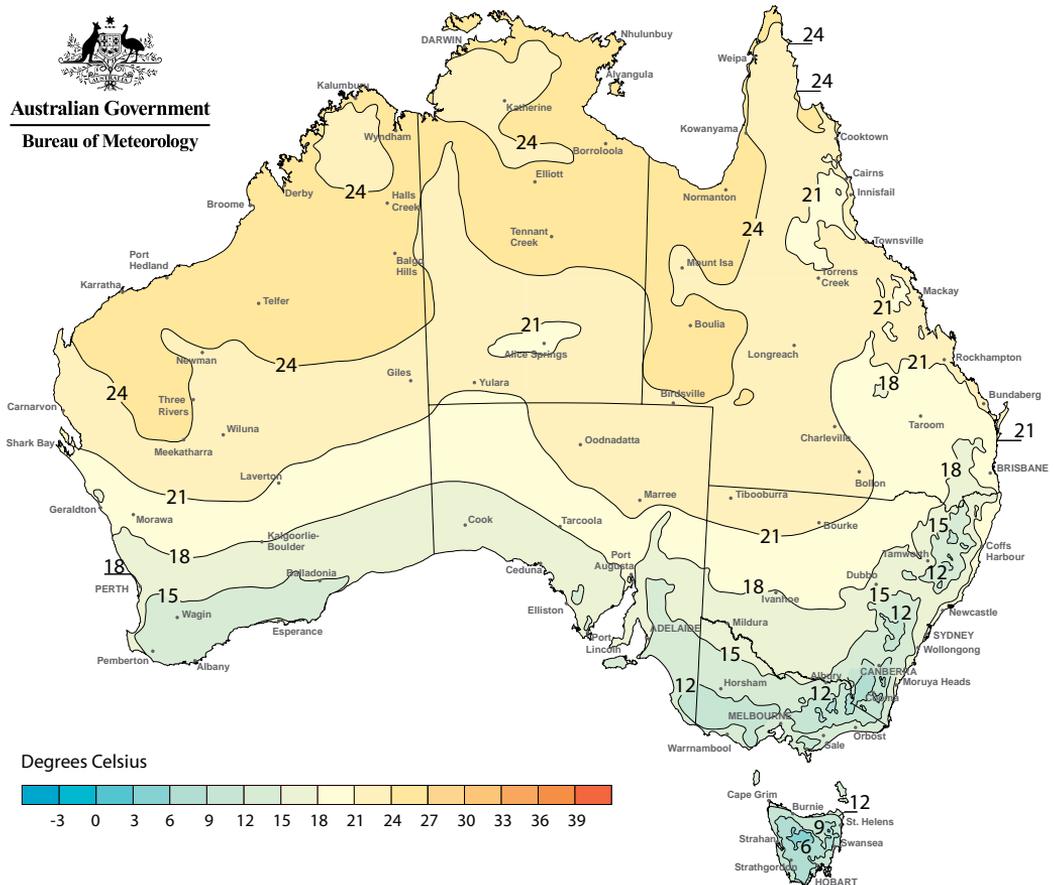
Average minimum temperatures in all seasons are highest in northern Australia and near the coasts, and are lowest in the mountainous areas of the south-east. The highest average January minimum temperatures (near 27 °C) are found near the north-west coast, while in winter they exceed 20 °C at some coastal locations in northern Australia and on the Torres Strait and Tiwi Islands.

Low minimum temperatures are highly sensitive to local topography, with the lowest minimum temperatures occurring in high-elevation valleys

(cold air drains from hills to valleys overnight, making hilltops and ridges warmer overnight, even in areas with local relief of only a few tens of metres). In the most favoured locations in the mountains of New South Wales average minimum temperatures are below 5 °C in January and -5 °C in July, while most inland areas south of the tropics have average July minima between 0 °C and 6 °C.

Maps 1.12 and 1.13 show average monthly minimum temperatures for January and July.

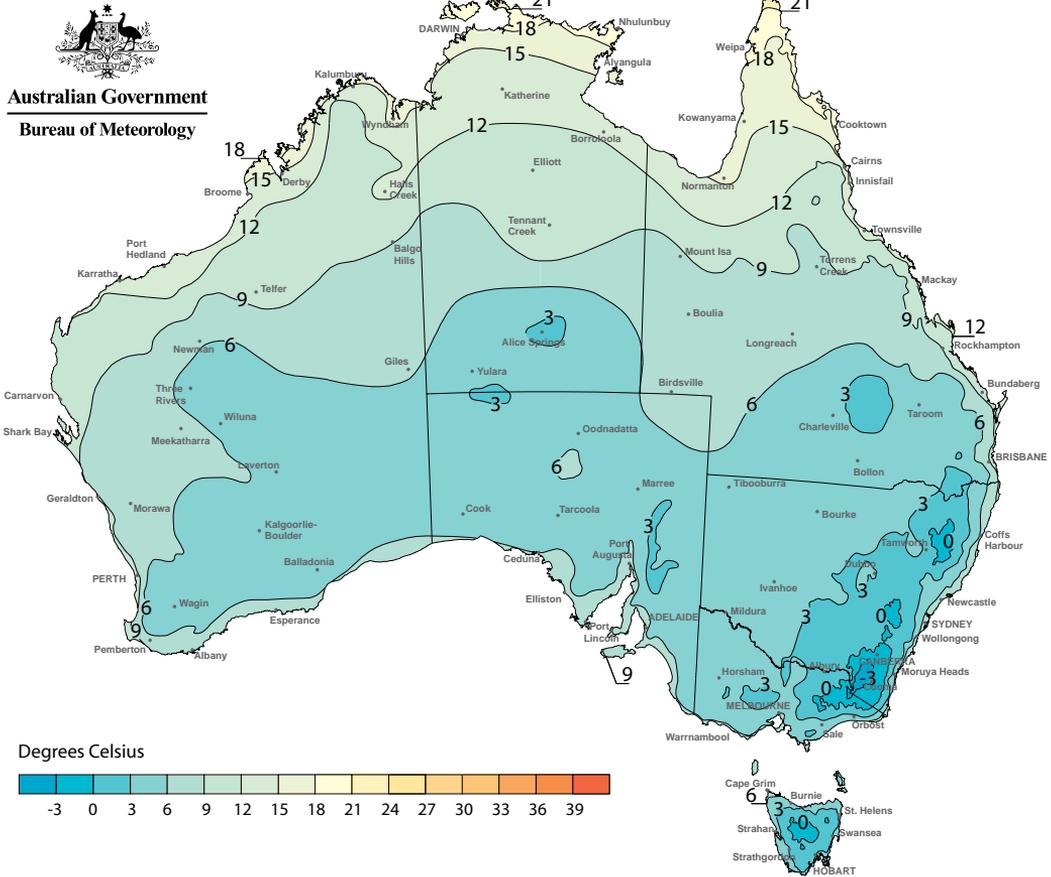
1.12 AVERAGE MINIMUM TEMPERATURE(a) — January



(a) Based on the 30-year period 1961–1990.

Source: Bureau of Meteorology, National Climate Centre, Melbourne.

### 1.13 AVERAGE MINIMUM TEMPERATURE(a) — July



(a) Based on the 30-year period 1961–1990.

Source: Bureau of Meteorology, National Climate Centre, Melbourne.

#### Extreme maxima

The highest extreme maxima in Australia are recorded in two regions: the Pilbara and Gascoyne regions of north-western Western Australia, and a broad belt extending from south-western Queensland across South Australia into south-eastern Western Australia. Many locations in this region have recorded temperatures exceeding 48 °C. Extreme temperatures in this southern belt are higher than those further north, due to the long trajectory over land of hot north-west winds from northern Australia, the lower moisture levels in summer compared with northern Australia, and the generally lower elevation (when compared with

areas such as the southern Northern Territory and east-central Western Australia, both of which are largely more than 500 metres above sea level).

Most other locations in mainland Australia, except those near parts of the Queensland and Northern Territory coasts or above 500 metres elevation, have extreme maxima between 43 °C and 48 °C. Most Tasmanian sites away from the north coast have extreme maxima between 35 °C and 40 °C. The lowest extreme maxima are found along the north coast of Tasmania (e.g. 29.5 °C at Low Head) and at high elevations (e.g. 27.0 °C at Thredbo (Top Station)).

While extreme high temperatures are more common inland than they are near the coast, the highest temperatures recorded differ little between the two, except in Queensland, the Northern Territory and northern Tasmania. Notable extreme maxima observed near the coast include 50.5 °C at Mardie and 49.1 °C at Roebourne in Western Australia, and 49.4 °C at Whyalla and 47.9 °C at Ceduna in South Australia.

Extreme maximum temperatures recorded at selected locations, including the highest recorded in each state/territory, are shown in table 1.14.

Prolonged heat waves, with a number of successive days over 40 °C, are relatively common in summer over much of inland Australia, as well as parts of the north-west coast. Many inland locations have recorded 10 or more successive days of such conditions, increasing to 20 or more days in parts of western Queensland and northern South Australia, and 50 or more days in north-western Western Australia. These heat waves can be accompanied by oppressively warm nights, with Oodnadatta (South Australia) recording an Australian record nine successive nights above 30 °C in February 2004.

Such prolonged heatwaves are rare in coastal regions, with the exception of Western Australia. The record number of consecutive days in Melbourne over 40 °C, for example, is five, with Brisbane and Sydney each registering two.

#### 1.14 EXTREME MAXIMUM TEMPERATURES

Station	°C	Date
New South Wales		
Wilcannia	50.0	11.1.1939
Victoria		
Swan Hill	49.4	18.1.1908
Queensland		
Cloncurry	53.1	16.1.1889
South Australia		
Oodnadatta	50.7	2.1.1960
Western Australia		
Mardie	50.5	20.2.1998
Tasmania		
Bushy Park	40.8	26.12.1945
Hobart	40.8	4.1.1976
Northern Territory		
Finke	48.3	1 & 2.1.1960
Australian Capital Territory		
Canberra (Acton)	42.8	11.1.1939

Source: Bureau of Meteorology.

The coastal areas, though, can be affected by extreme heat over a period of one or two days. The most extreme heatwave in the recorded history of south-eastern Australia occurred in January 1939. Adelaide (46.1 °C on the 12th), Melbourne (45.6 °C on the 13th) and Sydney (45.3 °C on the 14th) all set record high temperatures during this period, as did many other centres in New South Wales, Victoria and South Australia.

#### Extreme minima

The lowest recorded temperatures in Australia have been in the Snowy Mountains of New South Wales, where Charlotte Pass recorded -23.0 °C on 28 June 1994 (table 1.15), with a number of other locations recording temperatures below -15 °C. It is likely that comparably low temperatures occur in similarly sheltered locations in the Victorian highlands, but no observing stations away from the exposed peaks exist in this area.

#### 1.15 EXTREME MINIMUM TEMPERATURES

Station	°C	Date
New South Wales		
Charlotte Pass	-23.0	28.6.1994
Victoria		
Mount Hotham	-12.8	30.7.1931
Queensland		
Stanthorpe	-11.0	4.7.1895
South Australia		
Yongala	-8.2	20.7.1976
Western Australia		
Booylgoo Springs	-6.7	12.7.1969
Tasmania		
Shannon	-13.0	30.6.1983
Butlers Gorge	-13.0	30.6.1983
Tarraleah	-13.0	30.6.1983
Northern Territory		
Alice Springs	-7.5	12.7.1976
Australian Capital Territory		
Gudgenby	-14.6	11.7.1971

Source: Bureau of Meteorology.

Away from the Snowy Mountains, the lowest extreme minima in Australia are found above 500 metres elevation on the tablelands and ranges of New South Wales, eastern Victoria and southern Queensland, as well as in central Tasmania. Many locations in this region have recorded -10 °C or lower, including -14.6 °C at Gudgenby (ACT) and -14.5 °C at Woolbrook (NSW). At lower elevations, most inland places south of the tropics have extreme minima between -3 °C and -7 °C, and such low temperatures have also occurred in favoured locations within a few kilometres of southern and

## Temperature measurement and the Stevenson screen

To measure the temperature of the air accurately, it is important that the thermometer is shielded from direct sunlight but is still exposed to a good airflow. The standard screen used internationally to shelter instruments is a double-louved wooden box, with the instruments 1.2 to 2.0 metres above ground level. This screen, known as 'a Stevenson screen', was designed by Thomas Stevenson (1818–1887), a British civil engineer and father of Robert Louis Stevenson. The use of a standard screen allows temperatures to be compared accurately with those measured in earlier years and at different places.

The Stevenson screen was first introduced to Australia in the 1880s and was installed everywhere, with a few exceptions, by 1910. Prior to this date, thermometers were located in various types of shelter, as well as under verandas and even in unheated rooms indoors. Because of this lack of standardisation, many pre-1910 temperatures in Australia are not strictly comparable with those measured after that date, and therefore must be used with care in analyses of climate change within Australia.

eastern coasts, such as Sale, Victoria ( $-5.6^{\circ}\text{C}$ ), Bega, New South Wales ( $-8.1^{\circ}\text{C}$ ), Grove, Tasmania ( $-7.5^{\circ}\text{C}$ ) and Taree, New South Wales ( $-5.0^{\circ}\text{C}$ ).

In the tropics, extreme minima near or below  $0^{\circ}\text{C}$  have occurred at many places away from the coast, as far north as Herberton, Queensland ( $-5.0^{\circ}\text{C}$ ). Some locations near tropical coasts, such as Mackay ( $-0.8^{\circ}\text{C}$ ), Townsville ( $0.1^{\circ}\text{C}$ ) and Kalumburu, Western Australia ( $0.3^{\circ}\text{C}$ ) have also recorded temperatures near  $0^{\circ}\text{C}$ . In contrast, some exposed near-coastal locations, such as Darwin, have never fallen below  $10^{\circ}\text{C}$ , and Thursday Island, in the Torres Strait, has an extreme minimum of  $16.1^{\circ}\text{C}$ .

The parts of Australia with the lowest extreme minimum temperatures are also the most subject to frost. The eastern uplands from southern Queensland to eastern Victoria experience ten or more frosts per month in each month from May to September, as do Tasmania's Central Plateau and a few susceptible locations in south-western Western Australia and the Flinders Ranges region of South Australia. At lower elevations frost is less frequent and the season is shorter, although only the immediate coastal margins and the far north can be considered totally frost-free.

Frosts can occur at any time of year over most of Tasmania, much of inland Victoria and south-eastern South Australia, and the higher parts of the tablelands of New South Wales. In these regions the median frost period generally exceeds 200 days, extending out to 300 days in central Tasmania.

## Other aspects of climate

### Humidity

In terms of the average water vapour content or humidity of the air, Australia is a dry continent. The amount of moisture in the atmosphere can be expressed in several ways, the most common being relative humidity. This measure can be thought of as the relative evaporating power of the air: when humidity is low, moisture on an exposed wet surface, like skin, can evaporate freely. When it is high, evaporation is retarded. If the temperature is also high, people will feel discomfort or even stress as the body's ability to cool through the evaporation of perspiration is diminished. The combination of high temperature and high humidity is potentially dangerous for people who are not adapted or acclimatised to such conditions.

The main features of the relative humidity pattern are:

- Over the interior of the continent there is a marked dryness during most of the year, which extends towards the northern coast in the dry season (May–October).
- The coastal fringes are comparatively moist, although this is less so along the north-west coast of Western Australia where airflow is predominantly off the continent.
- In northern Australia, the highest values of humidity occur during the summer wet season (December–February) and the lowest during the winter dry season (June–August).

- In most of southern Australia the highest values are experienced in the winter rainy season (June–August) and the lowest in summer (December–February).

It is interesting that as late as 1927, Griffith Taylor, from the Department of Physical Geography, University of Sydney, was asserting that tropical Australia was an unhealthy place to live, at least for women, because of its climate. However, in recent decades the introduction of air conditioning, more appropriate building design, and improved health measures such as proper sanitation, have greatly increased the liveability of the tropics.

### Global radiation

Incoming global radiation includes radiant energy reaching the ground directly from the sun's beam and radiation received indirectly from the sky that is reflected and scattered downwards by clouds, dust and other airborne particles.

While there is a high correlation between daily global radiation and daily hours of sunshine, the latter is more dependent on variations in cloud coverage. Daily global radiation is also strongest, all other things being equal, when the sun is closest to overhead south of the tropics (21–22 December), or directly overhead in the tropics. On the north-west coast around Port Hedland, Western Australia, where average daily global radiation is the highest for Australia (22–24 megajoules per square metre), average daily sunshine is also highest, being approximately 10 hours. By way of contrast, in Darwin the global radiation values for the dry month of July and cloudy month of January are comparable, yet the number of sunshine hours for July approaches twice that for January.

### Sunshine

Sunshine here refers to bright or direct sunshine. Australia receives relatively large amounts of sunshine although seasonal cloud formations affect spatial and temporal distribution. Cloud cover reduces both incoming solar radiation and outgoing radiation from the earth's surface, and thus affects sunshine, air temperature and other measures of climate.

Most of the continent receives more than 3,000 hours of sunshine a year, or nearly 70% of the total possible. In central Australia and the mid-west coast of Western Australia, totals slightly in excess of 3,500 hours occur. Totals of less than 1,750 hours occur on the west coast and highlands of Tasmania, only 40% of the total possible per year.

In southern Australia, the duration of sunshine is greatest about December when the sun is at its highest elevation, and lowest in June when the sun is lowest. In northern Australia, sunshine is generally greatest over the period August – October prior to the wet season, and least over the period January – March during the wet season.

### Cloud

Seasonal distribution of cloudiness varies predominantly in line with seasonal variations in rainfall. In the southern parts of the continent, particularly in the coastal and low-lying areas, the winter months are generally cloudier than the summer months. This is due to the formation of extensive areas of stratiform cloud and fog during the colder months, when the structure of the lower layers of the atmosphere and higher levels of humidity favour the formation of this type of cloud. Particularly strong seasonal variability of cloud cover exists in northern Australia where skies are clouded during the summer wet season and mainly cloudless during the winter dry season. Cloud cover is greater near coasts and on the windward slopes of the eastern uplands of Australia and less over the dry interior.

### Fog

The formation of radiation fogs, in which air near the ground is cooled by overnight radiation from the ground, is determined by the occurrence of a favourable blend of temperature, humidity, wind and overlying cloud cover. The nature of the local terrain can also be important for the development of fog, and there is a tendency for it to be particularly prevalent and persistent in valleys and hollows. The incidence of such fogs can vary significantly over short distances. Other types of fogs occur when low cloud covers high ground ('hill fog'), particularly where highlands are close to the coast, and more rarely, near some coastlines when warm moist air moves over relatively cool waters near the shore ('sea fog').

Fog in Australia tends to be more common in the south than the north, although parts of the east coastal areas are relatively fog-prone even in the tropics. Fog is more likely to occur in the colder months, particularly in the eastern uplands. Radiation fogs normally develop overnight and dissipate during the morning or early afternoon, although on rare occasions they persist through the day, particularly in inland Tasmania. The highest fog incidence at a capital city is at Canberra which has an average of 47 days per year on which fog occurs, 29 of which are between May

and August. Brisbane averages 20 days of fog per year. Darwin averages only two days per year, mostly in July and August.

### **Winds**

The mid-latitude anticyclone belt is the chief determinant of Australia's two main prevailing wind streams. In relation to the west-east axes of the anticyclone belt these streams are easterly to the north and westerly to the south. The cycles of development, motion and decay of low-pressure systems that form to the north and south of the anticyclone belt and also intersperse between individual anticyclones result in a great diversity of wind flow patterns. Wind variations are greatest around the coasts where diurnal land and sea-breeze effects also come into play. Sea breezes play a prominent role in modifying coastal climates in many parts of Australia, particularly along the west coast of Western Australia where they are a major feature of the summer climate; in Perth the sea breeze is known as the 'Fremantle Doctor'.

Orography affects the prevailing wind pattern in various ways, such as the channelling of winds through valleys, deflection by mountains and cold air drainage from highland areas. The high frequency of north-west winds at Hobart, for example, is caused by the north-west to south-east orientation of the Derwent River valley, while wave effects on the lee side of the Adelaide Hills can lead to very strong local winds ('gully winds') in the eastern suburbs of Adelaide during periods of general easterly flow.

Perth is the windiest capital with an average wind speed of 15.6 km/h; Canberra is the least windy with an average wind speed of 5.4 km/h.

The highest wind speeds and wind gusts recorded in Australia have been associated with tropical cyclones. The highest recorded gust was 267 km/h at Learmonth (with Tropical Cyclone *Vance*); gusts reaching 200 km/h have been recorded on several occasions in northern Australia with cyclone visitations. The highest gusts recorded at capital cities were 217 km/h at Darwin (during Tropical Cyclone *Tracy*), 185 km/h at Brisbane Airport and 156 km/h at Perth.

### **Dust storms**

Dust storms are a regular occurrence on windy days in many of the arid zones of Australia. During drought years, they can extend to the more densely settled areas of the south-east, particularly when strong north- to north-westerly winds occur in advance of an approaching cold front. Well-known examples include those of February 1983, which plunged central Melbourne into darkness, and October 2002, which covered a vast area of eastern Queensland and New South Wales, including Brisbane and Sydney. These occurred in the later part of the severe El Niño-related droughts of 1982–83 and 2002–03 respectively.

### **Fire weather**

While bushfires are not strictly a climatic phenomenon, both weather and climate are strong determinants in their occurrence and intensity. Provided vegetation is sufficiently abundant and dry, the spread of bushfires is most rapid in windy conditions with low humidity. In southern Australia such conditions are also normally associated with high temperatures. A Fire Danger Index (FDI), which combines expected wind speed, humidity, temperature and a measure of pre-existing dryness, is frequently used to assess the risk of rapid fire spread on any given day.

The most favoured season for bushfires varies in different parts of Australia. In south-eastern Australia (including Tasmania) the most favoured season is summer and early autumn; in coastal New South Wales and southern Queensland it is spring and early summer; and in much of northern Australia it is winter and spring (or the later part of the 'dry' season). In the arid zones of Australia large fires most commonly occur in the months following an abnormally wet season, when there is enough vegetation to provide fuel.

The bushfires which occurred at the end of 1992 and the beginning of 2003 were among the most protracted and extensive since European settlement of Australia. The 2002–03 bushfire season and its impact was examined in detail in *Chapter 24 Environment, Year Book Australia 2004*.

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# 2

## GOVERNMENT

*This chapter was contributed by the Department of the Parliamentary Library of the Parliament of the Commonwealth of Australia (October 2004).*

Australia has a federal system of government within which there are four divisions: Commonwealth, state, territory and local government.

This chapter outlines the basic features of the Australian system of government, including:

- the constitutional basis of government
- the Sovereign
- the Governor-General
- the Commonwealth Parliament
- the Australian Government
- the Australian Public Service
- Commonwealth elections
- state government
- territory government – self-governing
- territory government – non-self governing
- local government
- the party system.

It also provides details of the ministry, and of the state and territory political leaders.

The chapter concludes with an article *Drawing House of Representatives electorate boundaries*.



## The constitutional basis of government

Australia is a constitutional democracy based on a federal division of powers. The constitutional basis of government consists of:

- the Commonwealth Constitution, including amendments made to that Constitution
- state and territory Constitutions, including amendments
- legislation passed by the Commonwealth Parliament and the state and territory parliaments
- High Court judgments
- significant conventions of responsible government adopted from the system of government in use in the United Kingdom (the 'Westminster' system) that are in use at both the Commonwealth and state levels of government.

### Commonwealth Constitution

The national Constitution is found in the *Commonwealth of Australia Constitution Act 1900*, a British Act that became law in July 1900 and came into force on 1 January 1901.

Each state and territory has its own Constitution found in legislation. Where a law of a state is inconsistent with a law of the Commonwealth, the latter law prevails and the former law is, to the extent of the inconsistency, invalid.

Amendment of the written Commonwealth Constitution is by Act of Parliament followed by public referendum. Any proposed law for the alteration of the Constitution must be passed by an absolute majority of each House of Parliament (except in circumstances specified in section 128 of the Constitution which permits a referendum to proceed if passed by only one chamber). It must also be submitted to a referendum of the electors in each state and territory. An amendment must be approved by a majority of the voters in a majority of the states and by a majority of all voters.

Since 1901, 44 proposals have been submitted to referenda. The consent of the electors has been given in regard to eight matters:

- 1906 – election of senators
- 1910 – state debts
- 1928 – state debts
- 1946 – social services
- 1967 – Aboriginal people
- 1977 – Senate casual vacancies
- 1977 – retirement age for federal judges
- 1977 – the right of territory electors to vote in constitutional referenda.

## The Sovereign

Since 7 February 1952, the Australian Sovereign has been Queen Elizabeth the Second.

On 6 November 1999 a vote to establish Australia as a republic was put to a national referendum. The proposal was defeated, with 54.9% of electors voting against it.

## The Governor-General

The Governor-General is the representative of the Sovereign, appointed by the Sovereign on the advice of the Australian Prime Minister.

### Powers and functions

The Governor-General exercises the executive power of the Commonwealth of Australia on the advice of the Prime Minister. Certain other powers and functions conferred by the Constitution include the powers to:

- appoint times for holding the sessions of the Parliament
- prorogue Parliament
- dissolve the House of Representatives
- dissolve the House of Representatives and the Senate in the event of a double dissolution
- cause writs to be issued for general elections of members of the House of Representatives
- assent in the Queen's name to a proposed law passed by both Houses of the Parliament
- appoint and summon executive councillors, who hold office during the Governor-General's pleasure
- appoint ministers of state for the Commonwealth of Australia.

In addition, the Governor-General, as the Queen's representative, is Commander-in-Chief of the Defence Forces. Many Acts of the Commonwealth Parliament provide that the Governor-General may make Regulations to give effect to such Acts. The Governor-General may also be authorised by statute to issue proclamations, for example, to declare an Act in force. The Governor-General has been given power by statute to legislate for certain of the Australian territories.

In all such matters the Governor-General acts on the advice of the Prime Minister.

The Governor-General also possesses what are referred to as ‘reserve powers’. These may be used without the advice of the Prime Minister, but are used only in times of political uncertainty.

The Queen may appoint an Administrator of the Commonwealth when the Governor-General is out of the country, ill or when the position of Governor-General is vacant. By convention, the longest-serving state governor is appointed as Administrator.

### Holders of office

His Excellency Major General Michael Jeffery AC CVO MC (Retd) has been Governor-General since 11 August 2003.

Those persons who have held the office of Governor-General from the inception of the Commonwealth of Australia until 1988 are pictured in *Year Book Australia 1988*. Pictures of all holders of the office can be found in the *Government* section of *Australia Now* on the ABS web site <<http://www.abs.gov.au>>.

## The Commonwealth Parliament

Commonwealth legislative power is vested in the Commonwealth Parliament, comprising the House of Representatives (currently 150 members) and the Senate (76 members).

### The powers of Parliament

Apart from the constitutional requirement that all financial legislation must originate in the House of Representatives, and that the Senate cannot amend such legislation, the two houses have similar powers. The fact that the Senate can reject financial legislation makes it one of the most powerful upper houses in the world.

Australia having a federal system means that the powers of the Commonwealth Parliament are limited to areas of national importance. Among the powers granted by the Constitution are trade and commerce, taxation, postal services, foreign relations, defence, immigration, naturalisation, quarantine, currency and coinage, weights and measures, copyright, patents and trade marks. High Court decisions and Commonwealth–state agreements have seen the Commonwealth gain influence in regard to various other matters including industrial relations, financial regulation, companies and securities, health and welfare, and education.

## The functions of Parliament

Parliament has five primary functions:

- to provide for the formation of a government
- to make the law
- to provide a forum for popular representation
- to scrutinise the actions of government
- to provide a forum for the alternative government.

The *formation of a government* is the most important outcome of a general election. Either the government is returned, by virtue of retaining a majority of seats in the House of Representatives, or the opposition party or a coalition of parties wins a majority of seats, resulting in the formation of a new government. The Prime Minister is always a member of the House of Representatives.

The Hon. JW Howard, MP (Liberal Party of Australia) has been Prime Minister since 11 March 1996.

More than half of Parliament’s time is taken up with the *consideration of proposed legislation*. Between 150 and 250 Bills are passed each year. Most Bills are not contentious, either being ‘machinery’ legislation necessary for the orderly processes of government, or Bills that propose alterations to existing legislation. Most of the Bills are government Bills; private members’ legislation is rare.

The *representation of the people* is an important role of members of the House of Representatives and senators. Looking after their constituents occupies a great deal of their time. The relative importance of this role may be judged by the high proportion of time spent by MPs in their electorates and away from Parliament. During the 1990s, Parliament averaged 64 sitting days per year.

The *scrutiny* function is seen most obviously in the formal periods of Question Time, in both houses, that are a part of each day’s sitting. Question Time is the best-known part of parliamentary proceedings, and is attended by many of the visiting public. Less well-known is the activity of a range of parliamentary committees which are established in order that Parliament’s legislative, representation and scrutiny functions can be carried out more thoroughly and with the benefit of expert advice. These committees undertake the scrutiny of government operations as well as frequent inquiries into a range of current issues.

In Westminster-derived governments, such as Australia's, the Opposition has a recognised and formal status, being recognised in the Standing Orders of the Parliament and in legislation. The Opposition is seen as the *alternative government* and typically forms a 'shadow Cabinet' of MPs who prepare themselves to take on the reins of government. The Opposition also has the role of acting as the main critic of the government and of offering to the community an alternative set of policies.

MW Latham, MP (Australian Labor Party) has been Leader of the Opposition since 2 December 2003.

## The Australian Government

### Prime Minister

After an election, the Governor-General sends for the leader of the party, or coalition, which has secured a majority in the House of Representatives, and commissions that person to assume the office of Prime Minister and to form a government. The incoming Prime Minister then nominates members of his or her parliamentary party or coalition to serve as ministers in the Government.

The office of Prime Minister is not recognised by the Constitution, being a conventional part of the governmental arrangements.

The Prime Minister has the following powers:

- advising the Sovereign on the appointment of the Governor-General
- acting as the sole source of formal advice for the Governor-General
- advising the Governor-General as to when Parliament should be dissolved
- setting the date for House of Representatives elections
- allocating positions in the Cabinet
- chairing Cabinet meetings.

### Ministers

It is customary for all ministers to be either a member of the House of Representatives or a Senator. If a minister is not an MP, it is obligatory for that minister to become an MP within three months of his/her appointment. Reshuffles of the ministry may occur at any time between elections. Ministers are invariably members of the same party or coalition as the Prime Minister.

The 59 ministries since Federation are listed in table 2.1.

In most cases, new governments are formed after general elections have been held to determine the composition of the House of Representatives. A new government could also be formed on any occasion between elections if the majority party changes its leader, or loses its majority (e.g. as a result of a by-election), or is defeated in an important vote in the House of Representatives. The last occurrence of government changing hands between elections occurred in October 1941.

### Cabinet

In practice, government policy is determined by the most senior ministers meeting in a body known as Cabinet. Such meetings are chaired by the Prime Minister. The Governor-General does not attend such meetings. Cabinet is not a body that is recognised by the Constitution, being a conventional part of the governmental arrangements. Despite this, Cabinet effectively controls not only the legislative program, but also the departments of state. In effect, therefore, Cabinet is the dominant political and administrative element in Australia's national government. Ministers not included in Cabinet are referred to collectively as the Outer Ministry.

Particulars of the Fourth Howard Ministry, comprising Cabinet ministers and the Outer Ministry, are shown in table 2.2.

## 2.1 MINISTRIES SINCE 1901

Number of Ministry	Ministry	Period of office	Party
1	Barton	1 January 1901 to 24 September 1903	Protectionist
2	Deakin	24 September 1903 to 27 April 1904	Protectionist
3	Watson	27 April 1904 to 17 August 1904	Australian Labor Party
4	Reid-McLean	18 August 1904 to 5 July 1905	Free Trade-Protectionist
5	Deakin	5 July 1905 to 13 November 1908	Protectionist
6	Fisher	13 November 1908 to 2 June 1909	Australian Labor Party
7	Deakin	2 June 1909 to 29 April 1910	Protectionist-Free Trade-Tariff Reform
8	Fisher	29 April 1910 to 24 June 1913	Australian Labor Party
9	Cook	24 June 1913 to 17 September 1914	Liberal
10	Fisher	17 September 1914 to 27 October 1915	Australian Labor Party
11	Hughes	27 October 1915 to 14 November 1916	Australian Labor Party
12	Hughes	14 November 1916 to 17 February 1917	Nationalist Labour
13	Hughes	17 February 1917 to 8 January 1918	Nationalist
14	Hughes	10 January 1918 to 9 February 1923	Nationalist
15	Bruce-Page	9 February 1923 to 22 October 1929	Nationalist-Country Party
16	Scullin	22 October 1929 to 6 January 1932	Australian Labor Party
17	Lyons	6 January 1932 to 7 November 1938	United Australia Party
18	Lyons	7 November 1938 to 7 April 1939	United Australia Party
19	Page	7 April 1939 to 26 April 1939	Country Party-United Australia Party
20	Menzies	26 April 1939 to 14 March 1940	United Australia Party
21	Menzies	14 March 1940 to 28 October 1940	United Australia Party-Country Party
22	Menzies	28 October 1940 to 29 August 1941	United Australia Party-Country Party
23	Fadden	29 August 1941 to 7 October 1941	Country Party-United Australia Party
24	Curtin	7 October 1941 to 21 September 1943	Australian Labor Party
25	Curtin	21 September 1943 to 6 July 1945	Australian Labor Party
26	Forde	6 July 1945 to 13 July 1945	Australian Labor Party
27	Chifley	13 July 1945 to 1 November 1946	Australian Labor Party
28	Chifley	1 November 1946 to 19 December 1949	Australian Labor Party
29	Menzies	19 December 1949 to 11 May 1951	Liberal-Country Party
30	Menzies	11 May 1951 to 11 January 1956	Liberal-Country Party
31	Menzies	11 January 1956 to 10 December 1958	Liberal-Country Party
32	Menzies	10 December 1958 to 18 December 1963	Liberal-Country Party
33	Menzies	18 December 1963 to 26 January 1966	Liberal-Country Party
34	Holt	26 January 1966 to 14 December 1966	Liberal-Country Party
35	Holt	14 December 1966 to 19 December 1967	Liberal-Country Party
36	McEwen	19 December 1967 to 10 January 1968	Liberal-Country Party
37	Gorton	10 January 1968 to 28 February 1968	Liberal-Country Party
38	Gorton	28 February 1968 to 12 November 1969	Liberal-Country Party
39	Gorton	12 November 1969 to 10 March 1971	Liberal-Country Party
40	McMahon	10 March 1971 to 5 December 1972	Liberal-Country Party
41	Whitlam	5 December 1972 to 19 December 1972	Australian Labor Party
42	Whitlam	19 December 1972 to 12 June 1974	Australian Labor Party
43	Whitlam	12 June 1974 to 11 November 1975	Australian Labor Party
44	Fraser	11 November 1975 to 22 December 1975	Liberal-Country Party
45	Fraser	22 December 1975 to 20 December 1977	Liberal-Country Party
46	Fraser	20 December 1977 to 3 November 1980	Liberal-Country Party
47	Fraser	3 November 1980 to 7 May 1982	Liberal-Country Party
48	Fraser	7 May 1982 to 11 March 1983	Liberal-Country Party
49	Hawke	11 March 1983 to 13 December 1984	Australian Labor Party
50	Hawke	13 December 1984 to 24 July 1987	Australian Labor Party
51	Hawke	24 July 1987 to 4 April 1990	Australian Labor Party
52	Hawke	4 April 1990 to 20 December 1991	Australian Labor Party
53	Keating	20 December 1991 to 27 December 1991	Australian Labor Party
54	Keating	27 December 1991 to 24 March 1993	Australian Labor Party
55	Keating	24 March 1993 to 11 March 1996	Australian Labor Party
56	Howard	11 March 1996 to 21 October 1998	Liberal-National Party of Australia
57	Howard	21 October 1998 to 26 November 2001	Liberal-National Party of Australia
58	Howard	26 November 2001 to 26 October 2004	Liberal-National Party of Australia
59	Howard	26 October 2004	Liberal-Nationals

Source: Department of the Parliamentary Library.

## 2.2 FOURTH HOWARD MINISTRY — October 2004

### CABINET MINISTERS

Prime Minister	The Hon. John Howard, MP
Minister for Transport and Regional Services (Deputy Prime Minister)	The Hon. John Anderson, MP
Treasurer	The Hon. Peter Costello, MP
Minister for Trade	The Hon. Mark Vaile, MP
Minister for Foreign Affairs	The Hon. Alexander Downer, MP
Minister for Defence	Senator the Hon. Robert Hill
Minister for Finance and Administration	Senator the Hon. Helen Coonan, MP
Minister for Health and Ageing	The Hon. Tony Abbott, MP
Attorney-General	The Hon. Philip Ruddock, MP
Minister for the Environment and Heritage	Senator the Hon. Ian Campbell
Minister for Communications, Information Technology and the Arts	Senator the Hon. Helen Coonan
Minister for Agriculture, Fisheries and Forestry	The Hon. Warren Truss, MP
Minister for Immigration and Multicultural and Indigenous Affairs and Minister Assisting the Prime Minister for Indigenous Affairs	Senator the Hon. Amanda Vanstone
Minister for Education, Science and Training	The Hon. Dr Brendan Nelson, MP
Minister for Family and Community Services and Minister Assisting the Prime Minister for Women's Issues	Senator the Hon. Kay Patterson
Minister for Industry, Tourism and Resources	The Hon. Ian Macfarlane, MP
Minister for Employment and Workplace Relations and Minister Assisting the Prime Minister for the Public Service	The Hon. Kevin Andrews, MP

### OUTER MINISTRY

Minister for Local Government, Territories and Roads	The Hon. Jim Lloyd, MP
Minister for Revenue and Assistant Treasurer	The Hon. Mal Brough, MP
Minister for Veterans' Affairs	The Hon. De-Anne Kelly, MP
Minister for Human Services	The Hon. Joe Hockey, MP
Special Minister of State	Senator the Hon. Eric Abetz
Minister for Ageing	The Hon. Julie Bishop, MP
Minister for Justice and Customs	Senator the Hon. Chris Ellison
Minister for the Arts and Sports	Senator the Hon. Rod Kemp
Minister for Fisheries, Forestry and Conservation	Senator the Hon. Ian Macdonald
Minister for Citizenship and Multicultural Affairs	The Hon. Peter McGauran, MP
Minister for Vocational and Technical Education and Minister Assisting the Prime Minister	The Hon. Gary Hardgrave, MP
Minister for Small Business and Tourism	The Hon. Fran Bailey, MP
Minister for Workplace Participation	Mr Peter Dutton, MP

### PARLIAMENTARY SECRETARIES

Parliamentary Secretary to the Prime Minister	Mr Gary Nairn, MP
Parliamentary Secretary to the Minister for Transport and Regional Services	Mr John Cobb, MP
Parliamentary Secretary to the Treasurer	Mr Chris Pearce, MP
Parliamentary Secretary (Foreign Affairs and Trade)	The Hon. Bruce Billson, MP
Parliamentary Secretary to the Minister for Defence	The Hon. Teresa Gambaro, MP
Parliamentary Secretary to the Minister for Finance and Administration	The Hon. Dr Sharman Stone, MP
Parliamentary Secretary to the Minister for Health and Ageing	The Hon. Christopher Pyne, MP
Parliamentary Secretary to the Minister for the Environment and Heritage	Mr Greg Hunt, MP
Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry	Senator Richard Colbeck
Parliamentary Secretary to the Minister for Education, Science and Training	Mr Pat Farmer, MP
Parliamentary Secretary (Children and Youth Affairs)	Mrs Sussan Ley, MP
Parliamentary Secretary to the Minister for Industry, Tourism and Resources	The Hon. Warren Entsch, MP

Source: *Department of the Parliamentary Library.*

## The Australian Public Service (APS)

The APS provides policy advice to the Australian Government and facilitates the delivery of programs to the community. The APS is part of the broader public sector, which includes parliamentary departments and staff, Australian-owned companies, statutory authorities, a separate public service for each of the states and territories, and local government employees. At June 2003 there were 131,711 employees in the APS (graph 2.3). This represents an 18% decline since 1994, but a 16% increase since June 2000.

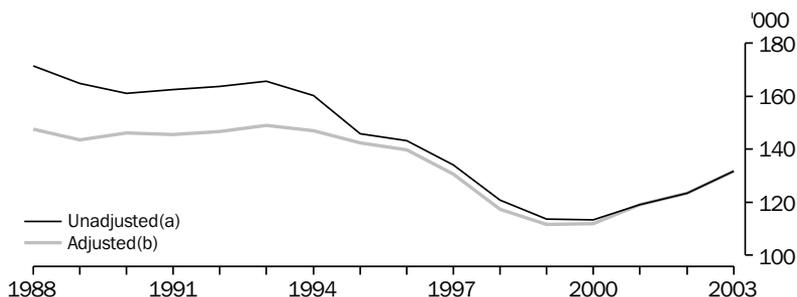
There are currently 18 departments of state and around 60 statutory agencies. An updated list of these bodies can be found at <http://www.apsc.gov.au/apscprofile/agencies.htm>. Statutory agencies are responsible for a specific function prescribed within departments' portfolio responsibilities. The Australian National Audit Office, for example, falls within the Department of Prime Minister and Cabinet and provides a range of audit services to the Parliament and Commonwealth public sector agencies. Each department is managed by a chief executive officer, or secretary, who is responsible to the relevant minister for the efficient, effective and ethical use of resources. The minister, in turn, takes political responsibility for the actions of the department. Departments and statutory agencies are governed by legislation specific to their functions, and by the *Financial Management and Accountability Act 1997* (Cwlth). This Act states specific requirements for the management of human and financial resources. The 18

departments and a majority of statutory agencies are also subject to the *Public Service Act 1999* (Cwlth) which require public servants to act responsibly, accountably, impartially and with integrity. As well as answering to the relevant minister, the APS is accountable to the Australian community through a variety of mechanisms including parliamentary committees, administrative law, the Ombudsman and the Auditor-General.

Over the past two decades, the APS has undergone substantial change, both in its internal management processes and in its methods of service delivery. Examples of management changes include the introduction of accrual budgeting in the 1999–2000 Budget, an emphasis on reaching performance targets, the costing of government 'outputs', the imposition of capital use charges, the devolution of responsibility to departments and more flexible employment practices. Examples of changes to service delivery include the trend towards providing information and other services on the Internet, increased contracting of service delivery to the private sector and the establishment of customer service charters.

Public resources are harnessed by the public sector to give practical effect to government policies. Traditionally, this process has been known as public administration. Increasingly, it is known as public management, reflecting the growing expectation that public sector managers will take responsibility for achieving results, as well as the increasing emphasis on efficiency. Many APS agencies have developed systems of performance pay to encourage this focus on results.

2.3 AUSTRALIAN PUBLIC SERVICE — June



(a) Actual number of APS employees. (b) Employee numbers adjusted for changes in APS coverage during the period.

Source: Australian Public Service Commission, APS Employment Database, <http://www.apsc.gov.au>.

## Commonwealth elections

### Franchise

Any Australian citizen aged 18 and over, or British subject who was on the Commonwealth Roll as at 25 January 1984, is qualified to enrol and vote at Commonwealth elections. Residence in an electorate for a period of one month before enrolment is necessary to enable a qualified person to enrol. Enrolment and attendance at a polling place on polling day (except under certain lawful exceptions) are compulsory for all eligible persons.

### Parliamentary terms

Members of the House of Representatives are elected for a maximum term of three years, though elections may be called earlier. Senators have fixed terms of six years. Normally half the Senate retires every three years, and elections for the Senate are usually held at the same time as elections for the House of Representatives, though they need not be. The most recent election of each house separately occurred in 1970 (Senate) and 1972 (House of Representatives).

At times of disagreement between the House of Representatives and the Senate, both houses may be dissolved and an election called for both houses. Six of the forty-one Commonwealth elections have been double dissolution elections, the most recent of which occurred in 1987.

Table 2.4 shows the number and terms of all parliaments since Federation.

### Electorates

For the purpose of House of Representatives elections each state or territory is divided into single-member electorates corresponding in number to the number of members of the House of Representatives to which the state or territory is entitled. In Senate elections the whole state or territory constitutes a single electorate.

## 2.4 COMMONWEALTH PARLIAMENTS

Number of Parliament	Date of opening	Date of dissolution
1	9 May 1901	23 November 1903
2	2 March 1904	5 November 1906
3	20 February 1907	19 February 1910
4	1 July 1910	23 April 1913
5	9 July 1913	30 July 1914(a)
6	8 October 1914	26 March 1917
7	14 June 1917	3 November 1919
8	26 February 1920	6 November 1922
9	28 February 1923	3 October 1925
10	13 January 1926	9 October 1928
11	6 February 1929	16 September 1929
12	20 November 1929	27 November 1931
13	17 February 1932	7 August 1934
14	23 October 1934	21 September 1937
15	30 November 1937	27 August 1940
16	20 November 1940	7 July 1943
17	23 September 1943	16 August 1946
18	6 November 1946	1 October 1949
19	22 February 1950	19 March 1951(a)
20	12 June 1951	21 April 1954
21	4 August 1954	4 November 1955
22	15 February 1956	14 October 1958
23	17 February 1959	2 November 1961
24	20 February 1962	1 November 1963
25	25 February 1964	31 October 1966
26	21 February 1967	29 September 1969
27	25 November 1969	2 November 1972
28	27 February 1973	11 April 1974(a)
29	9 July 1974	11 November 1975(a)
30	17 February 1976	8 November 1977
31	21 February 1978	19 September 1980
32	25 November 1980	4 February 1983(a)
33	21 April 1983	26 October 1984
34	21 February 1985	5 June 1987(a)
35	14 September 1987	19 February 1990
36	8 May 1990	8 February 1993
37	4 May 1993	29 January 1996
38	30 April 1996	31 August 1998
39	10 November 1998	8 October 2001
40	12 February 2002	31 August 2004
41	16 November 2004	. .

(a) A dissolution of both the Senate and the House of Representatives.

Source: *Department of the Parliamentary Library.*

Redistributions of House of Representatives electorates must be held in each state and territory at least every seven years, though a change in the population of a state or territory may see them held more frequently. The article *Drawing House of Representatives electorate boundaries* discusses electoral redistributions in more detail.

For the most recent election (October 2004) Queensland had gained an extra member, while South Australia had lost a member. The House of Representatives numbered 150 members (table 2.5).

## 2004 election

The House of Representatives was dissolved on 31 August 2004. A general election for the House of Representatives and a half-Senate election was held on 9 October 2004. The number of electors enrolled at the time of the election is shown in table 2.6.

At the 2004 election the Liberal–Nationals coalition regained control of the House of Representatives and formed Australia’s 59th Commonwealth ministry. From 1 July 2005 the Liberal–Nationals coalition will control the Senate, with 39 of the 76 seats, as a result of the half-Senate election.

The state of the parties in the Commonwealth Parliament following the 2004 election is shown in table 2.7. For details of the 2004 election, see: <<http://www.aec.gov.au>>.

### 2.5 REPRESENTATION ENTITLEMENTS, 2004 election

State/territory	Seats	Change from 2001 election
New South Wales	50	—
Victoria	37	—
Queensland	28	+1
South Australia	11	-1
Western Australia	15	—
Tasmania	5	—
Northern Territory	2	—
Australian Capital Territory	2	—
<b>Total</b>	<b>150</b>	<b>—</b>

Source: Department of the Parliamentary Library.

### 2.6 COMMONWEALTH PARLIAMENTARY ELECTION OF 9 OCTOBER 2004, Electors enrolled

State/territory	Electors
New South Wales	4 328 949
Victoria	3 309 800
Queensland	2 475 611
South Australia	1 051 923
Western Australia	1 248 732
Tasmania	342 809
Northern Territory	112 930
Australian Capital Territory	227 541
<b>Australia</b>	<b>13 098 295</b>

Source: Australian Electoral Commission.

### 2.7 STATE OF THE PARTIES, Commonwealth Parliament

House of Representatives (from October 2004)	
Liberal Party	74
Australian Labor Party	60
Nationals	12
Country Liberal Party	1
Independent	3
<i>Total</i>	150
Senate (from 1 July 2005)	
Liberal Party	32
Australian Labor Party	28
Nationals	6
Australian Democrats	4
The Greens	4
Country Liberal Party	1
Family First Party	1
<i>Total</i>	76

Source: Department of the Parliamentary Library.

## State government

Each state experienced a period as a self-governing colony prior to the achievement of Federation. Under the constitutional arrangements that came into existence in 1901 significant powers were retained by the states, and these have been extended to the major territory governments.

### State governors

A state governor is the representative of the Sovereign, appointed by the Sovereign on the advice of the state premier. The governor exercises the executive power of his or her state on the advice of the premier. Other powers and functions are similar to the powers exercised at the Commonwealth level by the Governor-General.

In addition, governors have been invested with various statutory functions by state Constitutions and the *Commonwealth Australia Act 1986*, as well as under the Acts of the parliaments of the states. For example, governors may administer the prerogative of mercy by the reprieve or pardon of criminal offenders, and may remit fines and penalties due to the Crown in right of their state.

The governors also possess what are referred to as 'reserve powers'. These may be used without the advice of the Premier, but are used only in times of political uncertainty.

The governors of the states at November 2004 are shown in table 2.8.

### State parliaments

Each state is governed by a ministry headed by a premier. The state Cabinet, chaired by the Premier, is the centre of political and administrative power in each state.

Each state has a formal Opposition, with the same role as at the Commonwealth level, headed by an opposition leader.

Tables 2.9 and 2.10 set out the state premiers and opposition leaders at October 2004.

Five of the six Australian states have a bicameral parliament. In Queensland there is a single house. The lower houses in New South Wales, Victoria, Queensland and Western Australia are entitled Legislative Assembly. In South Australia and Tasmania the term is House of Assembly. The title of all upper houses is Legislative Council.

The members of the parliaments of each state are elected by the residents of that state using either the alternative vote (known in Australia as 'preferential voting') or the single transferable vote variant of proportional representation.

The state of the parties in each of the state and territory parliaments at 31 October 2004 is set out in table 2.11.

The extent of state legislative powers is defined by the Commonwealth and state Constitutions, and includes education, police, public health, public transport, agriculture, roads and the oversight of local government.

#### 2.8 GOVERNORS OF THE STATES — November 2004

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New South Wales	Her Excellency the Professor Marie Bashir, AC
Victoria	John Landy, AC, MBE
Queensland	Her Excellency Ms Quentin Bryce, AC
Western Australia	His Excellency Lieutenant General John Murray Sanderson, AC, AM
South Australia	Her Excellency Mrs Marjorie Jackson Nelson, AC, MBE
Tasmania	His Excellency the Hon. William Cox, AC, RFD, ED

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Source: Department of the Parliamentary Library.

#### 2.9 PREMIERS, States — October 2004

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New South Wales	The Hon. RJ Carr, MP (ALP)
Victoria	The Hon. SP Bracks, MP (ALP)
Queensland	The Hon. P Beattie, MP (ALP)
Western Australia	The Hon. GI Gallop, MP (ALP)
South Australia	The Hon. M Rann, MP (ALP)
Tasmania	The Hon. PA Lennon, MP (ALP)

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Source: Department of the Parliamentary Library.

#### 2.10 OPPOSITION LEADERS, States — October 2004

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New South Wales	JG Brogden, MP (LP)
Victoria	RKB Doyle, MP (LP)
Queensland	LJ Springborg, MP (NP)
Western Australia	The Hon. CJ Barnett, MP (LP)
South Australia	Hon. RG Kerin, MP (LP)
Tasmania	MT Hidding, MP (LP)

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Source: Department of the Parliamentary Library.

## 2.11 STATE OF THE PARTIES — October 2004

NEW SOUTH WALES		Seats
Legislative Assembly		
Australian Labor Party		55
Liberal Party		20
Nationals		12
Independent		6
<i>Total</i>		93
Legislative Council		
Australian Labor Party		18
Liberal Party		9
Nationals		4
The Greens		3
Christian Democratic Party		2
Australian Democrats		1
Outdoor Recreation Party		1
One Nation Party		1
Shooters Party		1
Unity		1
Others		1
<i>Total</i>		42
VICTORIA		
Legislative Assembly		
Australian Labor Party		62
Liberal Party		17
Nationals		7
Independent		2
<i>Total</i>		88
Legislative Council		
Liberal Party		25
Australian Labor Party		15
Nationals		4
<i>Total</i>		44
QUEENSLAND		
Legislative Assembly		
Australian Labor Party		63
Nationals		15
Liberal Party		5
One Nation Party		1
Independent		5
<i>Total</i>		89
SOUTH AUSTRALIA		
House of Assembly		
Australian Labor Party		22
Liberal Party		20
Nationals		1
The Greens		1
Independent		3
<i>Total</i>		47
Legislative Council		
Liberal Party		9
Australian Labor Party		7
Australian Democrats		3
Independent		3
<i>Total</i>		22

...continued

## 2.11 STATE OF THE PARTIES — October 2004

— continued

WESTERN AUSTRALIA		Seats
Legislative Assembly		
Australian Labor Party		32
Liberal Party		15
Nationals		5
Independent		5
<i>Total</i>		57
Legislative Council		
Australian Labor Party		13
Liberal Party		11
The Greens		5
Nationals		1
Independents		4
<i>Total</i>		34
TASMANIA		
House of Assembly		
Australian Labor Party		14
Liberal Party		7
The Greens		4
<i>Total</i>		25
Legislative Council		
Australian Labor Party		5
Independent		10
<i>Total</i>		15

Source: Department of the Parliamentary Library.

## Territory government

### Self-governing

The Australian Capital Territory and the Northern Territory are self-governing polities with powers almost matching those of the original states. The Northern Territory has been working towards full statehood, though a referendum on the question was rejected by Northern Territory voters in 1998. Norfolk Island controls its own treasury and raises revenue under its own system of laws. Generally, Commonwealth laws do not apply to Norfolk Island unless expressed to do so, but where any Norfolk Island legislation is in conflict with ordinances made by the Governor-General, such legislation is deemed null and void. Norfolk Islanders may enrol for Commonwealth elections in the electoral division they nominate, with some exceptions.

The Northern Territory and Norfolk Island both have an administrator of the territory, appointed by the Governor-General (table 2.13). The Australian Capital Territory has neither administrator nor governor. Each territory has an elected Legislative Assembly, with a wide range of powers.

The state of the parties in the Northern Territory and the Australian Capital Territory at 31 October 2004 is set out in table 2.12.

Each territory has a government headed by a chief minister (table 2.14). The Northern Territory and the Australian Capital Territory have an opposition headed by an opposition leader (table 2.15).

## 2.12 STATE OF THE PARTIES — October 2004

	Seats
NORTHERN TERRITORY	
Legislative Assembly	
Australian Labor Party	13
Country Liberal Party	10
Independent	2
<i>Total</i>	<i>25</i>
AUSTRALIAN CAPITAL TERRITORY	
Legislative Assembly	
Australian Labor Party	9
Liberal Party	7
The Greens	1
<i>Total</i>	<i>17</i>

Source: Department of the Parliamentary Library.

## 2.13 ADMINISTRATORS — October 2004

Northern Territory	The Hon. Edward Joseph (Ted) Egan, AM
Norfolk Island	GEJ Tambling

Source: Department of the Parliamentary Library.

## 2.14 CHIEF MINISTERS — October 2004

Northern Territory	The Hon. CM Martin, MLA (ALP)
Australian Capital Territory	The Hon. J Stanhope, MLA (ALP)
Norfolk Island	The Hon. GR Gardner

Source: Department of the Parliamentary Library.

## 2.15 OPPOSITION LEADERS — October 2004

Northern Territory	TK Mills, MLA (CLP)
Australian Capital Territory	BM Smyth, MLA (LP)

Source: Department of the Parliamentary Library.

## Non-self governing

Jervis Bay Territory, and the external territories of the Cocos (Keeling) Islands, Christmas Island, Coral Sea Islands, and Ashmore and Cartier Islands, make up the non-self governing territories of Australia.

The resident communities in each of Jervis Bay Territory, the Cocos (Keeling) Islands and Christmas Island are provided with an extensive range of government services. Each of the Cocos (Keeling) Islands and Christmas Island has an elected local government, and residents may vote in Commonwealth parliamentary elections in the electorate of Lingiari (Northern Territory). Residents of Jervis Bay Territory are enrolled in the electoral division of Fraser (Australian Capital Territory).

## Local government

Local government has a limited constitutional position in Australia, being organised under state or territory legislation upon broadly similar lines across Australia. The main variation is the existence of various councils in the Northern Territory that are based on rural Aboriginal communities. There are no local councils in the Australian Capital Territory, where the territory government has direct responsibility for local services. Local government in Australia is unlike that in many other political systems, for it provides an unusually narrow range of services.

Each state and the Northern Territory has a number of local government areas, known variously as cities, towns, municipalities, boroughs, shires or districts. The generic local body is the council. In October 2004 there were 717 local councils. Most councillors and aldermen are elected by local residents, though councils may be dismissed by state governments and occasionally are.

Within each local government area various local services are provided, though there are many variations between states as well as between urban and rural councils. The Brisbane City Council is responsible for the provision of services across most of Brisbane; by contrast, many small rural councils provide a relatively small number of services. Among the local responsibilities are the management of health, sanitary and garbage services, road, street and bridge construction, water supply and sewerage, museums, fire brigades, harbour services and local libraries. The scope of local government duties differs a great deal around the nation, for in all states many of the responsibilities of a local nature are performed either directly by the state government or through semi-government authorities, known in Australia as statutory authorities. The provision of household water, for instance, is typically undertaken by a statutory authority operating under state legislation.

## Political parties

### The party system

An Australian party system had begun to develop during the last years of the colonial period in the 1890s, to the extent that most seats in the first parliament were won by candidates from just three major groups, one of which was the Australian Labor Party. The outline of the modern system can be seen as early as 1909 when a fusion of the two major non-Labor parties formed the first Liberal Party. This was confirmed in the election in the following year, which saw the election dominated by the Liberal and Australian Labor parties. In 1919 the Country Party won a significant number of seats, and by 1923 it was participating in a coalition government. Since that time the Australian party system has been dominated by the contest between Labor and a coalition of the Liberal and National (formerly Country) parties. Many minor parties have contested House of Representatives elections, but have not seriously threatened the dominance of the three major parties in terms of seats won.

Since 1949 the use of proportional representation for Senate elections has given minor parties a realistic chance of winning Senate seats; the major parties have rarely controlled the upper house since the election of 1964.

### Parties and Parliament

The Commonwealth Parliament has thus been dominated by tightly controlled parties for all of its history. This has been the key factor in a decline in the significance of Parliament relative to that of the Executive.

The impact of parties can be seen in the operations of each house of Parliament, particularly in the legislative process. Many questions and queries may be raised in the House of Representatives, and amendments are often moved. However, because governments enjoy a majority in the House, questions may be avoided, amendments cannot be forced, and whether or not the Opposition's views are accepted depends on the wishes of the government of the day.

It has been a different story in the Senate, where no government has enjoyed a majority since 1981. If the Government wants legislation to be passed by the Senate it often has to agree to amendments proposed by the Opposition and minor parties. It is for this reason the Senate has been far more active than the House of Representatives in sending proposed legislation to committees. With the Liberal–Nationals Government gaining control of the Senate from 1 July 2005, it is expected the Senate will have less impact on legislation in the 41st Parliament than previously.

## Anthems and colours

The Royal Anthem is 'God Save The Queen', which is played in the presence of Her Majesty The Queen or a member of the Royal Family.

The National Anthem is 'Advance Australia Fair':

*Australians all let us rejoice,  
For we are young and free,  
We've golden soil and wealth for toil;  
Our home is girt by sea;  
Our land abounds in nature's gifts  
Of beauty rich and rare,  
In history's page, let every stage  
Advance Australia Fair.  
In joyful strains then let us sing,  
Advance Australia Fair.*

*Beneath our radiant Southern Cross  
We'll toil with hearts and hands;  
To make this Commonwealth of ours  
Renowned of all the lands;  
For those who've come across the seas  
We've boundless plains to share;  
With courage let us all combine  
To Advance Australia Fair.  
In joyful strains then let us sing,  
Advance Australia Fair.*

Green and gold are the national colours of Australia on all occasions on which such colours are customarily used.

## Reference notes

The Australian Constitution is reproduced in *Year Book Australia* from time to time, the latest being the 1998 edition.

In *Year Book Australia 1924* the names are given of each ministry from Federation until February 1923. *Year Book Australia 1953* contains a list of ministries which covers the period between February 1923 and July 1951. The names of members of subsequent ministries are listed in issues of *Year Book Australia 1953* to *1975–76* inclusive, and in successive issues from 1980.

For further details of referendums see *Year Book Australia 1966*, pages 66–68, *Year Book Australia 1974*, pages 90–91, *Year Book Australia 1977–78*, pages 72–73 and *Year Book Australia 1986*, pages 55–56.

Particulars of voting at Senate elections and elections for the House of Representatives up to 1998 appear in earlier issues of *Year Book Australia*. Full details are issued by the Australian Electoral Commission following each election.

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- New South Wales Government, last viewed October 2004 <<http://www.nsw.gov.au>>
- Victorian Government, last viewed October 2004 <<http://www.vic.gov.au/index.jsp>>
- Queensland Government, last viewed October 2004 <<http://www.qld.gov.au/>>
- Western Australian Government, last viewed October 2004 <<http://www.wa.gov.au>>
- South Australian Government, last viewed October 2004 <<http://www.sa.gov.au>>
- Tasmanian Government, last viewed October 2004 <<http://www.tas.gov.au>>
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House of Representatives, last viewed October 2004 <<http://www.aph.gov.au/house/index.htm>>

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# Drawing House of Representatives electorate boundaries

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Democracy has been defined as ‘a form of government organised in accordance with the principles of popular sovereignty, political equality, popular consultation, and majority rule’.<sup>1</sup> All of these features are closely linked with elections:

- Elections are the process whereby the people in a democracy delegate an important part of their power to members of parliament (the ‘legislators’) who will make the rules whereby the nation is governed.
- ‘Political equality’ is the principle that each adult citizen should have the same chance to participate in the national decision-making process as does every other adult citizen.
- According to one of the writers of the Constitution of the United States of America, Thomas Jefferson, ‘the will of the majority, honestly expressed, should give law’.<sup>2</sup> Ideally, elections are occasions when the votes of a majority of the people elect the people who will make such decisions on their behalf.
- Finally, the principle of popular consultation requires that there are institutional avenues through which the citizenry may inform public officials of what they desire in regard to government decisions.

National elections play an important part in the way these principles are upheld in Australia. Virtually all citizens over the age of eighteen have the right to vote, there are no major inequalities in the value of their votes, most election results are decided by a majority of voters, and the people have a guaranteed input into the manner in which electorates are organised.

An important part of the Australian democratic system is the way in which electorate boundaries are drawn, for if this were seriously distorted, a lack of public acceptance could undermine the public perception of the legitimacy of Australia’s national elections. This article discusses these arrangements.<sup>3</sup>

## The redistribution process

Australia’s House of Representatives is made up of single-member electorates (also called ‘divisions’, ‘seats’, ‘constituencies’). The Australian Electoral Commission is required to periodically redraw the boundaries for these electorates in what is called a ‘redistribution’, with the aim being to ensure that the enrolment in the electorates in any given state or territory remain as equal in size as possible. The use of statistics provided by the Australian Bureau of Statistics (ABS) is central to this operation, for the Australian Statistician is required by law to provide many of the statistics needed for a redistribution.<sup>4</sup>

## When are redistributions required?

Before 1984 there was no set time for the holding of Commonwealth redistributions, and when they did occur, all electorates in all states were usually redistributed at the same time. Governments, rather than legislation, set the time for redistributions. The lack of a fixed schedule meant that political considerations could affect the timing of a redistribution, and

if there was any lengthy delay, electorate sizes could vary considerably, thus distorting the value of individual votes. The 1968 redistribution in all states occurred thirteen years after the previous redistribution, and by the time it was held the largest electorate (in Victoria) numbered 130,520 voters while the smallest (in New South Wales) contained only 29,243 voters.

Changes to the electoral legislation in 1983–84 brought regularity and a greater equality to the redistribution process, with the timing of future redistributions henceforth being decided by the law rather than by governments.

There are three ways in which a redistribution of a state's or territory's electorates can be triggered:

- a shift in the population of a state or territory which alters the number of members of the House of Representatives (MPs) the state or territory should have;
- shifts in the number of enrolments in the electorates in a state or territory so as to make them unequal in size; or
- if neither of these occurs in the seven years after a redistribution in a state or territory, then there must be a new redistribution in that state or territory.

### **(1) A change in a state or territory's entitlement**

The overriding principle at work in the redistribution process is to have electorates as nearly the same size as is possible to achieve. As the populations of each state and territory shift, so too can the number of parliamentary members to which each is entitled. Is a state's population growing so quickly as to entitle it to another MP? Is another's falling, lessening its parliamentary entitlement? The first possible trigger for a redistribution, then, is an official finding that the entitlement of a state or territory has altered.

Since 1984 there have been 14 electoral redistributions triggered in this way: 1989 (redistributions in Vic., WA), 1992 (NSW, Qld, SA), 1994 (Vic., Qld, ACT), 1997 (Qld, ACT), 2000 (WA, NT), 2003 (Qld, SA).

The method for determining state and territory entitlements is illustrated here by reference to the most recent examples.<sup>5</sup>

On 12 February 2002 the House of Representatives sat for the first time following the election of November 2001. In accordance with the *Commonwealth Electoral Act 1918* (Cwlth), in the thirteenth month after that first sitting day (in this case, 19 February 2003), a determination was made on as to the number of MPs there should be representing each state and territory. This exercise was based on the latest population statistics for the states and territories provided to the Electoral Commissioner by the Australian Statistician. At this stage, the first of two quotas used in the redistribution of electorates was calculated.

#### *Population quota*

The first calculation made was of what is called the 'population quota'. To calculate this, the total population of the six states, as ascertained by the ABS, was divided by twice the number of state senators (144):

$$\frac{\text{Total population of the states}}{(2 \times \text{number of state senators})} = \text{population quota}$$

In February 2003, this calculation was as follows:

$$\frac{19,205,190}{144} = 133,369.375$$

The population quota was then used to calculate the MP entitlement of each state and territory. The population of each was divided by the population quota to give the number of MPs to which each was entitled. When such a calculation is made, if the remainder in any calculation is greater than 0.5, the figure for the number of MPs is rounded up. If the remainder is less than or equal to 0.5, the figure is rounded down.

As a result of the calculation in February 2003, it was determined that:

- For New South Wales (50 MPs), Victoria (37), Western Australia (15), Tasmania (5) and the Australian Capital Territory (2) it was deemed that the number of MPs representing each would not change. It should be noted here that every state which federated in 1901 is guaranteed a minimum of five members of the House of Representatives. Accordingly, Tasmania has always had five members.

- In the case of Queensland (27 MPs) the state population was 3,729,123. When divided by the population quota its entitlement figure was 27.9609. This figure was rounded up, with the result that it was established there would be 28 Queensland Members of the House of Representatives after the next Commonwealth election, an increase of one.
- In the case of South Australia (12 MPs) the population was 1,522,467. When divided by the population quota its entitlement figure was 11.4154. The state's entitlement figure therefore was rounded down, meaning that there would be 11 South Australian Members of the House of Representatives after the next Commonwealth election, a loss of one.
- In the case of the Northern Territory (2 MPs) the population was 199,760. When divided by the population quota its entitlement figure was 1.4978. The Territory's entitlement figure also was rounded down, meaning that there would be one Northern Territory Member of the House of Representatives after the next Commonwealth election, a loss of one.

Having established that the number of MPs for each of Queensland and South Australia would alter, a redistribution for these states was thus required. In the case of the Northern Territory, however, the loss of one of its two electorates meant that the electorates would be merged, making a redistribution redundant. Despite this finding, its story took an unexpected turn that is recounted below.

## **(2) Changes in electorate enrolments**

The movement in the Australian population is also reflected in the numbers of people who are registered to vote. Enrolment figures shift constantly: voters are enrolling for the first time, they are moving from one residence to another in their home town, they are shifting from rural areas to the urban areas or the reverse, they move from state to state, a few will regain the vote after a period in gaol. As they shift around the country, so do electorate enrolment numbers change – most will be

increasing in size, some quite quickly, a few may be declining in size. As these changes occur, so can occur the second grounds that may trigger a redistribution.

Every month the Australian Electoral Commissioner is required to determine enrolment totals for all House of Representatives electorates. Also monthly, the Electoral Commissioner must establish the average enrolment for all electorates in a state or territory. The Electoral Commissioner must then establish the extent to which the number of electors enrolled in each electorate differs from the average electorate enrolment in each state and territory. A redistribution must take place when the number of electors in more than a third of a state's electorates, or in one of the ACT electorates, varies from the average state electorate enrolment by more than 10% in three consecutive months, or two months in the case of the ACT.

Since the 1983–84 changes to legislation, no redistribution has yet occurred because of this requirement.

## **(3) The passage of time**

If, during a period of seven years, neither provision (1) nor provision (2) has forced a redistribution in a particular state or territory, then a new redistribution must be conducted. As the most recent Victorian redistribution had been finalised in 1994, it was deemed that a new redistribution should occur in that state during 2002.

Since 1983 there have been 7 electoral redistributions triggered in this way: in 1992 (Tas., ACT), 1997 (WA), 1999 (Tas., NSW, SA), 2002–03 (Vic.).

## **Changes in MP numbers**

The net impact of regular redistributions is that the number of MPs in the House representing the various states and territories alters gradually over time – as also does the total number of MPs (table S2.1).

## S2.1 NUMBER OF ELECTORATES

	1984	1987	1990	1993	1996	1998	2001	2004
NSW	51	51	51	50	50	50	50	50
Vic.	39	39	38	38	37	37	37	37
Qld	24	24	24	25	26	26	27	28
SA	13	13	13	12	12	12	12	11
WA	13	13	14	14	14	14	15	15
Tas.	5	5	5	5	5	5	5	5
NT	1	1	1	1	1	1	2	(a)2
ACT	2	2	2	2	3	2	2	2
<b>Total</b>	<b>148</b>	<b>148</b>	<b>148</b>	<b>147</b>	<b>148</b>	<b>148</b>	<b>150</b>	<b>150</b>

(a) Despite the NT's entitlement dropping below 2 electorates, the Commonwealth Parliament legislated in 2004 to set aside the 2003 determination in respect of the NT so as to ensure that the NT retained two seats for the next election.

Source: Australian Electoral Commission.

It can be seen that changes in the size of the House of Representatives caused by redistributions are only slight. This is due to the 'nexus' clause (section 24) in the Commonwealth Constitution. Section 24 says that the number of members of the House of Representatives 'shall be, as nearly as practicable, twice the number of the senators'. The High Court has stated that this means that the House must remain at about twice the number of state senators. As there are currently 72 state senators, the House must therefore number about 144 MPs. Major changes to the size of the House of Representatives, as occurred in 1949 and 1984, can only be made in conjunction with major changes in the size of the Senate.

### A redistribution takes place

After it has been established that a redistribution must be conducted in a particular state or territory, the Australian Electoral Commission announces the commencement of the process in the *Commonwealth Gazette*.

### Electorate sizes

The *Commonwealth Electoral Act 1918* (Cwlth) is written so as to ensure that electorate sizes do not vary too greatly – as used to occur from time to time. There are two provisions designed to achieve this, the first of which involves the second quota figure that is used in Australian redistributions.

### Enrolment quota

The Australian Electoral Commissioner now determines what is known as the 'enrolment quota' for the state or territory where

electorates are to be redistributed. This figure is the average enrolment of the state or territory, and is established by dividing the number of enrolments in that state or territory by the number of electorates to which the state or territory is entitled.

### Quota variation

The constant shift in electorate populations due to people enrolling, people moving around the country, and people dying, means that it is impossible to have each electorate in a state or territory exactly the same size. The enrolment quota is used to establish the permissible variation in electorate size – usually called the 'quota variation'. The quota variation for Australia's national elections is currently 10%. This means that at the time of a redistribution in a state or territory, the number of electors in each electorate may vary, but may not be more than 10% of the enrolment quota, nor less than 10% of the enrolment quota.

### Projected average enrolment

In addition, a 'projected average enrolment' is calculated. This is the estimated average electorate enrolment in the state or territory three and a half years from the date of the redistribution. This figure may vary by no more than 3.5% above or below the average in any electorate. The aim here is that by making allowance for excessive growth or contraction in particular areas, a state's or a territory's electorates still remain within allowable bounds at the end of a seven-year period after a redistribution.<sup>6</sup> This does not always succeed. Table S2.1 shows that the very rapid growth in Queensland's population has meant that there have been redistributions for that state prior to the elections of 1993, 1996, 2001 and 2004.

Table S2.2 shows the results of these calculations for the 2002–03 Victorian and the 2003 Queensland and South Australian redistributions.

For Victoria the enrolment quota was 88,093 electors. Therefore, at the time of the 2002–03 redistribution, the quota variation of 10% above or below the enrolment quota meant that the permissible maximum electorate size was 96,902 electors, and the permissible minimum was 79,284 electors.

For Queensland the enrolment quota was 84,078 electors, with the permissible maximum electorate size being 92,485 electors, and the permissible minimum being 75,671 electors.

For South Australia the enrolment quota was 94,834 electors, with the permissible maximum electorate size being 104,317 electors and the permissible minimum being 85,351 electors.

The projected average enrolments for these states were as follows. For Victoria the projected average enrolment was 93,882 electors. Projected electorate enrolments three and a half years after the redistribution should not vary from this by more or less than 3.5% – a permissible maximum of 97,168 electors and a permissible minimum of 90,596 electors. The Queensland figures were a projected average of 93,625 electors, with a permissible maximum of 96,901 electors, and a permissible minimum of 90,349 electors. The South Australian equivalents were a 98,909 projected average enrolment, with a permissible maximum of 102,370 and permissible minimum of 95,448 electors.

## The Redistribution Committee

The electoral redistribution process is designed to give members of the public various opportunities to have their views heard. The first occurs once the process has formally begun, when the Australian Electoral Commissioner invites public suggestions concerning the redistribution. There are 30 days allowed for responses to be made to this general invitation, after which 14 more days are allowed for public comments on the lodged suggestions.

Meanwhile a Redistribution Committee is established for the state or territory that is involved in the redistribution. The membership of this committee is set by law:

- For a state redistribution the Redistribution Committee must consist of the Electoral Commissioner, the Australian Electoral Officer for the state concerned, the state Surveyor-General and the state Auditor-General.
- For an Australian Capital Territory redistribution the Redistribution Committee must consist of the Electoral Commissioner, the Senior Divisional Returning Officer for the ACT, the Commonwealth Surveyor-General and a senior Australian Public Service officer nominated by the Governor-General.
- For a Northern Territory redistribution the Redistribution Committee must consist of the Electoral Commissioner, the Australian Electoral Officer for the Northern Territory, the Northern Territory Surveyor-General and the Northern Territory Auditor-General.

### S2.2 VICTORIA, QUEENSLAND AND SOUTH AUSTRALIAN ENROLMENT QUOTAS

	Vic. 2002–03	Qld 2003	SA 2003
<b>Enrolment at redistribution</b>			
Number of electorates	37	28	11
Number of electors	3 259 454	2 354 176	1 043 177
Enrolment quota	88 093	84 078	94 834
Permissible maximum	96 902	92 485	104 317
Permissible minimum	79 284	75 671	85 351
<b>Enrolment projections</b>			
Number of electors	3 473 637	2 621 489	1 088 002
Projected average enrolment	93 882	93 625	98 909
Permissible maximum	97 168	96 901	102 370
Permissible minimum	90 596	90 349	95 448

Source: Australian Electoral Commission.

## The names of electorates

In 1986 the Parliamentary Joint Select Committee on Electoral Reform drew up a set of guidelines for the naming of Commonwealth electorates. These guidelines influence the naming decisions that are made by Redistribution Committees.<sup>7</sup>

### *Naming after persons*

Where possible, electorates should be named after people, 'who have rendered outstanding service to their country', especially former Prime Ministers. In the 2002–03 Victorian redistribution, former Prime Minister John Gorton (1968–71) was so honoured. The first 19 of Australia's 25 Prime Ministers have electorates named after them.

### *The 'Federation' electorates*

Every effort should be made to retain the names of the electorates used in the first national elections. Currently, 39 of the 63 original electorate names (the 'Federation electorates') are in still use, including Parkes (NSW), Corio (Vic.), Capricornia (Qld) and Swan (WA).<sup>8</sup>

### *Geographical names*

Locality or place names should 'generally be avoided', though in some cases the use of geographical names 'may be appropriate'. The New South Wales electorates of Eden-Monaro, New England and Riverina fall into this category. If geographical names are used, identifying terms such as North Sydney or Port Adelaide should be used if relevant, and if in common use.

### *Aboriginal names*

Aboriginal names should be used where appropriate and, as far as possible, the names of existing electorates with Aboriginal names should be retained. Indi (Vic.) and Maranoa (Qld) have been used since the first election; Namadgi (ACT) was used for the 1996 election, though it ceased to be used when the Australian Capital Territory's entitlement fell by one for the 1998 election.

### *Other criteria*

Although the guidelines prefer that the names of Commonwealth electorates should not

duplicate existing state electorates, there are a few that are used in both Commonwealth and state settings. This is seen most notably in regard to the Tasmanian electorates. The five Tasmanian House of Representatives electorates have the same boundaries as the five Tasmanian House of Assembly electorates, and the same names: Bass, Braddon, Denison, Franklin and Lyons.

The naming guidelines also state that names of electorates should not be changed or transferred to new areas without very strong reasons. This is a particular problem when a state is to lose an electorate for there are usually strong reasons for the continuance of all names in use at the time. Very often the loss of an electorate sees the near-amalgamation of two existing electorates. When this occurs, the guidelines state that as far as possible the name of the new electorate should be that of the electorate which has the greatest number of electors within the new boundaries. Unusually, this did not occur in the 2003 South Australian redistribution. In this case the new electorate of Wakefield received 55,185 electors from the abolished electorate of Bonython, but only 28,708 electors from the abolished electorate of Wakefield (it also received 5,822 from the electorate of Grey).<sup>9</sup>

The Redistribution Committee explained the reasoning for the retaining the name of Wakefield in preference to that of Bonython:

... The Committee notes that although the majority of electors within the proposed boundaries of Wakefield are from the existing ... [electorate] of Bonython, the majority of the land area is from the existing ... [electorate] of Wakefield. The Committee also considered the fact that the ... [electorate] of Wakefield was first proclaimed in 1903 and that the name had been in use since, whilst the ... [electorate] of Bonython was not proclaimed until 1955. Given that the guidelines for naming ... [electorates] contains a preference for maintaining original Federation ... [electorates], of which Wakefield is as close as we come in South Australia, the Committee strongly lent [sic] toward using the ... [electorate] name of Wakefield. Lending further weight to this argument was the fact that Edward Gibbon Wakefield, after whom the ... [electorate] is named, is famed for his plan for systematic apportionment of land within this state. It seems appropriate for this reason also to retain this name in a redistribution.<sup>10</sup>

## Drawing the lines on the map

Once suggestions and comments have been received from the public, the Redistribution Committee considers these and then draws a set of boundaries for the state or territory. There are various restrictions placed upon the Redistribution Committee, all of which have an effect on where the lines are to be drawn.

To start with, the Commonwealth Constitution (section 29) is quite explicit that an electorate 'shall not be formed out parts of different States'. This means that the Redistribution Committee has some lines drawn for it even before it begins work – the state or territory borders. This can create quite artificial barriers between areas that have a great deal in common, such as in the case of Albury, currently in the New South Wales electorate of Farrer, which is only five kilometres from Wodonga, currently in the Victorian electorate of Indi.

As mentioned, the committee must keep in mind the number of electorates to be formed, the enrolment quota for the state or territory, the limits set by the quota variation, and the projected average enrolment in three and a half years.

Apart from these equalisation requirements, the Redistribution Committee must also work to the provision spelled out in the *Commonwealth Electoral Act 1918* (Cwlth) that, subject to the equalisation requirements, the committee 'shall give due consideration' in each proposed electorate to:

- any community of interests within the proposed electorate, including economic, social and regional interests;
- the means of communication and travel within the proposed electorate; and
- the physical features and area of the proposed electorate.

In addition, the boundaries of existing electorates in the state or territory may be taken into account, though this consideration is subordinate to those already mentioned.

All of these factors are designed to create electorates that are as socially homogenous as is possible to achieve. For example, Sydney Harbour has always been treated as the boundary to the electorates that touch it. In practice, though, the requirement to have

electorates as equal as possible tends to outweigh the community of interest, communication and geographical considerations.

Having produced a set of electorates, the Redistribution Committee now:

- publishes its proposals;
- exhibits maps of proposed electorates;
- announces the names of the proposed electorates (which may include a new electorate or an electorate formed from two existing electorates); and
- explains the reasons for its proposals.

Once the draft proposals have been published, the public may again have input into the process. At this stage 28 days are allowed for the submission of any objections to the proposals. These objections are then published, and a 14-day period allowed for the receipt of written comments on any of the objections.

At this juncture an 'augmented' Electoral Commission is formed. It is composed of the Redistribution Committee members, plus the Chairperson of the Australian Electoral Commission and the Australian Statistician, the latter of whom is a member of the Electoral Commission. As a final step in the redistribution, the augmented Electoral Commission has 60 days to consider the objections and makes a final proposal – on which there may or may not be hearings.

Electoral redistributions are so important to the fate of MPs and parties that they invariably produce objections from concerned members of the public – and from politicians and their parties, in particular. In the 2002–03 redistribution of Victoria, for instance, the augmented Electoral Commission received a number of objections to the proposed boundary between the Deakin and Menzies electorates. Most suggested that the existing Glenvale and Oban Road boundary between the electorates was preferable to the boundary proposed by the Redistribution Committee for Victoria. The augmented Electoral Commission acknowledged that this was indeed a clearer boundary between the two, and reverted to the old boundary in the final determination.<sup>11</sup>

By contrast, in the 2003 South Australian redistribution proposals it was announced that the South Australian electorate of Barker in the state's South East region would be enlarged.

Objections were lodged by Limestone Coast Tourism and the South East Local Government Association, both of which claimed that this was a detrimental step. They were concerned about the increased size of the electorate, and in particular the breaking down of the feeling of community of interest, with the associated difficulties for the local MP in attempting to service the electorate.<sup>12</sup> In response, the augmented Electoral Commission noted the concern as to Barker's proposed size, but pointed out that a solution for one electorate could not be judged in isolation from the other South Australian electorates. Taking into account all variables, it expressed itself satisfied:

... that the areas proposed by the Redistribution Committee for removal from Barker had strong communities of interest with Mayo, the ... [electorate] they were transferred to. It was noted also that the boundaries of Barker proposed by the Redistribution Committee had the advantage of including the whole of the Murray River in one ... [electorate]. As the alternative suggested for Barker could not work satisfactorily within the overall proposal put forward by the Redistribution Committee, and having agreed with the Redistribution Committee as to the desirability of uniting the Murray River in one ... [electorate], the augmented Commission could not sustain these objections.<sup>13</sup>

The objections were thus not accepted as valid enough to make a change to the proposed boundaries for Barker.

In the 2003 redistribution of Queensland electorates, the Redistribution Commission received an objection alleging political bias in the redistribution, about which it commented:

... The Commission re-iterated that under Section 66 (3)(b) of the [Commonwealth Electoral] Act there are no provisions for including the consideration of political outcomes in the redistribution process. The Commission is of the firm view no political outcome was contemplated in the Redistribution Committee's Proposal.<sup>14</sup>

The objection was dismissed.

Such decisions by the Commission as these become part of the final determination issued by the augmented Electoral Commission, which ends the process. The final report is tabled in the Parliament for the information purposes only, for no appeal is possible to a final determination. Table S2.3 shows the time taken on the three redistributions of 2002–2003.

### S2.3 DURATION OF REDISTRIBUTIONS

State	Issuing of direction for state to be redistributed	Determination of names and boundaries
Victoria	18 January 2002	29 January 2003
Queensland	12 March 2003	25 November 2003
South Australia	12 March 2003	17 December 2003

Source: Australian Electoral Commission

The Australian Electoral Commission informs those electors whose electorates have been changed, and maps are made available from Commission offices. The new boundaries are used immediately in the processing of new enrolments and changes to existing enrolments. However, if a by-election has to be held before the next general election, it is conducted on the old boundaries.

## The Northern Territory as a special case

In the 2001 Commonwealth election Northern Territory electors voted in two House of Representatives electorates for the first time. The addition of the second electorate had come about due to an increase in the population of the Territory. Despite this, in the determination of February 2003 it was found that a slight population shift in the Territory would now mean the loss of the new seat. This became a matter of controversy, with many people calling for the determination to be set aside.<sup>15</sup>

The Parliament's Joint Standing Committee on Electoral Matters was asked to inquire into, and report on, the possibility of guaranteeing a minimum two House seats for each of the Australian Capital Territory and the Northern Territory. The Committee recommended unanimously that the 2003 determination be set aside by government legislation to the extent that it applied to the Northern Territory. The Parliament duly passed legislation, but only to guarantee the Northern Territory its second electorate for the next federal election, which was held in October 2004. This legislation, therefore, will not affect future determinations.<sup>16</sup> To date, this is the only quota determination to have been set aside under the arrangements that have been in place since 1984.

## One vote, one value?

The Australian Electoral Commission explains the redistribution process as ensuring ‘as nearly as practicable’, that each state and territory gains House of Representatives representation in proportion to their population, and that there are ‘as nearly as practicable’ the same number of electors in each state or territory’s electorates.<sup>17</sup> The precision of the Commission’s language is due to the impossibility of gaining true equality of House of Representatives electorates. There are various factors that make this so:

- The provision that all ‘original States’ shall have five members means that Tasmania gains more representation than warranted by its population.
- The constitutional barrier to drawing electorate boundaries across state lines does not allow a precise equality of the electorates in the mainland states.
- The territories currently have two electorates each, yet their population sizes are very different.
- A state that has just lost an electorate will often have a higher average electorate enrolment than other states.
- A state that has just gained an electorate will tend to have a lower average electorate enrolment than other states.
- The 10% quota variation that is allowable under the legislation means that ‘equal’ electorates can appear to be anything but equal, for the ‘10%’ provision means 10% above and 10% below the enrolment quota.

The impossibility of achieving equal-sized electorates across the nation is illustrated in table S2.4, which gives average enrolments for the states and territories at the time of the 2004 Commonwealth election.

It is therefore clear that regular redistributions ensure that electorate numbers within each state and territory will be ‘equal’ according to requirements of the *Commonwealth Electoral Act 1918* (Cwlth), but they will vary a great deal across the nation.

### S2.4 AVERAGE ELECTORATE ENROLMENTS 2004 ELECTION — October 2004

State or territory	Number of electorates	Average enrolment
New South Wales	50	86 578
Victoria	37	89 454
Queensland	28	88 414
South Australia	11	95 629
Western Australia	15	83 248
Tasmania	5	68 561
Northern Territory	2	56 465
Austalian Capital Territory	2	113 770
<b>Australia</b>	<b>150</b>	<b>87 321</b>

Source: Australian Electoral Commission.

## The personal aspect of a redistribution

Most residents of a state are probably unaware of their state’s electorates being redistributed from time to time, but these events are of great moment to the political parties, to Members of Parliament and to prospective candidates. It has been said that apart from the actual elections themselves, ‘no process focuses more than the re-drawing of electoral boundaries’.<sup>18</sup> Redistributions can make or end parliamentary careers – as can be seen in the most recent redistributions.

As we have seen, the 2003 entitlement exercise determined that South Australia would lose one of its twelve electorates. Accordingly, the key decision by the Redistribution Committee was to abolish the electorates of Bonython and Wakefield, with most of their electors being absorbed into a new electorate of Wakefield. Bonython, an outer Adelaide electorate, was a safe Labor seat,<sup>19</sup> held by Martyn Evans; Wakefield, a rural electorate, was a safe Liberal seat held by the Speaker of the House of Representatives, Neil Andrew. The new electorate of Wakefield would be much more compact than the old electorate of that name, with a reasonably strong chance of being won by the Labor Party. This change effectively ended both parliamentary careers. Mr Andrew, a Liberal member of the House of Representatives since 1983, chose not to recontest in the 2004 election, while Mr Evans, a Commonwealth MP since 1994, lost Wakefield at the election.

In the 2002–03 Victoria redistribution, substantial changes were made to the adjoining rural electorates of McMillan, a marginal Labor electorate, held since 1998 by Christian Zahra, and Gippsland, a fairly safe National electorate held since 1983 by the Minister for Science, Peter McGauran. Despite many objections being lodged against the redistribution of these electorates, when the Victorian redistribution was completed Gippsland had become a much more marginal electorate, while McMillan had actually become a nominal Coalition electorate. Neither sitting member was pleased with the final redistribution details, for it seemed possible that both would lose their seats in Parliament.<sup>20</sup> In the 2004 election Mr McGauran retained his seat, but Mr Zahra lost his.

It is relevant to note here that only population and geographical factors play a part in the work of a Redistribution Committee: a redistribution's 'potential or real political

implications are not considered in any way' – as Messrs Andrew, Evans, McGauran and Zahra MP could attest.<sup>21</sup>

## In conclusion

For many years, Australian redistributions could be the cause of political controversy, because governments could influence their timing to their advantage, and they could effectively veto any redistribution of which they disapproved. Since 1983–84, however, the *Commonwealth Electoral Act 1918* (Cwth) has mandated a fixed redistribution timetable, irrespective of the wishes of governments, and a set of proposed boundaries can no longer be vetoed or set aside. Redistributions will always be a time of great concern to political parties, and their impact can still cause unhappiness.<sup>22</sup> However, Australians can be satisfied that the national arrangements are both transparent in their operation and democratic in their impact.

## Endnotes

- 1 Austin Ranney, *Governing. An Introduction to Political Science*, Prentice Hall, Englewood Cliffs, 6th ed. 1993, p. 100.
- 2 Franklin B. Sawvel (ed.), *The Anas of Thomas Jefferson*, De Capo, New York, 1970, p. 104.
- 3 I am grateful for the assistance of my colleagues, Gerard Newman and Sarah Miskin, in the writing of this article.
- 4 *Commonwealth Electoral Act 1918*, s.47.
- 5 See Gerard Newman and Andrew Kopras, '2002–03 Redistribution of Commonwealth Electoral Boundaries', Current Issues Brief No. 13, Parliamentary Library, Canberra, 2003–04 <<http://www.aph.gov.au/library/pubs/CIB/2003-04/04cib13.pdf>>.
- 6 Australian Electoral Commission, *Electoral Pocketbook*, Commonwealth of Australia, Canberra, 2002, p. 14.
- 7 Parliament of the Commonwealth of Australia, *The Operation during the 1984 General Election of the 1983/84 Amendments to Commonwealth Electoral Legislation. A Report from the Joint Select Committee on Electoral Reform*, December 1986, Report No. 2, Parliamentary Paper No. 1/1987, pp. xv–xvi.
- 8 South Australia's and Tasmania's first MPs were elected at-large, that is, each state formed a large, multi-member electorate. The MPs elected in this way were known as Members for South Australia or Tasmania, respectively. The 1903 election saw South Australia with seven single-member electorates and Tasmania with five. Nine of the names chosen for these 12 electorates have been retained, which means that 48 of the 75 original state electorate names remain in use.
- 9 Australian Electoral Commission, *2003 Redistribution South Australia into Electoral Divisions*, Commonwealth of Australia, Canberra, 2003, p. 23.
- 10 Australian Electoral Commission, *2003 Proposed Redistribution of South Australia, Report of the Redistribution Committee*, Canberra, 2003, para 60.
- 11 Australian Electoral Commission, *2002-03 Redistribution Victoria into Electoral Divisions*, Commonwealth of Australia, Canberra, Objections to the proposed Divisions of Aston, Deakin, La Trobe and Menzies.

- 12 Australian Electoral Commission, *2003 Redistribution South Australia into Electoral Divisions*, Commonwealth of Australia, Canberra, Public Objections nos. 4, 8.
- 13 Australian Electoral Commission, *2003 Redistribution South Australia into Electoral Divisions*, Commonwealth of Australia, Canberra, 2003, p. 5.
- 14 Australian Electoral Commission, *2003 Redistribution of Queensland into Electoral Divisions*, Commonwealth of Australia, Canberra, 2003, p. 5.
- 15 Scott Bennett and Gerard Newman, 'A Fair Deal for Territory Voters?', Research Note No. 27, Parliamentary Library, Canberra, 2002–03  
<<http://www.aph.gov.au/library/pubs/rn/2002-03/03rn27.htm>>.
- 16 Rosemary Bell, 'House of Representatives (Northern Territory Representation) Bill 2004', *Bills Digest No. 103*, Parliamentary Library, Canberra, 2003–04  
<<http://www.aph.gov.au/library/pubs/bd/2003-04/04bd103.htm>>.
- 17 Australian Electoral Commission, 'What is a redistribution?',  
<[http://www.aec.gov.au/\\_content/what/faqs/redistributions.htm#1](http://www.aec.gov.au/_content/what/faqs/redistributions.htm#1)>.
- 18 Antony Green, 'Where do you draw the lines?...', New South Wales Parliamentary Library, Background Paper 1997/1.
- 19 As described by the Australian Electoral Commission in *Electoral Handbook*, Commonwealth of Australia, Canberra, 2002.
- 20 Stuart Rintoul, 'Frontline 04–Valley of the polls', *Australian*, 7 August 2004.
- 21 Australian Electoral Commission, 'What criteria are used to draw the boundaries?',  
<[http://www.aec.gov.au/\\_content/what/faqs/redistributions.htm#5](http://www.aec.gov.au/_content/what/faqs/redistributions.htm#5)>.
- 22 See, for example, statement from Australian Electoral Commissioner, 30 July 2004  
<[http://www.aec.gov.au/\\_content/what/media\\_releases/2004/july/statement.htm](http://www.aec.gov.au/_content/what/media_releases/2004/july/statement.htm)>.



# 3

## INTERNATIONAL RELATIONS

*This chapter was contributed by the Australian Government Department of Foreign Affairs and Trade, AusAID, and the Australian Centre for International Agricultural Research (September 2004).*

Australia's foreign and trade policies are designed to advance the national interest by protecting and promoting the security and prosperity of the nation and its people. To this end, Australia pursues a broad and constructive agenda of international engagement.

In the current dynamic and uncertain global climate, the challenges facing Australia are complex and constantly evolving. The terrorist attacks of 11 September 2001 in the United States of America and 12 October 2002 in Bali fundamentally changed the international security environment in which Australia operates. Globalisation has had profound economic effects, including by promoting trade liberalisation and raising living standards in Australia. By encouraging competition, it has made the promotion of multilateral trade rules and disciplines even more important to fair trade and economic development. At the same time, faster and freer movements of people, goods and information have created new challenges, including by increasing countries' vulnerability to transnational crime.

Australia utilises bilateral, regional and global strategies to meet these challenges and to promote its interests overseas. Australia has important links with all regions of the world, but seeks to engage most substantially with those countries with which it has significant economic or strategic interests.

The Australian Government is engaged actively in confronting terrorism and other global threats to its security, including through cooperation with other countries to prevent people smuggling and the proliferation of weapons of mass destruction. Australia uses the multilateral system to counter such threats, and to promote the international observance of human rights and environmental issues. For example Australia continues to strive for an effective global response to climate change that does not unfairly compromise the competitiveness of Australian industry. Australia aligns itself with other countries to maximise the leverage it can exert in support of shared interests and agendas.

Given the size and internationalisation of the Australian economy, securing improved access to overseas markets for Australian goods and investment is very important. Australia is pursuing greater market access through the Doha Round of trade negotiations in the World Trade Organization. In concert with liberalisation efforts at the multilateral level, Australia has also developed bilateral free trade agreements with several trading partners. Australia is working towards further agreements, both bilaterally and regionally, in recognition of the practical benefits that more open markets bring to Australian business. At the same time, Australia promotes its strong, competitive economy in overseas markets to attract foreign direct investment.

In 2003 Australia's second foreign and trade policy White Paper – *Advancing the National Interest* – was published. It is a comprehensive assessment of Australia's place in the world, and articulates how Australia can best use its credentials to advance its national interests.

## Australia's credentials and place in the international system

Australia is an engaged and active international and regional player. Its interests are global in scope and not solely defined by geography. As a Western country located in the Asia-Pacific region, Australia has close ties and affinities with North America and Europe and a history of active engagement throughout Asia.

Australia's efforts to advance its interests overseas are supported by its modern and robust economy, including a dynamic private sector and sophisticated manufacturing and services sectors. The Australian economy has performed strongly in recent years, notwithstanding economic downturn and slower growth in some of its main export markets. Australia is highly regarded internationally for its strong skills base, high quality education and training institutions, and advanced physical infrastructure.

Australia brings strong political institutions and liberal democratic values – including a commitment to the rule of law, freedom of the press and accountability – to its international relations. Australia's cultural diversity underpins its adaptability and effectiveness in a global context.

## Australia's bilateral relationships

Australia has important links with all regions of the world. Australia's size, location and history ensure that it will continue to foster significant relationships with a diverse range of countries on the basis of shared interests. The countries which engage Australia's interests most substantially are those which have the greatest influence over our strategic and economic environment.

### United States of America (USA)

The USA is among Australia's most important economic partners, and its closest security ally. Australia's close economic and strategic ties with the USA reflect the latter's position as the world's largest economy and leading military power. The relationship complements and reinforces Australia's practical commitment to the Asia-Pacific region, where the USA's engagement is fundamental to the region's security and

prosperity. The Australian Prime Minister visited the USA in June 2004, following a visit to Australia by the President of the USA in October 2003.

Australia's strategic alliance with the USA is formalised in the ANZUS Treaty, concluded in 1951. The two countries cooperate closely to promote their own security and to contribute to broader regional and global security. Australia-United States Ministerial Consultations are held between foreign and defence ministers annually. In 2004 Australia worked closely with the USA to bring about an international response that would support Iraq's transition to self-government. Bilateral cooperation on countering terrorism and combating the spread of weapons of mass destruction was strengthened.

In 2003 Australia exported goods and services worth \$9b and \$5b respectively to the USA, making it Australia's second largest export destination. Major Australian merchandise exports to the USA were meat, alcohol and crude petroleum. The successful conclusion of the Australia-US Free Trade Agreement in 2004 will support further growth in two-way trade and investment. People-to-people ties, including educational and cultural links, are extensive and wide-ranging.

### Japan

Australia's close relations with Japan are built on long-established common interests. Both countries are industrialised democracies, both share a commitment to prosperity and stability in the Asia-Pacific region, and both are key allies of the USA. Mutual security interests underpin current, enhanced cooperation on issues such as counter-terrorism and combatting the proliferation of weapons of mass destruction. The Australia-Japan Foundation, an Australian Government authority established in 1976, fosters relations between the people of Australia and Japan.

Australia's trade and investment relationship with Japan – the second largest economy in the world – is of fundamental importance. Japan has long been Australia's largest export destination, and in 2003 Australia exported goods and services worth \$20b and \$3b respectively to Japan. The major merchandise exports were coal, liquefied natural gas, iron ore, beef and aluminium. Total stock of Japanese investment in Australia was \$48b at 30 June 2003, making Japan the third largest source of investment in Australia.

The Australia-Japan Trade and Economic Framework, signed by the Prime Ministers of Australia and Japan in 2003, includes an undertaking by the two countries to work towards comprehensive and balanced trade and investment liberalisation, and reflects both countries' commitment to developing further their economic relationship.

### **China**

Australia's relationship with China seeks to maximise shared economic interests, advance Australia's political and strategic interests, and manage differences in a sensible and practical way. China's importance to Australia has grown with China's increasing economic, political and strategic engagement with the Asia-Pacific region and the global economy. Bilateral relations reached a new level of maturity with reciprocal visits by Prime Minister Howard and President Hu in 2003, and the signing of the Australia-China Trade and Economic Framework during President Hu's visit. The Framework will provide a foundation for closer commercial relations between the two countries, including through a joint feasibility study for a bilateral free trade agreement, currently underway.

Two-way trade has increased significantly over the past decade, and China is now Australia's third largest export destination. In 2003 Australia exported goods and services worth \$9b and \$1b respectively to China. Major Australian merchandise exports to China were iron ore, wool and crude petroleum.

Australia undertakes human rights advocacy in its official dialogue with China. The Australia-China Council plays a significant role in broadening and deepening Australia's cultural relations with China.

Within the parameters of the one-China policy, Australia also pursues important economic and trade interests with Taiwan.

### **Indonesia**

Australia's bilateral relationship with Indonesia encompasses a wide range of interests, including political ties, trade and investment, people-to-people links, education, tourism, development cooperation and cultural exchanges. High-level government-to-government contact in recent years has strengthened bilateral cooperation on a range of important issues,

including countering terrorism and people smuggling. Australia is committed to assisting Indonesia's economic and social development; Indonesia was the second largest recipient of Australian aid in the budget for 2004–05. In support of Indonesia's democratic development, Australia has provided capacity building and training assistance to the Indonesian Election Commission and sent observer missions to Indonesia's presidential and parliamentary elections in 2004.

The Australia-Indonesia Ministerial Forum – established in 1992 – provides a key platform for the two governments to expand bilateral economic ties. In addition, an Australia-Indonesia Trade Ministers' Meeting takes place annually. Indonesia is Australia's tenth largest export destination, with exports of goods and services valued at \$2.8b and \$1b respectively in 2003. Australia's major merchandise exports to Indonesia are cotton, aluminium and live animals. Australia is also a major exporter of education services to Indonesia, with over 17,000 Indonesian students studying in Australia.

Australia promotes understanding and exchanges between the two countries through the Australia-Indonesia Institute.

### **Korean Peninsula**

Australia continues to strengthen its relationship with the Republic of Korea (ROK), with a focus on trade and investment and cooperation to bring about a nuclear-free Korean Peninsula. Australia established the Australia-Korea Foundation in 1992 to develop contacts between the people of Australia and the ROK. For many years, Australia's commodity exports underpinned the ROK's rapid industrial growth. Australian liquified natural gas is set to be a strategic energy source for the ROK's future growth, and links in information technology and services trade are rapidly developing. In 2003 the ROK was Australia's fourth largest export destination, with exports of goods and services valued at \$8b and \$1b respectively. Major Australian merchandise exports to the ROK are coal, crude petroleum and non-monetary gold.

Australia resumed diplomatic relations with the Democratic Peoples Republic of Korea (DPRK) in 2000, but further development of that relationship is on hold pending progress by the DPRK on dismantling its nuclear weapons program.

## **ASEAN**

Australia attaches priority to its relationship with ASEAN – which is the key regional institution in South-East Asia. ASEAN's membership is comprised of Brunei Darussalam, Burma, Cambodia, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand and Vietnam. Australia cooperates closely with ASEAN on issues of regional importance, including trade and investment, countering terrorism and transnational crime. Australia is involved in a number of important ASEAN dialogues, notably the ASEAN Regional Forum which is aimed at promoting regional security and confidence building, and the ASEAN Post Ministerial Conference.

In 2004 the 30th anniversary of Australia's dialogue relationship with ASEAN, Australia hosted a visit by the ASEAN Secretary-General. The announcement, in April 2004, that ASEAN Economic Ministers supported development of a free trade agreement between ASEAN, Australia and New Zealand was a step forward for Australia's relations with ASEAN. ASEAN invited the Prime Ministers of Australia and New Zealand to attend a Summit in November 2004.

Australia also attaches importance to its relations with individual members of ASEAN. Australia recently made significant and tangible progress towards economic integration with the dynamic economies of Singapore and Thailand through the successful negotiation of free trade agreements with those countries. The Singapore Australia Free Trade Agreement entered into force on 28 July 2003 and is subject to regular review. The first Ministerial review took place on 14 July 2004 and agreement was reached on a number of measures aimed at improving the benefits for businesses of both Australia and Singapore. Australia exported goods and services to Singapore worth \$3.5b and \$2b respectively in 2003, making Singapore Australia's seventh largest export destination. Thailand is Australia's 13th largest export destination, with exports of goods and services valued at \$2.3b and \$0.5b respectively in 2003. This should increase significantly when the Thailand Australia Free Trade Agreement (TAFTA) comes into force and over \$700m of Australian exports to Thailand will benefit from immediate tariff cuts. TAFTA is expected to enter into force in January 2005, after the completion of parliamentary and regulatory processes in Australia and Thailand.

## **East Timor**

Australia worked closely with the East Timorese people and the United Nations in support of East Timor's stable transition to independence in 2002, and continues to play a leading role assisting East Timor's development, including in the security sector. The 2002 Timor Sea Treaty between Australia and East Timor, which establishes a framework for the development of resources in the Timor Sea pending the settlement of permanent maritime boundaries, is delivering revenues to East Timor. In March 2003 Australia and East Timor signed an Agreement to underpin the development of the Greater Sunrise gas reservoirs in the Timor Sea. Negotiations on permanent maritime boundaries between Australia and East Timor commenced in 2004.

## **New Zealand**

Australia and New Zealand share a close relationship based on common values and proximity. At the government level, Australia's contact with New Zealand is more extensive than with any other country, with regular meetings between the prime ministers, foreign, trade and defence ministers and treasurers. In 2004 New Zealand hosted the inaugural Australia-New Zealand Leadership Forum, involving leaders from government, business and community groups, to explore ways to improve further trans-Tasman relations. People-to-people links are also particularly strong with over 1.8 million Australians and New Zealanders visiting each others' country annually.

Two way trade and investment takes place under the Australia New Zealand Closer Economic Relations (CER) Trade Agreement, which created a free trade area between the two countries in 1983. A number of new initiatives are being developed under the CER, aimed at further facilitating the free flow of trade between the two countries. New Zealand is Australia's fifth largest export destination, with exports of goods and services valued at \$8b and \$2.3b respectively in 2003. Australia's major merchandise exports to New Zealand are office machines and equipment, vehicles and refined petroleum. Australia is New Zealand's largest trading partner.

## **The South Pacific**

Australia has a strong interest in promoting the stability and economic viability of the island states of the Pacific, and is the largest provider of development assistance to the South Pacific. In 2004 Australia sought to play a more active role to

improve security and governance in the region. Australia is leading the Regional Assistance Mission to Solomon Islands which has succeeded in bringing security quickly to the Solomon Islands and stabilising the budgetary situation. Australia has developed a new approach to its relations with Papua New Guinea (PNG), including through negotiation of a treaty to underpin the placement of Australian officials and police in PNG's bureaucracy to help improve law and order, financial management, border security and transport security. Australia has also agreed to send officials to Nauru to help improve financial management and police performance.

For the first time, an Australian is serving as Secretary-General of the Pacific Islands Forum Secretariat.

## Europe

Australia continues to deepen its relations with the European Union (EU), which had a population of 455 million and an economy comparable in size to the USA when it expanded from 15 to 25 member states in May 2004. Australia's relations with the EU are underpinned by the *Joint Declaration on Relations between Australia and the European Union* of 1997, and the 2003 action plan *Australian-European Union: an agenda for cooperation*. Ministerial consultations between Australia and the European Commission are held annually. Australia also holds broad-ranging policy dialogues at ministerial level biannually with the EU Presidency.

Australia has close ties with many countries in Europe, with a focus on promoting strategic and economic objectives through high-level dialogue, trade negotiations and promotion, and development of bilateral agreements. The United Kingdom, Germany, Italy, France and the Netherlands are among the top 20 of Australia's trading partners. Scandinavian countries and central European countries represent increasingly important markets for Australian education and other services. Australia and the United Kingdom share a particularly long-standing and vibrant relationship based on shared values and strong trade and investment, people-to-people and cultural linkages. The United Kingdom is Australia's sixth largest export destination, with exports of goods and services valued at \$7.4b and \$3.8b respectively in 2003. In 2004 Australia increased its strategic and intelligence links with the United Kingdom through regular high-level discussions. Similarly, Australia increased bilateral exchanges with Germany and France on

international strategic concerns and trade-related issues. Australia also has useful exchanges with a range of European countries on bilateral and multilateral issues. Australians of European descent from countries such as Italy, Greece, Turkey, Poland and Croatia also contribute to strong people-to-people relationships.

## South Asia

India is the major power in South Asia, and has become an increasingly important partner for Australia as its role in world affairs has grown. The Australian and Indian governments conduct a regular Foreign Ministers' Framework Dialogue and a senior officials' Strategic Dialogue. Trade ministers of the two countries also meet regularly in a Joint Ministerial Commission to encourage the expansion of bilateral trade and investment. India is Australia's 11th largest export destination, with merchandise exports valued at \$3.3b in 2003. Australia established the Australia-India Council in 1992 to broaden and deepen bilateral contacts and understanding.

Australia maintains productive bilateral relationships with other countries of South Asia. It has contributed to international diplomatic efforts which paved the way for an easing of tensions between India and Pakistan over recent years. It has also contributed through the aid program to peace-building in Sri Lanka.

Following participation in the international military intervention in Afghanistan to oust the Taliban regime and the associated al-Qaeda terrorist network, Australia is making a significant contribution through the aid program to Afghanistan's development.

## Canada and Latin America

The Australia-Canada relationship is mature, highly productive and broadly based. Trade relations go back over 100 years, and formal diplomatic links are 60 years old. Historical parallels in social and cultural development have produced similar rules of law, government institutions and societies. In addition to an active trade and investment relationship, Australia and Canada cooperate closely on international security, trade and environmental issues.

Australia seeks to advance its relationships with Latin American countries, including through the Council on Australia Latin America Relations. The size and diversity of the markets in the Latin American region offer opportunities for Australian exporters and investors, and trade and investment

have expanded in recent years. Australia also pursues productive relationships with Latin American countries on a range of international political, trade liberalisation and economic issues.

### **The Middle East and Africa**

The Middle East is an area of strategic and commercial importance to the rest of the world, including Australia. Australia participated in the international coalition to liberate the people of Iraq, and is implementing a rehabilitation strategy to assist the Iraqi people. The Australian Government's policy on Iraq is set out in the publication *Iraq – the Path Ahead*.

Australia's commercial interests in the Middle East, particularly the Gulf States, are expanding, including in agriculture and services. Australia has been exploring options for a possible free trade agreement with the United Arab Emirates.

Australia's most significant relationship in Africa is with South Africa, which is an important commercial market for Australian goods. Australia supports the International Monetary Fund/World Bank Heavily-Indebted Poor Countries initiative as an effective means of providing sustainable debt relief in Africa. Australia employs smart sanctions against Zimbabwe due to concern over the plight of the Zimbabwean people under the current government.

### **Australia's security interests**

Australia's efforts to counter international terrorism and the spread of weapons of mass destruction (WMD) are among its highest foreign policy priorities. Australia has concluded nine bilateral arrangements promoting closer cooperation on counter-terrorism in the Asia-Pacific region, and has provided practical assistance to strengthen the region's counter-terrorism capacity. Australia also co-hosted with Indonesia the Regional Ministerial Meeting on Counter-Terrorism in Bali in February 2004 and is engaged in follow-up work. In July 2004 the Jakarta Centre for Law Enforcement Cooperation – a joint Australia-Indonesia initiative – was opened. The Centre will boost the capacity of law enforcement agencies to fight terrorism and other transnational crime.

In 2004 a White Paper entitled *Transnational Terrorism: The Threat to Australia* was launched. The Terrorism White Paper describes the nature

of the evolving terrorist threat to Australia, and the Australian Government's international response to that threat.

Australia actively supports multilateral arms control and non-proliferation regimes, including efforts to strengthen their compliance and verification mechanisms. The Proliferation Security Initiative – a global initiative which aims to develop practical measures to disrupt illicit WMD-related trade – is a core element of Australia's counter-proliferation strategy. Australia chairs the Australia Group – an export control regime dedicated to preventing the proliferation of chemical and biological weapons.

In the current, challenging security environment, relations with traditional security partners such as the USA are particularly important for Australia. Australia is also developing and deepening its bilateral defence and security relationships with countries throughout the Asia-Pacific region, and with regional and multilateral security fora such as the ASEAN Regional Forum. Australia also works bilaterally and through regional fora to combat transnational crime. For example Australia co-chairs, with Indonesia, the Bali process on people smuggling, trafficking in persons and related transnational crime, and has provided financial assistance to help eradicate international trafficking in persons.

In 2004 Australia increased its engagement with the North Atlantic Treaty Organisation – one of the most powerful multilateral security alliances – through closer cooperation on countering terrorism, countering proliferation of weapons of mass destruction and enhancing military interoperability.

### **Australia's economic interests**

Australia's economic wellbeing and growth depend on a competitive domestic economy and access to foreign markets and investment. Trade policy, industry policy and microeconomic reform all work to provide Australian business with the competitive foundations and opportunities to thrive in an increasingly globalised marketplace.

Australia's trade policy combines mutually reinforcing multilateral, regional and bilateral efforts to advance its commercial interests. Strategies focus on reducing barriers and developing markets for Australian exports, services and investment. In this context the World Trade Organization (WTO) is of particular significance. Australia is a strong supporter of the

WTO as the chief forum for global trade liberalisation. Australia chairs the Cairns Group of WTO member countries seeking fair trade in agricultural products. Australia's major multilateral trade objective is the successful conclusion of the Doha Round of trade negotiations, launched in 2001. The Round could potentially deliver substantial improvements to Australia's access to global markets – particularly in agriculture, services and industrial products – and secure trading conditions. Australia actively encourages other WTO members to engage constructively in the negotiations.

Australia's economic interests are based predominantly in the Asia-Pacific region, and Australia is a strong supporter of the Asia-Pacific Economic Cooperation (APEC) forum. In 2003, 68% of Australia's exports of goods and services went to member economies of APEC. The centrepiece of APEC is the annual meeting of APEC Leaders, which is evolving into one of the world's key summits. APEC's core mission is encompassed in its 'Bogor Goals' to achieve free and open trade and investment in the Asia-Pacific region through trade liberalisation, trade facilitation and economic and technical assistance for developing member economies. In recent years, APEC Leaders have recognised that economic prosperity is not possible without security and, at their meeting in October 2003, committed themselves to a complementary goal of protecting the security of their peoples.

Australia supports closer economic integration between ASEAN and Australia and New Zealand, and welcomed ASEAN's announcement in 2004 that it supported development of a free trade agreement between ASEAN, Australia and New Zealand. Australia considers comprehensive bilateral and regional trade agreements support multilateral liberalisation efforts. Australia has a long-standing free trade agreement with New Zealand, and has recently negotiated agreements with Singapore, the USA and Thailand. Australia has also agreed with both China and Malaysia to undertake feasibility studies for bilateral free trade agreements.

Australia's trade policies and strategies are described in the annual Trade Statement, and are discussed at National Trade Consultations and meetings of the Trade Policy Advisory Council.

## **Australia's engagement with the United Nations system**

Australia was a founding member of the United Nations (UN) in 1945, and has been actively engaged in the organisation since then, including in peacekeeping operations. Australia's core interests in the UN's agenda are in areas such as international security and disarmament, environment, human rights, development assistance and the technical agencies dealing with agriculture, refugees and international nuclear safeguards. Australia's participation in the UN system is focused on achieving practical, constructive outcomes that support the security and prosperity of Australia and Australians.

Australia supports moves to reform the UN to ensure that the UN system can respond effectively to changing global circumstances and deliver better outcomes more efficiently to member states and their people. To this end Australia has contributed to a high-level review panel on threats, challenges and change, established by the UN Secretary-General.

## **The Commonwealth**

Australia is an active member and supporter of the Commonwealth – an association of 53 countries from around the world. The Commonwealth seeks to promote principles of democracy, good governance, human rights and the rule of law among its members. Australia also values the role of the Commonwealth in advancing the interests of developing countries and small states in world affairs, including through the development of the Heavily-Indebted Poor Countries initiative. Australia hosted the Commonwealth Heads of Government Meeting in 2002 and filled the position of Commonwealth Chairman-in-Office in 2003.

## **Australia's human rights policy**

Australia takes an active and constructive approach to improving human rights standards and systems internationally, including through: targeted development assistance programs; supporting good governance and the establishment of national human rights institutions; encouraging multilateral, regional and bilateral discussion of human rights issues; and

working to develop and strengthen the effectiveness of regional and international human rights institutions and instruments. Australia addresses human rights issues through action in multilateral fora such as the UN Commission on Human Rights (CHR) and by raising particular concerns with individual countries; Australia holds dedicated bilateral human rights dialogues with China, Vietnam and Iran. Australia is a party to numerous international human rights treaties and instruments.

Australia was elected to serve on the CHR for a three-year term from 2003, and was elected President of the CHR for 2004 – the first time Australia has held this important post.

### The role of DFAT in Australia’s international relations

The Department of Foreign Affairs and Trade (DFAT) is the principal source of advice to the Australian Government on foreign and trade policy issues, and is responsible for implementing the Government’s foreign and trade policies. The aim of the department is to advance the interests

of Australia and Australians internationally. To this end, the department’s staff work towards the achievement of four primary outcomes:

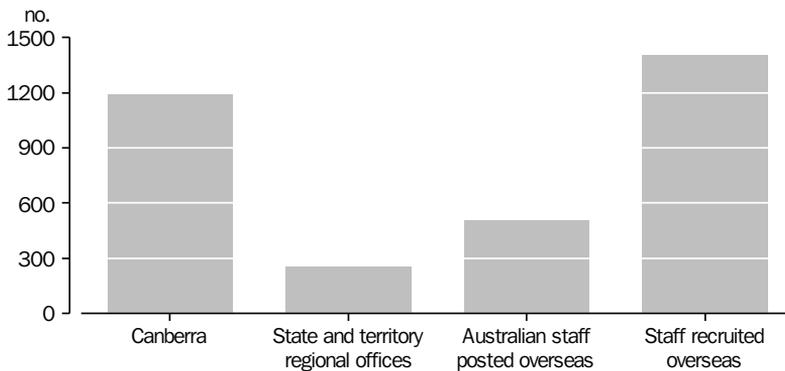
- Australia’s national interests protected and advanced through contributions to international security, national economic and trade performance, and global cooperation
- Australians informed about and provided access to consular and passport services in Australia and overseas
- public understanding in Australia and overseas of Australia’s foreign and trade policy and a positive image of Australia internationally
- efficient management of the Australian Government overseas owned estate.

### Location and number of DFAT staff

At 30 June 2004, DFAT employed just under 2,000 Australia-based staff, of whom 27% were posted overseas. In addition, just over 1,400 local staff were employed by the department’s overseas missions.

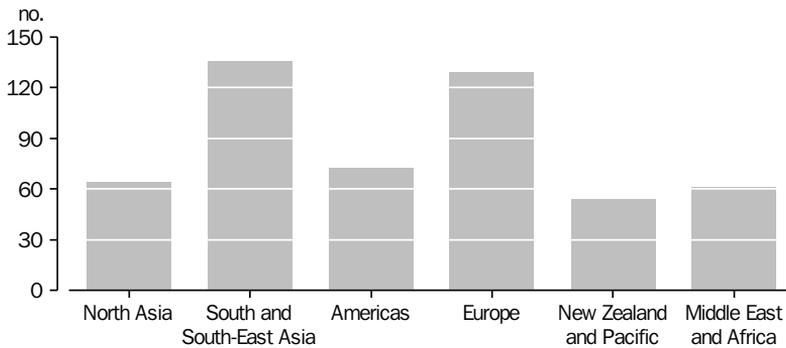
Graph 3.1 shows the location of DFAT staff and graph 3.2 the number of Australia-based DFAT staff overseas by region at 30 June 2004.

**3.1 LOCATION OF DFAT STAFF — 30 June 2004**



Source: Department of Foreign Affairs and Trade.

### 3.2 LOCATION OF AUSTRALIA-BASED DFAT STAFF POSTED OVERSEAS — 30 June 2004



Source: Department of Foreign Affairs and Trade.

#### Services to the Australian community

DFAT provides consular and passport services to Australians travelling overseas and their families in Australia through its network of overseas missions and honorary consulates (consisting of 167 points of consular service worldwide), the 24-hour Consular Emergency Centre in Canberra and consular cooperation arrangements with other countries. The services the department provides include: assisting Australians who are hospitalised, imprisoned or require welfare assistance overseas; helping family members when Australian travellers die or go missing overseas; and coordinating evacuations from international trouble spots. The department provided direct consular assistance to almost 13,000 Australians during 2003–04.

The department also provides timely and comprehensive travel advice on 144 destinations for Australians overseas and those who are planning to travel. These travel advisories offer up-to-date information about the security environment in a particular country, including in relation to possible terrorist threats or problems with law and order. They also provide advice on a range of practical issues such as health and medical issues, and legal or cultural differences. These advisories ensure Australians are well-informed about their travel destinations, and help them to avoid dangers and difficulties.

The department provides secure travel documents to eligible Australians in accordance with the provisions of the *Passports Act 1938* (Cwlth) and other relevant legislation. For international security reasons, DFAT places a strong emphasis on identity verification and fraud prevention in its

passport issuing processes, and introduced a new and more secure passport in December 2003. Online passport services were also introduced in late-2003.

#### Public information services

DFAT provides a range of information services on foreign and trade policy to the Australian public and media, including through briefings and public presentations, and the production of public affairs material such as brochures, reports and publications. The department also promotes an accurate and contemporary image of Australia internationally. Officials from the department provide regular briefings to the media on topics of interest. Detailed information about Australia's foreign and trade policy can be obtained from the DFAT web site, <<http://www.dfat.gov.au>>. The department also produces publications on many foreign and trade issues, and on the history of Australia's engagement in international affairs. Further information and links are listed in the Bibliography.

#### The Australian overseas aid program

The Australian Government's overseas aid program aims to advance the national interest by assisting developing countries to reduce poverty and achieve sustainable development. Australian aid provides practical, well-targeted development assistance to the Asia-Pacific region and responds selectively to needs in South Asia, Africa and the Middle East. The aid program also responds to international emergency and humanitarian crises.

Within the Asia-Pacific region, many countries are facing significant challenges to their stability and security. Conflict and instability impact directly on countries' development prospects. The aid program provides a 'peace dividend' to encourage the cessation of hostilities and the start of constructive development. The aid program is an integral part of Australia's engagement with the Asia-Pacific region and a practical demonstration of a commitment to helping build regional stability and prosperity.

In 2003–04 the Australian Government provided \$1.9b as Official Development Assistance (ODA). Table 3.3 provides details of the ODA programs for 2004–05 totalling slightly more than \$2.1b, an increase of \$240m on the amount for 2003–04. The ratio of ODA to Australia's gross domestic product for 2003–04 is estimated at 0.26%, placing Australia above the donor average which, in the latest year available (2003), was 0.25%.

Further information and publications on the Australian Government's aid program can be obtained from the web site of the Australian Agency for International Development, <<http://www.aisaid.gov.au>>.

### The Australian Agency for International Development (AusAID)

AusAID manages Australia's overseas aid program on behalf of the Australian Government. The aid program's objective is to advance Australia's national interest by assisting developing countries to reduce poverty and achieve sustainable development.

### Key themes of the aid program

Five guiding themes shape Australia's efforts to assist developing countries to reduce poverty and achieve sustainable development. These themes provide a lens through which Australia's development cooperation is programmed and implemented:

- *Governance* – promoting democratic and accountable government and effective administration.
- *Globalisation* – assisting developing countries to access and maximise the benefits from trade and new information technologies.
- *Human Capital* – improving basic services to support stability and government legitimacy.
- *Security* – strengthening regional security by enhancing partner governments' capacity to prevent conflict, enhance stability and manage trans-boundary challenges.

- *Sustainable Resource Management* – promoting sustainable approaches to the management of the environment and the use of scarce resources.

Country and regional strategies are developed in consultation with partner governments, and are the primary means through which the guiding themes are translated into programs on the ground. Strategies take account of partner government priorities, Australia's strengths, and the activities of other donors.

### 3.3 AUSTRALIAN OFFICIAL DEVELOPMENT ASSISTANCE — 2004–05(a)

	\$m
<b>Papua New Guinea and Pacific</b>	
Papua New Guinea	435.6
Solomon Islands	201.6
Vanuatu	30.9
Fiji	25.1
Samoa	18.4
Tonga	12.0
Kiribati	11.9
Tuvalu	4.3
Regional Pacific	65.4
<i>Total</i>	805.2
<b>Nauru Additional(b)</b>	
	13.5
<b>East Asia</b>	
Indonesia	160.8
Vietnam	73.7
Philippines	62.2
China	49.3
Cambodia	41.4
East Timor	39.9
Laos	18.4
Thailand	10.6
Regional East Asia	37.1
<i>Total</i>	493.4
<b>South Asia, Africa and Other</b>	
Bangladesh	28.7
India	17.2
Sri Lanka	23.0
Regional South Asia	17.6
Africa	67.5
Middle East and Central Asia	52.9
<i>Total</i>	206.7
Other Government Departments (OGD)(c)	168.5
Core contributions to multilateral organisations, other ODA(d)	450.8
Reconciliation of expenses to cash(e)	-5.1
<b>Total ODA (cash)</b>	<b>2 133.1</b>

(a) Budget estimates for 2004–05. (b) Represents additional funding appropriated through new budget measures agreed by the Australian Government. (c) OGD includes ODA eligible expenditure by government departments which has not been allocated to a particular country or region. (d) Includes core contributions and cash payments to multilaterals that cannot be attributed to a particular country. (e) Includes accrual adjustments for non-ODA eligible (administered and departmental) expenditure.

Source: AusAID.

## Country programs

### Papua New Guinea (PNG)

PNG is the largest recipient of Australian aid. Australia will provide an estimated \$435.6m in total ODA to PNG in 2004–05.

Economic growth is fundamental to addressing PNG's development challenges and helping PNG to achieve poverty reduction. This must be accompanied by effective service delivery that enables a healthy, educated population to access economic opportunities. At present the aid program provides most of the funding for basic services such as health and education in many rural areas.

Australia is working closely with PNG to build a secure and prosperous nation and thereby reduce the incidence and severity of poverty throughout the country. To achieve this, a new approach to assistance has been developed with a greater focus on the core constraints to growth and an emphasis on PNG's performance in managing its own resources. It involves the engagement of a wide range of Australian agencies and institutions building durable institutional linkages with their PNG counterparts.

In 2004–05 the aid program will support broad-based sustainable economic growth and poverty reduction in PNG by working through PNG government agencies and systems to ensure a better use of PNG's own resources to strengthen economic management, deliver essential services, and improve law and order. Australia will assist PNG to protect the vulnerable and create the preconditions for growth to occur through the provision of health and education services, an effective and robust law and justice system and serviceable transport infrastructure; create an environment conducive to private sector growth; and support democratic change through promoting debate on PNG's development choices, building the capacity of non-government agencies and regulatory frameworks, and supporting a free and fair electoral system.

### The Pacific region

The Pacific region includes some of the world's smallest economies. These nations are diverse but face similar development challenges including isolation, limited resources, rapidly growing populations, increasing urbanisation and environmental vulnerability. They are prone to natural disasters and other causes of environmental degradation, and in most cases rely

heavily on foreign aid. Much of the existing infrastructure needs to be renewed. In many parts of the Pacific, population growth is outstripping the capacities of health and education systems to provide adequate services.

Australia's participation in the Regional Assistance Mission to Solomon Islands (RAMSI) involved the implementation of a new package of strengthened assistance to Solomon Islands, focused on budget stabilisation and support to the law and justice sectors, promoting good economic governance and reform efforts, and strengthening the machinery of government.

RAMSI includes a large development assistance component (\$52.7m in 2003–04). Around 80 RAMSI personnel are working within various Solomon Islands government agencies as advisers or occupying in-line positions – particularly in the finance and justice sectors – to stabilise core government functions and build the capacity of the Solomon Islands public service.

The quality of governance has a decisive influence on development, particularly in small states with limited economies of scale and few opportunities for diversification. The new Pacific Governance Support Program will provide an additional \$6m in 2004–05 to fund activities that enhance good governance and institutional capacity by transferring public sector expertise between Australia and the Pacific. This will involve greater utilisation of the capabilities and significant expertise of Australian Government departments and agencies (a whole of government approach).

The Pacific Islands Forum at its 2004 meeting initiated the increased pooling of regional resources, building on the collaborative approach that Pacific states have developed over recent decades. Forum leaders agreed at the meeting to the principles and recommendations of the Australian funded Pacific Regional Transport Study, promoting the efficiency and effectiveness of regular, reliable and competitive air and shipping services for Forum countries. In addition, Australia has agreed to provide \$2m towards the Transport and Technical Assistance Fund to support implementation of these principles. Australia will also work with national police forces on a regional basis through the implementation of the Pacific Regional Policing Initiative.

Australia is committed to long-term strategies to assist Pacific Island Countries (PICs) with their national development efforts.

Australia has bilateral aid programs with all PICs. In addition, Australia supports the well-developed framework of regional organisations and institutions that exist in the Pacific.

### **East Asia**

Australia has bilateral programs with Indonesia, East Timor, Vietnam, the Philippines, Cambodia, Laos and China. In addition, a substantial regional program is focused on supporting economic integration in the region and addressing transboundary development challenges such as transnational crime and reducing the spread of communicable disease. Australia's assistance to Burma is concentrated on vulnerable populations and delivered through local and international non-government organisations and UN agencies. Development cooperation to Thailand has been reduced significantly as it graduates from being an ODA recipient. Australia provides Development Scholarships for specialised expertise and qualifications to Mongolia, and humanitarian assistance to DPRK.

Australian development cooperation to Indonesia is Australia's second largest. Australia's objectives in 2004–05 remain focused on working with Indonesia to improve economic management; strengthen the institutions and practices of democracy; enhance security and stability; and increase the accessibility and quality of basic services.

In East Timor, one of the poorest countries in the region, Australia will support the delivery of essential services including assistance for an effective police force and strengthening the legal and judicial system. Other assistance will be directed towards agricultural production, health, rural water supply and sanitation.

Australian assistance to Vietnam aims to tackle the barriers to broad based growth by strengthening the governance of institutions required for a competitive market economy. It also seeks to improve productivity and links to markets for the rural poor in the Mekong Delta and Central Coast region.

In the Philippines assistance is focused on economic governance, security and stability and rural living standards.

In Cambodia the aid program focus is on increasing productivity and incomes of the rural poor, strengthening the rule of law and reducing the vulnerability of the poor.

The program to Laos focuses on establishing the pre-conditions for sustainable development including access to education, property rights in the transition to a market economy and reducing the vulnerability of poorer communities to natural disasters.

In China the key development challenge is to promote equitable growth, taking into account the widening disparities between urban and rural incomes, the development needs of Western and North-Eastern China, and the massive movement of people from rural areas to the cities.

### **South Asia**

Australian assistance is provided in Sri Lanka, Bangladesh, India, Pakistan, Nepal, Maldives and Bhutan. The assistance to the region will continue to move to more flexible and less resource intensive mechanisms such as via multilateral organisations and the Australian Development Scholarships program.

Australian assistance is improving the delivery of basic services, especially primary education, while strengthening governance and reform in South Asian countries. The program also has a regional focus and has provided support in such areas as vital research into arsenic contamination of water and food and the development of strategies for arsenic mitigation and safe water management. Other regional activities include training and research in HIV/AIDs prevention and care and trade facilitation.

### **Africa and the Middle East**

The international community has focused substantial resources on assisting Africa to achieve economic growth and reduce poverty. Australia is a small donor to Africa and Australian assistance is, therefore, very targeted. Areas of focus include food security, addressing communicable diseases, particularly the HIV/AIDS epidemic and improving governance. Australian assistance is increasingly channelled through international organisations and non-government organisations (NGOs) with well-established expertise in Africa.

The Middle East remains a priority for Australia's efforts in responding to humanitarian needs and the rebuilding of society and livelihoods. Australia's aid program is making a significant and effective contribution to meeting the humanitarian and reconstruction needs of the Iraqi people, particularly through the agriculture sector.

Australian assistance to Afghanistan is delivered primarily through multilateral organisations and NGOs, with a priority placed on humanitarian, rehabilitation and capacity-building assistance, in a bid to aid the transition to peace and democracy.

Australia also provides assistance to the Palestinian territories and Palestinian refugees in surrounding Middle East countries, with a focus on humanitarian relief and building local capacity to support Palestinians. Australian assistance includes support for the provision of essential services, such as education and health, and support for community organisations and emergency relief, delivered primarily through multilateral organisations and NGOs.

## **Global programs**

### **Emergency, humanitarian and refugee aid**

Australia's emergency, humanitarian and refugee programs lessen the adverse impact of conflict and natural disasters on vulnerable populations, supporting the promotion of stability, peace and security.

Increased funding in 2004–05 for humanitarian, emergency and refugee programs will enhance the aid program's ability to respond quickly, flexibly and effectively to humanitarian needs resulting from disasters and conflict.

A stronger analysis of conflict and disaster vulnerability in the region will identify new peace building and disaster preparedness strategies and activities to better prepare communities at risk.

Australia will continue to provide significant core support to key humanitarian agencies such as the International Committee of the Red Cross, and will continue to work closely with effective delivery agencies such as the World Food Program and the United Nations Children's Fund. Funding for the International Refugee Fund will be maintained to address the needs of those displaced by conflict.

While largely targeting the Asia-Pacific region, Australia will continue to respond to emergencies beyond its immediate region, including further

humanitarian relief and reconstruction assistance to Iraq, post-conflict support for Afghanistan and continued support for humanitarian needs in Africa, including Sudan.

### **Multilateral and international organizations**

Australia provides direct support to multilateral and international organisations that are effective and efficient in pursuing their objectives and which complement Australia's development cooperation efforts. These organisations play an important role in the achievement of Australia's aid objectives and as delivery mechanisms for a number of bilateral programs. In 2004–05 Australia completed replenishment negotiations for both the Asian Development Bank and the World Bank. Australia will continue to strengthen its engagement and partnerships with the multilateral development banks, focusing on development effectiveness and impact, and bank engagement with individual countries particularly in the Asia-Pacific region.

Australia's development cooperation program supports global efforts to address key environmental concerns. It contributes to the Global Environment Facility, which funds projects in six focal areas of biodiversity, climate change, international waters, ozone, land degradation and persistent organic pollutants. The program also supports the Montreal Protocol Multilateral Fund to assist with global efforts to repair the ozone layer and the United Nations Environment Programme.

Australia's aid program provides core funding to a number of UN development and humanitarian organisations, with a focus on those who have demonstrated efficiency and effectiveness in the delivery of aid, and those with relevance to Australia's bilateral programs, particularly the Asia-Pacific region.

In 2004–05 Australia will contribute core funding to twelve multilateral organisations, including: the World Food Program (\$31m), United Nations Development Program (\$7m) and UNICEF (\$5.5m).

## **Non-government organisation (NGOs) and volunteer programs**

Australian NGOs are recognised for their strong links with both Australian and partner country communities overseas. By working with effective NGOs, AusAID aims to achieve quality aid outcomes and to extend the reach of the aid program to the communities with which Australian NGOs work. During 2004 AusAID will continue to actively engage Australian NGOs on the advancement of development issues and quality outcomes through both the Committee for Development Cooperation and the Australian Council for International Development.

In 2004–05 AusAID is providing \$21.6m for its various volunteer programs. AusAID continues to support young Australians on volunteer assignments in partner countries throughout the Asia and Pacific regions through the Australian Youth Ambassadors for Development Program (AYAD). The key aim of the program is to strengthen mutual understanding between Australia and the countries of Asia and the Pacific and thereby make a positive contribution to the development of our region. The AYAD Program is accessible to 18–30 year olds for volunteer assignments of up to 12 months. In September 2004 the 1,000th Youth Ambassador will be placed overseas.

## **Australian Centre for International Agricultural Research (ACIAR)**

ACIAR is a statutory authority within the Foreign Affairs and Trade portfolio. As part of Australia's aid program it assists Australian and developing country researchers, institutions and international

research centres to develop solutions to agricultural problems in order to improve livelihoods through sustainable increases in agricultural productivity and enhanced natural resources management to the benefit of developing countries and Australia. Government appropriation for ACIAR in 2003–04 was \$46.8m. The Centre focuses its research funding on the Asia-Pacific region and also supports international agricultural research centres.

In 2003–04 ACIAR funded 221 research projects. The Centre also supported 50 Fellowships allowing students from developing countries to study for postgraduate qualifications in Australia. Twelve training courses were held for scientists involved in ACIAR-supported research. Twenty one scientific publications, including monographs, proceedings of workshops and technical reports were published.

Further information can be obtained from the ACIAR web site, <<http://www.aciar.gov.au>>. The site allows visitors to search for project information by country, or by research discipline and to find out about ACIAR activities.

## **The network of Australian diplomatic and consular missions overseas**

DFAT manages an extensive network of Australian diplomatic and consular missions abroad (tables 3.4–3.6), supporting Australia's international interests and providing consular and passport services. The department's central office is in Canberra and it also maintains offices in all of the state capitals and in Darwin, as well as Newcastle and Thursday Island.

**3.4 AUSTRALIAN EMBASSIES, HIGH COMMISSIONS, CONSULATES AND MULTILATERAL MISSIONS  
MANAGED BY DFAT(a) — 30 June 2004**

Country of location	City	Post type
Argentina	Buenos Aires	Embassy
Austria	Vienna	Embassy/Permanent Mission to the United Nations
Bangladesh	Dhaka	High Commission
Belgium	Brussels	Embassy/Mission to the European Union
Brazil	Brasilia	Embassy
Brunei Darussalam	Bandar Seri Begawan	High Commission
Burma	Rangoon	Embassy
Cambodia	Phnom Penh	Embassy
Canada	Ottawa	High Commission
Chile	Santiago	Embassy
China, Peoples Republic of	Beijing	Embassy
	Guangzhou	Consulate-General
	Hong Kong (SAR)	Consulate-General
	Shanghai	Consulate-General
Croatia	Zagreb	Embassy
Cyprus	Nicosia	High Commission
Denmark	Copenhagen	Embassy
East Timor	Dili	Embassy
Egypt	Cairo	Embassy
Federated States of Micronesia	Pohnpei	Embassy
Fiji	Suva	High Commission
France	Paris(b)	Embassy
	Paris	Delegation to the OECD
Ghana	Accra	High Commission
Germany	Berlin	Embassy
Greece	Athens	Embassy
Hungary	Budapest	Embassy
India	New Delhi	High Commission
Indonesia	Jakarta	Embassy
	Bali (Denpasar)	Consulate-General
Iran	Tehran	Embassy
Iraq	Baghdad	Embassy
Ireland	Dublin	Embassy
Israel	Tel Aviv	Embassy
Italy	Rome	Embassy
Japan	Tokyo	Embassy
Jordan	Amman	Embassy
Kenya	Nairobi	High Commission
Kiribati	Tarawa	High Commission
Korea, Republic of	Seoul	Embassy
Laos	Vientiane	Embassy
Lebanon	Beirut	Embassy
Malaysia	Kuala Lumpur	High Commission
Malta	Valletta	High Commission
Mauritius	Port Louis	High Commission
Mexico	Mexico City	Embassy
Nepal	Kathmandu	Embassy
Netherlands	The Hague	Embassy
New Caledonia	Noumea	Consulate-General
New Zealand	Wellington	High Commission
Nigeria	Abuja	High Commission
Pakistan	Islamabad	High Commission
Papua New Guinea	Port Moresby	High Commission
Philippines	Manila	Embassy
Poland	Warsaw	Embassy
Portugal	Lisbon	Embassy
Russia	Moscow	Embassy

For footnotes see end of table.

...continued

**3.4 AUSTRALIAN EMBASSIES, HIGH COMMISSIONS, CONSULATES AND MULTILATERAL MISSIONS  
MANAGED BY DFAT(a) — 30 June 2004 — continued**

Country of location	City	Post type
Samoa	Apia	High Commission
Saudi Arabia	Riyadh	Embassy
Serbia and Montenegro	Belgrade	Embassy
Singapore	Singapore	High Commission
Solomon Islands	Honiarra	High Commission
South Africa	Pretoria	High Commission
Spain	Madrid	Embassy
Sri Lanka	Colombo	High Commission
Sweden	Stockholm	Embassy
Switzerland	Geneva	Permanent Mission to the United Nations
	Geneva	Permanent Mission to the WTO/Consulate-General
Thailand	Bangkok	Embassy
Tonga	Nuku'alofa	High Commission
Trinidad and Tobago	Port of Spain	High Commission
Turkey	Ankara	Embassy
United Arab Emirates	Abu Dhabi	Embassy
United Kingdom	London	High Commission
United States of America	Washington DC	Embassy
	Chicago	Consulate-General
	Honolulu	Consulate-General
	Los Angeles	Consulate-General
	New York	Consulate-General
	New York	Permanent Mission to the United Nations
Vanuatu	Port Vila	High Commission
Vatican City	Vatican City(c)	Embassy
Vietnam	Hanoi	Embassy
	Ho Chi Minh City	Consulate-General
Zimbabwe	Harare	High Commission

(a) 85 posts. In Nauru, the department maintains an Australian Administrative Centre to facilitate mutual cooperation on processing applications from asylum seekers. In Ramallah, the Australian Government maintains the Australian Representative Office. The Office manages dealings with the Palestinian Authority in the West Bank and Gaza and has responsibility for Australia's development assistance program for the Palestinians. In Taipei, the Australian Chamber of Commerce and Industry maintains the Australian Commerce and Industry Office, which includes staff seconded from the Department of Foreign Affairs and Trade, Austrade, the Department of Education, Science and Training and the Department of Immigration and Multicultural and Indigenous Affairs. (b) The permanent delegation to UNESCO is located within the embassy in Paris. (c) Embassy to the Holy See.

Source: Department of Foreign Affairs and Trade.

**3.5 CONSULATES MANAGED BY AUSTRADE(a) — 30 June 2004**

Country of location	City	Post type
Brazil	Sao Paulo	Consulate-General
Canada	Toronto	Consulate-General
Germany	Frankfurt	Consulate-General
India	Mumbai	Consulate-General
Italy	Milan	Consulate-General
Japan	Fukuoka	Consulate-General
	Nagoya	Consulate
	Osaka	Consulate-General
	Sapporo	Consulate
	Sendai	Consulate
New Zealand	Auckland	Consulate-General
Peru	Lima	Consulate-General
Romania	Bucharest	Consulate-General
Turkey	Istanbul	Consulate-General
United Arab Emirates	Dubai	Consulate-General
United States of America	Atlanta	Consulate-General
	San Francisco	Consulate-General

(a) 17 posts.

Source: Department of Foreign Affairs and Trade.

**3.6 CONSULATES HEADED BY HONORARY  
CONSULS(a) — 30 June 2004**

Country of location	City
Angola	Luanda
Bolivia	La Paz
Brazil	Rio de Janeiro
Bosnia-Herzegovina	Sarajevo(b)
Bulgaria	Sofia
Canada	Vancouver
Colombia	Bogota
Czech Republic	Prague
Ecuador	Guayaquil
Estonia	Tallinn
Finland	Helsinki(b)
Former Yugoslav Republic of Macedonia	Skopje
French Polynesia	Papeete
Ghana	Lagos(b)
Greece	Thessaloniki
Indonesia	Balikpapan(b) Kupang(b) Medan
Korea, Republic of	Pusan
Latvia	Riga
Lithuania	Vilnius
Malaysia	Kota Kinabalu Kuching Penang
Mexico	Guadalajara Monterrey
Mozambique	Maputo
Norway	Oslo
Pakistan	Karachi
Papua New Guinea	Lae
Russia	St Petersburg Vladivostok
Slovenia	Ljubljana
South Africa	Cape Town(b) Durban
Spain	Barcelona Seville
Thailand	Chiang Mai Koh Samui
Ukraine	Kyiv
United Kingdom	Edinburgh Manchester
United States of America	Boston(b) Denver Detroit Houston Miami Seattle
Uruguay	Montevideo

(a) 49 posts. (b) Vacant at 30 June 2004.

Source: Department of Foreign Affairs and Trade.

## Sustainable microfinance in Vietnam

In 1998 the General Assembly of the United Nations proclaimed 2005 as the International Year of Microcredit. The objective is to provide an occasion to raise awareness of the importance of microcredit and microfinance in the eradication of poverty, to share good practices and to further enhance financial sector development that supports sustainable pro-poor services in all countries.

Microcredit and microfinance programs go beyond the individual household level to help strengthen the fabric of local economies by investing in the productive capacity of communities, stimulating consumer activity and creating new jobs.

Australian assistance for a Vietnamese microfinance institution, the Capital Aid Fund for Employment of the Poor (CEP), has enabled it to increase the access of poor people in semi-urban districts of Ho Chi Minh City to financial services, and in the process helped it to establish a reputation as a leader in microfinance in Vietnam.

CEP has exceeded performance targets with a net increase of more than 17,000 clients half way through the five-year \$5.5m program. An increase of 15,500 clients was expected for the entire project duration. CEP clients, of which about 80% are women, have limited access to formal credit. The average loan size of US\$200 is commonly used to establish or expand microenterprises such as animal husbandry or waste recycling.

CEP's management information systems enable it to measure the effect of access to financial services on its clients. A mid-term impact assessment undertaken by CEP in 2003 found:

- 86% client satisfaction
- 34% of clients increased their income over the past 12 months (76% of these commenced or expanded a business enterprise)
- 55% of clients spent their increased income on food and other basic needs, while 44% made additional expenditures on children's education.

## Bibliography

The DFAT web site <<http://www.dfat.gov.au>> provides a range of comprehensive and up-to-date material on Australia's foreign and trade policy. The department also produces hard copy publications on many foreign and trade policy issues, which are available from the department (Telephone: Canberra 02 6261 1111). The web site contains a browsable list of topic categories, as well as a continually updated current issues list. Documents of interest available from the web site include:

*Advancing the National Interest: Australia's Foreign and Trade Policy White Paper*

*Department of Foreign Affairs and Trade Annual Reports*

*Department of Foreign Affairs and Trade Corporate Plan*

*Hints for Australian Travellers*

*Portfolio Budget Statements*

*Trade Outcomes and Objectives Statements*

*Transnational Terrorism: The Threat to Australia White Paper*

For information for Australians travelling overseas, last viewed October 2004

<<http://www.smartraveller.gov.au>>

For passport information, last viewed October 2004 <<http://www.passports.gov.au>>

For more detailed information about Australia's bilateral relationships, last viewed October 2004

<<http://www.dfat.gov.au/geo/>>

For trade and investment information, last viewed October 2004 <<http://www.dfat.gov.au/trade/>>,

<<http://www.dfat.gov.au/facts/index.html>> and <<http://www.tradewatch.dfat.gov.au>>

For a list of DFAT publications, last viewed October 2004 <<http://www.dfat.gov.au/publications/>>

For publications by the Economic Analytical Unit, last viewed October 2004

<<http://www.dfat.gov.au/eau>>

For information on Australia's international treaty commitments, last viewed October 2004

<<http://www.austlii.edu.au/au/other/dfat>>

For information on Australia's human rights policy, last viewed October 2004

<<http://www.dfat.gov.au/hr>>

For information on Australia's international environmental activities, last viewed October 2004

<<http://www.dfat.gov.au/environment>>

For information on the department's historical publications, last viewed October 2004

<<http://www.info.dfat.gov.au/historical>>

For links to Australian foreign missions overseas, last viewed October 2004

<<http://www.dfat.gov.au/missions/>>

## Related web sites

AusAID, last viewed October 2004 <<http://www.usaid.gov.au>>

Australian Centre for International Agricultural Research, last viewed October 2004

<<http://www.aciar.gov.au>>

Australian Safeguards and Non-Proliferation Office (ASNO), last viewed October 2004

<<http://www.asno.dfat.gov.au>>

Australian Trade Commission (Austrade), last viewed October 2004 <<http://www.austrade.gov.au>>

Export Finance and Insurance Corporation (EFIC), last viewed October 2004 <<http://www.efic.gov.au>>



# 4

## DEFENCE

*This chapter was contributed by the Australian Government Department of Defence (October 2004).*

This chapter provides a snapshot of the roles and activities of the Defence organisation – the Australian Defence Force and the Department of Defence. In particular, it focuses on the strategic environment, current operations and capability. The chapter also shows trends in Defence spending, and looks at the composition of the workforce.



## Strategic environment

In February 2003 the Minister for Defence released *Australia's National Security: A Defence Update 2003*. The update identified the emergence of new and more immediate threats from terrorism, a renewed attention to the consequences of failing and failed states in our region, and increased concerns about the proliferation of weapons of mass destruction as the major changes to our strategic environment.

It also identified the need for some re-balancing of Defence's capabilities and priorities to take account of the new strategic environment and concluded that it called for an increased emphasis on readiness and mobility, interoperability, the development and enhancement of important new capabilities and, where sensible and prudent, a reduced emphasis on capabilities of less importance.

The Defence Capability Review was conducted during 2003 to ensure that the Defence Capability Plan continued to reflect capability requirements in this changed strategic environment. The Review considered Defence's existing capabilities and Defence Capability Plan in light of the recommendations of the Defence Update, recent operational experience and more mature costings of equipment projects. The Government announced the outcomes of the Defence Capability Review in November 2003.

These included an increased requirement to strengthen the effectiveness and sustainability of the Army, to provide air defence protection to deploying forces and to enhance their operational and strategic mobility.

## Operations

During 2003–04 the Australian Defence Force (ADF) was involved in military operations, the provision of humanitarian support to other nations, and various joint and combined exercises involving the three Services and allied or regional military forces.

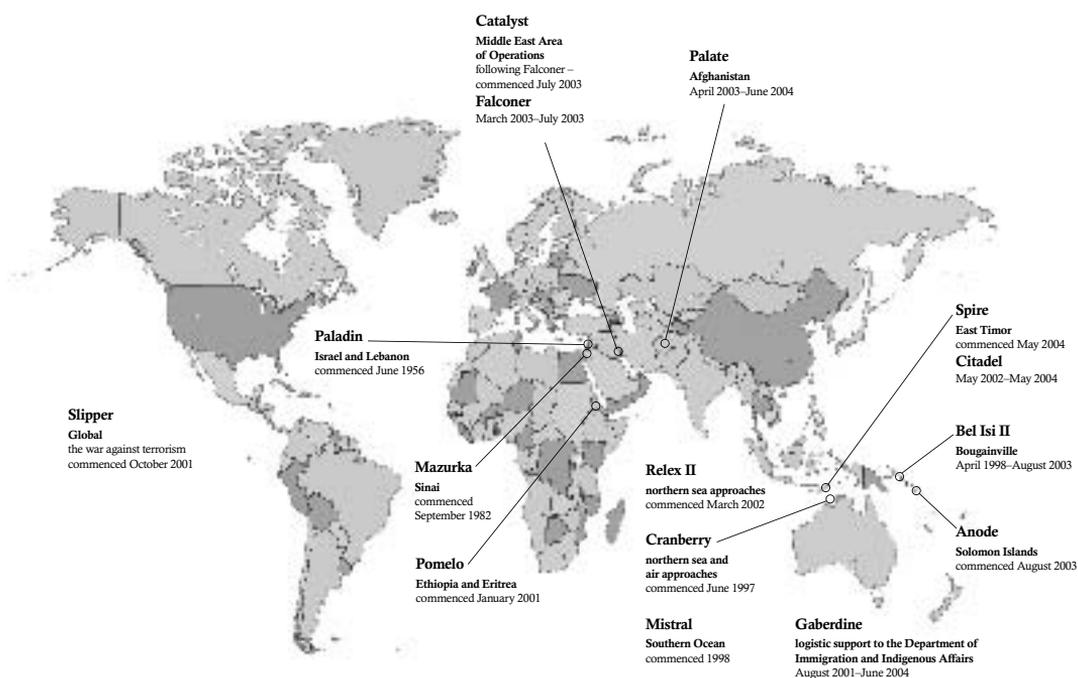
In addition to the reconstruction of Iraq and involvement in the war against terrorism, the ADF led a multinational regional force to assist the Government of the Solomon Islands to restore the rule of law and stability in the country. This allowed the Australian Federal Police and the regional police forces to assist with redeveloping the Royal Solomon Islands Police and restoring public confidence. The improved security situation has allowed the phased withdrawal of military forces and the transition to contracted administrative and logistic support for the Australian Federal Police. A smaller combined ADF and regional military force remains in the Solomon Islands in support of the ongoing police-led activities.

Under Operation Spire, the ADF provides approximately 100 personnel to the United Nations' (UN) mission in East Timor, undertaking a range of roles to support the UN, mainly performing specialist logistics and engineering and military liaison tasks.

The ADF continues to undertake operations against illegal fishing and unauthorised boat arrivals in Australia's northern approaches.

Currently, Australia has approximately 2,000 personnel deployed on operations with more than 1,100 of them deployed overseas. Map 4.1 shows areas of ADF involvement overseas; details of ADF involvement in major operations during 2003–04 are given in table 4.2.

## 4.1 AUSTRALIAN DEFENCE FORCE, Overseas operations



Source: Department of Defence.

## 4.2 AUSTRALIAN DEFENCE FORCE, Major operations(a) — 2003–04

### MIDDLE EAST

#### Operation Catalyst

Operation Catalyst is Australia's contribution to the rehabilitation of Iraq. The ADF is participating in coalition efforts to develop a secure environment in Iraq, assist national recovery programs and facilitate the transition to Iraqi self-government. Operation Catalyst has comprised, on average, approximately 900 personnel. Forces have included:

- an Australian National Headquarters element
- a maritime element of one frigate
- an aviation elements including two C-130 Hercules aircraft, two AP-3C Orion maritime patrol aircraft and an air traffic control detachment
- a security detachment to provide force protection and escort to the Australian mission in Iraq
- a contingent of ADF and civilian personnel working as embedded staff in various coalition headquarters
- two ADF training teams supporting training of the Iraqi Army and the Iraqi Coastal Defence Force.

#### Operation Slipper

Operation Slipper is Australia's contribution to the war against terrorism and the multinational maritime interception force in the Persian Gulf. Deployed forces have included:

- an Australian National Headquarters element
- a maritime element of one frigate
- an aviation element of two AP-3C Orion maritime patrol aircraft
- one Army officer working in a coalition headquarters in Afghanistan.

For footnote see end of table

... continued

## 4.2 AUSTRALIAN DEFENCE FORCE, Major operations(a) — 2003–04 — continued

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EAST TIMOR	
Operation Spire	Operation Spire is Australia's contribution to an extension of the United Nations Mission in support of the East Timor mandate for the mission in East Timor. This operation began in May 2004 and continues the work of Operation Citadel, Australia's contribution to the United Nations Mission in support of East Timor which concluded on 19 May 2004. Australia's contribution to Operation Spire consists of 100 logistics support personnel, mainly employed in engineering, maintenance and transport roles and supported by an Australian National Command Element.

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SOLOMON ISLANDS	
Operation Anode	Operation Anode is the ADF component in support of the Australian Government's contribution to coalition police forces restoring the rule of law in Solomon Islands. The operation began in July 2003 and is continuing. At 30 June 2004, the ADF's contribution included: a headquarters staff, a minor war vessel, an engineering element and an infantry platoon involving a total of 361 deployed ADF personnel.

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BOUGAINVILLE	
Operation Bel Isi II	Operation Bel Isi II provided ADF support to the United Nations Peace Monitoring Group to monitor and report on the maintenance of the cease-fire in Bougainville. ADF elements contributed specialist medical, logistic, communications and transport capabilities. ADF support included 35 ADF personnel and a Navy landing craft supported by a weekly Air Force C-130 air logistic support service and commercial shipping from Townsville. Operation Bel Isi II ceased on 26 August 2003.

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NORTHERN APPROACHES TO AUSTRALIA	
Operation Relex II	Continuing ADF contribution to the whole-of-government effort to deter unauthorised arrivals by sea in Australia's north west approaches. ADF support included one frigate, one amphibious ship, two AP-3C maritime patrol aircraft, up to six Fremantle-class patrol boats and up to three Army transit security elements.
Operation Cranberry	Continuing intelligence coordination and provision of surveillance information to the civil authorities operating in northern Australia. Surveillance support was provided using a range of ADF assets including Fremantle-class patrol boats, AP-3C maritime patrol aircraft and Regional Force Surveillance Units.

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PEACETIME NATIONAL TASKS	
Operation Iran Assist	Provision of humanitarian relief to the Government of Iran in the aftermath of an earthquake in the city of Bam. Over the period December 2003 to January 2004 the Air Force provided one C-130 Hercules aircraft to transport humanitarian aid to Iran.
Operation Niue Assist	Provision of disaster relief and medical support to the Pacific island of Niue in the aftermath of Cyclone Heta. An Air Force C-130 aircraft transported a 17 member medical team to Niue to provide health care and environmental health from 9–23 January 2004.
Operation Nauru Assist	Provision of assistance in the disposal of World War II era unexploded ordnance. The Air Force provided a two-person explosive ordnance demolition team.
Operation Vanuatu Assist	Provision of disaster relief to Vanuatu in the aftermath of Cyclone Ivy from February to March 2004. Two C-130 Hercules aircraft supported Emergency Management Australia and the Australian Agency for International Development by transporting humanitarian stores and a liaison officer to Vanuatu.

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(a) Correct as at 31 October 2004.

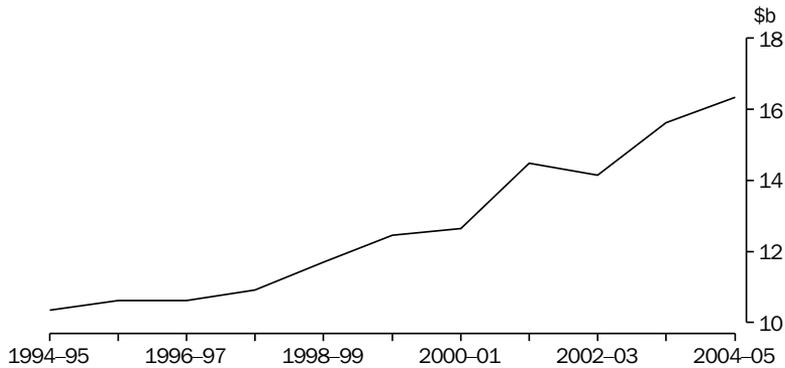
Source: *Department of Defence*.

## Resources

In the decade preceding 2001–02 Defence funding remained relatively stable in 'real' terms. Increases over this period, evident in graph 4.3, reflect maintenance of the Defence funding base after taking account of inflationary and foreign exchange influences.

Defence funding was increased in the 2001–02 budget and forward estimates to address a number of specific priorities detailed in the *2000 Defence White Paper*. The White Paper provided a funding commitment for Defence of around \$23.5b (in 2000 dollars) over the decade from 2001–02. This funding injection equates to an increase of some 3% of average real growth per year over the period.

### 4.3 DEFENCE RESOURCING



Source: Department of Defence.

In addition to the implementation of the White Paper, the Government has given Defence a number of specific directions to meet emerging strategic priorities. Key 2004–05 budget measures include:

- \$326m to buy two additional Airborne Early Warning and Control aircraft
- supplementation of \$313.9m for the conduct of ADF operations including:
  - the continued ADF contribution to the rehabilitation of Iraq following the hand over to the new Iraqi Government (an additional \$131.6m over three years)
  - the ADF’s contribution to the Regional Assistance Mission to the Solomon Islands (\$22.2m)
  - continued ADF presence in East Timor (\$20.1m over two years)
  - continued border protection operations (\$16m)
- enhancements to Defence’s counter-terrorism capabilities including for intelligence (\$54.5m over four years)
- an extra \$815.6m over four years in logistics support for key ADF platforms and equipment, including a range of enhanced maintenance work, refits and upgrades.

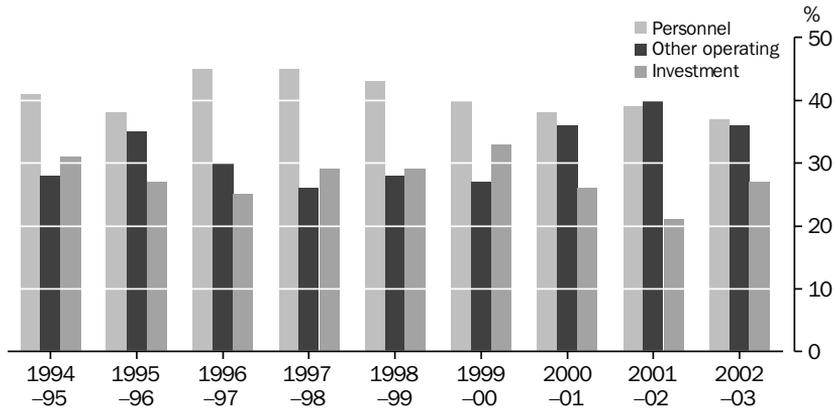
Graph 4.4 reflects the significance of both employee costs and the investment in specialist military equipment and infrastructure in delivering Defence capability. The increased share for

investment is consistent with initial progress towards acquiring the equipment capabilities outlined in the Defence White Paper. Longer-term projections indicate increases in personnel costs due to growth towards a larger ADF as specified in the White Paper.

From a regional perspective, Australia has tended to spend more on defence than its neighbours, in absolute terms, although some spend more as a proportion of gross domestic product (GDP). Australia spends more than various member countries of the Association of South East Asian Nations (table 4.5). Defence spending levels within the region were varied, but saw an overall increase in 2003. Some budgets neared or surpassed their previous 10-year high points (e.g. Singapore and China). After allowing for price changes, increases in ‘real’ defence expenditure were recorded by Thailand, Indonesia and Malaysia. Local political and economic conditions, as well as defence policies, affected the size of individual defence budgets and annual funding changes.

Defence spending by Australia’s traditional strategic partners, the United States and the United Kingdom, has declined as a share of GDP since the end of the Cold War. Over the period 1993 to 2003, United States defence expenditure as a share of GDP declined from 4.5% to 3.4%, but has begun to stabilise as a result of the events of 11 September 2001 and recent changes in the strategic landscape. Australia’s defence expenditure as a share of GDP is shown in graph 4.6.

#### 4.4 DEFENCE RESOURCING, By category



Source: Department of Defence.

#### 4.5 REAL DEFENCE SPENDING(a), Selected countries

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	US\$b										
<b>Australia</b>	<b>6.8</b>	<b>7.1</b>	<b>7.0</b>	<b>7.1</b>	<b>7.1</b>	<b>7.2</b>	<b>7.3</b>	<b>7.4</b>	<b>7.5</b>	<b>7.9</b>	<b>8.8</b>
Malaysia	2.2	2.2	2.4	2.5	2.2	1.8	2.0	1.9	2.3	2.6	2.5
Indonesia	2.3	2.5	2.6	2.9	2.9	2.3	2.4	2.3	2.2	2.2	2.3
Singapore	3.4	3.5	4.0	3.9	4.3	5.0	5.3	5.1	5.4	5.7	5.8
Thailand	3.4	3.7	3.8	3.9	3.6	2.9	2.6	2.7	2.6	2.7	2.7
Philippines	0.9	1.0	1.1	1.1	1.0	0.9	0.9	1.2	1.2	1.4	1.1
Vietnam	1.0	1.6	1.4	1.9	2.0	1.6	1.7	2.1	2.2	2.6	2.4

(a) Data calculated in US \$billion 1995.

Source: Defence Intelligence Organisation, 'Defence Economic Trends in the Asia Pacific 2003'.

#### 4.6 DEFENCE RESOURCING, Share of GDP



Source: Department of Defence.

## Capabilities

The changing strategic environment highlights the need for the ADF to be a flexible and adaptable defence force, which is ready to be deployed at short notice and can be sustained on operations for as long as required. Capability is the power to achieve a desired effect in a nominated environment in a specified period of time, and to sustain it for a designated period.

Defence maintains a force structure with the following elements:

### Navy

- a surface combatant force of six guided missile frigates and six Anzac-class frigates, together with onboard helicopters
- a naval aviation force comprising 16 Seahawk helicopters, seven Sea King helicopters and 13 Squirrel helicopters (with the introduction of 10 Super Seasprites to be deployed in 2005–06)
- a surface patrol capability comprising 15 Fremantle-class patrol boats (to be replaced by a fleet of 12 Armidale-class patrol boats between 2004–05 and 2007–08)
- six Collins-class submarines
- an afloat support capability consisting of an oil tanker and a replenishment ship
- a mine warfare force comprising six Huon-class coastal mine hunters, two auxiliary minesweepers and two clearance diving teams
- an amphibious lift force comprising two amphibious landing ships, one heaving landing ship and six heavy landing craft
- a hydrographic force consisting of two Leeuwin-class hydrographic ships and their embarked survey motor boats, four Paluma-class survey motor launches, a laser airborne depth sounder aircraft and a deployable survey unit

### Army

- a special forces capability comprising a Special Air Service Regiment, a regular commando regiment; a Reserve commando regiment and an Incident Response Regiment
- a mechanised operations capability based on 1st Brigade, consisting of a tank regiment, a cavalry regiment, a medium artillery regiment;

and combat engineer regiment, a combat support regiment, a mechanised infantry battalion and a combat service support battalion

- a light infantry force based on 3rd Brigade, consisting of an armoured personnel carrier squadron, a field artillery regiment, a combat engineer regiment, a command support regiment, three infantry battalions and a combat service support battalion
- an aviation force based on 16th Brigade based on two aviation regiments of both rotary-wing and fixed-wing aircraft (including 36 Black Hawk, 42 Kiowa, 25 Iroquois and six Chinook helicopters and 3 King Air and 2 Twin Otter fixed-wing aircraft)
- a ground-based air defence force which maintains a ground-based air defence system consisting of RBS-70 shoulder-launched missile systems and Rapier missile systems
- a combat support force, consisting of a construction regiment, topographical survey squadron, a surveillance and target acquisition battery, a signals regiment, an intelligence battalion, a military police battalion and a combat training centre
- a regional surveillance force drawn from three regional force surveillance units
- a logistic support force consisting of two signals squadrons, a petroleum company, a recovery company, three force support battalions, a deployed force support unit, three health support battalions and a psychology unit
- a motorised infantry force, based on 7th Brigade, comprising a cavalry regiment, a field artillery regiment, a combat engineer regiment, a combat support regiment, three reserve/integrated infantry battalions and a combat service support battalion
- a protective operations force drawn from the Reserves, comprising two or three infantry battalions; a cavalry unit and combat and logistic support units

### Air Force

- an air combat force using F-111 and F/A-18 aircraft crews, weapon systems and support infrastructure; Hawk Lead-In fighter aircraft and PC-9 Forward Air Control aircraft also contribution to this force

- an air combat support force comprising two combat support wings, one expeditionary combat support wing; one combat reserve wing; an air field defence wing and a health services wing
- a strategic surveillance force, consisting of air traffic control radars, tactical air defence radars, air defence radars and the Jindalee Operational Radar Network – a wide-area surveillance system monitoring Australia’s northern approaches
- a maritime patrol force consisting of P-3 aircraft, crews and weapon systems
- an airlift force consisting of 24 C-130 Hercules, 14 Caribou, four Boeing 707, seven Beechcraft Kingair 350 aircraft introduced into service from September 2003 and five VIP aircraft – two Boeing 737 and three CL604 Challenger aircraft.

## People

With over 90,000 people, Defence is one of Australia’s largest employers. Over half of this workforce (57%) are full-time ADF personnel, a significant proportion (23%) are employed in the ADF Reserves and the remainder (20%) are civilians (graph 4.7).

Table 4.8 shows the distribution of ADF personnel across the three Services. Army personnel represent almost half of the full-time ADF, and almost 80% of the Reserves, with the remaining personnel divided between the Navy and the Air Force.

### 4.8 AUSTRALIAN DEFENCE FORCE STAFFING, By Service — 30 June 2004

	Full-time	Reserves
Navy	13 133	1 881
Army	25, 446	16 445
Air Force	13 455	2 162
<b>Total</b>	<b>52 034</b>	<b>20 488</b>

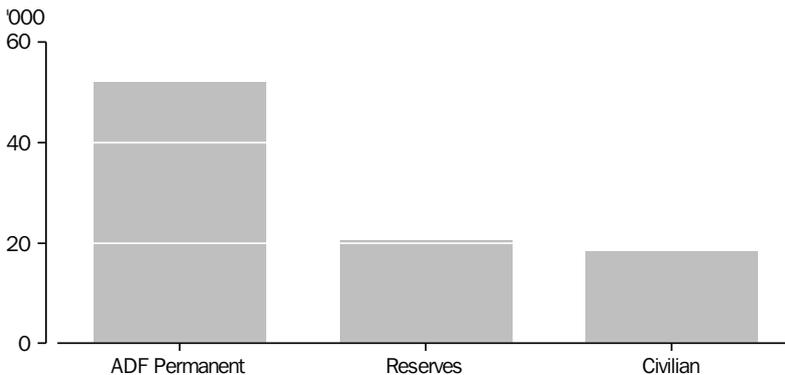
Source: Department of Defence.

Men and women have equal access to employment in the ADF, with the exception of certain functions involving direct combat duties. Women comprised 13% of the ADF permanent workforce at 30 June 2004 (table 4.9) and are able to serve in all positions except those involving direct combat duties, including:

- Navy – clearance divers
- Army – armour, artillery, infantry, combat engineers
- Air Force – ground defence officers and airfield defence guards.

For health and safety reasons, women are not employed in areas where exposure to embryo-toxic substances could endanger their health. Women are not employed, for example, as surface finishers and electroplaters within the Air Force.

### 4.7 DEFENCE TOTAL STAFFING — 2002–03



Source: Department of Defence.

#### 4.9 DISTRIBUTION IN THE FULL-TIME ADF — 30 June 2004

	Navy			Army			Air Force		
	Males	Females	Proportion of females	Males	Females	Proportion of females	Males	Females	Proportion of females
	no.	no.	%	no.	no.	%	no.	no.	%
Officers(a)	2 280	528	23	4 494	744	16	3 492	646	18
Other ranks	8 624	1 773	21	18 352	1 865	10	8 056	1 391	17
<b>Total</b>	<b>10 544</b>	<b>2 301</b>	<b>22</b>	<b>22 846</b>	<b>2 609</b>	<b>11</b>	<b>11 608</b>	<b>2 037</b>	<b>17</b>

(a) Officer numbers include Chaplains.

Source: Department of Defence.

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# 5

## POPULATION

Population statistics are measures of the size, growth, composition and geographic distribution of the population as well as the components that shape population change – notably births, deaths and migration. Population statistics underpin the discussion on a wide range of issues of concern to the community, including immigration, cultural diversity, ageing and population sustainability.

Population trends are associated with many social changes and statistics on these trends assist governments in developing social and economic policy. Australia's population is continually changing. Like many developed countries the population is ageing. The population continues to grow and the distribution of the population among and within the states and territories is changing. Changes in Australia's population affect policy areas such as health, education, housing, the labour market and the environment.

There are important legislative requirements for the Australian Bureau of Statistics (ABS) to produce population estimates. The legislation which determines the distribution of state, territory and local government grants uses ABS population estimates as one of the bases for calculation. Similarly, population estimates are used to determine the number of seats each state and territory is entitled to in the House of Representatives.

The Census of Population and Housing is the principal source of information about Australia's population. It has been held every five years since 1961 with the most recent census conducted in August 2001.

The census provides a base from which Australia's estimated resident population is calculated. The census count of the population is adjusted for visitors from overseas, Australian residents temporarily overseas on census night and an estimate of the number of people missed in the census and those counted more than once. To obtain estimated resident population figures for dates between censuses, births and net overseas migration are added and deaths are subtracted.

The chapter contains five articles: *Population figures for state grants – an historical perspective*; *Aboriginal and Torres Strait Islander Australians – projections 2001 to 2009*; *Australia's top four overseas birthplace groups*; *Same-sex couple families*; and *The population census – A brief history*.

The ABS has conducted a social survey of Indigenous Australians. The article at the conclusion of this chapter *Selected findings from the 2002 National Aboriginal and Torres Strait Islander Social Survey* presents the main results of the survey of this population group.

## Population size and growth

Australia's estimated resident population at June 2003 was just under 19.9 million, an increase of 1.2% over the previous year (table 5.1). This figure has increased by 12.5% over the past decade. Australia's growth rate of 1.2% for the 12 months to June 2003 was the same as the overall world growth rate (table 5.2).

When compared with other countries, Australia's population growth rate was similar to New Zealand (1.1%), Canada and Thailand (each 1.0%),

higher than Hong Kong (0.7%) and the United States of America (0.9%), considerably higher than Japan and Germany (each 0.1%) and the United Kingdom (0.3%), and well below the growth rates for Papua New Guinea (2.4%) and Singapore (1.9%).

In figures provided by the US Census Bureau's *International Data Base* for 227 countries, arranged from highest to lowest size, Australia's population ranked 52nd in the year 2003 and is projected to rank 65th in 2050.

### 5.1 COMPONENTS OF POPULATION CHANGE AND ESTIMATED RESIDENT POPULATION(a)

Year ended 30 June	Components of population change				Population		
	Births(b)	Deaths(b)	Natural increase(b)	Net overseas migration(c)	At end of period	Increase(d)	Increase
	'000	'000	'000	'000	'000	'000	%
1998	249.1	129.3	119.9	79.2	18 711.3	193.7	1.05
1999	250.0	128.3	121.7	96.5	18 925.9	214.6	1.15
2000	249.3	128.4	120.9	107.3	19 153.4	227.5	1.20
2001	247.5	128.9	118.6	135.7	19 413.2	259.9	1.36
2002	247.4	130.3	117.2	110.6	19 641.0	227.7	1.17
2003	248.3	133.9	114.3	125.3	19 880.6	239.6	1.22

(a) Includes Other Territories. (b) Numbers of births and deaths are on a year of occurrence basis and differ from those shown in the births and deaths sections of this chapter. (c) Includes migration adjustments from June 2001 onwards. (d) The difference between total growth and the sum of natural increase and net migration during 1996–2001 is due to intercensal discrepancy.

Source: *Australian Demographic Statistics (3101.0)*.

### 5.2 POPULATION, GROWTH RATE AND RANK, Selected countries

Country	Estimated population			Projected population	Rank	
	2002	2003	Growth rate	2050	2003	2050
	million	million	%	million	no.	no.
<b>Australia</b>	<b>19.6</b>	<b>19.9</b>	<b>1.2</b>	<b>26.4</b>	<b>52</b>	<b>65</b>
Canada	31.9	32.2	1.0	41.4	34	41
China	1 284.3	1 291.5	0.6	1 424.2	1	2
Germany	82.4	82.4	0.1	73.6	13	24
Hong Kong (SAR of China)	6.8	6.8	0.7	6.2	96	115
India	1 034.2	1 049.7	1.5	1 601.0	2	1
Indonesia	231.3	234.9	1.5	336.2	4	4
Japan	127.1	127.2	0.1	99.9	10	16
Malaysia	22.7	23.1	1.9	43.1	46	40
New Zealand	3.9	4.0	1.1	4.8	121	123
Papua New Guinea	5.2	5.3	2.4	10.7	109	91
Singapore	4.2	4.3	1.9	4.6	119	128
Thailand	63.6	64.3	1.0	74.0	19	23
United Kingdom	59.9	60.1	0.3	64.0	21	28
United States of America	287.7	290.3	0.9	420.1	3	3
World	6 232.7	6 305.1	1.2	9 050.5	..	..

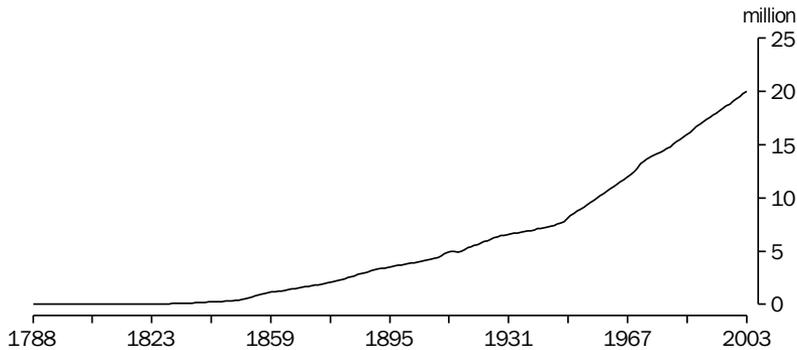
Source: *Population Projections, Australia, 2002 to 2010 (3222.0)*; US Census Bureau, 'International Data Base'.

Australia's estimated resident population of 19.9 million at June 2003 has grown by over 2.1 million during the past decade. The growth of Australia's population has two components: natural increase (the number of births minus the number of deaths) and net overseas migration (net permanent and long-term migration plus the migration adjustment). Since Federation in 1901, Australia's population has increased by over 16.1 million persons. Graph 5.3 shows the growth in Australia's population since 1788. The main component of population growth in Australia has

been natural increase, which has contributed about two-thirds of the total growth since the beginning of the 20th century.

Table 5.4 shows that population growth has not occurred evenly across the states and territories. At Federation, South Australia had nearly twice the population of Western Australia, which in turn had only slightly more people than Tasmania. In 2003 New South Wales remained the most populous state, followed by Victoria and Queensland. Western Australia became the fourth most populous state in 1983, overtaking South Australia.

### 5.3 POPULATION



Source: Australian Demographic Statistics (3101.0); Australian Demographic Trends (3102.0); Official Year Book of the Commonwealth of Australia, 1901–1910.

### 5.4 POPULATION, By states and territories

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.(a)
30 June	'000	'000	'000	'000	'000	'000	'000	'000	'000
1901	1 361.7	1 203.0	502.3	356.1	188.6	171.7	4.8	. .	3 788.1
1913	1 817.9	1 393.2	659.3	437.4	313.3	192.9	3.7	2.5	4 820.2
1923	2 200.4	1 607.7	798.0	514.6	350.6	214.9	3.7	3.5	5 693.4
1933	2 600.8	1 820.3	947.5	580.9	438.9	227.6	4.9	8.9	6 629.8
1943	2 857.7	1 974.1	1 048.4	613.0	475.3	242.6	10.4	13.4	7 234.9
1953	3 383.8	2 395.3	1 291.4	775.8	620.5	304.1	15.9	28.6	8 815.4
1963	4 050.0	3 040.8	1 577.9	1 010.7	788.3	360.7	48.5	73.4	10 950.4
1973	4 841.9	3 707.7	1 952.0	1 228.5	1 101.0	403.1	97.1	173.3	13 504.5
1983	5 353.0	4 035.7	2 482.3	1 345.8	1 369.1	432.8	135.9	239.0	15 393.5
1993	6 004.9	4 472.4	3 109.8	1 460.7	1 677.7	471.7	170.7	299.3	17 667.1
2000	6 486.2	4 741.3	3 561.5	1 505.0	1 874.5	471.4	195.6	315.2	19 153.4
2001	6 575.2	4 804.7	3 628.9	1 511.7	1 901.2	471.8	197.8	319.3	19 413.2
2002	6 634.1	4 857.2	3 711.0	1 518.7	1 924.6	472.6	198.7	321.5	19 641.0
2003	6 686.8	4 917.3	3 796.2	1 527.1	1 952.2	477.1	198.3	322.8	19 880.6

(a) Includes Other Territories in 2000 to 2003. Other Territories include Jervis Bay Territory, included with the ACT until 1996, as well as Christmas Island and the Cocos (Keeling) Islands, excluded from population estimates for Australia until 1996.

Source: Australian Historical Population Statistics (3105.0.65.001); Australian Demographic Statistics (3101.0).

## Components of population growth

Australia's population grew from 3.8 million at the beginning of the 20th century to 19.9 million in 2003. During the 1950s Australia experienced consistently high rates of growth, with an average annual increase of 2.3% from 1950 to 1959, while during the 1930s Australia experienced relatively low growth (0.8%).

Natural increase has been the main source of the growth of Australia's population since the beginning of the 20th century, contributing around two-thirds of the total increase between 1901 and 2003. Net overseas migration, while a significant source of growth, is more volatile, fluctuating under the influence of government policy as well as political, economic and social conditions in Australia and the rest of the world.

In order to measure net overseas migration, the ABS applies a number of adjustments to overseas arrivals and departures data. These mainly comprise adjustments designed to reflect differences between stated travel intentions and actual travel behaviour, but also include adjustments to account for short trips home taken by long-term travellers. Until recently, adjustments used by the ABS to produce net overseas migration estimates were collectively referred to as 'category jumping adjustments'. They are now referred to more simply as 'migration adjustments'.

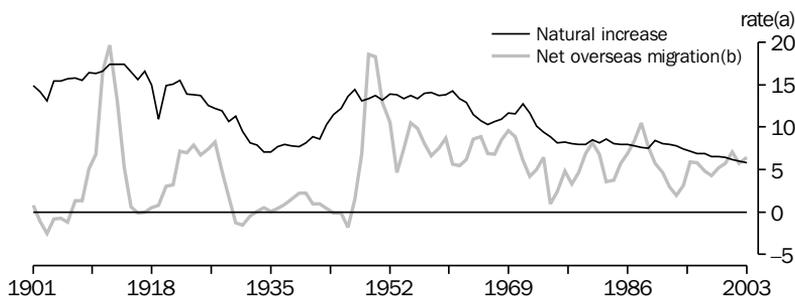
The yearly growth rates due to natural increase and net overseas migration from 1901 to 2003 are shown in graph 5.5.

In 1901 the rate of natural increase was 14.9 persons per 1,000 population, compared with 5.8 in 2003. From 1901 to the 1940s the rate increased (to a peak of 17.4 per 1,000 population in the years 1912, 1913 and 1914) then declined (to a low of 7.1 per 1,000 population in 1934 and 1935). In the mid to late-1940s the rate increased sharply as a result of the beginning of the baby boom and the immigration of many young people who then had children in Australia, with a plateau of rates of over 13.0 persons per 1,000 population for every year from 1946 to 1962.

Since 1962 falling fertility has led to a fall in the rate of natural increase. In 1971 the rate was 12.7 persons per 1,000 population; a decade later it had fallen to 8.5. In 1996 the rate of natural increase fell below 7.0 for the first time, with the downward trend continuing from then on. ABS population projections indicate that continued low fertility, combined with an increase in deaths due to an ageing population, will result in natural increase falling below zero sometime in the mid-2030s.

Since 1901 the crude death rate has fallen from 12.2 deaths per 1,000 population to a low of 6.6 which was recorded in 2001. The crude birth rate has declined by 53% from 27.2 births per 1,000 population recorded in 1901 to 12.7, the lowest ever birth rate, which was recorded in 2001. Crude birth and death rates from 1901 to 2003 are shown in graph 5.6.

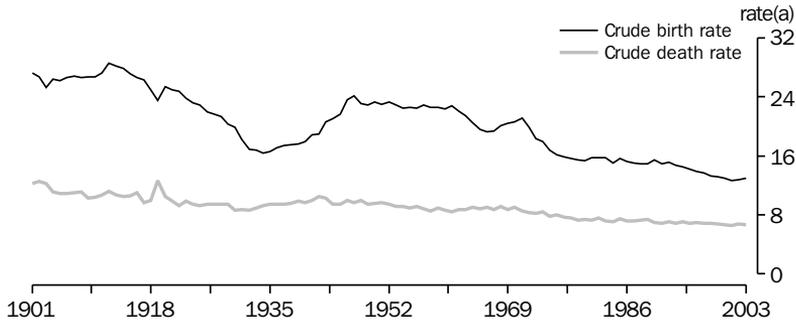
### 5.5 COMPONENTS OF POPULATION GROWTH



(a) Rate per 1,000 population. (b) Excludes movements of troops for the periods 1914 to 1920 and 1939 to 1947.

Source: *Australian Demographic Statistics (3101.0)*; *Australian Historical Population Statistics (3105.0.65.001)*.

## 5.6 COMPONENTS OF NATURAL INCREASE



(a) Rate per 1,000 population.

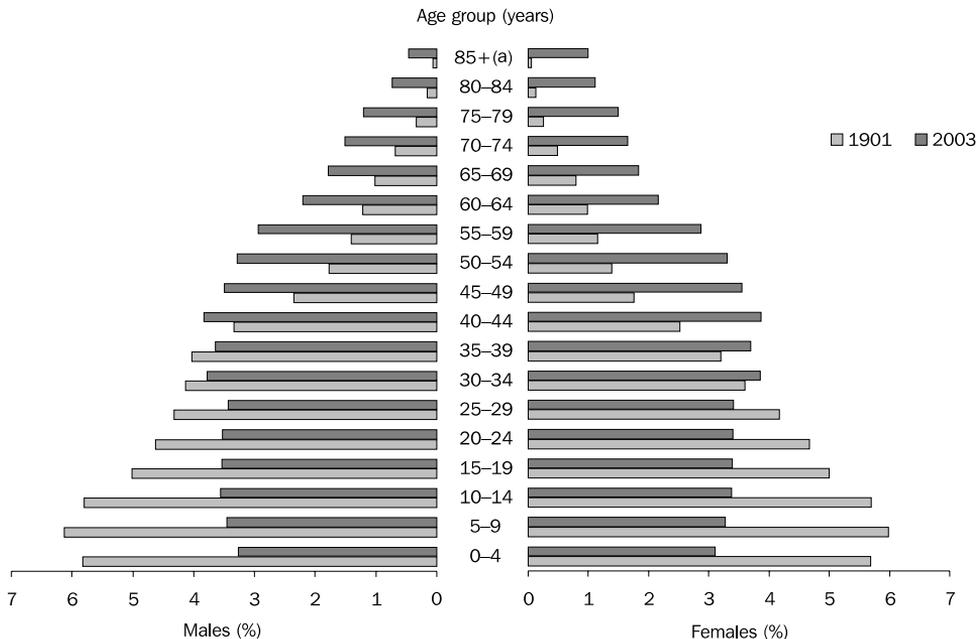
Source: *Australian Demographic Statistics (3101.0)*; *Australian Historical Population Statistics (3105.0.65.001)*.

## Population age and sex structure

Since the turn of the 20th century the populations of all ages have grown significantly, but older age groups have grown more than young age groups. The ageing of Australia's population is illustrated in graph 5.7 for the years 1901 and 2003.

Between 1983 and 2003 the number of persons aged 15–64 years increased by 32%. At the same time there was an increase in proportion of population aged 65 years or more. The proportion of children 0–14 years decreased while their absolute numbers increased by 6% (graph 5.8).

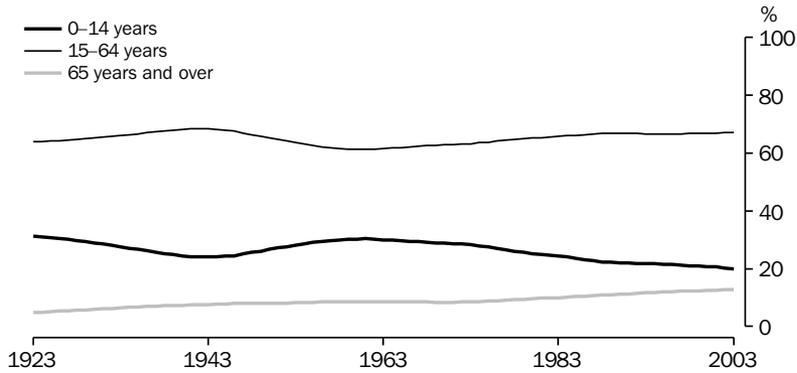
## 5.7 AGE DISTRIBUTION OF POPULATION — 1901 and 2003



(a) The 85+ age group includes all ages 85 years and over and therefore is not strictly comparable with five-year age groups in the rest of this graph.

Source: *Australian Historical Population Statistics - on AusStats (3105.0.65.001)*; *Population by Age and Sex, Australian States and Territories (3201.0)*.

### 5.8 POPULATION, By age group



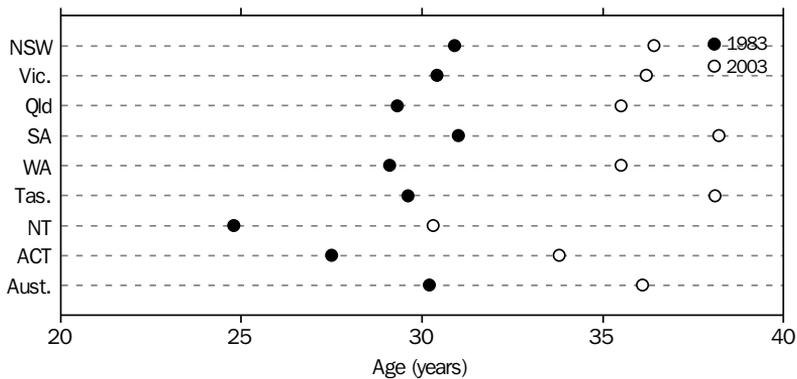
Source: Australian Demographic Statistics (3101.0).

The median age of the Australian population – the age at which half the population is older and half is younger – has increased by 6.0 years in the last 20 years from 30.2 years in 1983 to 36.1 years in 2003. Australia’s population is ageing because of sustained low fertility – which has resulted in proportionally fewer children in the population –

and increased life expectancy. Graph 5.9 shows the median ages of the population for the states and territories in 1983 and 2003.

In 2003 the population of South Australia had the highest median age of all states and territories (38.2 years) followed by Tasmania (38.1 years) and New South Wales (36.4 years). The Northern Territory (30.3 years) had the lowest median age.

### 5.9 MEDIAN AGE OF POPULATION



Source: Population by Age and Sex, Australian States and Territories, June 2003 (3201.0).

Tasmania experienced the largest increase in median age over the 20 years to 2003, increasing by 8.5 years from 29.6 years in 1983 to 38.1 years in 2003, and had almost equalled South Australia (which increased from 31.0 in 1983 to 38.2 years in 2003).

The proportion of children aged 0–14 years in the population has declined from 24% in 1983 to 20% in 2003. Over the same period, the proportion of the population aged 15–64 years increased marginally to 67% while the proportion of people aged 65 years and over increased from 10% to 13% (table 5.10).

### 5.10 POPULATION AGED 65 YEARS AND OVER, Proportion and growth

	Proportion of population in 2003	Population growth between 2002 and 2003
	%	%
New South Wales	13.3	1.7
Victoria	13.2	2.0
Queensland	11.9	3.3
South Australia	14.9	1.4
Western Australia	11.4	3.1
Tasmania	14.2	2.2
Northern Territory	4.2	5.2
Australian Capital Territory	9.1	3.9
<b>Australia(a)</b>	<b>12.8</b>	<b>2.2</b>

(a) Includes Other Territories.

Source: *Population by Age and Sex, Australian States and Territories, June 2003 (3201.0)*.

## Population figures for state grants – an historical perspective

Currently, the Goods and Services Tax is collected by the Australian Government and distributed to the states and territories under the *A New Tax System (Commonwealth-State Financial Arrangements) Act 1999* (Cwlth). Under the Act, an estimated population for each state is calculated by the Australian Statistician, and funding is allocated using these figures and adjustment factors calculated by the Commonwealth Grants Commission. The Australian Bureau of Statistics produces an estimated resident population figure quarterly by updating census figures according to population changes over the period. Essentially, births are added to the base population, deaths are removed and net migration is added.

The practice of using population figures to determine state funding predates the collection of taxation by the federal (Commonwealth) government. In the first 10 years of Federation, under section 76 of The Constitution, the Commonwealth passed over to the states three quarters of the customs duties collected in a year. The *Surplus Revenue Act (no 8) 1910* provided under section 7:

Where in this Act reference is made in relation to any payment or debit, to the number of people of a State, the reference shall be deemed to be to the number of people of the State as was found according to the laws of the Commonwealth by the

Commonwealth Statistician as at the thirty first day of December in the financial year in respect of which the payment is to be made.

In 1911 the Commonwealth commenced paying the states annually the sum of 25 shillings per head of population, with allowance for inflation.

In 1927 the Commonwealth and the states entered into a financial agreement where the Commonwealth accepted responsibility for the states debts and £7.5 million was provided towards the payment of interest. Wrangling between the states and the Commonwealth continued until 1933 when the Commonwealth Grants Commission was established to deal with applications from the states for financial assistance under section 96 of the Constitution, and this brought order to Commonwealth-state financial relations.

However, with the outbreak of World War II a threat to national security was apparent following the bombing of Darwin on 19 February 1942 and the Battle of the Coral Sea soon after. Prime Minister John Curtin and Treasurer Ben Chifley foresaw the need to amass the resources of the Commonwealth to meet the expenditure needs during the War. Two Premiers' Conferences in February and May 1942 were held to discuss the introduction of uniform income taxation to be collected by the Commonwealth Government. It would appear that the introduction of uniform income tax met opposition from the states, who

claimed it would impinge on state rights. However, new Commonwealth legislation was enacted and from 1 July 1942 the Commonwealth commenced collecting uniform income tax, with the intention of continuing until one year after the end of the war.

Parallel legislation provided for the distribution of financial assistance grants to the states under section 96 of The Constitution 'on such terms and conditions as the parliament thinks fit'. At the time, this assistance was viewed as reimbursement grants for the states who were no longer raising income tax directly. The income tax reimbursement paid to the states was to be £33,489,000 until one year after the war concluded, and entitlement to the grant would be revoked if state income tax was imposed. There was a further reimbursement for entertainment tax of £765,787.

After the death of Prime Minister John Curtin in 1945, Ben Chifley was elected to the position. Chifley was a committed centralist, introducing national projects such as the Snowy Mountains Hydro-electric Scheme, nationalisation of private banks and the assisted immigration program. He also sought to continue collection of income tax by the Commonwealth. In late-1945, nearing the end of the war, the Commonwealth contacted the state Premiers indicating its intention to continue with uniform income taxation and state reimbursement arrangements. The Prime Minister invited state Premiers to indicate whether they had other proposals on how to distribute revenue collected by the Commonwealth.

A Premiers' Conference was held in January 1946 in which the states continued to maintain their opposition to the Commonwealth's proposals. However, it was clear that the Commonwealth was determined to continue uniform taxation and, consequently, the Premiers offered an alternative method by which the grants might be distributed. This proposal involved a complex formula of population, population sparsity, the number of children aged 5–15 years, and an index of income which was later developed into the index of average weekly earnings derived from payroll tax returns. A meeting of officials refined the statistical calculations to be used.

The *States Grants (Tax Reimbursement) Act 1946* included the following under section 9:

All statistical and mathematical calculations and determinations required for the purposes of section 6 or section 7 of this Act, including the calculation or determination of –

- (a) the populations of the States at any time;
- (b) the adjusted populations of the States at any time; and
- (c) the average wages per person employed in any year,

shall be made, not later than the thirty-first day of December in the year in respect of which the calculations and determinations are required, by the Commonwealth Statistician, after consultation, where practicable, with the official Statisticians of the States.

The 1946 Act determined grants using two formulas. The first determined the amount of the grant (using total population and average wages) and the second determined the distribution of the grant based on an 'adjusted population', which accounted for the additional financial requirements of sparse populations and school-aged children.

The second formula for distribution of the grants to the states was provided for in section 7 of the Act in three parts. Part A had a schedule of specified grants for 1947 and 1948. Part B provided for the grants in 1949 to 1957 to be incremented according to the proportional distribution of the original £40 million, with any remainder distributed according to the proportion of the adjusted population of the states. Part C distributed funds from 1958 onwards only by the proportion of the adjusted population of the states.

Clearly there were significant responsibilities placed on the Commonwealth Statistician in preparing these calculations and determinations. A census of the population was held in 1947, and the next was not held until 1954. During the intervening years, there was substantial post war migration both internationally and within Australia. Therefore, consultation with the states on population was vital given the concern over states' rights. In a letter to the Premiers of the states of uncertain date, Prime Minister Chifley stressed the importance of improving statistics:

*New Statistics required to implement Uniform Tax Proposals.*

Arising out of the discussion at the recent Premiers' Conference on the allocation of re-imburement grants between states partly on the basis of adjusted population including the adjustment for the number of children of school age it will be necessary to obtain the age distribution in each year in each State. An accurate distribution would be greatly facilitated by recording date of birth for all deaths rather than age. Demographic analysis necessary for an Australian population policy would

be made easier if this principle was also extended to all vital statistics forms (i.e. births and marriages as well as deaths). This matter was discussed at the recent Statisticians' Conference.

Certain other statistical developments will almost certainly be necessary both for determining the variations in the aggregate re-imbusement grant and the distribution of that grant between states.

It appears there was considerable dispute over the uniform income tax arrangements over the coming years and in March 1959, a special Premiers' Conference was held. At this Conference, several states sought without success to restore their powers to collect income tax directly. On 22 June 1959, in considering a Cabinet Submission for new revenue grants arrangements, Cabinet approved a scheme which allowed for 'population figures for the purposes of the calculation to be simple population figures'.

A further Premiers' Conference was held on 24 and 25 June 1959 at which Treasurer Holt and Acting Prime Minister McEwan proposed the new model for providing financial assistance grants to the states. After protests from New South Wales Premier Cahill and South Australian Premier Playford, an additional amount of money was added for those states and the Premiers agreed to the proposal. The proposal involved use of both the population of the state and average wages.

## References

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*Senate Hansard*, 19 November 1959, page 1707, Senator McKenna.

*States Grants (Tax Reimbursement) Act 1946.*

*States Grants Act 1959.*

*States Grants Act 1973*, No. 149 of 1973.

*States (Personal Income Tax Sharing) Act 1976*, No. 122 of 1976.

*States Grants (General Revenue) Act 1985*, No. 156 of 1985.

*States Grants (General Purposes) Act 1994.*

*Surplus Revenue Act (no 8) 1910.*

Section 6 (1) of the *States Grants Act 1959* (Cwlth) which was passed through both Houses of Parliament later in 1959 included the following:

All statistical and mathematical calculations and determinations required for the purposes of this Act including the calculation or determination of –

- (a) the population of a State on the first day of a year; and
- (b) the average wages per person employed in a year.

shall be made not later than the thirty first day of December in the year in respect of which the calculations and determinations are required by the Commonwealth Statistician, after consultation, where practicable, with the official Statisticians of the States.

Subsequent Acts through to the current 1999 Act have retained the use of population figures determined by the Australian Statistician as a basis for allocating state grants. Contemporary communications indicate that Commonwealth Statisticians such as Stanley Carver and Roland Wilson in the 1940s and 1950s had a strong personal involvement in the calculation of population estimates.

## Population projections

The ABS has published projections of the Australian population to the year 2101, based on a combination of assumptions about future levels of births, deaths and migration. Three main projections (Series A, B and C) have been published, based on different levels of these variables.

Assumptions for the three series of population projections were:

### Series A

- total fertility rate of 1.8 babies per woman from 2010–11 onwards
- high life expectancy at birth, increasing to 92.2 years for males and 95.0 years for females by 2050–51 and remaining constant thereafter
- net overseas migration of 125,000 people per year from 2005–06 onwards
- high levels of interstate migration.

### Series B

- total fertility rate of 1.6 from 2010–11 onwards
- medium life expectancy at birth, increasing to 84.2 years for males and 87.7 years for females by 2050–51 and remaining constant thereafter
- net overseas migration of 100,000 per year from 2005–06 onwards
- medium flows of interstate migration.

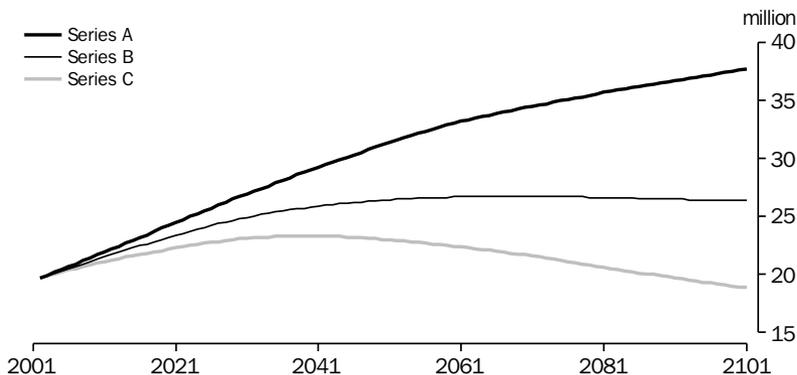
### Series C

- total fertility rate of 1.4 from 2010–11 onwards
- medium life expectancy at birth, increasing to 84.2 years for males and 87.7 years for females by 2050–51 and remaining constant thereafter
- net overseas migration of 70,000 per year from 2005–06 onwards
- small flows of interstate migration.

Unless otherwise stated, the following analysis uses both Series A and C to illustrate a range, although not the full range, of projected populations. At times only the medium series, Series B, has been used, to simplify the analysis.

Australia's population at 30 June 2002 of 19.7 million people is projected to grow to between 23.0 and 31.4 million people by 2050–51, and to reach between 18.9 and 37.7 million by 2100–01. In Series A (high series) the population is projected to grow throughout the entire projection period, but at declining rates, reaching 31.4 million in 2050–51 and 37.7 million in 2100–01. In Series B (medium series) the population is projected to reach 26.4 million in 2100–01, after peaking at 26.7 million in 2068–69 and then declining gradually. Series C (low series) projects the lowest population for 2100–01, of 18.9 million people. In this scenario the population is projected to peak in 2038–39 at 23.3 million people, and then decline at a slightly faster rate than Series B (graph 5.11).

5.11 PROJECTED POPULATION — 30 June



Source: Population Projections, Australia, 2002 to 2101 (3222.0).

The growth rate of the population reflects the interaction of the components of population change – natural increase (the excess of births over deaths) and net overseas migration. Throughout the 1990s and early-2000s Australia's annual population growth consistently exceeded 1%. While growth rates of this magnitude are projected to continue for the next 4–15 years (except in Series C), growth will slow for the remainder of the projection period. Series A maintains positive growth throughout the entire projection period, although the rate is projected to decline over time from 1.29% in the first projected year to 0.26% each year in the last five years. This growth is sustained by a relatively high level of fertility combined with high net overseas migration. In Series B and C, in contrast, the population of Australia is projected to experience more rapid declines in growth. Series B projects negative population growth from 2069–70 while Series C projects negative growth from 2039–40. Series B projects an almost constant population size over the middle years of the projection period. The larger negative growth rates projected in Series C reflect the fact that net overseas migration is not sufficient to offset the effect of declining numbers of births combined with an increasing number of deaths.

In Series B, population is projected to increase over the next 50 years in all states and territories except Tasmania and South Australia. Between 2002 and 2051 the population of Queensland is projected to increase by 73%, the Northern Territory by 55% and Western Australia by 49%, well above the projected growth for Australia of 34%.

New South Wales is projected to remain the most populous state in Australia, although its share of Australia's population is projected to fall slightly, from 34% in 2002 to 32% in 2051. In Series B Victoria is projected to be replaced by Queensland as the second most populous state in 2044, with Victoria's share of Australia's population decreasing from 25% to 23% over the next 50 years and Queensland's share increasing from 19% to 24%. Western Australia's share of

Australia's population is projected to increase slightly (from 10% in 2002 to 11% in 2051), South Australia's share is projected to fall from 8% to 6%, and Tasmania's share is projected to decrease slightly, from 2% in 2002 to 1% in 2051. Only marginal changes are projected for the Northern Territory (an increase from 1.0% in 2002 to 1.2% in 2051) and the ACT (a decrease from 1.6% in 2002 to 1.5% in 2051).

These projections are summarised in table 5.12.

Graph 5.13 illustrates the ageing of Australia's population projected to occur over the next 100 years. This is the result of fertility remaining at low levels over a long period of time coupled with increasing life expectancy. The median age of Australia's population is projected to increase from 35.9 years in 2001–02 to between 40.4 and 42.3 years in 2020–21 and to between 46.0 and 49.9 years in 2050–51. In 2100–01 the median age of the population is projected to be between 47.5 and 50.5 years.

Ageing of the population affects the relative sizes of different age groups within the population. The proportion of the population aged under 15 years is projected to decrease from 20% (4.0 million people) of Australia's population in 2002 to between 12% and 15% (2.8 million and 4.8 million) in 2051, and to remain at similar levels thereafter (between 12% and 15% in 2101, or 3.6 million to 5.5 million people). In contrast, the proportion of the population aged 50 years and over is projected to increase, from 29% (5.7 million people) in 2002 to between 46% and 50% (11.5 million and 14.3 million) in 2051 and 47% and 51% (9.6 million and 18.0 million) in 2101. Consequently the age structure of the population will be noticeably different by 2051, as shown in graph 5.13.

Table 5.14 presents a range of indicators, such as population size and structure, to illustrate changes in Australia's population from 1901 to 2101.

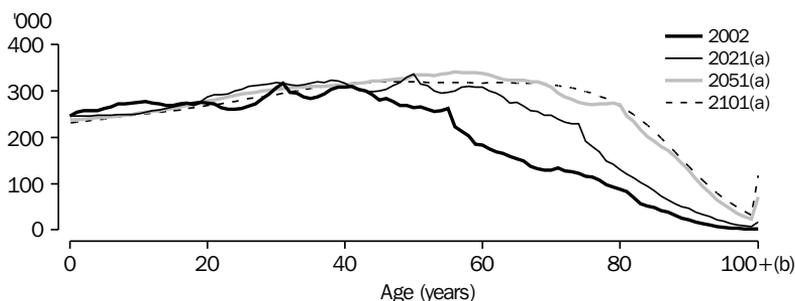
### 5.12 ACTUAL AND PROJECTED POPULATION — 30 JUNE

	2002(a)			2021			2051
	Actual '000	Series A '000	Series B '000	Series C '000	Series A '000	Series B '000	Series C '000
Capital city/balance of state							
Sydney	4 170.9	5 108.2	4 910.8	4 678.0	6 587.6	5 652.5	4 913.9
Balance of New South Wales	2 469.4	2 760.5	2 727.0	2 695.0	3 005.6	2 703.1	2 570.0
<i>New South Wales</i>	6 640.4	7 868.7	7 637.8	7 373.0	9 593.2	8 355.6	7 484.0
Melbourne	3 524.1	4 348.1	4 188.9	4 061.1	5 561.7	4 792.8	4 369.1
Balance of Victoria	1 348.4	1 434.4	1 465.9	1 498.8	1 410.0	1 407.1	1 475.7
<i>Victoria</i>	4 872.5	5 782.5	5 654.8	5 560.0	6 971.7	6 199.9	5 844.8
Brisbane	1 689.1	2 481.1	2 288.0	2 113.0	3 776.9	3 018.5	2 483.1
Balance of Queensland	2 018.1	2 935.0	2 705.1	2 461.2	4 317.0	3 411.2	2 689.6
<i>Queensland</i>	3 707.2	5 416.1	4 993.0	4 574.2	8 093.9	6 429.7	5 172.6
Adelaide	1 114.3	1 190.7	1 181.2	1 173.3	1 241.7	1 134.6	1 098.3
Balance of South Australia	406.0	412.1	410.9	410.4	373.8	341.0	333.9
<i>South Australia</i>	1 520.2	1 602.8	1 592.0	1 583.7	1 615.5	1 475.6	1 432.2
Perth	1 413.7	1 931.7	1 804.9	1 663.6	2 752.2	2 235.2	1 808.5
Balance of Western Australia	513.7	648.3	603.0	537.8	821.7	639.3	450.7
<i>Western Australia</i>	1 927.3	2 580.0	2 407.9	2 201.5	3 573.9	2 874.5	2 259.3
Hobart	198.0	220.6	203.2	189.8	240.1	175.7	148.1
Balance of Tasmania	274.7	299.8	271.4	248.2	312.1	210.8	159.5
<i>Tasmania</i>	472.7	520.3	474.6	438.0	552.2	386.5	307.6
Darwin	107.4	157.3	141.3	116.4	257.1	199.3	121.5
Balance of Northern Territory	90.6	123.4	99.1	84.8	197.2	107.8	62.7
<i>Northern Territory</i>	198.0	280.7	240.4	201.2	454.3	307.1	184.1
<i>Australian Capital Territory(b)</i>	321.8	407.1	364.9	332.7	538.0	389.6	296.8
<i>Total capital cities(c)</i>	12 539.3	15 844.7	15 083.1	14 327.9	20 955.4	17 598.2	15 239.3
<i>Total balances of states and territories(d)(e)</i>	7 123.5	8 616.4	8 285.3	7 939.2	10 440.7	8 823.3	7 744.9
<b>Australia(e)</b>	<b>19 662.8</b>	<b>24 461.1</b>	<b>23 368.4</b>	<b>22 267.1</b>	<b>31 396.1</b>	<b>26 421.5</b>	<b>22 984.2</b>

(a) Projections were based on preliminary 2002 estimated resident population. (b) Canberra and Balance of ACT not projected separately. (c) Includes ACT. (d) Excludes Balance of ACT. (e) Includes Other Territories.

Source: *Population Projections, Australia, 2002 to 2101 (3222.0)*.

### 5.13 AGE STRUCTURE OF THE PROJECTED POPULATION



(a) Series B population projections. (b) The 100+ years age group includes all ages 100 years and over and therefore is not strictly comparable with single year ages in the rest of the graph.

Source: *Population by Age and Sex, Australian States and Territories (3201.0)*; *Population Projections, Australia, 2002 to 2101 (3222.0)*.

### 5.14 POPULATION, Summary indicators

	Units	1901	1947	1971	2002	2021(a)	2051(a)	2101(a)
Total population	'000	3 773.8	7 579.4	13 067.3	19 662.8	23 368.4	26 421.5	26 355.7
Proportion of population								
0–14 years	%	35.1	25.1	28.7	20.3	16.1	14.0	13.8
15–64 years	%	60.8	66.8	63.0	67.1	64.9	58.9	57.2
65–84 years	%	3.9	7.7	7.8	11.2	16.5	21.1	22.0
85 years and over	%	0.1	0.4	0.5	1.4	2.5	6.0	6.9
Males per 100 females	no.	110.1	100.4	101.1	98.4	98.7	98.7	99.4
Median age	years	22.5	30.7	27.5	35.9	41.2	46.8	47.5
Proportion living in capital cities	%	36.8	51.2	63.2	63.9	64.5	66.6	n.a.

(a) Series B population projections.

Source: Australian Demographic Statistics (3101.0); Population Projections, Australia, 2002 to 2101 (3222.0).

## Geographic distribution of the population

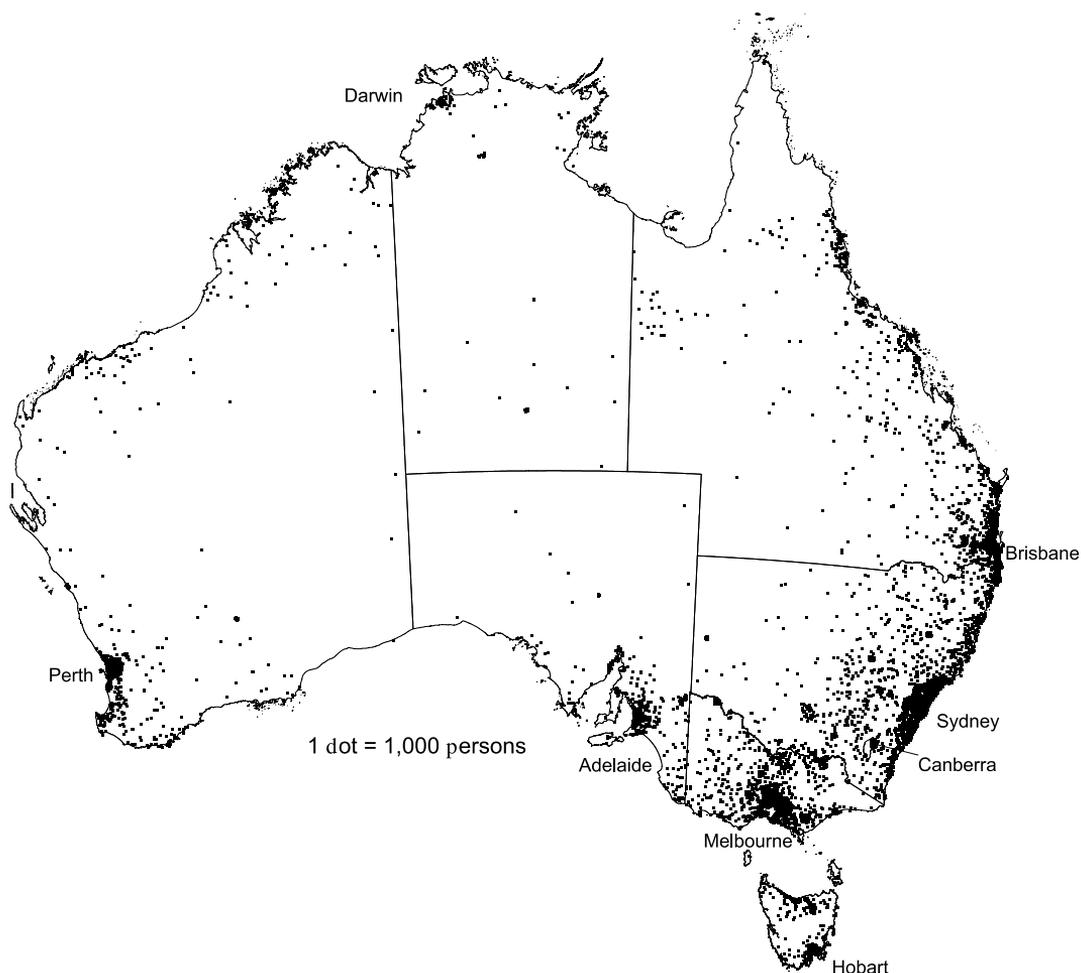
Most of Australia's population is concentrated in two widely separated coastal regions. By far the larger of these, in terms of area and population, lies in the south-east and east. The smaller of the two regions is in the south-west of the continent. In both coastal regions the population is concentrated in urban centres, particularly the state and territory capital cities.

Australia's population density at 30 June 2003 was 2.6 people per square kilometre, compared with 2.4 people per square kilometre in 1998. The Australian Capital Territory had the highest population density of the states and territories at June 2003 with 137 people per square kilometre (reflecting the fact that the city of Canberra constitutes a large proportion of the Australian Capital Territory's area), followed by Victoria with

22 people per square kilometre. The Northern Territory had a population density of only 0.1 people per square kilometre, the lowest of all the states and territories (reflecting more recent settlement, distance from areas settled earlier, large arid areas and, perhaps, climate).

Population density at June 2003 was highest in the city centres, particularly in the Sydney Statistical Division, where the three most densely populated Statistical Local Areas (SLAs) in Australia were located. These were Sydney (C) - Remainder (8,100 people per square kilometre), Waverley (A) (6,700 people per square kilometre) and North Sydney (5,700 people per square kilometre). Fourth on the list, and the most densely populated SLA in Victoria, was Port Phillip (C) - St. Kilda, with 5,500 people per square kilometre. The distribution of Australia's population at 30 June 2003 is shown in map 5.15.

## 5.15 POPULATION(a) DISTRIBUTION — 30 June 2003



(a) Estimated resident population.

Source: *Regional Population Growth, Australia and New Zealand (3218.0)*.

### Regional population change

The fastest population growth of all states and territories in 2002–03 was recorded in Queensland, which increased by 2.3%. Queensland's increase in population of 85,800 people was also the largest population increase of all the states and territories in 2002–03. Population growth in Victoria has accelerated in recent years, reaching 1.2% in 2002–03; Victoria experienced the second largest increase of the states and territories, increasing by 60,200 people.

New South Wales remained the most populous state, with 6.7 million people, and experienced the third largest increase in population in 2002–03, of 52,500 people. The Northern Territory's annual growth rate of -0.2% in 2002–03 was the lowest growth rate of all the states and territories, and was the first annual decrease recorded in the Northern Territory since 1974–75 when the population decreased by over 10,000 people due to large net interstate migration losses as a result of Cyclone *Tracy* in December 1974.

Table 5.16 sets out the estimated resident population in major population regions at 30 June 1998 and 30 June 2003. At June 2003, capital city statistical divisions (SDs) were home to 12.7 million people, or around two-thirds (64%) of Australia's population. The largest growth among the capital city SDs between 1998 and 2003

occurred in Sydney SD, followed by Melbourne and Brisbane SDs. Of the capital city SDs, Brisbane was the fastest growing capital city in Australia between 1998 and 2003, increasing by an average 2% per year, followed by Perth (1.4%) and Darwin and Melbourne (each 1.3%).

### 5.16 ESTIMATED RESIDENT POPULATION IN MAJOR REGIONS(a)

	30 June 1998 no.	30 June 2003 no.	Change(b)	
			1998–2003 no.	1998–2003 %
<b>Capital city statistical division</b>				
Sydney	3 969 649	4 201 493	46 369	1.14
Melbourne	3 342 230	3 559 654	43 485	1.27
Brisbane	1 567 996	1 733 227	33 046	2.02
Adelaide	1 090 526	1 119 920	5 879	0.53
Perth	1 334 992	1 433 217	19 645	1.43
Greater Hobart	195 913	199 886	795	0.40
Darwin	101 165	107 922	1 351	1.30
Canberra	309 539	322 492	2 591	0.82
<b>Statistical District</b>				
Newcastle (NSW)	474 512	501 687	5 435	1.12
Gold Coast-Tweed (Qld/NSW)	381 178	456 485	15 061	3.67
Canberra-Queanbeyan (ACT/NSW)	348 215	367 656	3 888	1.09
Wollongong (NSW)	260 538	273 427	2 578	0.97
Sunshine Coast (Qld)	168 305	200 139	6 367	3.53
Geelong (Vic.)	153 571	162 835	1 853	1.18
Townsville (Qld)	125 203	140 600	3 079	2.35
Cairns (Qld)	110 077	117 400	1 465	1.30
Toowoomba (Qld)	104 324	113 687	1 873	1.73
Launceston (Tas.)	98 279	100 590	462	0.47
Albury-Wodonga (NSW/Vic.)	94 327	100 277	1 190	1.23
Ballarat (Vic.)	80 444	85 956	1 102	1.33
Bendigo (Vic.)	76 133	82 006	1 175	1.50
Burnie-Devonport (Tas.)	78 356	78 175	-36	-0.05
Bathurst-Orange (NSW)	73 182	77 094	782	1.05
La Trobe Valley (Vic.)	75 734	74 551	-237	-0.31
Rockhampton (Qld)	67 642	67 838	39	0.06
Mackay (Qld)	62 212	66 804	918	1.43
Mandurah (WA)	54 124	65 913	2 358	4.02
Bundaberg (Qld)	55 098	58 495	679	1.20
Wagga Wagga (NSW)	52 074	52 688	123	0.23
Bunbury (WA)	44 808	51 519	1 342	2.83
Coffs Harbour (NSW)	43 891	48 047	831	1.83
Mildura (Vic.)	42 721	46 444	745	1.69
Shepparton (Vic.)	42 165	46 298	827	1.89
Hervey Bay (Qld)	37 590	42 922	1 066	2.69
Tamworth (NSW)	41 115	42 921	361	0.86
Gladstone (Qld)	38 082	40 737	531	1.36
Port Macquarie (NSW)	34 864	39 966	1 020	2.77
Dubbo (NSW)	33 621	35 388	353	1.03
Nowra-Bomaderry (NSW)	29 350	31 448	420	1.39
Geraldton (WA)	30 701	31 088	77	0.25
Lismore (NSW)	31 010	30 760	-50	-0.16
Warrnambool (Vic.)	28 107	30 354	449	1.55
Kalgoorlie/Boulder (WA)	30 028	29 425	-121	-0.40

(a) Data are based on the 2001 Census and 2003 Australian Standard Geographical Classification boundaries. (b) Average annual growth rate in the period 1998 to 2003.

Source: *Australian Demographic Statistics (3101.0)*.

Generally, the largest growth outside capital city SDs occurred in coastal Australia. Table 5.16 shows the largest growth recorded between 1998 and 2003 was in the Gold Coast-Tweed Statistical District. This region also experienced the second fastest growth, increasing by 3.7% on average per year between 1998 and 2003. Western Australia had the Statistical District with the fastest growing population – Mandurah (4%) – and the Statistical District with fastest population decrease – Kalgoorlie/Boulder (–0.4%). In New South Wales there were increases in population for many coastal Local Government Areas (LGAs) outside the Sydney SD, with the largest occurring in Tweed (A), Hastings (A) and Port Stephens (A). The Victorian LGAs of Bass Coast (S) and Surf Coast (S) continued to experience strong growth in 2002–03.

Many of Australia’s inner city areas experienced high levels of growth during 2002–03. The LGA of Melbourne (C) recorded an annual growth rate of 7.9%, while the LGAs of Perth (C) and Sydney (C) also experienced rapid growth, increasing by 7.2% and 5.9% respectively in 2002–03. Elsewhere, other inner city areas to experience high levels of growth were the Brisbane statistical local areas (SLAs) of City - Inner, City - Remainder and Newstead, the Darwin SLA of City - Inner and the Canberra SLAs of City, Turner and Braddon.

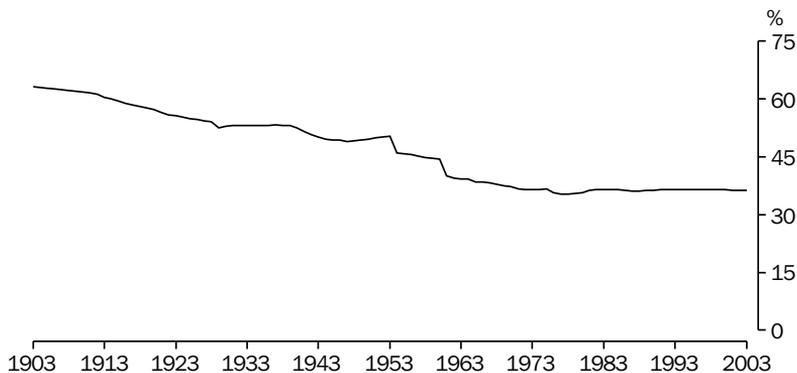
Much of Australia’s growth occurred in the outer LGAs of capital city SDs. In Sydney SD, the LGAs of Baulkham Hills (A), Blacktown (C) and Liverpool (C) experienced large growth (up 4,100, 3,400 and 2,300 people respectively), while the largest growth within Melbourne SD occurred in the

fringe LGAs of Casey (C), Wyndham (C) and Melton (S) (up 10,900, 7,300 and 6,900 people respectively). Melton also recorded Australia’s fastest annual growth rate during 2002–03, of 11.8%.

Some areas of Australia have experienced significant population decline in recent years. While some of the population declines have occurred in established areas within capital cities and major urban centres, the fastest population declines have occurred in rural areas. Most of this decline has been caused by net migration loss. Such population loss is associated with technological, social and economic changes and industry restructuring in local economies. The five fastest declining LGAs were Dundas (S), in South Eastern SD in Western Australia, and Dalwallinu (S), in Midlands SD, Western Australia (down 7.2% and 6.2% respectively), Blackall (S), in Central West SD in Queensland and Millmerran (S), in Darling Downs SD, Queensland (down 4.3% and 3.6% respectively), and Karoonda East Murray (DC) in Murray Lands SD in South Australia (down 3.8%).

In 1901, 64% of Australians lived outside capital cities. This proportion fell steadily and by 1962 only 40% lived outside capital cities. Between 1976 and 2003 the decline appeared to have halted, with a slight increase in the proportion of people living in the balance of states and territories (graph 5.17), which may have been due to people moving to coastal regions and other urban centres.

**5.17 POPULATION IN BALANCES OF STATES AND TERRITORIES**



Source: Australian Historical Population Statistics – on AusStats (3105.0.65.001).

## Interstate migration

The main factor changing the distribution of Australia's population has been internal migration. During 2002–03, 398,500 people moved from one state or territory to another, 14,400 more than in the previous year.

In 2002–03 Queensland and Tasmania recorded net interstate migration gains. Queensland continued a 20-year trend of positive net interstate

migration, whereas 2002–03 was the first year since 1991 that Tasmania's net interstate migration was positive. Victoria had little net interstate migration in 2002–03, and all other states and territories experienced net losses due to interstate migration, although this was offset in most cases by growth due to natural increase and net overseas migration (table 5.18).

### 5.18 POPULATION GROWTH RATES

Year ended 30 June	NSW %	Vic. %	Qld %	SA %	WA %	Tas. %	NT %	ACT %	Aust. %
<b>NATURAL INCREASE RATE</b>									
1998	0.63	0.60	0.73	0.45	0.76	0.44	1.51	0.92	0.65
1999	0.64	0.58	0.71	0.45	0.80	0.56	1.45	0.95	0.65
2000	0.64	0.59	0.70	0.42	0.75	0.44	1.41	0.89	0.64
2001	0.61	0.56	0.71	0.37	0.75	0.43	1.46	0.85	0.62
2002	0.59	0.58	0.67	0.38	0.67	0.43	1.44	0.80	0.60
2003	0.60	0.54	0.63	0.35	0.65	0.41	1.42	0.83	0.58
<b>NET OVERSEAS MIGRATION RATE</b>									
1998	0.51	0.42	0.37	0.21	0.67	0.01	0.30	-0.08	0.43
1999	0.65	0.53	0.40	0.18	0.73	0.04	0.53	-0.07	0.52
2000	0.68	0.58	0.50	0.26	0.76	0.09	0.49	-0.03	0.57
2001	0.90	0.75	0.59	0.18	0.87	0.02	0.45	0.23	0.71
2002	0.68	0.42	0.73	0.19	0.79	0.07	0.33	0.22	0.57
2003	0.68	0.70	0.61	0.31	0.93	0.14	0.12	0.09	0.64
<b>NET INTERSTATE MIGRATION RATE</b>									
1998	-0.20	-0.01	0.51	-0.13	0.18	-0.77	-0.25	-0.64	..
1999	-0.21	0.05	0.48	-0.11	0.02	-0.70	-0.50	-0.16	..
2000	-0.22	0.11	0.53	-0.24	-0.12	-0.56	-0.47	-0.03	..
2001	-0.25	0.11	0.56	-0.16	-0.17	-0.45	-0.81	0.13	..
2002	-0.37	0.09	0.86	-0.11	-0.23	-0.32	-1.31	-0.33	..
2003	-0.48	0.00	1.06	-0.10	-0.15	0.40	-1.71	-0.51	..
<b>TOTAL POPULATION GROWTH</b>									
1998	0.99	0.88	1.56	0.55	1.54	-0.35	1.59	0.27	1.05
1999	1.14	1.05	1.56	0.55	1.48	-0.11	1.50	0.79	1.15
2000	1.17	1.17	1.72	0.48	1.34	0.00	1.47	0.92	1.20
2001	1.37	1.34	1.89	0.44	1.42	0.08	1.13	1.30	1.36
2002	0.90	1.09	2.26	0.46	1.23	0.17	0.45	0.69	1.17
2003	0.79	1.24	2.30	0.56	1.44	0.94	-0.16	0.41	1.22

Source: Australian Demographic Statistics (3101.0).

## Aboriginal and Torres Strait Islander population

There are no accurate estimates of the population of Australia before European settlement. Many estimates were based on post-1788 observations of a population already reduced by introduced diseases and other factors. Smith (1980) estimated the absolute minimum pre-1788 population at 315,000. Other estimates have put the figure at over 1 million, while recent archaeological finds suggest that a population of 750,000 could have been sustained.

Whatever the size of the Indigenous population before European settlement, it declined dramatically under the impact of new diseases, repressive and often brutal treatment, dispossession, and social and cultural disruption and disintegration (*Year Book Australia 1994*). The decline of the Indigenous population continued well into the 20th century.

More recently, changing social attitudes, political developments, improved statistical coverage and a broader definition of Indigenous origin have all contributed to the increased likelihood of people identifying as being of Aboriginal or Torres Strait Islander origin. This is reflected in the large increases in the number of people who are identified as Indigenous in each census, increases in excess of those which can be attributed to natural increase in the Indigenous population.

Table 5.19 shows the distribution of the Indigenous population by state and territory between 1901 and 2001. The average annual growth rate of the Indigenous population in Australia for the five-year period 1996 to 2001 was 2.0%, approximately twice that of the total population.

The Indigenous population at 30 June 2001 was 458,500 of which 134,900 (29%) lived in New South Wales, 125,900 (28%) in Queensland, 65,900 (14%) in Western Australia and 56,900 (12%) in the Northern Territory. The Northern Territory had the largest proportion of its population who were Indigenous – 29% compared with 4% or less for all other states and the Australian Capital Territory.

While most of the Australian population is concentrated along the eastern and south-west coasts (map 5.15), map 5.20 shows the Indigenous population is more widely spread. The total population is contained within the most densely settled areas of the continent, while the Indigenous population live in areas covering more of the continent. This partly reflects the higher level of urbanisation among the non-Indigenous population than the Indigenous population. Indigenous people are much more likely to live in very remote areas than the non-Indigenous population. The SLAs with the highest number of Indigenous people per square kilometre were located in Darwin, whereas the SLAs with the highest densities for the population as a whole were located in Sydney.

**5.19 ESTIMATES OF THE INDIGENOUS POPULATION(a)**

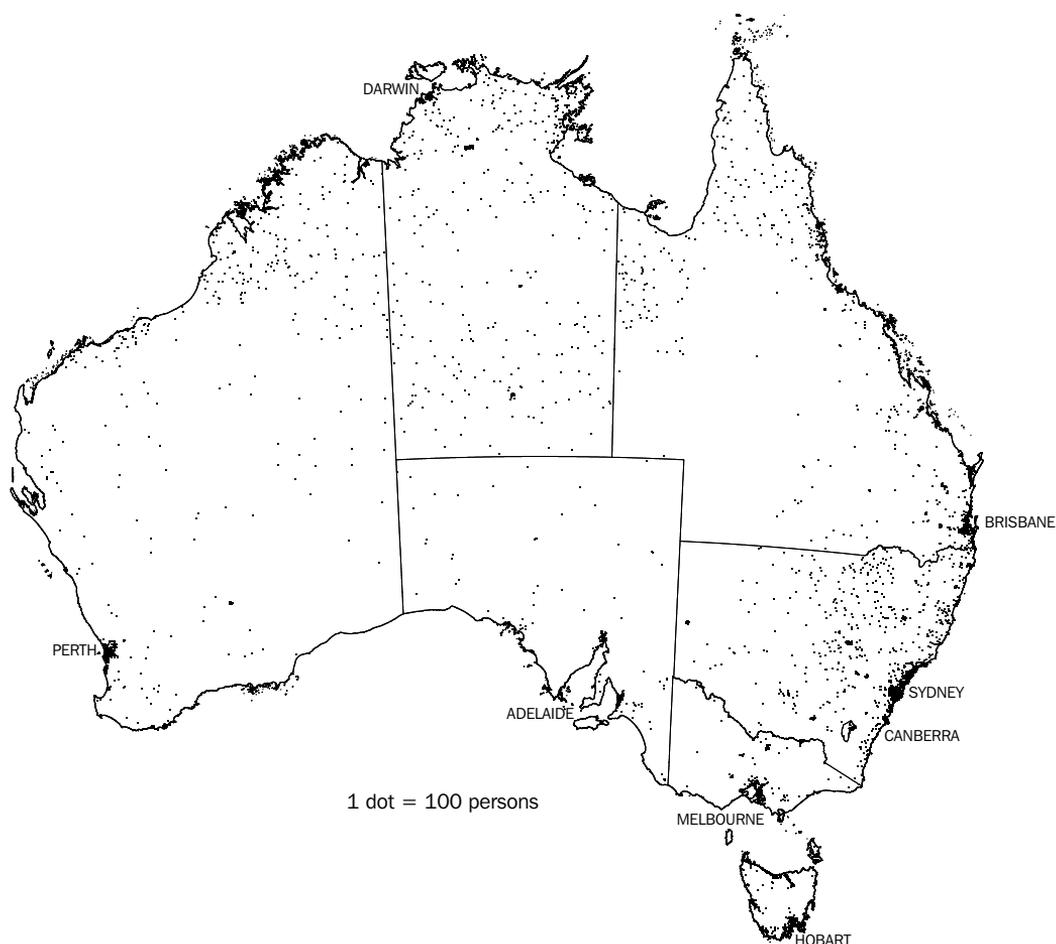
	1901(b)		1991(c)		1996(d)		2001(e)	
	no.	%	no.	%	no.	%	no.	%
New South Wales	7 434	8.0	75 020	26.5	109 925	28.5	134 888	29.4
Victoria	652	0.7	17 890	6.3	22 598	5.9	27 846	6.0
Queensland	26 670	28.6	74 214	26.2	104 817	27.2	125 910	27.5
South Australia	5 185	5.6	17 239	6.1	22 051	5.7	25 544	5.6
Western Australia	30 000	32.1	44 082	15.6	56 205	14.6	65 931	14.4
Tasmania	157	0.2	9 461	3.3	15 322	4.0	17 384	3.8
Northern Territory	23 235	24.9	43 273	15.3	51 876	13.4	56 875	12.4
Australian Capital Territory	..	..	1 616	0.6	3 058	0.8	3 909	0.9
<b>Australia</b>	<b>93 333</b>	<b>100.0</b>	<b>282 979</b>	<b>100.0</b>	<b>386 049</b>	<b>100.0</b>	<b>458 520</b>	<b>100.0</b>

(a) Australian estimates for 1996 and 2001 include Other Territories. ACT estimates for 1991 include Jervis Bay. (b) Estimates in 1901 based on separate state censuses. WA number was estimated without an enumeration of the Indigenous population.

(c) Estimate based on the 1991 Census of Population and Housing. (d) Estimate based on the 1996 Census of Population and Housing. (e) Estimate based on the 2001 Census of Population and Housing.

Source: *Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2009 (3238.0)*.

## 5.20 INDIGENOUS POPULATION(a) DISTRIBUTION — 30 June 2001



(a) Estimated resident population.

Source: *Census of Population and Housing: Population Growth and Distribution, Australia, 2001 (2035.0)*.

The Indigenous population has a much younger age structure than that of the non-Indigenous population (graph 5.21), with 39% of the population aged under 15 years (compared with 20% of non-Indigenous people), and only 2.8% aged 65 years and over (compared with 12.8% of the non-Indigenous population). In 2001, the median age of the Indigenous population was 20.5 years, compared with 36.1 years for the non-Indigenous population.

This age structure is largely a product of high fertility and high mortality among the Indigenous population. Although the total fertility rate among

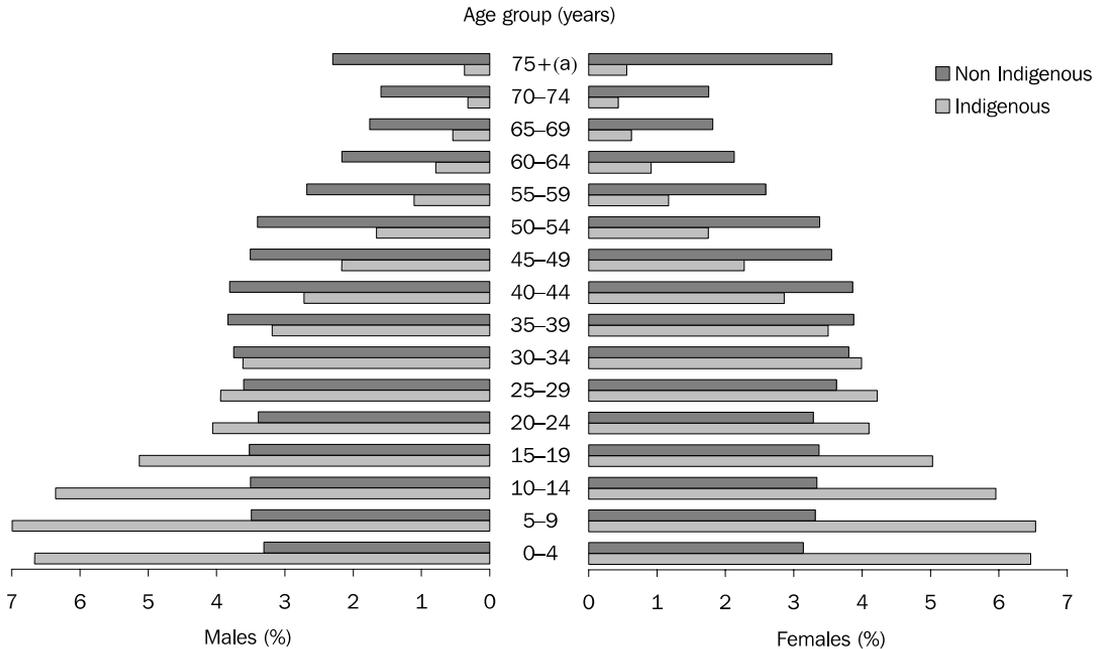
Indigenous women has fallen in recent decades, from around six babies per woman in the 1960s to 2.1 babies per woman in 2001, it remains higher than the total fertility rate among the total female population (1.7 babies per woman in 2001). The high mortality experienced by the Indigenous population is reflected in life expectancy at birth, which for Indigenous males and females born in the 1996–2001 period was 59.4 years and 64.8 years respectively; approximately 17 years less for both males and females than the life expectancy of all Australian males and all females born in the 1997–1999 period.

In 2001, 30.2% of Indigenous people lived in Major Cities compared with 67.2% of the non-Indigenous population. Proportions of Indigenous and non-Indigenous populations who lived in Inner Regional areas were similar (20.3% and 20.7% respectively). Residence in Outer Regional areas was higher for Indigenous people (23.1%) than for the non-Indigenous population (10.1%). The proportion of Indigenous people

living in Remote or Very Remote areas (26.5%) was 13 times that of the non-Indigenous population living in those areas (2.0%).

The ABS has conducted a multidimensional social survey of Indigenous Australians. The article at the conclusion of this chapter *Selected findings from the 2002 National Aboriginal and Torres Strait Islander Social Survey* presents the main results of the survey of this population group.

**5.21 AGE DISTRIBUTION OF THE INDIGENOUS AND NON-INDIGENOUS POPULATION — 30 June 2001**



(a) The 75+ age group includes all ages 75 years and over and therefore is not strictly comparable with five-year age groups in the rest of this graph.

Source: *Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2009 (3238.0)*.

## Aboriginal and Torres Strait Islander Australians – projections 2001 to 2009

Experimental projections of the Aboriginal and Torres Strait Islander population are based on the results of the 2001 Census of Population and Housing. Each series spans the period from 2001 to 2009 and has alternative assumptions about the unexplained growth in the Indigenous population. Unexplained growth refers to the increase in the Indigenous population between the 1996 and 2001 censuses which cannot be attributed to births, deaths or migration. Assuming no further unexplained growth in the Indigenous census counts (low series), the Indigenous population would grow from 458,500 persons in 2001 to 528,600 in 2009. If the unexplained growth between the 1996 and 2001 censuses were projected to continue into the future (high series), the Indigenous population would rise to 600,200 in 2009 (graph 5.22). The projected average annual growth rate under the assumption of no change in unexplained growth (1.8%, low series) compares with 3.4% for the continuing unexplained growth assumption (high series).

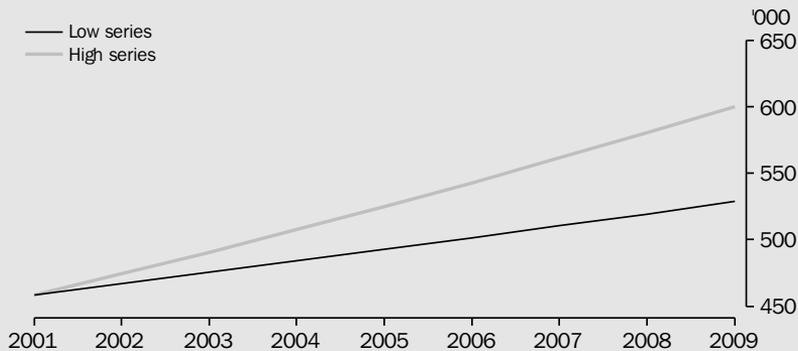
In both the high and low series the median age would increase from 20.5 years in 2001 to 21.8 years in 2009. The proportion of the total Indigenous population under 15 years is

projected to fall from 39% in 2001 to 35% in 2009 while the proportion of the population 65 years and over would remain at 2.8%.

The projections show that the Indigenous populations of all states and territories continue to grow between 2001 and 2009. Relative rates of growth are highly dependent on the assumptions used regarding unexplained growth in the Indigenous population and interstate migration. Under the low series, net interstate flows have the largest impact on projected population growth while under the high series, the impact of continuing unexplained growth in the Indigenous population at the state and territory level overwhelms the impact of net interstate flows.

In the low series states and territories with positive net interstate flows are projected to have higher growth rates (Victoria, Queensland, South Australia, Western Australia and the Australian Capital Territory). In the high series those states and territories with increasing annual unexplained growth (the Australian Capital Territory, New South Wales and Victoria) are projected to have the highest growth rates.

5.22 PROJECTED INDIGENOUS POPULATION—30 June



Source: *Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2009 (3238.0)*.

## Births

In 2002 there were 251,000 births registered in Australia, resulting in a total fertility rate of 1.76 babies per woman. Australia is experiencing the second of two long periods of fertility decline since 1901 – from 1907 to 1934 and from 1962 to the present (excluding a plateau from 1966 to 1972) – although in recent years the total fertility rate has remained relatively stable.

For the first decade of the 20th century the total fertility rate remained at around 3.7 to 4.0 babies per woman, then consistently declined over the next two and a half decades. By 1934, during the Depression, the total fertility rate had fallen to 2.1 babies per woman. It then increased during the second half of the 1930s, as women who had deferred child-bearing in the Depression years began to have children. Fertility increased through World War II and the 1950s, and peaked in 1961 when the total fertility rate reached 3.5 babies per woman (graph 5.23).

After the 1961 peak the total fertility rate fell rapidly to 2.9 babies per woman in 1966. This fall can be attributed to changing social attitudes, in particular a change in people's perception of desired family size, facilitated by the oral contraceptive pill becoming available. During the 1970s the total fertility rate dropped further, falling to replacement level (2.1 babies per woman) in 1976, below which it has since remained. This fall was more marked than the fall in the early-1960s and has been linked to the increasing participation of women in education

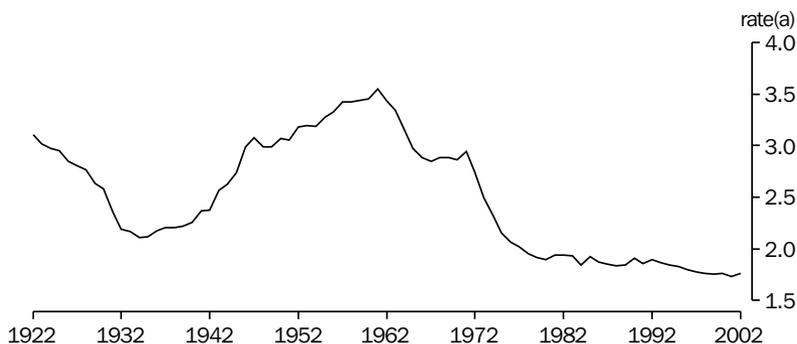
and the labour force, changing attitudes to family size, lifestyle choices and greater access to contraceptive measures and abortion.

In the late-1970s the total fertility rate began to decline at a slower rate, continuing through the 1980s and 1990s. Since 1998 the total fertility rate has been relatively stable, varying between 1.73 and 1.76 babies per woman.

According to United Nations projections, the world average total fertility rate for 2000–05 is estimated at 2.69 babies per woman, declining from the relatively constant five babies per woman that existed until the late-1960s and early-1970s. However, total fertility rates for individual countries vary considerably. Many factors can influence a country's fertility rate, such as differences in social and economic development and the prevalence of contraceptive use. In general, developing countries have higher fertility rates than developed countries.

Australia's total fertility rate for 2002 of 1.76 babies per woman was well below the world's average but it was comparable to that of other developed countries, most of which have also experienced sustained fertility decline. According to the United Nations estimated average total fertility rates for 2000–05, Hong Kong has the lowest fertility rate (1.00), followed by Bulgaria, Latvia and Macau (SAR of China) (1.10). Several European countries also have very low fertility, including the Russian Federation (1.14), Spain (1.15) and Italy (1.23). By contrast, many West African and Asian countries have relatively high fertility rates, with Niger (8.00) and Somalia (7.25) being the highest.

5.23 TOTAL FERTILITY RATE



(a) Average number of babies per woman, or sum of age-specific fertility rates for each year.

Source: *Births, Australia* (3301.0).

Over the past 50 years, fertility has declined in most countries. Of the countries shown in graph 5.24, the total fertility rates of the Asian countries have shown the largest declines. Singapore and China experienced large declines in the total fertility rate – from 6.4 and 6.2 babies per woman respectively in 1950–55, to 1.4 and 1.8 in 2000–05.

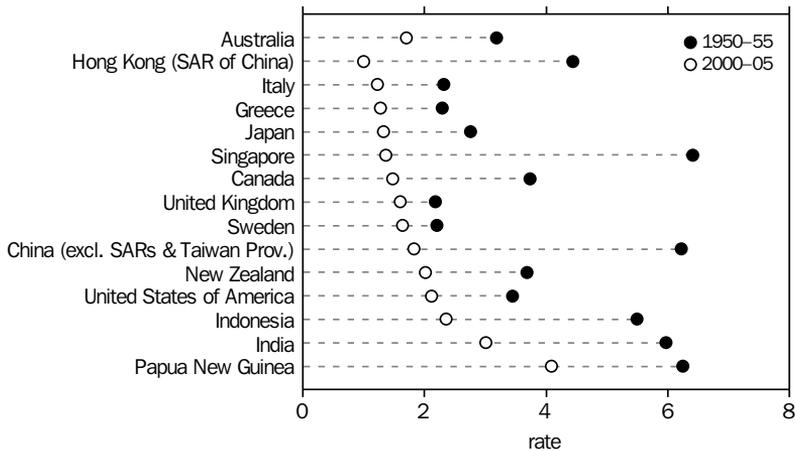
Australian women continue to delay child-bearing. The median age at child-bearing increased from 26.8 years in 1982 to 28.7 years in 1992, then to 30.2 years in 2002 (graph 5.25). Over the past 20 years there has been a fall in the fertility rate of teenagers, from 27.4 babies per 1,000 teenage females in 1982 to 17.1 in 2002. Conversely, the fertility rate of women aged 40 years and above has doubled, from 1.3 babies per 1,000 women in 1982 to 2.6 in 2002. However, births to older

mothers have failed to compensate for the decline in births to younger women, resulting in a decline in total fertility.

Total issue data provides an alternative to the ‘snapshot’ measure provided by the total fertility rate. Total issue data reveal a decline over time in the average number of children by age of women. While at earlier ages the decline in average issue may be related to the postponement of child-bearing, average issue among women aged 40–44 years has also declined (from 2.11 children born to women born in 1962 to 1.75 children projected to have been born to women born in 1992).

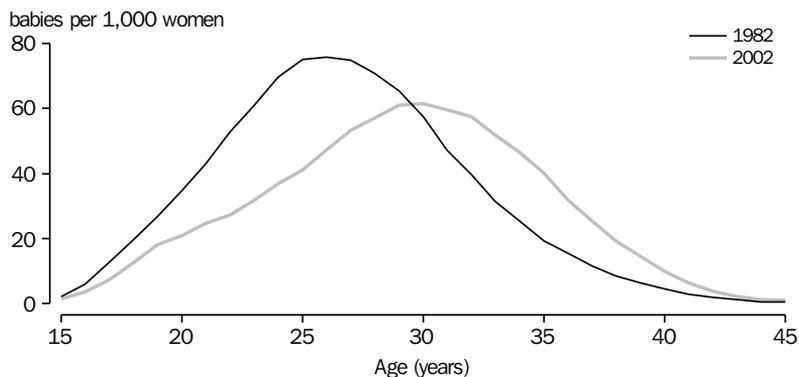
Table 5.26 provides summary measures of fertility for census years between 1901 and 1986, and individual years between 1992 and 2002.

**5.24 INTERNATIONAL TOTAL FERTILITY RATES, Selected countries**



Source: United Nations Population Division, 'World Population Prospects: The 2002 Revision'.

### 5.25 AGE DISTRIBUTION OF WOMEN HAVING BABIES



Source: *Births, Australia* (3301.0).

### 5.26 SELECTED SUMMARY MEASURES OF FERTILITY

	Registered births no.	Crude births rate(b)	Total fertility rate(c)	Ex-nuptial births(a) %
1901	102 945	27.2	(d)3.93	n.a.
1911	122 193	27.2	(d)3.69	5.8
1921	136 198	25.0	3.12	4.7
1933	111 269	16.8	2.17	4.7
1947	182 384	24.1	3.08	4.0
1954	202 256	22.5	3.19	4.0
1961	239 986	22.8	3.55	5.1
1966	223 731	19.3	2.89	7.4
1971	276 361	21.6	2.95	9.3
1976	227 810	16.2	2.06	10.1
1981	235 842	15.8	1.94	13.2
1986	243 408	15.2	1.87	16.8
1992	264 151	15.1	1.89	24.0
1993	260 229	14.7	1.86	24.9
1994	258 051	14.5	1.85	25.6
1995	256 190	14.2	1.83	26.6
1996	253 834	13.9	1.80	27.4
1997	251 842	13.6	1.78	28.1
1998	249 616	13.3	1.76	28.7
1999	248 870	13.1	1.76	29.2
2000	249 636	13.0	1.76	29.2
2001	246 394	12.7	1.73	30.7
2002	250 988	12.8	1.76	31.3

(a) Proportion of total live births which were ex-nuptial. (b) Number of births expressed as a proportion of the total population; the rate is per 1,000 population. (c) The number of children a woman would bear during her lifetime if she experienced current age-specific fertility rates at each age of her reproductive life. (d) Estimated total fertility rate.

Source: *Australian Demographic Trends* (3102.0); *Births, Australia* (3301.0).

## Deaths

In 2002, 133,707 deaths (68,900 males and 64,800 females) were registered in Australia, 5,200 more than were registered in 2001 (128,500). Since 1982 the number of deaths has increased by an average of 0.8% per year. The steady increase in the number of deaths over time reflects the increasing size of the population and, in particular, the increasing number of older people. With continued ageing of the population the number of deaths will continue to rise, with deaths projected to outnumber births sometime in the 2030s.

Despite the ageing of the population over the last 20 years, death rates have continued to decline. The crude death rate (CDR) fell from 7.6 deaths per 1,000 population in 1982 to 6.8 deaths per 1,000 in 2002. The fall in CDR, against the background of an older population, indicates the considerable decline in age-specific death rates over the period. The standardised death rate (standardised to Australia's 2001 population to remove the effect of the changing age structure of the population) was 6.7 deaths per 1,000 population in 2002, slightly higher than in 2001 (6.6 deaths) but 35% lower than in 1982 (10.3 deaths).

## Life expectancy

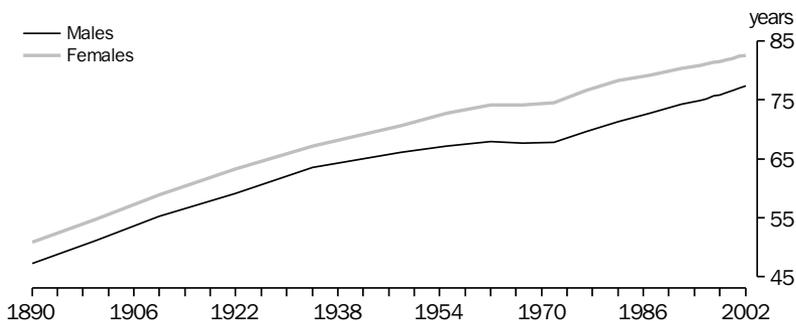
Life expectancy refers to the average number of additional years a person of a given age and sex might expect to live if the age-specific death rates of the given period continued throughout his or her remaining lifetime.

Over the past century the average life expectancy of a new-born boy has increased from 55 years in 1901–1910 to 77 years in 2000–2002. Likewise, the average life expectancy of a new-born girl has increased from 59 to 83 years during the same period (graph 5.27). These represent an increase of 22 years for boys and 24 years for girls. The increase in life expectancy at birth is due to declining death rates at all ages.

The reduction in mortality in the early part of the 20th century has been attributed to improvements in living conditions, such as better water supply, sewerage systems, food quality and health education. The continuing reduction in mortality in the latter half of last century has been attributed to improving social conditions, and to advances in medical technology such as mass immunisation and antibiotics. The past two decades in particular have seen further increases in life expectancy. These increases are due in part to lower infant mortality, fewer deaths among young adults from motor vehicle accidents and fewer deaths among older men from heart disease. The reduction in the number of deaths from heart disease has been related to behavioural changes, such as dietary improvements and reduced smoking.

During the 20th century the life expectancy of new-born girls was consistently higher than that of new-born boys. Up until the early-1930s, a new-born girl had a life expectancy approximately four years greater than that of a new-born boy, with this difference peaking at about seven years in the 1970s and early-1980s, largely due to significant declines in heart disease, stroke and

5.27 LIFE EXPECTANCY AT BIRTH



Note: After 1910, years represent the last year of a three-year period. For example, 2002 refers to the period 2000–2002.

Source: *Deaths, Australia* (3302.0).

respiratory disease mortality among women, combined with a slight decline in male life expectancy from accidents among males aged 15–24 years and from heart disease among 45–84 year old males. In recent years, the gap in life expectancy between new-born males and females has narrowed to about five years (5.2 years in 2000–2002). This can be attributed to the large reductions in death rates of males aged 45 years and over, and particularly to the reduction in heart disease deaths among males.

The increase in life expectancy for older persons has implications for retirement planning and income policies. Life expectancy of 65 year olds has increased from 14 years for males and 18 years for females in 1982, to 17 years for males and 21 years for females in 2000–2002. Australians have a life expectancy at birth which compares well with that experienced in other developed nations. Among the countries shown in table 5.28, the life expectancy at birth of Australian males and females (77 and 83 years respectively) was

exceeded only by that in Japan (both males and females), Hong Kong (SAR of China) (females) and France (females). The life expectancy of new-born babies in Australia was higher than in New Zealand, the United Kingdom, Canada and the United States of America.

A life table is a statistical model that is constructed from the death rates of a population at different ages. It is frequently used to express death in terms of the probability of dying. In its simplest form, a life table is generated from age-specific death rates and the resulting values are used to measure mortality, survivorship and life expectancy. Table 5.29 shows the expectations of life at specific ages for Australian males and females. The figures have been obtained from ABS life tables based on demographic characteristics of the Australian population for the period 2000–2002.

Table 5.30 brings together summary measures of mortality for selected years from 1910 to 2002.

#### 5.28 LIFE EXPECTANCY AT BIRTH, Selected countries — 2000–05

	Males	Females
	years	years
<b>Australia(a)</b>	<b>77.4</b>	<b>82.6</b>
Canada	76.7	81.9
China (excl. SARs & Taiwan Prov.)	68.9	73.3
France	75.2	82.8
Germany	75.2	81.2
Hong Kong (SAR of China)	77.3	82.8
India	63.2	64.6
Indonesia	64.8	68.8
Italy	75.5	81.9
Japan	77.9	85.1
Korea, Republic of (South)	71.8	79.3
Netherlands	75.6	81.0
New Zealand	75.8	80.7
Papua New Guinea	56.8	58.7
Singapore	75.9	80.3
United Kingdom	75.7	80.7
United States of America	74.3	79.9

(a) Reference period for Australia is 2000–2002.

Source: *Deaths, Australia (3302.0)*; *United Nations Department of Economic and Social Affairs, Statistics Division*.

#### 5.29 EXPECTATION OF LIFE(a)

	Males	Females
At exact age (years)	years	years
0	77.4	82.6
10	68.0	73.1
20	58.2	63.2
30	48.8	53.4
40	39.4	43.7
50	30.1	34.2
60	21.4	25.2
70	13.7	16.7
80	7.8	9.6
90	4.1	4.8
100	2.5	2.9

(a) Expectation of life has been calculated using data for the 3 years 2000 to 2002.

Source: *Deaths, Australia (3302.0)*.

### 5.30 SELECTED SUMMARY MEASURES OF MORTALITY

	Registered deaths no.	Crude death rate(b)	infant mortality rate(c)	Life expectancy at birth(a)	
				Males years	Females years
1901	46 330	12.2	103.6	55.2	58.8
1921	54 076	9.9	65.7	59.2	63.3
1933	59 117	8.9	39.5	63.5	67.1
1947	73 468	9.7	28.5	66.1	70.6
1954	81 805	9.1	22.5	67.1	72.8
1961	88 961	8.5	19.5	67.9	74.2
1966	103 929	9.0	18.7	67.6	74.2
1971	110 650	8.5	17.3	67.8	74.5
1976	112 662	8.0	13.8	69.6	76.6
1981	109 003	7.3	10.0	71.2	78.3
1986	114 981	7.2	8.8	72.7	79.2
1991	119 146	6.9	7.1	74.3	80.4
1992	123 660	7.1	7.0	74.5	80.4
1993	121 599	6.9	6.1	75.0	80.9
1994	126 692	7.1	5.9	75.0	80.9
1995	125 133	6.9	5.7	75.0	80.8
1996	128 719	7.0	5.8	75.2	81.1
1997	129 350	7.0	5.3	75.7	81.4
1998	127 202	6.8	5.0	75.9	81.5
1999	128 102	6.8	5.7	76.2	81.8
2000	128 291	6.7	5.2	76.6	82.0
2001	128 544	6.6	5.3	77.0	82.4
2002	133 707	6.8	5.0	77.4	82.6

(a) Data for 1901 are based on the period 1901 to 1910. Data for 1921 to 1991 are based on three-year averages, with the year shown being the midpoint of the three-year period. Data for 1992 to 1994 are based on individual years. Data for 1995 onwards are based on three-year averages, with the year shown being the last year of the three-year period. (b) Per 1,000 population. (c) Per 1,000 live births.

Source: *Australian Demographic Trends* (3102.0); *Deaths, Australia* (3302.0); ABS data available on request, *Deaths Registration Collection*.

## International migration

Each year Australia's population increases as a result of net overseas migration (the excess of permanent and long-term arrivals over permanent and long-term departures) and natural increase (the excess of births over deaths).

Although traditionally Australia's population growth has come predominantly from natural increase, in 2002–03 the preliminary estimate of net overseas migration (125,300 persons) was 52% of Australia's population growth for the year (see table 5.1). (This preliminary estimate of net overseas migration in 2002–03 was subsequently revised to 116,498 persons (table 5.31).)

Overseas migration has played an important role in changing Australia's population. In the year ended 30 June 2003, 392,917 persons arrived in Australia intending to stay for one year or more (table 5.31). This included permanent (settler) arrivals, Australian residents returning from an overseas trip of 12 months or more, and overseas

visitors intending to stay 12 months or more in Australia. There were 276,419 persons who left Australia for overseas on a permanent or long-term basis in the year ended 30 June 2003, including Australian residents emigrating or going overseas for 12 months or more, and overseas visitors leaving Australia after staying for 12 months or more.

Because population estimates include permanent and long-term movers and exclude short-term movers, adjustments are required for the net effect of changes in travel intention from short-term to permanent/long-term and vice versa. For example, an Australian resident may state on departure an intention to stay abroad for less than 12 months (a short-term movement). If this resident remains overseas for 12 months or more, he or she has changed travel category from short-term to long-term. Further, some movers travelling for 12 months or more may take short trips home; these short trips need to be excluded to give a good measure of net overseas migration.

### 5.31 NET OVERSEAS MIGRATION COMPONENTS — Selected years(a)

	Year ended 30 June					
	1983	1993	1998	2001	2002	2003
<b>Arrivals</b>						
Permanent (settlers)	93 011	76 330	77 327	107 366	84 413	89 437
Long-term						
Australian residents	48 986	69 594	84 358	82 893	88 598	95 784
Overseas visitors	30 742	57 842	103 756	158 311	230 308	207 696
<i>Total</i>	172 739	203 766	265 441	348 570	403 319	392 917
<b>Departures</b>						
Permanent departures	24 830	27 905	31 985	46 521	45 859	48 148
Long-term						
Australian residents	47 020	65 446	79 422	92 945	167 529	145 377
Overseas visitors	25 438	47 744	74 872	73 431	79 375	82 894
<i>Total</i>	97 288	141 095	186 279	212 897	292 763	276 419
Category jumping(a)	-2 155	-32 629	0	0	..	..
<b>Net overseas migration</b>	<b>73 295</b>	<b>30 042</b>	<b>79 162</b>	<b>135 673</b>	<b>110 556</b>	<b>(b)116 498</b>

(a) For years ended 30 June 1998 and 2001, category jumping has been set to zero due to deficiencies in the method of estimating category jumping. Data for years ended 30 June 2002 and 2003, component figures have been adjusted. (b) Revised.

Source: *Migration, Australia* (3412.0).

Recently, a new method of adjusting overseas migration numbers has been developed by the ABS. The new method produces preliminary estimates of overseas migration for the latest year, followed by revised estimates in years prior to the latest year. The new method adjusts traveller intention data for changes in traveller intention, and multiple movement.

There has been a significant change in the source countries of permanent arrivals, with settlers arriving from more diverse regions of the world since the mid-1990s compared with the early-1980s (table 5.32). In 1982–83, 28% of settler arrivals to Australia were born in the United

Kingdom, 9% were born in Vietnam and 7% were born in New Zealand. In 2002–03 the United Kingdom and New Zealand both contributed 13% of all settler arrivals, although in 2001–02 New Zealand-born settler arrivals contributed 18% of all settler arrivals in that year whereas settler arrivals born in the United Kingdom only contributed 10%. Settler arrivals born in China (7%), India (6%) and South Africa (5%) each contributed 5% or more of all settlers in 2002–03 compared with only 1%, 2% and 3% respectively in 1982–83 (table 5.32).

### 5.32 COUNTRY OF BIRTH OF SETTLER ARRIVALS — Selected years(a)

	no.	%
1982–83		
China (excl. SARs & Taiwan Prov.)	1 167	1.3
India	1 673	1.8
New Zealand	6 867	7.4
South Africa	2 758	3.0
United Kingdom	26 444	28.4
Vietnam	8 690	9.3
<i>All settler arrivals</i>	<i>93 011</i>	<i>100.0</i>
1992–93		
China (excl. SARs & Taiwan Prov.)	3 046	4.0
India	3 553	4.7
New Zealand	6 694	8.8
South Africa	1 021	1.3
United Kingdom	9 484	12.4
Vietnam	5 651	7.4
<i>All settler arrivals</i>	<i>76 330</i>	<i>100.0</i>
2001–02		
China (excl. SARs & Taiwan Prov.)	6 708	7.5
India	5 091	5.7
New Zealand	15 663	17.6
South Africa	5 714	6.4
United Kingdom	8 749	9.8
Vietnam	1 919	2.2
<i>All settler arrivals</i>	<i>88 900</i>	<i>100.0</i>
2002–03		
China (excl. SARs & Taiwan Prov.)	6 664	7.1
India	5 783	6.2
New Zealand	12 368	13.2
South Africa	4 603	4.9
United Kingdom	12 508	13.3
Vietnam	2 568	2.7
<i>All settler arrivals</i>	<i>93 914</i>	<i>100.0</i>

(a) Information in this table is based on stated traveller intention at arrival or departure; it has not been adjusted for change in traveller intention or multiple movement.

Source: *Migration, Australia* (3412.0).

### Migration Program

In 2002–03, 93,900 persons arrived in Australia intending to settle, the majority of whom (71%) arrived as part of the Migration Program. Of Migration Program arrivals, most arrived under the skilled migration category (41% of all permanent

arrivals), while 30% of all permanent arrivals arrived under the family migration category. Another 10% of all permanent arrivals arrived as part of the Humanitarian Program, while 17% were eligible to settle in Australia because of their New Zealand citizenship.

The number of visas issued to prospective settlers varies significantly from year to year. So too does the balance between the types of visas issued. Table 5.33 shows that in the six years to 2002–03 the proportion of settlers arriving under the skilled migration category ranged from 33% in 1998–99 to 41% in 2002–03.

Of skilled migrants arriving in 2002–03, 26% came from Europe (83% of whom were from the United Kingdom and Ireland), while South-East Asia contributed 20% and Southern Asia contributed 16%. North-East Asia contributed 15% of skilled immigrants to Australia during 2002–03, whereas Sub-Saharan Africa contributed 14%.

In 2002–03, 30% of settlers came as part of the family component of Australia's immigration program. The birthplaces of these immigrants partly reflect past migration patterns. About 25% were born in South-East Asia, 23% were born in Europe and a further 15% were born in North-East Asia.

Of the 9,600 settlers arriving under the Humanitarian Program, 5,900 (62%) came from North Africa and the Middle East. A further 1,400 immigrants (15%) arriving on humanitarian visas were born in Europe.

During 2002–03, in addition to the 76,300 settler arrivals under the Migration and Humanitarian Programs, there were a further 17,600 non-program (i.e. non-visaed) arrivals. Traditionally, non-program migrants are predominantly New Zealand citizens and they accounted for 93% of non-program migrants in 2002–03. Under the Trans-Tasman Agreement, New Zealand citizens are free to enter Australia without applying for a visa.

### 5.33 SETTLER ARRIVALS, By eligibility category(a)

	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03
Family	21 142	21 501	19 896	20 145	23 344	28 066
Skilled	25 985	27 931	32 350	35 715	36 036	38 504
Humanitarian	8 779	8 790	7 267	7 640	6 732	9 569
New Zealand	19 393	24 680	31 610	42 257	21 458	16 364
Other	2 028	1 241	1 149	1 609	1 330	1 411
<b>Total</b>	<b>77 327</b>	<b>84 143</b>	<b>92 272</b>	<b>107 366</b>	<b>88 900</b>	<b>93 914</b>

(a) Data have not been adjusted for changes in traveller intention or multiple movement.

Source: Department of Immigration and Multicultural Affairs, 'Immigration Update' (1996-97 to 1999-2000); Department of Immigration and Multicultural and Indigenous Affairs, 'Immigration Update' (2000-01 to 2002-03).

## Country of birth

Australia's population has increased each year since the end of World War II, due to a combination of high post-war fertility and high levels of migration. In 1901, 23% of Australia's population was overseas-born. In 1947 the proportion of the population born overseas had declined to 10%. The creation of a national government immigration portfolio in 1945 accompanied a gradual increase in the proportion of overseas-born Australians and by 1992 this proportion had increased to 23% (table 5.34). In

2002 the number of overseas-born Australians had passed 4.5 million, remaining at 23% of the total population.

The diversity of countries of birth has increased substantially over the years. Patterns of immigration have also changed. For the last few decades, the Italy, Greece and Netherlands-born populations in Australia have been declining. The major migration flows from these countries occurred immediately after World War II and there has been relatively little migration from these countries more recently.

### 5.34 MAIN COUNTRIES OF BIRTH OF THE POPULATION

	1901(a)	1947(a)	1954(a)	1961(a)	1971(a)	1981(a)	1992(b)	2002(b)
	'000	'000	'000	'000	'000	'000	'000	'000
United Kingdom and Ireland	679.6	546.2	664.2	755.4	1 081.3	1 120.9	1 238.6	1 179.8
New Zealand	25.8	43.6	43.4	47.0	74.1	160.7	288.9	413.7
Italy	5.7	33.6	119.9	228.3	288.3	275.0	269.3	235.2
Yugoslavia, Federal Republic of	n.a.	5.9	22.9	49.8	128.2	148.6	(c)171.0	(c)207.5
Vietnam	n.a.	n.a.	n.a.	n.a.	n.a.	40.7	135.9	171.6
China (excl. SARs & Taiwan Prov.)	29.9	6.4	10.3	14.5	17.1	25.2	95.6	164.9
Greece	0.9	12.3	25.9	77.3	159.0	145.8	145.9	131.2
Germany	38.4	14.6	65.4	109.3	110.0	109.3	120.2	117.1
Philippines	0.7	0.1	0.2	0.4	2.3	14.8	85.2	115.8
India	7.6	(d)8.2	12.0	14.2	28.7	41.0	70.7	110.6
South Africa	0.5	5.9	6.0	7.9	12.2	26.5	56.0	95.3
Netherlands	0.6	2.2	52.0	102.1	98.6	95.1	99.6	90.4
Malaysia	n.a.	1.0	2.3	5.8	14.4	30.5	80.9	89.6
Lebanon	n.a.	(e)1.9	3.9	7.3	23.9	49.4	78.2	81.2
Hong Kong (SAR of China)	0.2	0.8	1.6	3.5	5.4	15.3	71.1	75.6
Poland	n.a.	6.6	56.6	60.0	59.5	59.0	70.4	63.3
Sri Lanka	0.6	n.a.	2.0	3.4	9.0	16.8	43.2	61.4
United States of America	7.4	6.2	8.3	10.8	26.8	28.9	49.8	60.2
Total overseas-born	865.5	744.2	1 286.5	1 778.8	2 546.4	3 128.1	4 028.4	4 565.8
Australia	2 908.3	6 835.2	7 700.1	8 729.4	10 173.1	11 388.8	13 466.3	15 075.2
<b>Total population(f)</b>	<b>3 773.8</b>	<b>7 579.4</b>	<b>8 986.5</b>	<b>10 508.2</b>	<b>12 719.5</b>	<b>14 516.9</b>	<b>17 494.7</b>	<b>19 641.0</b>

(a) Census counts. (b) Estimated resident population at 30 June. (c) Now referred to as Serbia and Montenegro. (d) Includes British India and Ceylon. (e) Includes Syria and Lebanon. (f) Includes country of birth 'Not stated' and 'At sea'.

Source: Migration, Australia (3412.0); ABS data available on request, Estimated Resident Population.

The 2001 census showed 26% of persons born in Australia had at least one overseas-born parent, that is, they were second generation Australians (table 5.35). Of Australian-born children with at least one overseas-born parent 43% had both parents born overseas, 35% had their father born overseas and 22% their mother born overseas. The variety and size of second generation populations reflect past migration and intermarriage patterns.

**5.35 BIRTHPLACE OF PARENTS OF AUSTRALIAN BORN(a) PEOPLE — 2001**

	no.	%
Both parents born in Australia	9 797 656	71.9
One or both parents born overseas	3 477 189	25.5
Not stated(b)	354 840	2.6
<b>Total</b>	<b>13 629 685</b>	<b>100.0</b>

(a) Includes persons born in Australian External Territories.

(b) Includes persons who stated one parent was Australian-born and did not state birthplace of the other parent.

Source: ABS data available on request, 2001 Census of Population and Housing.

**Australia’s top four overseas birthplace groups**

The 2001 Census of Population and Housing counted 4.1 million Australian residents born overseas, or 22% of all Australian residents. Of those born overseas, 43% were born in one of four countries – the United Kingdom (1.0 million persons or 6% of all Australian residents), New Zealand (356,000 or 2%), Italy (219,000 or 1%) and Vietnam (155,000 or 1%).

The Department of Immigration and Multicultural and Indigenous Affairs (DIMIA) has produced a set of community summaries for birthplace groups in Australia, based on data from DIMIA and from the 2001 census. Much of the historical background provided in this article is drawn from these sources.

**United Kingdom-born Australians**

Immigration from the United Kingdom began with the establishment of a British penal colony at Sydney Cove in 1788. Many free settlers also joined the convicts who were transported to serve their sentences in Australia, particularly during the gold rushes of the 1850s. After the end

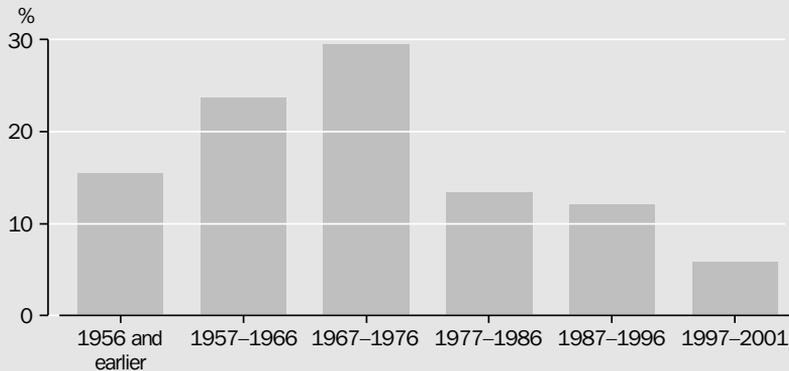
of World War II, the Australian (Commonwealth) Government entered into agreements with a number of countries, including the United Kingdom, to provide free and assisted immigration to Australia. Between 1947 and 1973, immigrants from the United Kingdom constituted 41% of Australia’s total immigration intake of more than 2.5 million. Despite the cessation of assisted immigration agreements, immigrants from the United Kingdom continued to arrive in Australia, many through the Family Stream of Australia’s Immigration Program. Results from the 2001 Census of Population and Housing show 37% of Australians have United Kingdom ancestry, above the proportion who reported Australian ancestry (36%).

For United Kingdom-born Australians present on census night in 2001, the median age on arrival in Australia was 21.9 years. Half of these arrivals had occurred by 1970 (graph 5.36). The most common year of arrival was 1969, with 4% of all United Kingdom-born Australians arriving in that year.

The states with the highest proportions of United Kingdom-born residents were Western Australia (202,000 persons, or 11% of residents), South Australia (124,000 persons, or 9%) and the Australian Capital Territory (17,000 persons, or 6%) (graph 5.37). Most (89%) of United Kingdom-born Australians were counted in urban areas on census night in 2001, close to the figure for all Australian residents (87%).

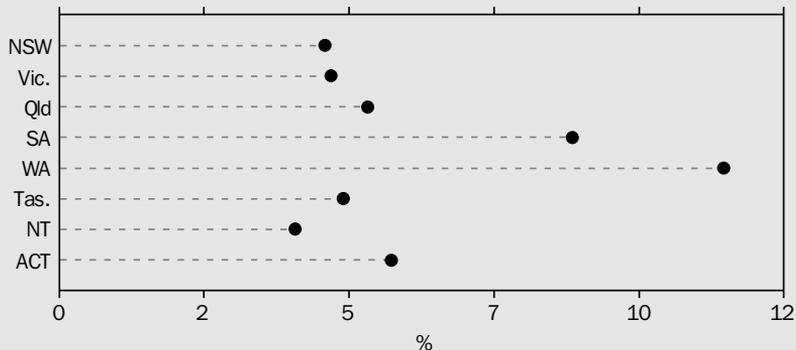
The median age of the United Kingdom-born population in 2001 was 52.0 years, compared with 45.0 years for all overseas-born and 35.7 years for all Australian residents. A high proportion of United Kingdom-born residents were aged 65 years and over (24% compared with 13% for all Australian residents), with a sex ratio of 100.4 males per 100 females. Graph 5.38 shows the age and sex distribution of United Kingdom-born residents in 2001.

**5.36 UNITED KINGDOM-BORN AUSTRALIANS, Year of arrival — 2001**



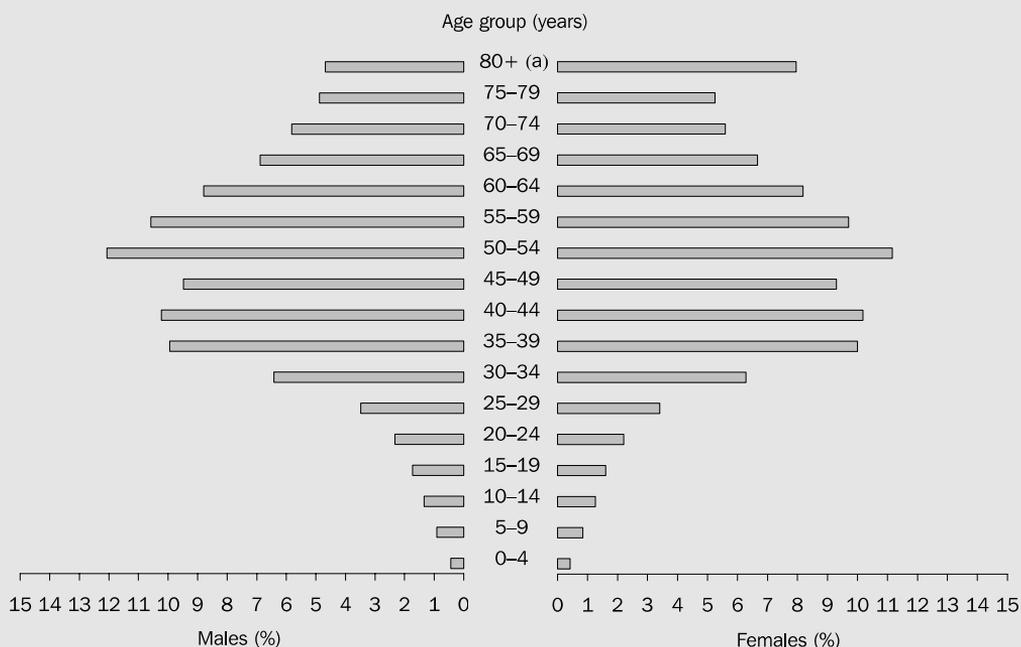
Source: ABS data available on request, 2001 Census of Population and Housing.

**5.37 UNITED KINGDOM-BORN RESIDENTS AS A PROPORTION OF STATE POPULATION — 2001**



Source: ABS data available on request, 2001 Census of Population and Housing.

### 5.38 AGE DISTRIBUTION OF UNITED KINGDOM-BORN RESIDENTS — 2001



(a) The 80+ age group includes all ages 80 years and over and therefore is not strictly comparable with five-year age groups in the rest of this graph.

Source: ABS data available on request, 2001 Census of Population and Housing.

### New Zealand-born Australians

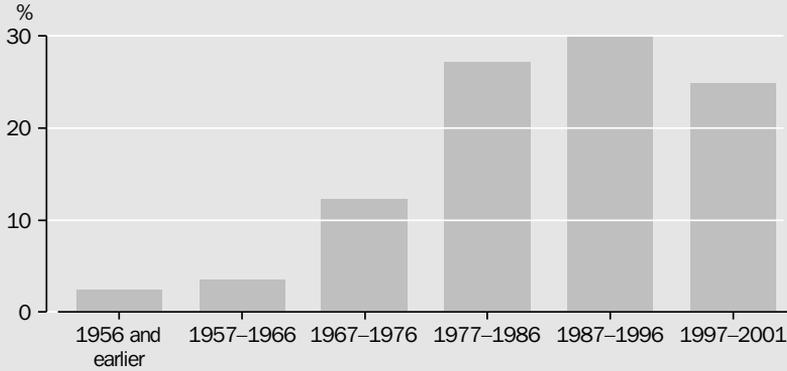
Links between Australia and New Zealand have been strong since European settlement, and between 1828 and 1840 New Zealand was under the jurisdiction of the Governor of New South Wales. Until the 1950s more Australians moved to New Zealand than vice versa. However, during the 1960s there was a shift in this pattern. By the 1971 census the number of New Zealand-born living in Australia was 80,000. By 1981 this number more than doubled to 177,000, more than three times the recorded number of Australians living in New Zealand at the time (53,000). In 2001 the New Zealand-born community was the second largest overseas-born group in Australia with 356,000 persons.

The median age on arrival in Australia for New Zealand-born residents present on census night in 2001 was 22.2 years, with half arriving after

1988 (graph 5.39). The most common year of arrival for New Zealand-born Australians was 2000, with 6% of New Zealand born residents arriving in that year. This indicates that New Zealand was the only one of the four countries selected that did not show a decline in arrivals.

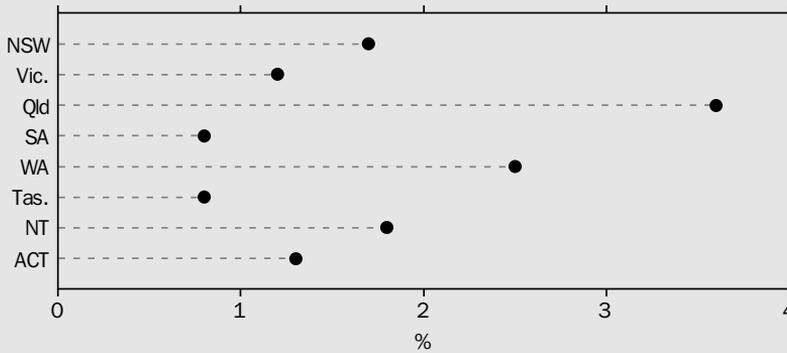
Queensland had the highest proportion of New Zealand-born residents, with 127,000 persons or 4% of Queensland residents (graph 5.40). This was followed by Western Australia with 45,000 persons (3%). New Zealand-born residents comprised 2% of the population in the Northern Territory (4,000 persons) and New South Wales (106,000 persons). Most New Zealand-born residents (91%) were counted in urban areas on census night in 2001.

**5.39 NEW ZEALAND-BORN AUSTRALIANS, Year of arrival — 2001**



Source: ABS data available on request, 2001 Census of Population and Housing.

**5.40 NEW ZEALAND-BORN RESIDENTS AS A PROPORTION OF STATE POPULATION — 2001**

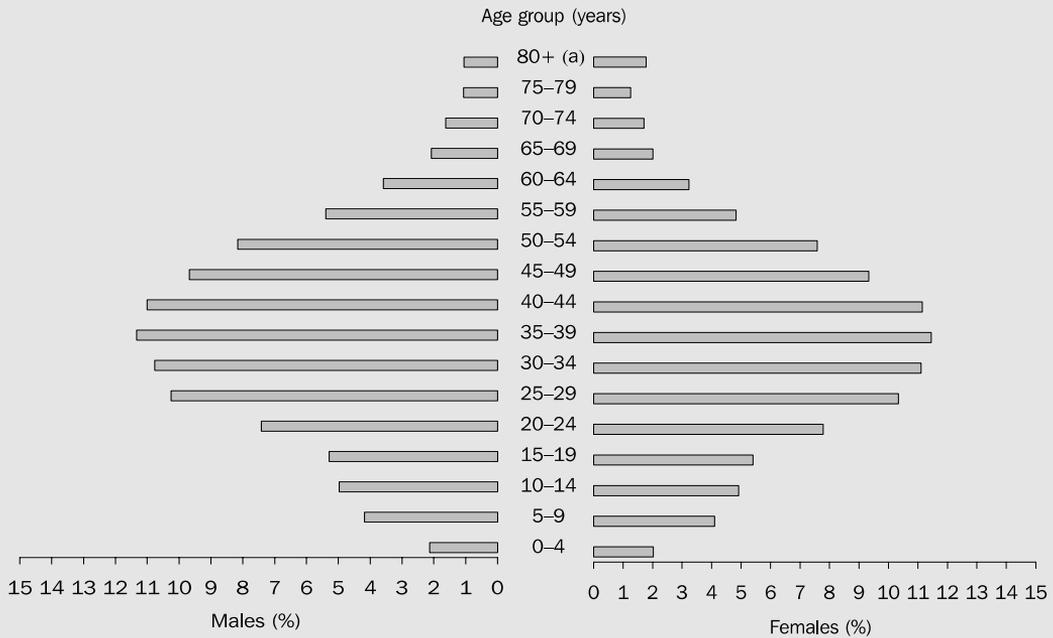


Source: ABS data available on request, 2001 Census of Population and Housing.

The median age of New Zealand-born residents in 2001 was 37.1 years, compared with 45.0 years for all overseas-born and 35.7 years for all Australian residents. The majority of New Zealand-born residents were aged between

15 and 64 years, with 6% aged 65 years and over (compared with 13% for all Australian residents) (graph 5.41). The sex ratio was 102.7 males per 100 females.

## 5.41 AGE DISTRIBUTION OF NEW ZEALAND-BORN RESIDENTS — 2001



(a) The 80+ age group includes all ages 80 years and over and therefore is not strictly comparable with five-year age groups in the rest of this graph.

Source: ABS data available on request, 2001 Census of Population and Housing.

### Italy-born Australians

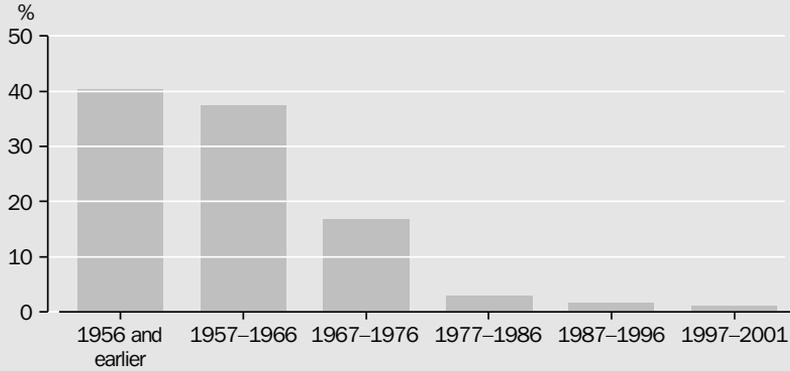
Early in Australia's settlement Italian migrants joined the gold rush in Australia, with many establishing communities to service the gold fields. Many Italian labourers also came to Queensland's cane fields, and by the late-1930s a third of Italy-born Australians lived in Queensland's cane-growing regions. In 1947 there were 34,000 Italy-born persons in Australia. After World War II the number of Italian migrants increased through Australia's Assisted Migration Program, driven by post-war resettlement and labour shortages, and in 1971 there were 289,000 Italy-born persons. The Italian economy strengthened after 1971 and many migrants returned to Italy. In conjunction with an ageing

Italy-born population, this led to a decline in the size of the Italy-born population to 238,000 persons in 1996 and 219,000 persons in 2001.

The median age on arrival in Australia for Italy-born residents present on census night in 2001 was 20.8 years. Half of Italy-born residents in 2001 had arrived before 1959, with 7% of Italy-born Australians arriving in 1956 (graph 5.42).

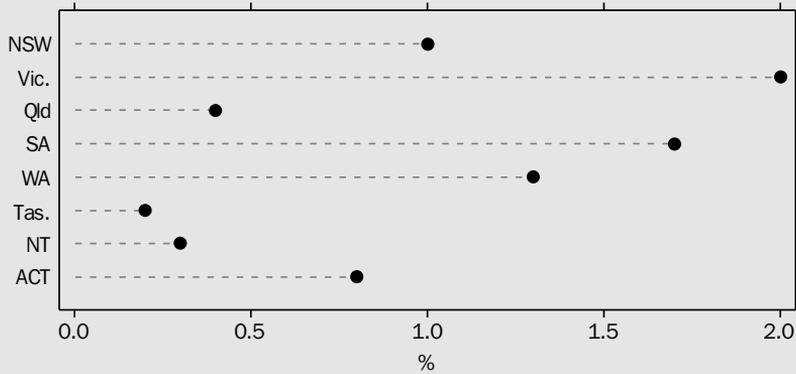
A high proportion of Italy-born Australians (94%) were counted in urban areas in the 2001 census. Most Italy-born Australians resided in Victoria (91,000 persons, or 2% of Victorian residents) and South Australia (25,000 persons, also 2%). This was followed by Western Australia with 23,000 persons, or 1% of Western Australia's resident population (graph 5.43).

**5.42 ITALY-BORN AUSTRALIANS, Year of arrival — 2001**



Source: ABS data available on request, 2001 Census of Population and Housing.

**5.43 ITALY-BORN RESIDENTS AS A PROPORTION OF STATE POPULATION — 2001**

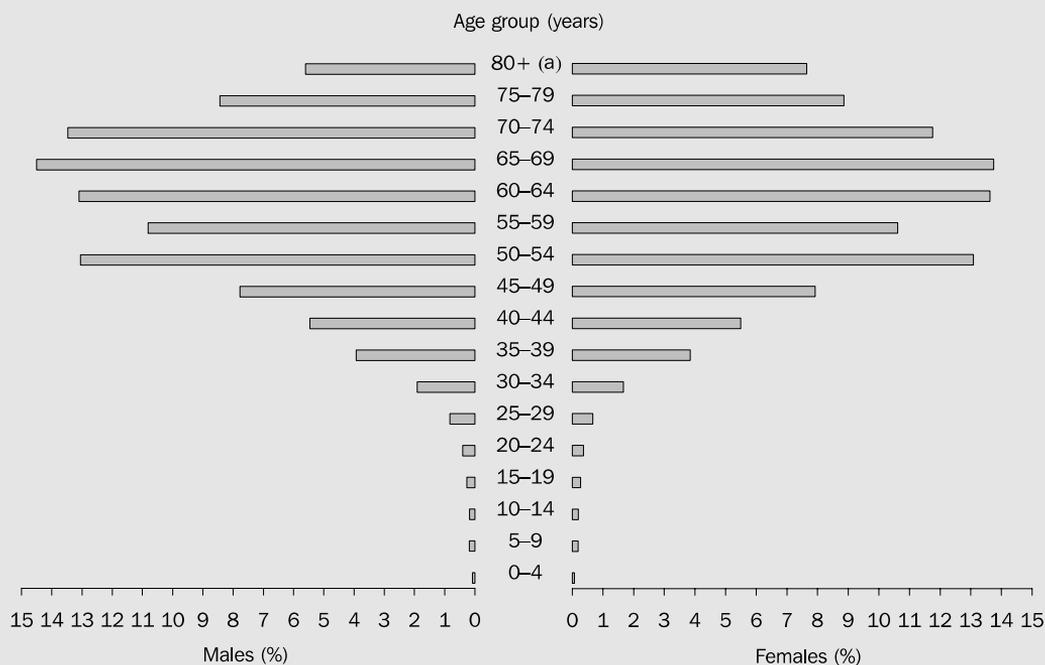


Source: ABS data available on request, 2001 Census of Population and Housing.

The median age of the Italy-born population in 2001 was 62.0 years, considerably higher than the figure of 35.7 years for all Australian residents. The decreasing number of Italian migrants is reflected in the age distribution of Italy-born

Australians (graph 5.44), with increased numbers at the older age groups as post-war migrants aged and 42% aged 65 years and over. The sex ratio in 2001 was 110.6 males per 100 females.

### 5.44 AGE DISTRIBUTION OF ITALY-BORN RESIDENTS — 2001



(a) The 80+ age group includes all ages 80 years and over and therefore is not strictly comparable with five-year age groups in the rest of this graph.

Source: ABS data available on request, 2001 Census of Population and Housing.

### Vietnam-born Australians

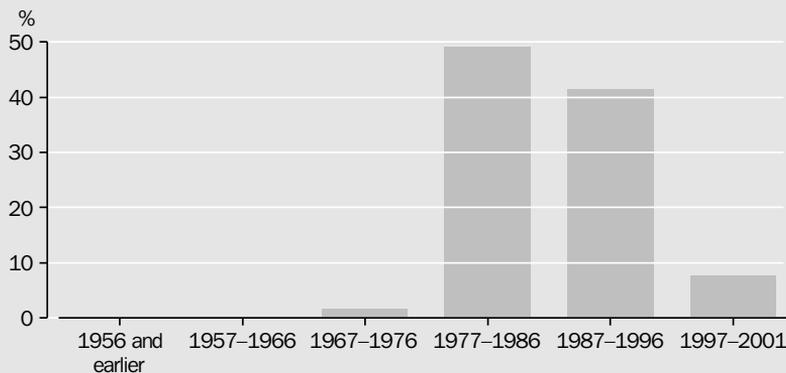
In 1954, Vietnam was divided into a communist democratic republic in the north and a non-communist republic in the south. War between the north and south was won by the north in 1975. After Saigon fell to the communists in 1975, large numbers of Vietnamese left their country. In the following decade an estimated two million people left Vietnam and were resettled, mostly in Australia, the United States of America, France and Canada.

Prior to 1975 there were approximately 700 Vietnam-born people in Australia. Refugee resettlement occurred between 1975 and 1985, and was followed by family reunion under the Family Stream of Australia's Immigration Program. By 1981, 50,000 Vietnamese had been resettled in Australia. By 1991 there were 122,000 Vietnam-born in Australia and in the 2001 census, 155,000 Vietnam-born Australians were counted.

For Vietnam-born Australians present on census night in 2001 the median age on arrival in Australia was 23.0 years. Nearly all Vietnam-born residents arrived in Australia after 1977 (98%) due to resettlement after the end of the Vietnam war in 1975 (graph 5.45). The most common year of arrival was 1990, with 7% of all Vietnam-born Australians arriving in this year. This is closely followed by 1980, also with 7% of arrivals.

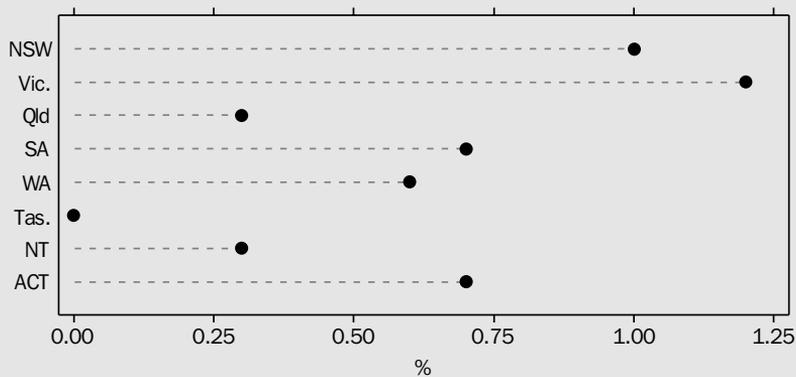
The states with the highest proportions of Vietnam-born residents in 2001 were Victoria (57,000 persons) and New South Wales (63,000 persons), each representing 1% of the state's resident population (graph 5.46). Very few Vietnam-born Australians were counted in rural Australia, with 99% counted in urban areas on census night in 2001.

### 5.45 VIETNAM-BORN AUSTRALIANS, Year of arrival — 2001



Source: ABS data available on request, 2001 Census of Population and Housing.

### 5.46 VIETNAM-BORN RESIDENTS AS A PROPORTION OF STATE POPULATION — 2001

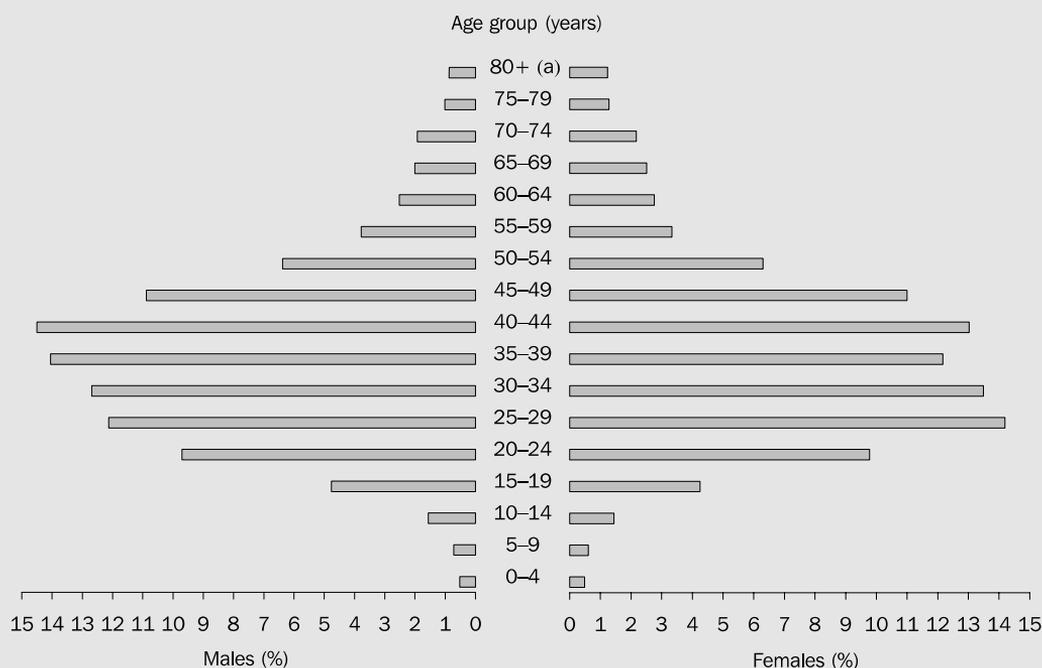


Source: ABS data available on request, 2001 Census of Population and Housing.

The median age of the Vietnam-born population in 2001 was 37.6 years, compared with 45.0 years for all overseas-born and 35.7 years for all Australian residents. The population was largely

aged between 15 and 54 years, with 7% aged 65 years and over (graph 5.47). There were fewer male than female Vietnam-born residents, with a sex ratio of 94.0 males per 100 females.

### 5.47 AGE DISTRIBUTION OF VIETNAM-BORN RESIDENTS — 2001



(a) The 80+ age group includes all ages 80 years and over and therefore is not strictly comparable with five-year age groups in the rest of this graph.

Source: ABS data available on request, 2001 Census of Population and Housing.

### Labour force

In 2001, New Zealand-born residents had the highest labour force participation rate of the four selected birthplace groups at 75%; the participation rate for all Australian residents was 63%. This was followed by Vietnam-born residents (with a participation rate of 61%) and United Kingdom-born residents (59%). Italy-born residents had the lowest participation rate (38%), due in part to the high proportion aged 65 years and over.

The unemployment rate for all Australian residents in 2001 was 7%. The unemployment rates for Italy-born and United Kingdom-born Australians were lower, at 5% and 6% respectively. For New Zealand-born residents the unemployment rate was above Australia's rate, at 8%. Vietnam-born residents had the highest unemployment rate of the selected birthplace groups (18%). It is likely that the unemployment rate for this group was compounded by language

difficulties, with the 2001 census recording 42% of Vietnam-born residents spoke English 'Not well' or 'Not at all'.

For each of the selected birthplace groups the industry employing the largest proportion of people in 2001 was manufacturing, at 35% for Vietnam-born, 17% for Italy-born and 14% for New Zealand-born and United Kingdom-born. The retail trade industry was a major employer within the selected groups, with 15% of employed Italy-born residents, 14% for Vietnam-born and 13% for New Zealand-born. The property and business services industry employed 13% of both United Kingdom-born and New Zealand-born employed persons. Other significant industries of employment were health and community services (12% of employed United Kingdom-born) and construction (15% of employed Italy-born).

## Education

In 2001, 52% of United Kingdom-born residents aged 15 years and over had completed post-school qualifications. New Zealand-born residents followed at 47%, close to that for all Australian residents of 46%. The most common areas of qualification for United Kingdom-born and New Zealand-born residents were engineering and related technologies, management and commerce, and health. The proportion of Vietnam-born residents aged 15 years and over who had completed educational or occupational training was 29%, while the proportion for Italy-born residents was 28%. The main fields of qualification for Vietnam-born were management and commerce, engineering and related technologies, and information technology, while for Italy-born residents, engineering and related technologies, architecture and building, and management and commerce were the most common.

## Religion

In the 2001 census, the most common religions reported by United Kingdom-born residents were Anglican (43%) and Catholic (12%). 'No religion' was reported by 18% of United Kingdom-born residents, above the proportion for all Australians (16%). Over a quarter (26%) of New Zealand-born residents reported that they had no religion, more than the top two religions reported (Anglican 19% and Catholic 15%). Italy-born residents had a high response rate for religion, and only 2% reported no religion. Catholic was the main religion reported, with 93% of Italy-born Australians. The most common religions reported among Vietnam-born residents were Buddhist (58%) and Catholic (22%), with 10% reporting no religion.

### 5.48 CHARACTERISTICS OF SELECTED BIRTHPLACE GROUPS — 2001

	Units	Country of birth				Total residents
		United Kingdom	New Zealand	Italy	Vietnam	
Population	'000	1 036	356	219	155	18 769
Sex ratio	males per 100 females	100.4	102.7	110.6	94.0	97.6
Median age	years	52.0	37.1	62.0	37.6	35.7
Aged 65 and over	%	23.9	6.3	42.0	6.5	12.6
Median year of arrival(a)	year	1970	1988	1959	1987	—
Median age at arrival	years	21.9	22.2	20.8	23.0	—
Labour force participation rate	%	58.6	75.4	37.9	60.6	63.0
Unemployment rate	%	6.0	7.7	4.5	17.7	7.4
Persons aged 15 and over with post-school qualifications	%	51.5	47.0	28.3	29.0	46.2
Bachelor level and above(b)	%	28.0	26.5	11.8	42.8	28.0
Diploma level(b)	%	14.3	14.9	8.6	14.2	13.0
Certificate level(b)	%	38.0	39.8	44.8	18.8	34.2

(a) Year by which half of those counted in the 2001 census had arrived in Australia. (b) Proportion of persons 15 years and over with post-school qualifications.

Source: ABS data available on request, 2001 Census of Population and Housing.

## References

ABS (Australian Bureau of Statistics), 2001 Census of Population and Housing.

Department of Immigration and Multicultural and Indigenous Affairs (DIMIA), Community Information Summaries, <<http://www.immi.gov.au/statistics/infosummary/index.htm>>, last viewed 29 July 2004.

## Marriages, divorces and de facto relationships

### Marriages

Marriage rates in Australia have fluctuated since 1901, broadly in response to the prevailing economic and social conditions. The crude marriage rate (the annual number of registered marriages per 1,000 population) has fallen in times of depression or recession (e.g. in the 1930s) and increased in other times such as the immediate post-war years of the early-1920s and late-1940s. Marriage rates have also increased during times of war.

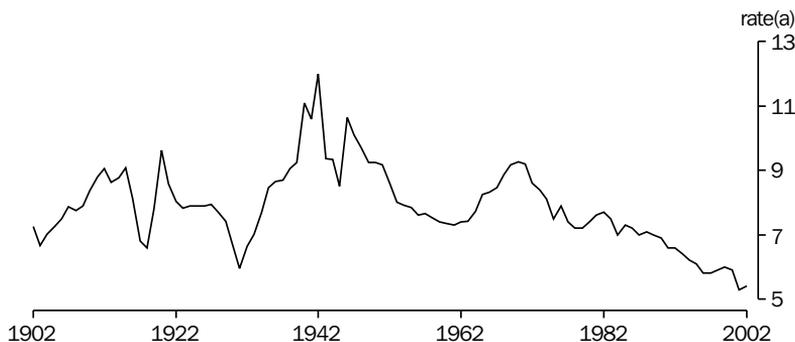
The 2002 crude marriage rate of 5.4 marriages per 1,000 population represented the second lowest marriage rate on record, following 5.3 per 1,000 in 2001. The highest crude marriage rate ever recorded was 12.0 per 1,000 in 1942. The crude marriage rate has been declining since 1970. This

decline in the marriage rate can be mainly attributed to changes in attitudes to marriage and living arrangements that have occurred since then. The fluctuations in the crude marriage rate between 1902 and 2002 are shown in graph 5.49.

Marriage rates for the unmarried population (per 1,000 not currently married men or women aged 15 years and over) have also fallen over time. In 1976 marriage rates for the unmarried population were 63 per 1,000 unmarried men and 61 per 1,000 unmarried women. In 2001 these rates fell to 31 and 28 respectively.

The trend towards older age at marriage continued in 2002 with the median age at first marriage being 29.0 years for men and 27.1 years for women. Twenty years ago (1982) the respective median ages were 24.6 years and 22.4 years (graph 5.50). Part of this increase can be attributed to the increasing incidence of de facto relationships. Another factor is young people staying in education longer.

5.49 CRUDE MARRIAGE RATE



(a) Rate per 1,000 population.

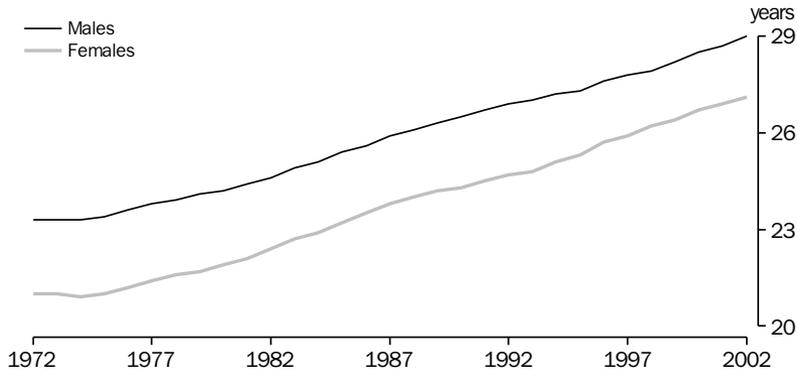
Source: *Australian Social Trends* (4102.0); *Marriages and Divorces, Australia* (3310.0).

In 2002, 66% of marriages had a groom older than the bride and 23% of brides were older than grooms. However, there was a strong tendency for couples to be about the same age, with 44% of couples being within two years of each other and only 11% being 10 or more years apart in age (graph 5.51). In 1982 couples also tended to be

around the same age with 45% being within two years of each other and 9% being 10 or more years apart.

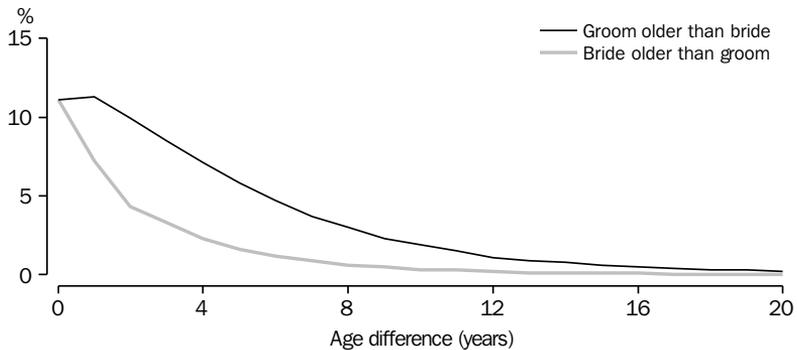
Table 5.52 provides summary measures of marriages for census years between 1901 and 1991, and individual years between 1992 and 2002.

**5.50 MEDIAN AGE AT FIRST MARRIAGE**



Source: *Marriages and Divorces, Australia (3310.0)*.

**5.51 BRIDE AND GROOM AGE DIFFERENCE AT MARRIAGE, Proportion of all marriages — 2002**



Source: *Marriages and Divorces, Australia (3310.0)*.

## 5.52 SELECTED SUMMARY MEASURES OF MARRIAGES

Year ended 31 December	Registered marriages no.	Crude marriage rate(a)	Median age at marriage	
			Bridegroom years	Bride years
1901	27 753	7.3	n.a.	n.a.
1921	46 869	8.6	27.7	24.5
1933	46 595	7.0	27.0	23.7
1947	76 457	10.1	26.0	23.0
1954	71 229	7.9	25.6	22.6
1961	76 686	7.3	24.9	21.8
1966	96 061	8.3	24.2	21.5
1971	117 637	9.2	23.8	21.4
1976	109 973	7.9	24.9	22.2
1981	113 905	7.6	25.9	23.3
1986	114 913	7.2	27.3	24.9
1991	113 869	6.6	28.4	26.0
1992	114 752	6.6	28.7	26.3
1993	113 255	6.4	28.8	26.4
1994	111 174	6.2	29.0	26.6
1995	109 386	6.1	29.2	26.8
1996	106 103	5.8	29.6	27.2
1997	106 735	5.8	29.7	27.5
1998	110 598	5.9	29.8	27.7
1999	114 316	6.0	30.1	27.9
2000	113 429	5.9	30.3	28.3
2001	103 130	5.3	30.6	28.6
2002	105 435	5.4	31.0	28.9

(a) Per 1,000 population.

Source: Australian Demographic Statistics (3101.0); Marriages and Divorces, Australia (3310.0).

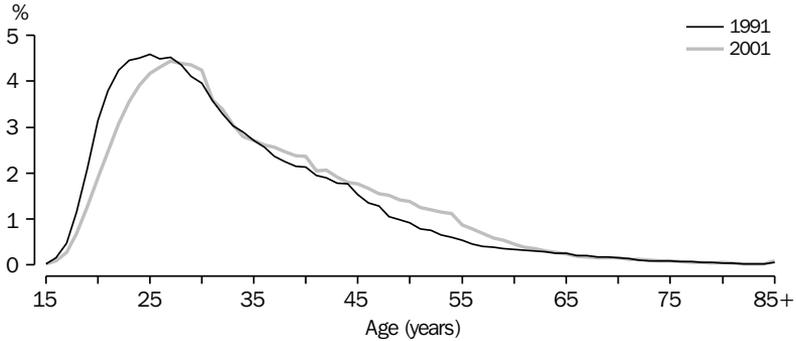
### De facto relationships

Between 1996 and 2001 the census count of people aged 15 years and over in de facto marriages rose by 28% from 744,100 to 951,500. This was marginally higher than the increase between 1991 and 1996 (27%). In 2001 de facto partners represented 12% of all persons living as socially married (up from 10% in 1996 and 8% in 1991) and 6% of all persons aged 15 years and over (up from 5% in 1996 and 4% in 1991). These rises may be due to both increases in the number of de facto partners and in the willingness of people to identify themselves as living in de facto marriages. In 2001 the median age of males in a de facto marriage was 34.2 years while the median age of females was 31.8 years. In 1991 the comparative medians were 32.3 years and 29.7 years respectively (graph 5.53).

De facto partnering has arisen as an alternative living arrangement prior to, or instead of marriage and following separation, divorce or widowhood. Some couple relationships, such as that between a boyfriend and girlfriend who live together but do not consider their relationship to be marriage-like, are classified as de facto.

Of all people in de facto relationships in 2001, 68% had never been in a registered marriage and 28% were either separated or divorced. The likelihood of being never married was higher among those aged under 35 years, counterbalanced by higher proportions of separated and divorced de facto partners aged 35 years and over (graph 5.54).

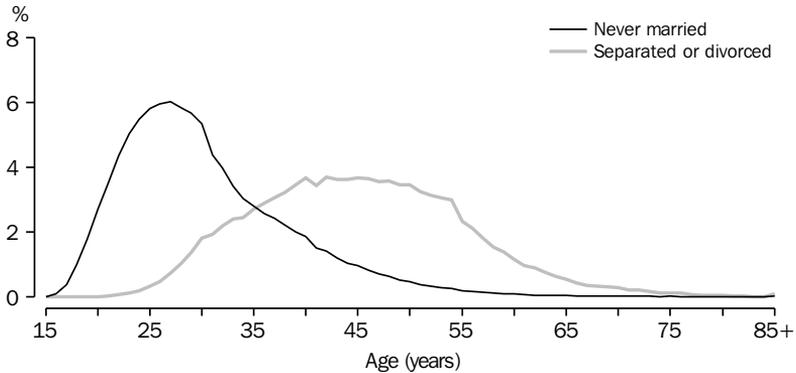
### 5.53 DE FACTO PARTNERS(a)



(a) Opposite-sex couples only.

Source: ABS data available on request, Census of Population and Housing.

### 5.54 PERSONS IN DE FACTO RELATIONSHIPS — 2001



Source: ABS data available on request, 2001 Census of Population and Housing.

## Divorces

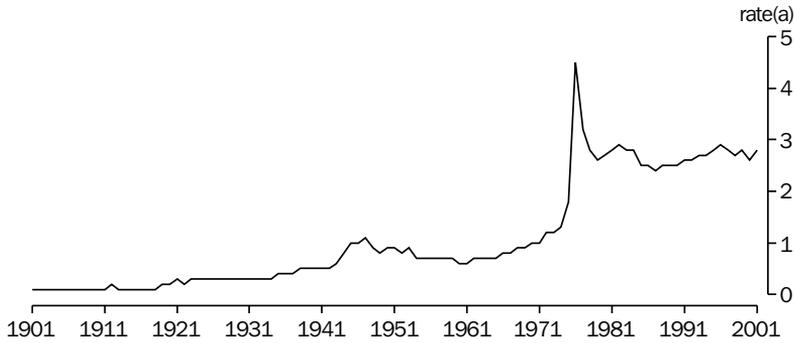
For most of the 20th century there was a slow but steady rise in the divorce rate, increasing from annual averages of 0.1 divorces per 1,000 population between 1901 and 1910 to 0.8 per 1,000 between 1961 and 1970. However, the most important factor involved in the higher divorce rates in the latter quarter of the century was the introduction of the *Family Law Act 1975* (Cwlth) which came into operation on 5 January 1976. This legislation allows only one ground for

divorce: irremediable breakdown of the marriage, measured as the separation of the spouses for at least one year. Following the implementation of this law there was a large increase in the divorce rate in 1976. The rate then declined until 1979 as the backlog of applications was cleared. Since then the crude divorce rate has fluctuated between 2.4 and 2.9 divorces per 1,000 population (graph 5.55).

The crude divorce rate in 2001 (2.9 per 1,000 population) was similar to that in 1981 (2.8 per 1,000 population). However, the divorce rate of the married population revealed a slight increase in divorce over this time. In 2001 there were 13.1 divorces per 1,000 married men or

women compared with 11.9 per 1,000 in 1981. Table 5.56 provides summary measures of divorces granted in census years between 1901 and 1991, and individual years between 1992 and 2001.

### 5.55 CRUDE DIVORCE RATE



(a) Rate per 1,000 population.

Source: *Marriages and Divorces, Australia (3310.0)*.

### 5.56 SELECTED SUMMARY MEASURES OF DIVORCES

	Divorces granted no.	Crude divorce rate(a)	Median age at date decree made absolute	
			Husband years	Wife years
1901	398	0.1	n.a.	n.a.
1921	1 490	0.3	n.a.	n.a.
1933	1 954	0.3	n.a.	n.a.
1947	8 705	1.1	n.a.	n.a.
1954	6 457	0.7	37.8	34.5
1961	6 712	0.6	38.7	35.9
1966	9 859	0.8	40.4	36.9
1971	12 947	1.0	37.9	34.4
1976	63 230	4.5	36.2	33.1
1981	41 412	2.8	35.5	32.8
1986	39 417	2.5	37.5	34.7
1991	45 652	2.6	38.4	35.5
1992	45 729	2.6	38.7	35.9
1993	48 363	2.7	39.3	36.4
1994	48 312	2.7	39.7	36.8
1995	49 712	2.8	40.0	37.1
1996	52 466	2.9	40.2	37.4
1997	51 288	2.8	40.3	37.6
1998	51 370	2.7	40.5	37.8
1999	52 566	2.8	40.9	38.2
2000	49 906	2.6	41.4	38.6
2001	55 330	2.9	41.8	39.1

(a) Per 1,000 population.

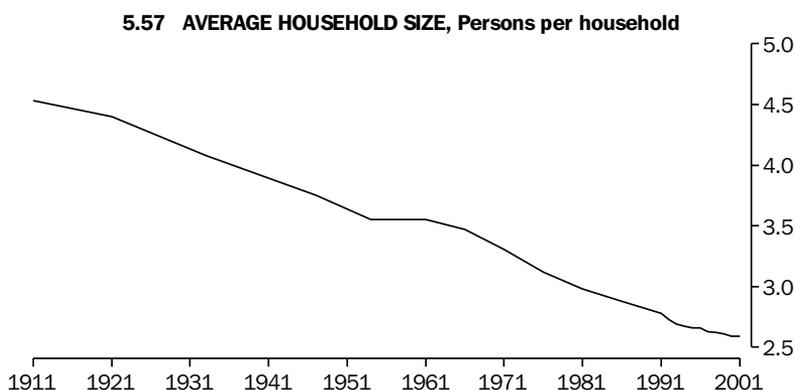
Source: *Australian Demographic Statistics (3101.0)*; *Marriages and Divorces, Australia (3310.0)*.

## Households and families

At 30 June 2001 there were an estimated 7.4 million households in Australia which were home to an estimated 19.1 million people, or 98% of the resident population. Over the past 90 years the number of households has increased by an average 2.4% per year, compared with an average yearly increase in population of 1.6%. This is reflected by the fall in average household size over the period – from 4.5 persons per household in 1911 to 2.6 persons per household in 2001 (graph 5.57). Much of this decline can be attributed to reductions in completed family size and the increase in numbers of one and two-person households. The number of one-person households has grown largely as a result of the ageing of the population, while a combination of ageing, increased childlessness among couples and an increase in the number of one-parent families have contributed to the increase in the number of two-person households.

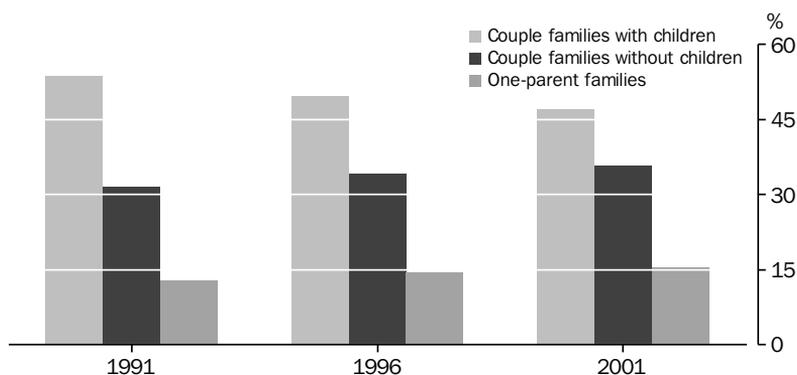
Over the past decade there have been changes in the types of families in Australia. In 1991 there were 4.3 million families counted in the census; by 2001 this number had increased to 4.9 million families. Couple families with children were the most common type of family at both points in time. However, as a proportion of all families they have decreased, from 53.7% (2.3 million families) in 1991 to 47.0% (also 2.3 million families) in 2001 (graph 5.58).

Other family types have significantly increased in number over the past 10 years. The number of couple families without children, comprising couples who have not yet had children and also those couples whose children have left home ('empty-nesters'), increased by 30%, from 1.4 million families in 1991 to 1.8 million families in 2001. One-parent families also increased, from 552,000 in 1991 to 763,000 in 2001, an increase of 38%.



Source: Australian Demographic Statistics (3101.0); Census of Population and Housing 1911–1981; ABS data available on request, Household Estimates.

### 5.58 FAMILIES, Selected family types



Source: ABS data available on request, Census of Population and Housing.

## Household and family projections

Household and family projections are estimates of future numbers of households and families, based on assumptions about changing living arrangements of the population. The ABS has published three series (I, II and III) of projections, for the years 2001 to 2026. In Series I the pattern of living arrangements as determined from the 2001 census is the same throughout the projection period. In Series II and III, recent trends in living arrangements are incorporated into the projections. In Series II the rates of change in living arrangements experienced over the past four censuses are applied at reducing levels (in full for 2001 to 2006, then reducing rates thereafter), while in Series III the rate of change between 1986 and 2001 is applied in full throughout the projection period.

It should be noted estimates of the numbers of families in 2001 in the discussion below are derived from 2001 estimated resident population data in conjunction with 2001 census data, and therefore differ from the 2001 census counts of families mentioned above.

## Household types

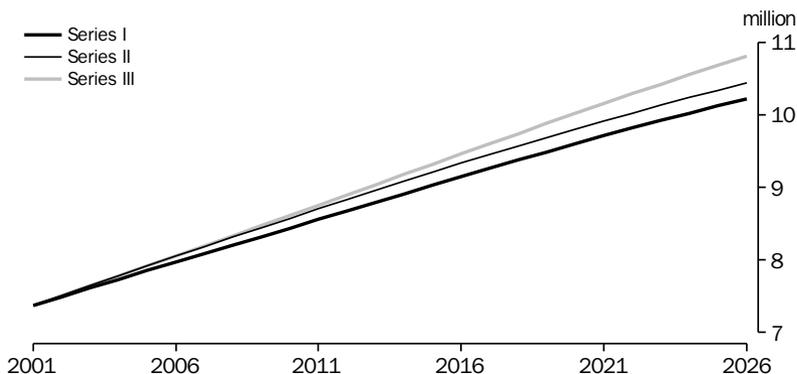
The projections show continuing growth in the number of households in Australia over the period, from 7.4 million in 2001 to between

10.2 million and 10.8 million by 2026 (graph 5.59), representing an overall increase of between 39% and 47% compared with population growth of 25% over the same period. As a result, average household size in Australia is projected to decrease from 2.6 persons per household in 2001 to between 2.2 and 2.3 persons per household in 2026.

The projected decrease in average household size reflects changes in the different types of households over the next 25 years. Lone-person households are projected to increase from 1.8 million in 2001 to between 2.8 million and 3.7 million in 2026, to comprise just over a quarter (28%) to a third (34%) of all households in 2026, compared with a quarter (25%) in 2001. The ageing of the population, increases in separation and divorce, and the delay of marriage are some of the factors contributing to the growth in lone-person households.

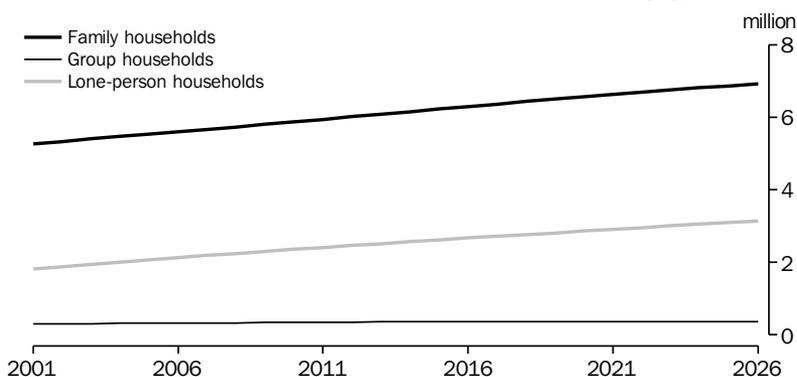
While lone-person households are projected to grow the fastest of all household types, family households are projected to remain the most common household type, increasing from 5.3 million in 2001 to between 6.7 million and 7.0 million in 2026 (between 62% and 69% of all households in 2026, compared with 72% in 2001) (graph 5.60).

### 5.59 PROJECTED NUMBER OF HOUSEHOLDS



Source: Household and Family Projections, Australia, 2001 to 2026 (3236.0).

### 5.60 PROJECTED NUMBER OF HOUSEHOLDS, SERIES II, By type



Source: Household and Family Projections, Australia, 2001 to 2026 (3236.0).

## Family types

Between 2001 and 2026 the number of couple families with children is projected to increase only slowly in both Series I and II and to decrease in Series III, reflecting a gradual trend away from this type of family. This trend is related to increasing numbers of couple families without children (as a result of the ageing of the population, declining fertility and delayed childbirth) and increasing numbers of one-parent families (as a result of increased family break-up). In 2001 there were

2.5 million couple families with children, accounting for just under half (47%) of all families in Australia. In Series I, which assumes current living arrangements of the population continue until 2026, this number is projected to increase to 3.0 million in 2026 (42% of all families), while in Series III, which assumes changes in living arrangements observed between 1986 and 2001 continue at the full rate until 2026, the number is projected to decrease to 2.0 million (30% of all families) (table 5.61).

Couple families without children are projected to experience the largest and fastest increases of all family types in Australia. As a result, in Series II and III, couple families without children are projected to outnumber couple families with children in either 2011 or 2010 respectively. From 1.9 million families in 2001 (36% of all families), couple families without children are projected to increase to between 2.9 million and 3.3 million families in 2026 (41% and 49% of all families respectively). This growth is primarily related to the ageing of the population, with 'baby boomers'

becoming 'empty nesters', and to a lesser extent to delayed family formation and declining fertility of younger couples.

One-parent families are projected to increase from 838,000 families in 2001 to between 1.1 million and 1.4 million families in 2026. In 2001 the number of female one-parent families (698,000) was around five times greater than the number of male one-parent families (140,000). This difference is projected to continue throughout the projection period.

### 5.61 HOUSEHOLD AND FAMILY PROJECTIONS

	2001 '000	2026			Change from 2001 to 2026		
		Series I '000	Series II '000	Series III '000	Series I %	Series II %	Series III %
<b>Households</b>							
Family	5 269	7 030	6 920	6 715	33	31	27
Group	293	346	371	404	18	27	38
Lone-person	1 805	2 842	3 149	3 693	57	74	105
<i>Total</i>	7 368	10 218	10 441	10 812	39	42	47
<b>Families</b>							
Couple families with children	2 492	2 976	2 610	2 010	19	5	-19
Couple families without children	1 918	2 949	3 108	3 312	54	62	73
<b>One-parent</b>							
Male	140	188	203	223	35	45	60
Female	698	894	990	1 146	28	42	64
<i>Total</i>	838	1 082	1 192	1 369	29	42	63
<b>Other families</b>							
Other families	99	126	111	122	28	13	24
<i>Total</i>	5 346	7 133	7 022	6 814	33	31	27
<b>Population</b>	19 413	24 202	24 202	24 202	25	25	25

Source: Household and Family Projections, Australia, 2001 to 2026 (3236.0).

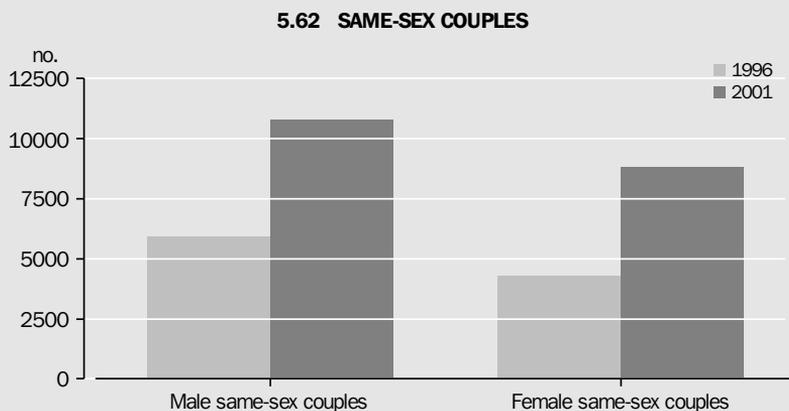
## Same-sex couple families

Same-sex couples are defined as persons of the same sex living together in the same household and reporting a de facto relationship. They have been enumerated in the 1996 and 2001 Censuses of Population and Housing. Examination of same-sex data from the census may have some limitations, including reluctance to identify as being in a same-sex de facto marriage and lack of knowledge that same-sex relationships would be counted as such in the census. The doubling of same-sex couples counted in the census from 10,000 in 1996 to 20,000 in 2001 (graph 5.62) suggests an increase in those willing to identify as partners in a same-sex relationship.

The legal status of same-sex partnership has undergone changes in recent years. Currently, New South Wales, Victoria, Queensland, Western Australia, Tasmania and the Australian Capital Territory legally recognise same-sex couples in matters of superannuation, hospital and coronial rights, property settlement, taxation, compensation payments and wills and estates. While South Australia and the Northern Territory do not currently have partnership laws for same-sex couples, legislation is being considered by parliament in both jurisdictions (Greig 2003).

The 2001 census identified 11,000 male same-sex couples and 9,000 female same-sex couples in Australia. Nationally, same-sex couple families represented 0.1% of couples with children and 1% of couples without children, or 0.5% of all couple families (table 5.63). The proportion of same-sex couples within the states and territories closely reflected the national distribution, with the exceptions of Queensland and Tasmania (both 0.3% of all couple families) and the Australian Capital Territory (1% of all couple families).

Nationally, same-sex couple families tended to be smaller than opposite-sex couple families, with an average number of residents of 2.1 for female same-sex couples, 2.3 for male same-sex couples and 3.2 for opposite-sex couples in 2001. The proportion of families without children was also higher for same-sex couples, at 95% of male same-sex couples and 81% of female same-sex couples, compared with 43% for opposite-sex couples (graph 5.64). Of the couples with children, a higher proportion of same-sex couples had only one child (49% of male same-sex couples and 54% female same-sex couples compared with 34% of opposite-sex couples).



Source: ABS data available on request, Census of Population and Housing.

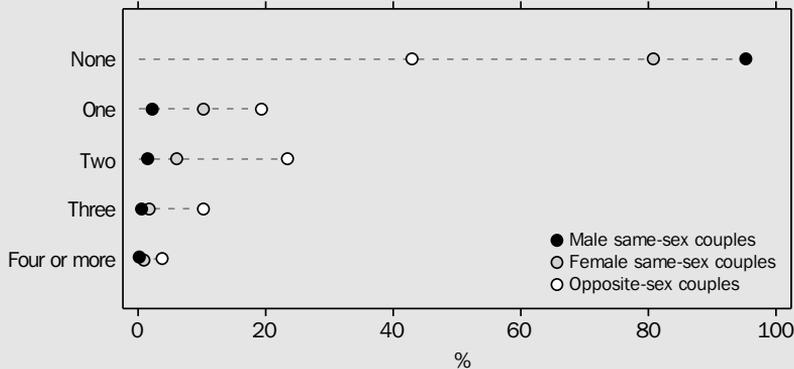
### 5.63 COUPLE FAMILIES — 2001

Family type	Persons(a)				Families
	Partner	Child	Other resident	Total	
<b>Couples with children</b>					
Male same-sex couple	963	829	30	1 822	503
Female same-sex couple	3 276	2 615	55	5 964	1 684
Opposite-sex couple	4 540 143	4 489 576	88 927	9 118 646	2 318 978
<b>Couples without children</b>					
Male same-sex couple	19 748	..	214	19 962	10 299
Female same-sex couple	13 787	..	175	13 962	7 108
Opposite-sex couple	3 423 907	..	51 500	3 475 407	1 746 760
<b>Total couple families</b>					
Male same-sex couple	20 711	829	244	21 784	10 802
Female same-sex couple	17 063	2 615	230	19 908	8 792
Opposite-sex couple	7 964 050	4 489 576	140 427	12 594 053	4 065 738

(a) Excludes persons not usually resident in the family (visitors) and residents absent on census night.

Source: ABS data available on request, 2001 Census of Population and Housing.

### 5.64 NUMBER OF CHILDREN IN COUPLE FAMILIES — 2001



Source: ABS data available on request, 2001 Census of Population and Housing.

In 2001 children in female same-sex couple families were of similar ages to those in opposite-sex couple families, both with a median age of 11 years. There was a higher proportion of children aged 10–14 years (27% compared with 22% for opposite-sex couples), and a lower proportion of children aged 15 years and over (29% compared with 33% for opposite-sex couples). Children in male same-sex couple families had a median age of 13 years, and fewer children aged 0–4 years were present (17% compared with 22% for opposite-sex couples). A higher proportion of adult children aged 15 years and over were present in male same-sex couple families (38%).

Partners in same-sex couples had a younger age distribution than partners in opposite-sex couples (graph 5.65), with 20% of male and 22% of female partners in same-sex marriages aged under 30 years, compared with 11% of partners in

opposite-sex couples. Persons aged 65 years and over comprised 3% of male same-sex partners and 1% of female same-sex partners, compared with 15% of opposite-sex partners.

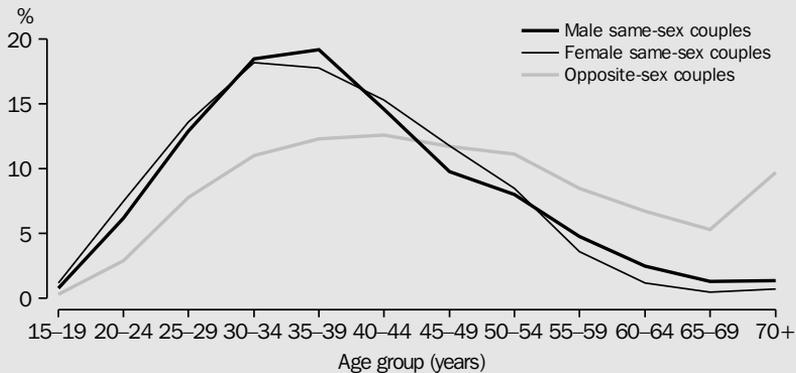
Few same-sex couple families lived in multiple family households in 2001, at 0.7% of male and 0.5% of female same-sex couples. Comparatively, 2.5% of opposite-sex couples lived in multiple family households. Same-sex families were more mobile in the five years prior to the 2001 census, with 31% of male and 27% of female same-sex partners stating they had not moved within the previous five years, compared with 57% of opposite-sex partners.

The proportion of families with children with a child absent on census night in 2001 was 9% for same-sex couple families compared with 5% for opposite-sex couple families. This was influenced by the registered marital status of partners in

same-sex couples. A third (33%) of same-sex partners in families with children were separated or divorced, compared with 3% of partners in opposite-sex couples with children. A further 18% of same-sex partners with children reported they were registered as married. It is probable children in these families had a greater likelihood of visiting a parent on census night than children in opposite-sex couple families. Overall, the majority of same-sex partners reported they had never been married (82% of male and 74% of female same-sex partners) (graph 5.66).

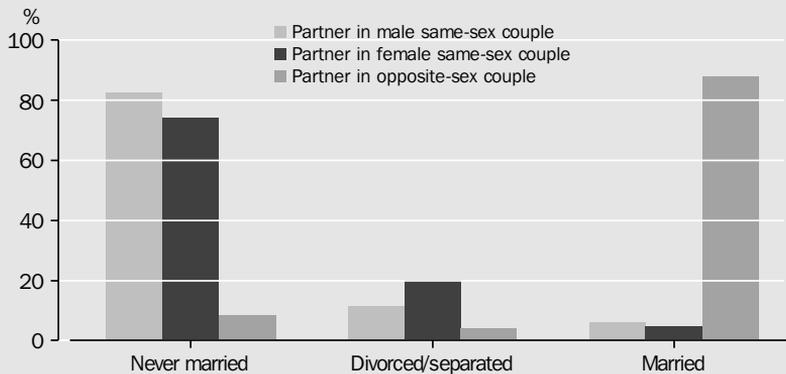
For same-sex couples, 92% of families had at least one partner employed in 2001. In comparison, 75% of opposite-sex couples had at least one partner employed. The level of employment among same-sex couples is in part due to the age distribution of the partners in these relationships, with considerably fewer people of retirement age. The level of employment within same-sex couples is also reflected in the median weekly family income for families with positive stated income, at \$1,588 for male same-sex couples and \$1,422 for female same-sex couples compared with \$1,046 for opposite-sex couples.

**5.65 AGE OF PARTNERS, By family type — 2001**



Source: ABS data available on request, 2001 Census of Population and Housing.

**5.66 REGISTERED MARITAL STATUS OF PARTNERS IN COUPLE FAMILIES — 2001**



Source: ABS data available on request, 2001 Census of Population and Housing.

## References

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## Citizenship

Citizenship is a relatively recent concept for Australia as a nation, having its origins in the *Australian Citizenship Act 1948* (Cwlth). Prior to this, Australians were British subjects. Since the inception of the *Australian Citizenship Act* (Cwlth) in January 1949, more than three million people born overseas have acquired Australian citizenship. For these people, citizenship is voluntary, expressing a commitment to the laws and principles of Australia, and respect for its land and its people. It confers the opportunity to participate more fully in Australian society, giving the right to vote, to apply for public office, and to hold an Australian passport and therefore leave and re-enter Australia freely.

Australian citizenship law and policy have been amended many times since their inception to reflect a more inclusive approach to the acquisition of Australian citizenship, with recent changes in policy towards creating more opportunities for young adults to acquire citizenship (Department of Immigration and Multicultural and Indigenous Affairs (DIMIA), *Australian Citizenship*). All migrants who meet set criteria are encouraged to become Australian citizens. Children born in Australia acquire Australian citizenship at birth if at least one parent is an Australian citizen or a permanent resident of Australia, and children born overseas may be registered as having Australian citizenship by descent if at least one of their parents is an Australian citizen.

The 2001 Census of Population and Housing indicated that almost three-quarters (74%) of people born overseas who had been resident in Australia for two years or more were Australian citizens. There were high proportions of Australian citizens among people born in Greece (97%). However, this citizenship rate is influenced by the age and period of residence of people from Greece. For Australians born in Greece, most (83%) arrived in Australia in 1970 or earlier and three-quarters are aged 50 years and over. The longer overseas-born people reside in Australia, and consequently the older they get, the more likely it is that they have acquired Australian citizenship.

Standardising gives the rates that would be expected if a given overseas-born population had the same profile of age and period of residence in Australia as the total overseas-born population (table 5.67). Based on standardised rates, people born in the Philippines, Vietnam and China were the most likely to become Australian citizens. Unstable or changing political conditions in these countries may result in a greater desire for Australian citizenship than for people born in other countries.

In contrast, people born in the United Kingdom and New Zealand were less likely to be Australian citizens. This may be because 'the shared language, and strongly similar legal, political, and industrial arrangements of Australia and the other Anglo-American countries lead these immigrants to feel less need to make a choice of national identity' (Evans 1988).

### 5.67 CITIZENSHIP RATES, Overseas-born people resident in Australia for two years or more — 2001

Selected birthplace	Persons '000	Citizenship rate(a)	Standardised citizenship rate(b)
		%	%
Philippines	90.4	90.4	92.1
Vietnam	141.8	95.3	91.5
China (excl. SARs & Taiwan Prov.)	114.2	80.3	90.1
Greece	108.3	97.1	89.2
Italy	204.6	79.5	65.2
United Kingdom	951.5	65.6	64.3
Germany	100.5	76.5	59.7
Netherlands	78.7	78.3	55.5
New Zealand	281.5	37.7	45.3
<b>All overseas born(c)</b>	<b>3 560.3</b>	<b>74.4</b>	<b>74.4</b>

(a) People for whom citizenship was not stated were excluded prior to the calculation of percentages. (b) The rates of citizenship that would be expected if a given overseas-born population had the same age and period of residence profile as the total overseas-born population. (c) Excludes people whose birthplace was not stated, inadequately described, n.e.c. or at sea.

Source: ABS data available on request, 2001 Census of Population and Housing.

Despite their comparatively low rate of take-up of citizenship, Australian residents born in the United Kingdom and New Zealand were the two largest groups among the 79,200 people granted Australian citizenship in 2002–03 (table 5.68). This is in keeping with the large numbers of United Kingdom and New Zealand-born people resident in Australia. Former British, Irish and New Zealand citizens have been among the largest sources of Australian citizens since the early-1970s, when legislative changes and visa requirements prompted many Commonwealth citizens living in Australia to apply for Australian citizenship. Other residents who were granted Australian citizenship in 2002–03 were likely to have come from Asian countries, such as China, India, Vietnam, Philippines and Malaysia (together comprising 21% of citizenship grants), and citizens of South Africa (5%), Fiji (2%), Iraq (2%) and Bosnia and Herzegovina (2%). These figures reflect immigration from these countries in recent years, with China, South Africa, India and the Philippines in the top 10 birthplace groups of overseas-born people who had arrived in Australia between 1996 and 2001.

**5.68 FORMER NATIONALITY, People granted Australian citizenship — 2002–03**

Country of former nationality or citizenship	no.	%
United Kingdom	14 854	18.8
New Zealand	13 994	17.7
China(a)	7 126	9.0
South Africa	3 998	5.1
India	3 051	3.9
Philippines	2 885	3.6
Vietnam	1 676	2.1
Malaysia	1 619	2.0
Fiji	1 509	1.9
Iraq	1 502	1.9
Bosnia-Herzegovina	1 475	1.9
Sri Lanka	1 328	1.7
United States of America(b)	1 194	1.5
Taiwan	1 116	1.4
Yugoslavia, Federal Republic of(c)	1 036	1.3
Lebanon	947	1.2
Iran	928	1.2
Indonesia	830	1.0
Italy	786	1.0
Pakistan	781	1.0
Other/not stated	16 529	20.8
<b>Total</b>	<b>79 164</b>	<b>100.0</b>

(a) Including citizens of Hong Kong and Macau SARs but excluding those of Taiwan. (b) Includes American Samoa. (c) Now referred to as Serbia and Montenegro.

Source: Department of Immigration and Multicultural and Indigenous Affairs, 'Annual Report, 2002–03'.

## Languages

Even though English is Australia's national language, due to cultural diversity in the population over 200 languages are spoken in the community. Languages other than English are not only spoken by migrants who have settled in Australia from all over the world, more than 60 different languages are spoken by Aboriginal and Torres Strait Islander Australians. The 2001 census indicated 2.8 million people (16% of the population) spoke a language other than English at home (table 5.69), which represents an increase of 213,100 people or 8% since 1996.

Over 50,000 people spoke an Australian Indigenous language (including Australian Creoles), which equates to 12% of all Indigenous Australians and less than 1% of the total Australian population. Two-thirds of Indigenous people in the Northern Territory and 17% of Indigenous people in South Australia spoke an Indigenous language at home. The three most commonly spoken Indigenous languages were Kriol (an Australian Creole) and two Central Australian languages: Pitjantjatjara and Warlpiri.

In 2001 the five most commonly spoken languages other than English were Italian, Greek, Cantonese, Arabic (including Lebanese) and Vietnamese, with speakers of these languages together comprising 7% of the total population. The popularity of these languages is associated with immigration over the last 50 years from countries where these languages are spoken. While the number of settler arrivals from countries such as Italy and Greece was high at the end of World War II, large numbers of settler arrivals from Lebanon and Vietnam arrived during the 1970s and 1980s, and from China in the 1990s (DIMA, *Immigration: Federation to Century's End, 1901–2000*).

Greek, Arabic and Italian speakers had the largest proportions of Australian-born speakers, reflecting the fact that these languages were mainly brought to Australia 20 or more years ago and have been maintained among their children. Languages spoken by migrants arriving in Australia more recently, such as Mandarin and Filipino, had a smaller proportion of Australian-born speakers.

English proficiency among people who spoke a language other than English at home varied with the age of the speaker and according to whether he or she was born in Australia (table 5.70). Around 88% of all people aged under 25 years

who spoke a language other than English at home spoke English well or very well, compared with 60% of those aged 65 years and over.

People born in Australia who spoke a language other than English at home were generally more likely to speak English well or very well than the

total population speaking a language other than English at home. Overall, 91% of those born in Australia spoke English well or very well, compared with 82% of the total population speaking other than English at home.

### 5.69 PEOPLE WHO SPOKE A LANGUAGE OTHER THAN ENGLISH AT HOME — 2001

	Males	Females	Persons	Proportion born in Australia(a)	Persons as a proportion of population
	'000	'000	'000	%	%
Italian	175.4	178.2	353.6	42.7	2.0
Greek	131.8	132.0	263.7	50.9	1.5
Cantonese	108.2	117.1	225.3	20.0	1.3
Arabic (incl. Lebanese)	108.7	100.6	209.4	43.2	1.2
Vietnamese	86.1	88.1	174.2	25.5	1.0
Mandarin	67.0	72.2	139.3	12.2	0.8
Spanish	45.2	48.4	93.6	22.7	0.5
Tagalog (Filipino)	30.8	48.1	78.9	8.8	0.4
German	35.7	40.8	76.4	19.4	0.4
Macedonian	36.6	35.4	72.0	38.6	0.4
Croatian	35.2	34.6	69.9	34.0	0.4
Polish	27.1	31.9	59.1	20.0	0.3
Australian Indigenous languages	25.1	25.9	51.0	99.6	0.3
Turkish	25.7	25.0	50.7	39.7	0.3
Serbian	24.8	24.4	49.2	22.1	0.3
Hindi	24.4	23.4	47.8	13.5	0.3
Maltese	20.5	20.9	41.4	28.7	0.2
Netherlandic	18.3	21.9	40.2	14.6	0.2
All other languages(b)	352.4	368.5	720.9	19.0	4.0
<b>Total</b>	<b>1 378.9</b>	<b>1 437.6</b>	<b>2 816.5</b>	<b>29.5</b>	<b>15.8</b>

(a) Persons whose birthplace was not stated, inadequately described, n.e.c. or at sea were excluded prior to the calculation of percentages. (b) Excludes languages that were not stated, inadequately described, and non-verbal so described.

Source: ABS data available on request, 2001 Census of Population and Housing.

### 5.70 PROFICIENCY IN ENGLISH, People who spoke a language other than English at home — 2001

	Units	Age group (years)				Total
		0–24	25–44	45–64	65 and over	
Total population speaking other than English at home						
Speaks English well or very well	%	88.1	87.2	77.1	59.9	81.6
Does not speak English well	%	8.4	11.5	20.1	29.5	14.9
Does not speak English at all	%	3.5	1.3	2.8	10.7	3.5
Total	%	100.0	100.0	100.0	100.0	100.0
Total(a)	no.	860 401	930 520	671 549	354 019	2 816 489
Australian-born population speaking other than English at home						
Speaks English well or very well	%	86.7	97.4	92.9	81.3	90.5
Does not speak English well	%	8.6	2.3	6.1	14.2	6.5
Does not speak English at all	%	4.6	0.3	1.0	4.5	3.0
Total	%	100.0	100.0	100.0	100.0	100.0
Total(b)	no.	493 439	259 214	46 531	9 807	808 991

(a) Includes 45,000 people who did not state how well they spoke English. (b) Includes 20,000 people who did not state how well they spoke English.

Source: ABS data available on request, 2001 Census of Population and Housing.

## The population census – a brief history

In 1905, the Parliament of the Commonwealth of Australia passed the *Census and Statistics Act 1905* (Cwlth) and in the following year the Commonwealth Bureau of Census and Statistics (CBCS) was created. The census provided key information to determine the progress of the nation and to set priorities for change. Today, the census retains its importance despite the advent of household surveys capable of greater detail than a census. This is because surveys have significant weaknesses – they are unable to provide quality information about small population groups and small geographic areas and they require a benchmark of the size and composition of the population that can only be practically obtained from a census.

It is the most important source of statistical information in the country ... Without the statistical and other benefits of the census, planning and decision making affecting the lives and welfare of all Australians would be based on inadequate and incomplete data, resulting in many instances in a high level of waste and inefficiency in the allocation of material and human resources (The Law Reform Commission, *Privacy and the Census*, Report No. 12, AGPS, 1979).

### Early Australian censuses

Australia has a history of regular population stocktakes from the time of the first British settlement in Australia. From 1788 stocktakes occurred in the form of musters and victualling lists, maintained to control food stores. In 1828 Australia's first census was held in New South Wales. From then on regular censuses were held in New South Wales and, as they were established, in the other colonies.

In the mid-19th century the colonial statisticians encouraged compatibility between the colonies in their respective censuses, and in 1881 a census was held simultaneously in each of the colonies. When planning for the 1901 census it was clear that Federation was forthcoming, and a uniform census schedule was developed.

Table 5.71 is a time-line of key events in the history of the ABS conducting censuses of the population over the past 100 years.

### A national census in troubled times – 1911 to 1954

The first Australian national census occurred at midnight between 2 and 3 April 1911. Tabulation was carried out almost entirely by hand, with staff sorting over 4 million cards and physically counting them for each tabulation. Results from the 1911 census took a long time to release and were further delayed by World War I.

On two occasions in the first half of the 20th century, the census date itself was delayed by major events – the Depression and World War II. There were four Commonwealth censuses in the first half of the 20th century, compared with nine in the second half.

The 1921 census introduced automatic machine tabulation equipment, hired from England for the census. The next Australian census was held in 1933, delayed due to the Depression. The census due to be held in the early-1940s was also delayed, until 1947, this time by World War II. The year 1954 was chosen for the fifth census as a compromise, falling between 1951 and 1961.

### Back on track – 1961 to 1976

The 1961 census put the 10-yearly cycle back on track and marked the Bureau's first attempt at obtaining a *de jure* measurement of the population (according to place of usual residence rather than place of enumeration). Five years later, the 1966 census was held, resulting in more accurate population estimates between census years.

The 1960s was a time of great change in the Bureau and this was reflected in several changes to the development and processing of the census. Pilot testing of the form occurred for the first time and full family and household coding was introduced. Computers were also introduced to process data, improving data quality and increasing the range of analysis possible.

In 1967 the Commonwealth held a referendum resulting in an amendment of the Constitution, removing the barrier to including Aboriginal

people in the census publications. This allowed the Indigenous population to be included in the 1971 census count. For the 1971 census, the 'race' question was re-designed and methods for remote area collection examined to improve identification of Indigenous origin.

The 1976 census was the largest undertaken, with 53 questions. Due to budgetary restraints, the Bureau was not able to complete normal processing of the data and a 50% sample was processed.

In the 1970s there was public debate about privacy and the census. By 1976 the Treasurer had asked the Law Reform Commission to investigate and make any recommendations it thought necessary. One of the key elements under question was the inclusion of names. Excluding names was found to reduce the accuracy of the data, as individuals were more likely to leave questions blank and post-enumeration surveys would not be possible.

### 5.71 POPULATION CENSUS TIME-LINE

Census year	Other events	Census milestones
1911	1901 – Federation of Australia	First national census developed by the Commonwealth Bureau of Census and Statistics (CBCS).
	1914–18 – World War I	Release of 1911 census results delayed by World War I.
	1915 – War census held	'Personal Card' completed for males aged 18–59 and 'Wealth and Income Card' for persons aged 18 and over.
1921		First use of mechanical tabulation.
	1929 – New York Stock Exchange collapse	1931 census postponed due to the Depression.
1933		Census undertaken for information on the impact of the Depression.
	1939 – War census held – 1939–45 – World War II	'Personal Card' completed for males aged 18–64. National census postponed until after World War II.
1947		'Bread winner' abandoned in favour of 'labour force'.
1954		Census re-aligns with the 10-year cycle. International consultation undertaken.
1961	1961 – First computers introduced to CBCS.	Last census to use mechanical tabulation. State of usual residence is included in the schedule. Sampling techniques used to analyse family data. Census results checked against the Labour Force Survey.
1966		First computers used to process census results. First pretesting of the census form. Complete family and household coding introduced.
	1967 – Referendum passes allowing Indigenous Australians to be legislated for by the Commonwealth Government.	
1971		Indigenous Australians included in the census count.
	1975 – <i>Australian Bureau of Statistics Act</i> (Cwlth) creates an independent authority.	
1976		Australia's largest schedule. Census results processed as a 50% sample due to budgetary restraints.
1981		Extensive publicity campaign. Remote Indigenous form developed. 'Any adult household member' introduced as 'Person 1' on the census schedule.
1986		Field operations undertaken by ABS in Victoria and New South Wales, rather than the Electoral Commission. Persons temporarily absent used to code family type. Electronic products introduced (CD Rom and floppy disk).
1991		Census date changes from 30 June to August to avoid school vacation periods. State offices of ABS manage all field operations. Optical Mark Recognition used to process forms.
1996		Two-stage data release introduced.
2001		Time Capsule Project allows optional retention of name-identified data for release in 2100. Intelligent Character Recognition used to process forms.

Source: ABS population census archives.

## The modern census – 1981 to 2001

New procedures to enumerate Indigenous Australians were developed in 1981, including using Indigenous enumerators and a special form for Indigenous peoples in remote areas. The Bureau also moved from using 'Head of Household' to delineate household relationships to using 'Person 1', who could be any responsible adult.

In 1986 there was a change in census collection procedures with the Bureau taking over the management of New South Wales and Victoria from the Australian Electoral Commission, who had undertaken the distribution and collection of census forms for all censuses since 1921. This was so successful that the Bureau assumed responsibility for all states in subsequent censuses. Aside from a new ancestry question, there were also changes to the language spoken question allowing languages spoken in the home to be identified. A new question on family members temporarily absent allowed improvements in the coding of families.

For the 1991 census, the Bureau moved the date from 30 June to 6 August in order to be clear of all possible school holiday periods. Optical mark recognition was used to capture information on the forms, reducing the data entry required. Computer assisted coding was also used, reducing the coding load and improving consistency.

A two-stage release of data was introduced in 1996, with those topics that could be processed easily released first.

In 2001 each person was given the opportunity to choose to have their personal details preserved for release in 99 years. Over 50% of the Australian population chose to participate in the Time Capsule Project, and on 7 August 2100 their details will become available. The 2001 census used intelligent character recognition to capture details from the form, an improvement over the technology used in 1996 and 1991 where only tick box data could be automatically captured (table 5.72).

### 5.72 SELECTED CHARACTERISTICS OF CENSUSES

Census year	Census date	Number of questions			Approximate number of temporary staff '000	Processing location	Processing technology	Release of data(a)	
		Personal	Dwelling	Total				First data available	All data available
1911	2–3 April	14	5	19	8	Melbourne	Manual – Adding machines, 'Millionaire' multiplication machines	1914	1917
1921	3–4 April	16	10	26	10	Melbourne	Mechanical tabulation	1921	1927
1933	30 June	18	6	24	11	Canberra	Mechanical tabulation	1933	1940
1947	30 June	13	9	22	12	Sydney	Mechanical tabulation	1948	1952
1954	30 June	14	8	22	13	Melbourne, Sydney and Brisbane	Mechanical tabulation – Automated card punching	1954	1962
1961	30 June	15	8	23	15	Sydney	Mechanical tabulation – Automated sort, calculate and punch	1961	1968
1966	30 June	24	9	33	20	Sydney	Computer	1967	1973
1971	30 June	24	14	38	n.a.	Sydney	Computer	1972	1975
1976	30 June	41	12	53	25	Sydney	Computer	1976	1980
1981	30 June	31	4	35	n.a.	Melbourne	Computer	1982	1984
1986	30 June	34	4	38	39	Sydney	Computer	1987	1991
1991	6 August	39	4	43	43	Sydney	Computer – Optical Mark Recognition	1992	1994
1996	6 August	40	7	47	40	Sydney	Computer – Optical Mark Recognition	1997	1998
2001	7 August	43	7	50	42	Sydney	Computer – Intelligent Character Recognition	2002	2002

(a) Dates are based on available publication dates and may not be comprehensive.

Source: ABS population census archives.

## The future of the census

One key change that can be expected is the use of the Internet in the census process. This has the potential to significantly reduce costs, as well as improving the quality of the data collected. Undertaking the census via the Internet may be possible by 2006.

The Census of Population and Housing seems to take on greater significance in terms of its value and uses with each iteration. As the demand for information grows within society, so does the significance of the census. In a world where information abounds and there are often several sources for similar information, there is still no source as comprehensive as a census.

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# Selected findings from the 2002 National Aboriginal and Torres Strait Islander Social Survey

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The 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS), conducted by the Australian Bureau of Statistics (ABS), provides a large and rich source of data on Indigenous people aged 15 years and over. This multidimensional social survey collected information from 9,400 Indigenous Australians across all states and territories of Australia, including people living in remote areas, and builds on the 1994 National Aboriginal and Torres Strait Islander Survey (NATSIS). It is planned to repeat the survey at six-yearly intervals as part of a cycle of Indigenous household surveys being conducted to provide a wide range of information about the well-being, social circumstances and outcomes of Aboriginal and Torres Strait Islander peoples.

This article presents a selection of data available from the 2002 NATSISS, measures of selected changes over the eight years between this survey and the 1994 NATSIS, as well as comparisons with results for the non-Indigenous population from the 2002 ABS General Social Survey (GSS).

## Population context

Aboriginal and Torres Strait Islander peoples comprise 2.4% of the total Australian population. They are a relatively young population with a median age of 20.5 years compared with 36.1 years for the non-Indigenous population and a significant proportion of the Indigenous population (69%) live outside the major urban centres (ABS 2003). In 2002 there were an estimated 282,200 Indigenous people aged 15 years and over with 27% living in remote areas (*Statistical Geography Volume 1, Australian Standard Geographical Classification (ASGC), 2001* (1216.0) for information about remoteness classifications).

## Family and community

Strong family life and involvement with the community are important for the functioning of any society. Participation in social activities and voluntary work, perceptions of neighbourhood problems and the availability of community support can indicate the level of resilience of Indigenous communities.

## Community involvement

In 2002 Indigenous people aged 15 years and over showed high levels of community involvement with 90% reporting they had been involved in social activities in the past three months, 49% had participated in sport or physical recreation activities in the past 12 months and 28% had undertaken voluntary work in the past 12 months. Levels of support within Indigenous communities were also high with nine out of ten Indigenous people reporting, in a time of crisis, they would be able to ask someone outside the household for support. The most common sources of support were family members (80%), friends (55%) and neighbours (20%). Ability to get support in a time of crisis increased steadily with income from 89% of those in the lowest quintile to 96% of those in the two highest income quintiles.

The 2002 NATSISS also provided information on issues which respondents felt were a problem in their neighbourhood. Based on respondents' perceptions, nearly three-quarters (74%) of Indigenous people aged 15 years and over reported the presence of at least one problem in their neighbourhood or community with similar levels reported in remote and non-remote areas. The most commonly reported problems were theft (43%), alcohol (34%), and vandalism, graffiti or damage to property (33%).

## Personal stressors

Overall, 82% of Indigenous people aged 15 years and over in 2002 reported they had experienced at least one life stressor in the past 12 months. The most frequently reported stressors experienced by a respondent or by someone close to them were the death of a family member or close friend (46%), serious illness or disability (31%) and inability to get a job (27%). However, for those living in remote areas, the most frequently reported stressors, after death of a family member or close friend (55%), were overcrowding at home (42%) and alcohol or drug-related problems (37%). Indigenous people aged 18 years and over were almost one-and-a-half times more likely to have experienced at least one life stressor than non-Indigenous people (83% compared with 57%).

## Culture and language

Indicators of Indigenous cultural retention have not shown any decline since 1994. A similar proportion (just over half) of Indigenous people continued to identify with a clan, tribal or language group. There was, however, a decline in the proportion (29% to 22%) of people who lived in homelands and traditional country. In 2002 about seven out of ten Indigenous people aged 15 years and over had attended cultural events in the past 12 months, similar to the situation in 1994. Use of an Aboriginal or Torres Strait Islander

language as the main language spoken at home also remained at 1994 levels (about one in eight Indigenous people). For each of these aspects of cultural attachment, higher rates were reported in remote areas (graph S5.1).

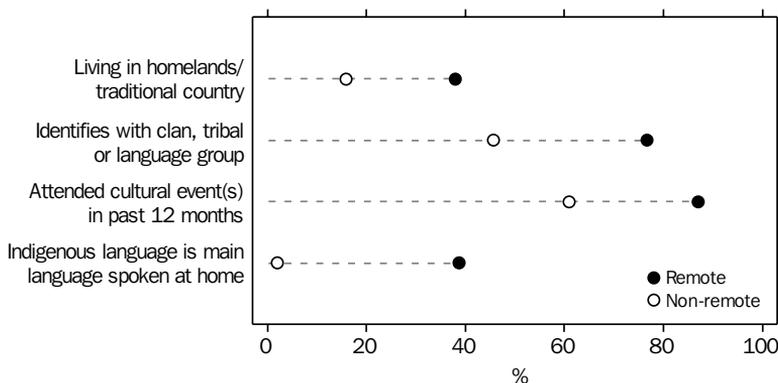
## Health

Previous reports have detailed a number of health concerns among the Aboriginal and Torres Strait Islander population, including high rates of diabetes, heart disease and respiratory conditions (ABS 2002). For remote communities, isolation and limited access to health services may exacerbate these problems.

In 2002 Indigenous people reported their health as either excellent/very good (44%), good (32%) or fair/poor (23%). While the proportion of people who reported excellent/very good health was similar in remote and non-remote areas, those in remote areas were less likely to rate their health as fair/poor (20% compared with 25%).

After adjusting for the different age structures of the Indigenous and non-Indigenous populations, Indigenous people aged 18 years and over were twice as likely as non-Indigenous people to report their health as fair/poor (table S5.2). They were also nearly one-and-a-half times more likely to have a disability or long-term health condition.

S5.1 ASPECTS OF CULTURAL ATTACHMENT BY REMOTENESS(a) — 2002



(a) Indigenous persons aged 15 years or over.

Source: National Aboriginal and Torres Strait Islander Social Survey, 2002 (4714.0).

## S5.2 HEALTH AND DISABILITY OF INDIGENOUS AND NON-INDIGENOUS PERSONS(a) — 2002

	Age-standardised rates			
	Indigenous		Total	Non-Indigenous
	Remote	Non-remote		
	%	%	%	%
Self-assessed health status				
Excellent/very good	34.9	35.4	35.2	58.9
Good	35.6	30.5	31.9	25.0
Fair/poor	29.0	34.1	32.7	16.1
Has a disability or long-term health condition	(b) .	56.6	(b) .	40.1

(a) Persons aged 18 years and over. (b) The disability criteria used in the GSS are only comparable with those used in non-remote areas in the NATSISS.

Source: National Aboriginal and Torres Strait Islander Social Survey, 2002 (4714.0).

## Education

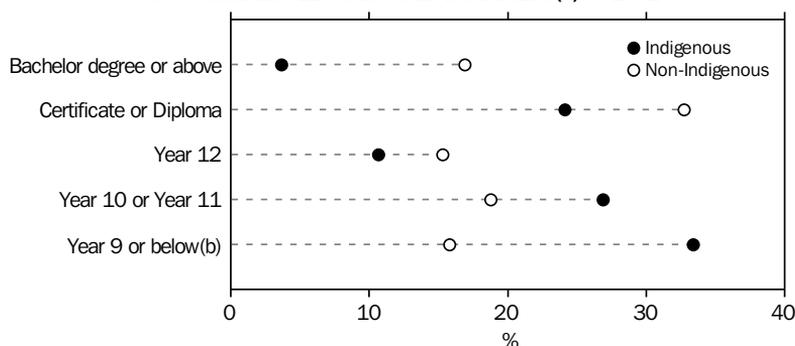
There were gains in the educational attainment of Aboriginal and Torres Strait Islander people between 1994 and 2001. The proportion with a certificate or diploma doubled (from 11% to 22%), while those with a bachelor degree or higher qualification rose from 1% to 3%. Excluding those who had a non-school qualification, the proportion of Indigenous people who had completed Year 12 also increased (from 7% in 1994 to 10% in 2002).

Despite these gains in educational attainment, Indigenous people aged 18 years and over were still far less likely than non-Indigenous people to have a non-school qualification in 2002 (29% compared with 50%).

## Work

Aboriginal and Torres Strait Islander people generally experience lower levels of labour force participation and higher levels of unemployment than non-Indigenous people. In 2002, after adjusting for the different age structures of the Indigenous and non-Indigenous populations, Indigenous people aged 18 years and over were less likely to be employed than non-Indigenous people (43% compared with 63%). They were also more than twice as likely to be unemployed (9% compared with 4%) and more likely not to be in the labour force (48% compared with 33%).

## S5.3 HIGHEST EDUCATIONAL ATTAINMENT(a) — 2002



(a) Persons aged 18 years and over. (b) Includes people who never attended school.

Source: National Aboriginal and Torres Strait Islander Survey, 2002 (4714.0).

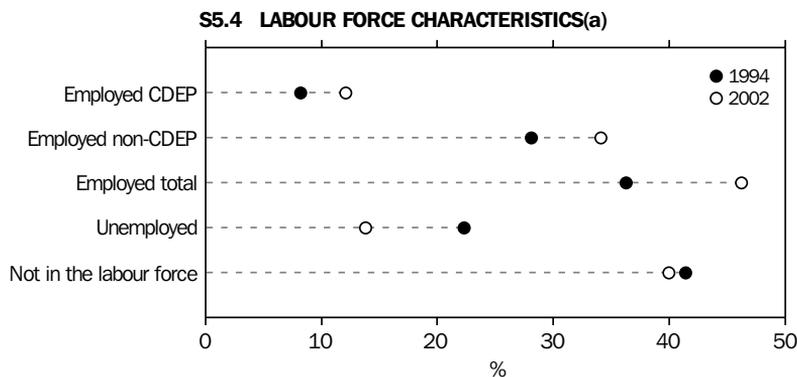
In recognition of the limited employment opportunities in remote areas, the Community Development Employment Projects (CDEP) scheme was established and has since extended into some non-remote areas. By providing Indigenous community organisations with funds to pay participants working on community projects, the scheme provides jobs and training for people who agree to forego an unemployment allowance. While the total proportion of Indigenous people in the labour force remained constant at around 60% in both 1994 and 2002, there were marked changes in employment status with the proportion of employed people increasing from 36% to 46%. The CDEP scheme increasingly contributed to Indigenous employment, although the proportion of Indigenous people employed in mainstream jobs also rose (from 28% to 34%) (graph S5.4).

Between 1994 and 2002 the proportion of unemployed Indigenous people fell from 22% to 14% which translates to unemployment rates of 38% in 1994 falling to 23% in 2002. This is consistent with the general decline in national unemployment from 10% in June 1994 to 6% in December 2002. Improvements in long-term unemployment were also evident. In 1994 about half of all unemployed Indigenous people had been unemployed for one year or longer. By 2002 this proportion had reduced to a quarter.

## Income

To allow comparisons of income between households of different size and composition, gross household income is adjusted using an equivalence scale. For a lone-person household, equivalised gross household income is equal to income received. For a household comprising more than one person, it is an indicator of the gross household income that would be required by a lone-person household in order to enjoy the same level of economic well-being as the household in question. For more information see *National Aboriginal and Torres Strait Islander Social Survey, 2002* (4714.0).

In 2002 the mean equivalised gross household income of Indigenous people aged 15 years and over was \$387 per week, up from \$345 per week in 1994. The likelihood of being employed and having non-school qualifications both increased with income. Compared with those in the lowest income quintile, those in the fourth or fifth income quintile were almost five times as likely to be employed (88% compared with 18%) and more than twice as likely to have a non-school qualification (43% compared with 18%).



(a) Indigenous persons aged 15 years and over.

Source: *National Aboriginal and Torres Strait Islander Social Survey, 2002* (4714.0).

Despite increases since 1994, the incomes of Indigenous people in 2002 still fell well below those of non-Indigenous people. The mean equivalised gross household income of Indigenous people aged 18 years and over was \$394 per week, equal to 59% of the corresponding income of non-Indigenous people (\$665 per week). Income data from the 2001 and 1996 censuses confirms that while Indigenous mean equivalised gross household income has increased, the gap between Indigenous and non-Indigenous incomes has not narrowed (*Population Characteristics, Aboriginal and Torres Strait Islander Australians, 2001* (4713.0)).

## Housing

In 2002 the majority (70%) of Indigenous people were living in rented dwellings. The proportion renting was higher in remote areas (86%) where the majority of Indigenous people (64%) were living in accommodation provided by Indigenous Housing Organisations or in other community housing. Overall, about a quarter (27%) of Indigenous people were living in dwellings either owned or being purchased in 2002 (up from 22% in 1994) (table S5.5).

Overall, 40% of Indigenous people reported they were living in a dwelling which had major structural problems (58% in remote areas and 32% in non-remote areas), and 63% were living in dwellings where repairs and maintenance had been carried out in the previous year (52%

in remote areas and 67% in non-remote areas). Overcrowding was much more prevalent in remote areas, with just over half (52%) of people living in dwellings that needed at least one extra bedroom, compared with 16% of people in non-remote areas. Of those living in overcrowded dwellings in 2002, nearly half (44%) reported stress from overcrowding at home in the past 12 months. For more information on the measurement of overcrowding see *National Aboriginal and Torres Strait Islander Social Survey, 2002* (4714.0).

## Law and justice

### Victimisation

In 2002, 24% of Indigenous people aged 15 years and over reported they had been a victim of physical or threatened violence in the past 12 months, nearly double the rate reported in 1994 (13%). However, some of this increase may reflect under-reporting by respondents to the 1994 NATSIS. Rates of victimisation were similar for people living in remote and non-remote areas (23% compared with 25%) and for men and women overall (26% compared with 23%). Rates of reported victimisation were higher among younger people (graph S5.6), unemployed people (38%) and those who reported that they had first been formally charged before the age of 17 years (44%).

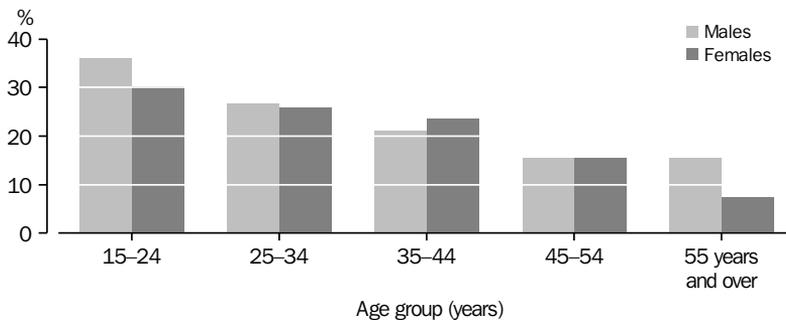
### S5.5 HOUSEHOLD TENURE TYPE(a)

Household tenure type	Units	2002			Total
		1994	Remote	Non-remote	
<b>Owner</b>					
Owner without a mortgage	%	10.9	3.8	12.0	9.7
Owner with a mortgage	%	10.8	4.8	21.3	16.8
<b>Renter</b>					
State/territory housing authority	%	33.3	13.2	25.4	22.1
Indigenous housing organisation/community housing	%	18.7	63.9	9.3	24.3
Other landlord types	%	18.7	8.5	28.9	23.3
<i>Total</i>	%	71.2	85.6	63.7	69.7
<b>Total</b>	'000	<b>214.6</b>	<b>77.1</b>	<b>205.1</b>	<b>282.2</b>

(a) Indigenous persons aged 15 years and over.

Source: *National Aboriginal and Torres Strait Islander Social Survey, 2002* (4714.0).

### S5.6 VICTIMS OF PHYSICAL OR THREATENED VIOLENCE IN PAST 12 MONTHS(a) — 2002



(a) Indigenous persons aged 15 years and over.

Source: National Aboriginal and Torres Strait Islander Social Survey, 2002 (4714.0).

After adjusting for age differences between the Indigenous and non-Indigenous populations, Indigenous people aged 18 years and over experienced double the victimisation rate of non-Indigenous persons (20% compared with 9%). These data are consistent with the very much higher rates in the Indigenous population of both hospitalisation and mortality due to assault (ABS & AIHW 2003).

### Involvement in the criminal justice system

The proportion of Indigenous people who reported having been arrested at least once in the past five years declined by about a fifth between 1994 and 2002 (from 20% to 16%). In 2002, 7% of Indigenous people aged 15 years

and over reported they had been incarcerated in the past five years. Males were far more likely than females to report they had been arrested (24% compared with 9%) and incarcerated (11% compared with 3%) in the past five years.

The data presented in this article represent only some of the insights that can be obtained from the NATSISS. Other topics covered in the survey include transport, alcohol consumption, smoking, child care, computer and Internet use, educational participation, mobility, substance use, removal from natural family, and use of legal services. Readers interested in undertaking further analysis of the data are referred to the *National Aboriginal and Torres Strait Islander Social Survey: Data Reference Package, 2002* (4714.0.55.002).

### References

ABS (Australian Bureau of Statistics)

2001, *Statistical Geography, Volume 1: Australian Standard Geographical Classification (ASGC), 2001*, cat. no. 1216.0, ABS, Canberra

2002, *National Health Survey: Aboriginal and Torres Strait Islander Results, Australia, 2001*, cat. no. 4715.0, ABS, Canberra

2003, *Population characteristics, Aboriginal and Torres Strait Islander Australians, Australia, 2001* cat. no. 4713.0, ABS, Canberra

*National Aboriginal and Torres Strait Islander Social Survey: Data Reference Package, 2002*, cat. no. 4714.0.55.002, ABS, Canberra

*National Aboriginal and Torres Strait Islander Survey, 2002*, cat. no. 4714.0, ABS, Canberra

*Population Characteristics, Aboriginal and Torres Strait Islander Australians, 2001*, cat. no. 4713.0, ABS, Canberra

ABS & AIHW 2003 (Australian Bureau of Statistics and Australian Institute of Health and Welfare) 2003, *Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples, 2003*, cat. no. 4704.0, ABS, Canberra



# 6

## LABOUR

The information contained in this chapter presents a picture of the labour market in Australia. Unlike other statistics that have a particular economic or social focus, labour statistics cut across both dimensions, and in so doing they provide useful insights into economic and community life in Australia.

This chapter provides a broad overview of the Australian labour market. It briefly describes key labour statistics concepts and measures (e.g. employment, unemployment, job vacancies, earnings, industrial disputes); highlights the main features of the Australian labour market in 2003–04; examines developments in the Australian labour market over the medium- and long-term; and presents more detailed analysis of a number of issues impacting on the Australian labour market.

The chapter contains five articles: *Labour force experience*; *Working arrangements*; *Young people in employment*; *Mature age workers*; and *Labour costs*. It concludes with an article *History of the monthly Labour Force Survey*, which outlines the history of this major household survey. The survey has provided the basis on which the Australian Bureau of Statistics (ABS) has built an extensive program of labour and social surveys of the population.



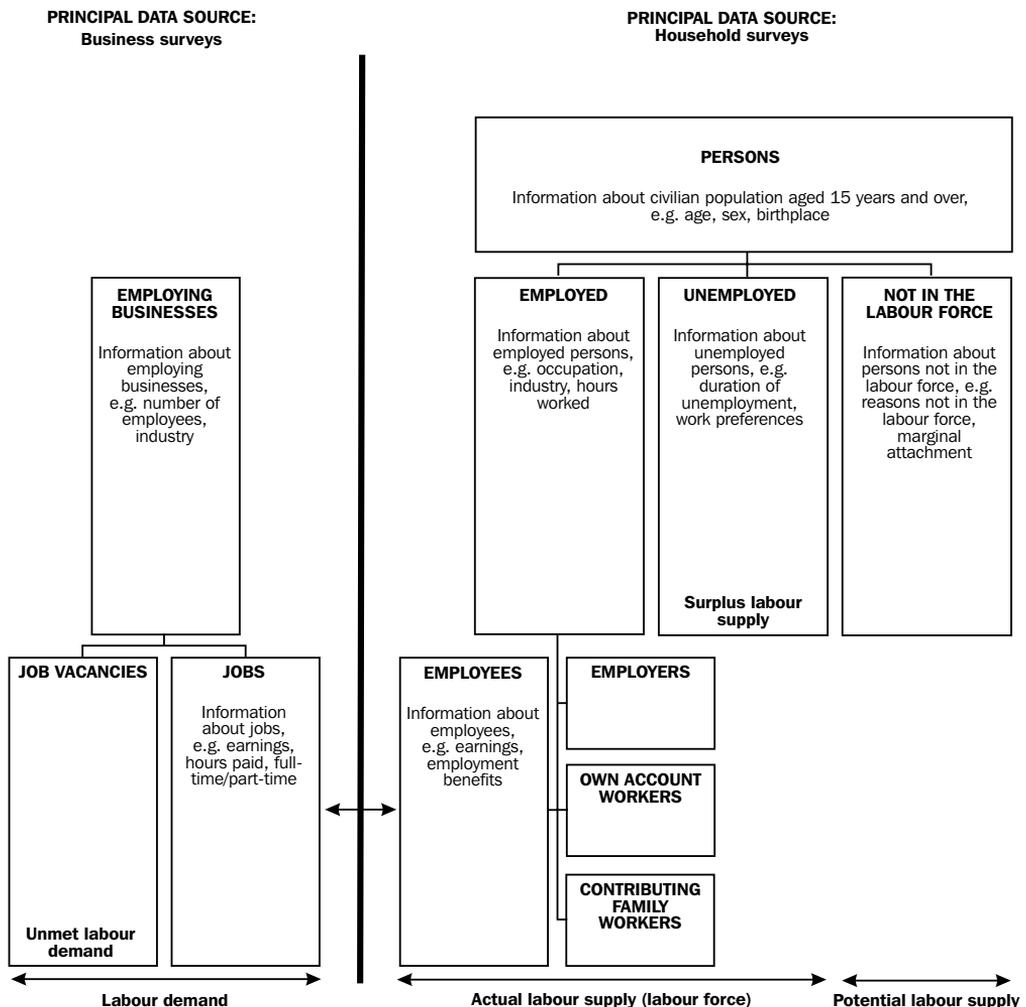
# Labour market statistics

Most labour market statistics focus on some aspect of labour demand or labour supply. In Australia, business surveys are the primary source of data on labour demand. The types of data collected through business surveys include labour costs, earnings and job vacancies. Population censuses and household surveys constitute the primary sources of information about the size and characteristics of labour supply. Information obtained through these types of collections includes data on current and previous labour force experience, as well as demographic data such as

age, sex, family type and country of birth. Diagram 6.1 illustrates how labour statistics, from ABS household and business surveys, relate to the labour market.

The concepts and definitions underlying Australian labour statistics are based on the conventions, recommendations and guidelines developed and maintained by the International Labour Organisation and the United Nations Statistical Office. Australian labour statistics comply in almost every respect with these international standards.

## 6.1 THE AUSTRALIAN LABOUR STATISTICS FRAMEWORK



Source: *Labour Statistics: Concepts, Sources and Methods* (6102.0.55.001).

## Labour force

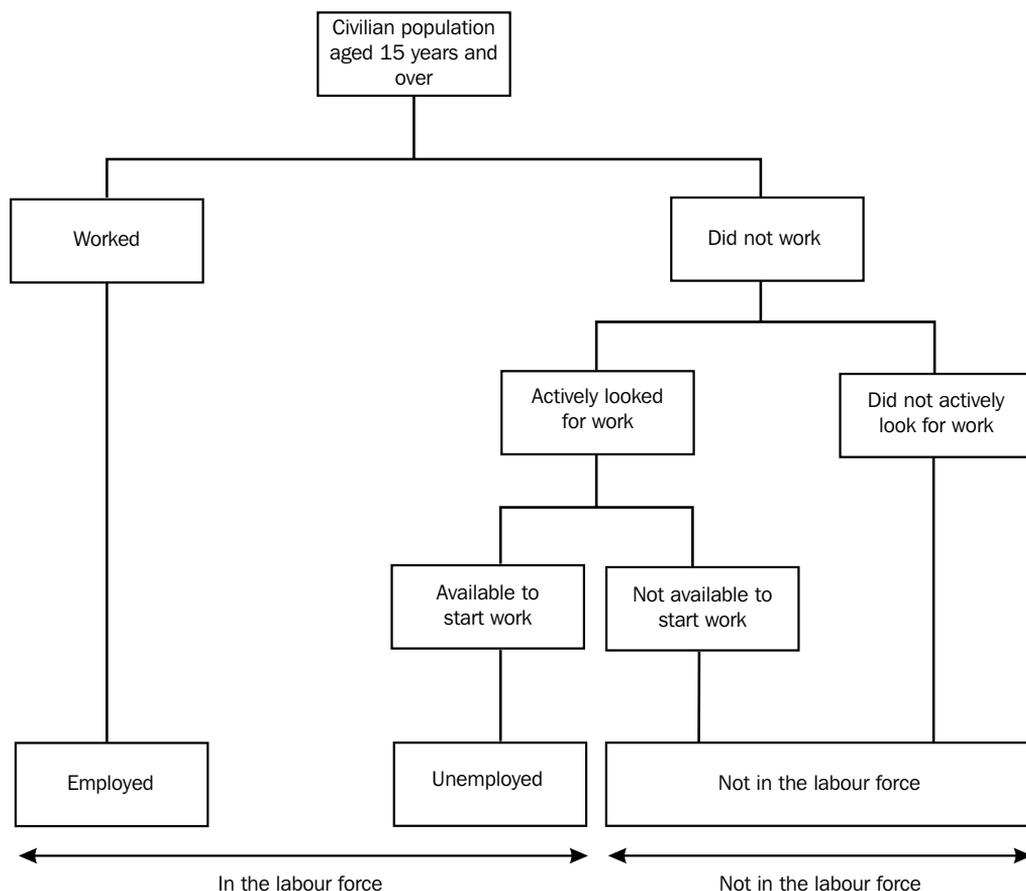
The labour force represents the key official measure of the total supply of labour available to the labour market during a given short reference period. It represents the labour available for the production of economic goods and services. Therefore, persons in the labour force are also referred to as the ‘currently economically active population’.

The Australian labour force framework classifies persons into three mutually exclusive categories: employed; unemployed; and not in the labour force. The employed and unemployed categories together make up the labour force which gives a measure of the number of persons contributing to, or willing to contribute to, the supply of

labour. The third category (not in the labour force) represents the currently inactive population. This framework is illustrated in diagram 6.2. Further details about the Australian labour force framework, and the specific criteria for classifying persons to these three basic categories, are available in *Labour Statistics: Concepts, Sources and Methods* (6102.0.55.001).

For the purpose of compiling Australian labour force statistics, the population is restricted to persons in the civilian population aged 15 years and over. This practice is consistent with international guidelines for the collection of labour statistics.

### 6.2 THE AUSTRALIAN LABOUR FORCE FRAMEWORK(a)



(a) The rules for determining whether a person is classified as employed, unemployed or not in the labour force are detailed in ‘Labour Statistics: Concepts, Sources and Methods’ (6102.0.55.001), paragraphs 2.12 to 2.23.

Source: *Labour Statistics: Concepts, Sources and Methods* (6102.0.55.001).

## Characteristics of the labour force

The size and composition of the labour force are constantly changing. Changes in the size of the labour force are caused by changes in labour force participation as well as changes in the size and composition of the adult population. Between June 2003 and June 2004 the labour force grew by 1.5%. During the same period the civilian population aged 15 years and over grew 1.6%. The similarity in these rates indicates there was little change in the labour force participation rate over this period.

The labour force participation rate is one of the most important indicators for analysing the overall level of labour market activity. The participation rate is calculated by dividing the total number of persons in the labour force by the total number of persons in the civilian population aged 15 years and over. Analysis of participation rates, particularly in terms of age, sex and family type, provides the basis for monitoring changes in the size and composition of the labour supply.

During the past two decades the overall labour force participation rate has increased slowly, rising from a level of 60.5% in 1983–84 to 63.5% in 2003–04. The main force behind the long-term rise in the labour force participation rate has been an increase in the female participation rate. The female participation rate increased from 45.0% in 1983–84 to 55.6% in 2003–04. In contrast, the male participation rate fell from 76.5% to 71.6%

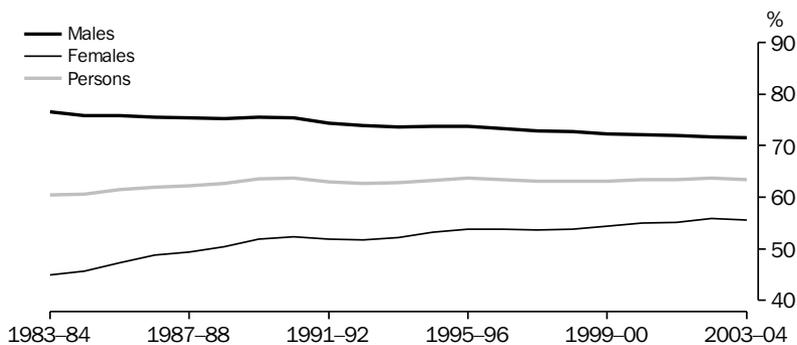
over the same period. Graph 6.3 shows male and female participation rates between 1983–84 and 2003–04, and illustrates the convergence of male and female participation rates over time.

Underlying these contrasting trends in male and female participation rates are varying movements in the age-specific participation rates. As seen in table 6.4, male and female participation rates are similar in the 15–19 year age group. Participation rates for males and females then rise as young people move from education and training to employment. For males, participation rates peak in the 25–34 and 35–44 year age groups, while female participation rates peak in the 20–24 year age group.

Age-specific participation rates for women between 1983–84 and 2003–04 indicate more women are remaining in the labour force during the child-bearing years. In 1983–84, the female participation rate fell from 73.0% for the 20–24 year age group to 54.1% for the 25–34 year age group, a fall of 18.9 percentage points. In 2003–04 the female participation rate fell from 77.1% for the 20–24 year age group to 70.8% for the 25–34 year age group, a fall of 6.3 percentage points.

Participation rates for men declined between 1983–84 and 2003–04 for almost all age groups. The exceptions were men aged 55–64 years (62.7% to 64.2%) and men aged 65 years and over (9.3% to 10.2%).

**6.3 LABOUR FORCE PARTICIPATION RATES(a)**



(a) Annual averages.

Source: *Labour Force, Australia, Detailed - Electronic Delivery* (6291.0.55.001).

Table 6.5 shows changes in labour force status (i.e. employed, unemployed, not in the labour force) between 1998–99 and 2003–04. During this period the total number of persons employed grew by 10% to 9.6 million. This comprised an increase of 7% in the level of full-time employment and an increase of 20% in the level of part-time employment. Part-time employed persons now account for 28% of all employed

persons. Women dominate the part-time workforce, accounting for 71% of part-time workers.

The unemployment rate fell from 7.4% in 1998–99 to 6.4% in 2000–01, rose to 6.7% in 2001–02 before declining a further 0.9 percentage points to 5.8% in 2003–04. For the first time since 1989–90 the unemployment rate for women was higher than for men in 2003–04 (6.0% compared with 5.6%).

#### 6.4 LABOUR FORCE PARTICIPATION RATES(a), By age group

Age group (years)	Males			Females		
	1983–84	2003–04	Change	1983–84	2003–04	Change
	%	%	%	%	%	%
15–19	61.4	59.0	-4.0	59.6	61.3	2.9
20–24	90.4	84.9	-6.1	73.0	77.1	5.7
25–34	95.4	91.5	-4.1	54.1	70.8	31.0
35–44	95.0	90.8	-4.4	58.1	71.5	23.2
45–54	91.0	87.2	-4.1	49.9	73.4	47.0
55–64	62.7	64.2	2.5	20.7	41.4	100.3
65 and over	9.3	10.2	10.2	2.1	3.2	51.9
<b>Total</b>	<b>76.5</b>	<b>71.6</b>	<b>-6.4</b>	<b>45.0</b>	<b>55.6</b>	<b>23.7</b>

(a) Annual averages.

Source: Labour Force, Australia, Detailed - Electronic Delivery, (6291.0.55.001).

#### 6.5 LABOUR FORCE STATUS(a), Civilian population

	Employed			Unemployed			Labour force '000	Civilian population '000	Unemployment rate %	Participation rate %
	Full-time	Part-time	Total	Full-time	Part-time	Total				
	'000	'000	'000	'000	'000	'000				
<b>MALES</b>										
1998–99	4 293.0	619.0	4 912.0	351.3	51.9	403.2	5 315.3	7 313.1	7.6	72.7
1999–2000	4 351.5	625.7	4 977.2	302.9	55.1	358.0	5 335.3	7 384.3	6.7	72.3
2000–01	4 368.2	674.9	5 043.1	303.5	56.9	360.4	5 403.5	7 490.6	6.7	72.1
2001–02	4 369.4	732.6	5 101.9	317.6	64.7	382.3	5 484.2	7 610.8	7.0	72.1
2002–03	4 425.6	768.3	5 193.9	285.6	63.6	349.2	5 543.1	7 731.4	6.3	71.7
2003–04	4 526.8	781.7	5 308.5	259.1	57.2	316.3	5 624.8	7 854.7	5.6	71.6
<b>FEMALES</b>										
1998–99	2 129.8	1 647.1	3 776.9	192.0	94.4	286.4	4 063.3	7 553.3	7.0	53.8
1999–2000	2 186.0	1 705.5	3 891.5	175.3	92.9	268.3	4 159.7	7 657.3	6.4	54.3
2000–01	2 261.7	1 751.7	4 013.4	162.5	96.6	259.1	4 272.5	7 775.9	6.1	54.9
2001–02	2 225.3	1 840.9	4 066.2	182.1	99.0	281.0	4 347.3	7 892.2	6.5	55.1
2002–03	2 276.5	1 924.2	4 200.7	176.7	98.5	275.2	4 475.9	8 007.3	6.1	55.9
2003–04	2 313.6	1 937.4	4 251.0	170.8	98.9	269.7	4 520.6	8 132.2	6.0	55.6
<b>PERSONS</b>										
1998–99	6 422.8	2 266.1	8 688.9	543.3	146.3	689.6	9 378.5	14 866.4	7.4	63.1
1999–2000	6 537.5	2 331.2	8 868.7	478.2	148.1	626.3	9 495.0	15 041.6	6.6	63.1
2000–01	6 629.9	2 426.7	9 056.5	466.0	153.5	619.5	9 676.0	15 266.5	6.4	63.4
2001–02	6 594.7	2 573.4	9 168.1	499.6	163.7	663.3	9 831.5	15 503.0	6.7	63.4
2002–03	6 702.1	2 692.5	9 394.5	462.3	162.1	624.4	10 018.9	15 738.7	6.2	63.7
2003–04	6 840.3	2 719.1	9 559.5	430.0	156.0	586.0	10 145.5	15 986.9	5.8	63.5

(a) Annual averages.

Source: Labour Force, Australia, Detailed - Electronic Delivery (6291.0.55.001).

Labour force participation, employment and unemployment vary across states and territories, and across capital cities and regional areas. Table 6.6 shows labour force status by state and part of state for 2003–04.

The Northern Territory and Australian Capital Territory had higher participation rates (70.8% and 71.5% respectively) and lower unemployment rates

(5.2% and 3.9%) than any of the states. Tasmania had the lowest participation rate (59.0%) and highest unemployment rate (6.9%).

In New South Wales, Victoria, Queensland and Tasmania, the balance of state had a higher unemployment rate and lower participation rate than the capital city. However, in South Australia, the capital city (Adelaide) had a higher unemployment rate than the balance of state.

### 6.6 LABOUR FORCE STATUS(a), By state and territory — 2003–04

	Employed		Unemployed '000	Labour force '000	Civilian population aged 15 and over '000	Unemploy- ment rate %	Participation rate %
	Full-time '000	Total '000					
<i>Capital city/balance of state</i>							
Sydney	1 564.9	2 082.4	111.3	2 193.6	3 396.8	5.1	64.6
Balance of New South Wales	741.7	1 086.7	75.2	1 162.0	1 973.1	6.5	58.9
<i>New South Wales</i>	2 306.7	3 169.1	186.5	3 355.6	5 370.0	5.6	62.5
Melbourne	1 269.1	1 753.1	101.4	1 854.5	2 903.6	5.5	63.9
Balance of Victoria	419.2	620.4	39.4	659.8	1 082.0	6.0	61.0
<i>Victoria</i>	1 688.3	2 373.4	140.9	2 514.3	3 985.6	5.6	63.1
Brisbane	626.2	867.8	55.4	923.3	1 391.4	6.0	66.4
Balance of Queensland	691.4	977.2	67.4	1 044.5	1 646.4	6.5	63.4
<i>Queensland</i>	1 317.6	1 845.0	122.8	1 967.8	3 037.8	6.2	64.8
Adelaide	361.4	525.8	37.9	563.7	920.2	6.7	61.3
Balance of South Australia	133.0	191.3	10.9	202.2	323.0	5.4	62.6
<i>South Australia</i>	494.4	717.1	48.8	765.9	1 243.1	6.4	61.6
Perth	502.5	717.7	43.5	761.2	1 162.1	5.7	65.5
Balance of Western Australia	184.1	255.0	15.6	270.5	406.4	5.7	66.6
<i>Western Australia</i>	686.7	972.7	59.0	1 031.7	1 568.5	5.7	65.8
Hobart	61.3	89.6	6.0	95.7	162.0	6.3	59.1
Balance of Tasmania	84.4	120.5	9.6	130.1	220.8	7.4	58.9
<i>Tasmania</i>	145.6	210.1	15.6	225.7	382.8	6.9	59.0
<i>Northern Territory</i>	72.5	96.1	5.3	101.4	143.3	5.2	70.8
<i>Australian Capital Territory</i>	128.4	175.9	7.1	183.0	255.9	3.9	71.5
<b>Australia</b>	<b>6 840.3</b>	<b>9 559.5</b>	<b>586.0</b>	<b>10 145.5</b>	<b>15 986.9</b>	<b>5.8</b>	<b>63.5</b>

(a) Annual averages.

Source: Labour Force, Australia, Detailed - Electronic Delivery (6291.0.55.001).

In 2003–04 there were 10.1 million persons in the Australian labour force, of whom 25% were born overseas (table 6.7). The labour force participation rate for persons born overseas was 57.6% compared with 67.3% for persons born in Australia. Migrants from main English speaking countries participated in the labour force at a higher rate than those from other than main English speaking countries. The unemployment rate for migrants from main English speaking countries (4.5%) was lower than that for both persons born in Australia (5.7%) and migrants from other than main English speaking countries (7.1%).

Table 6.8 provides an overview of labour force status of persons at June 2004 according to the family relationship within the household. For couple families with dependants present, 84% of husbands (or male partners) were employed full-time compared with 27% of wives (or female partners) (with a further 36% of wives employed part-time). Just over half of male lone parents with dependants (57%) were employed full-time compared with 22% of female lone parents with dependants. The unemployment rates for husbands and for wives were lower than for all other groups.

## Employed persons

People are considered to be employed if they were in paid work, or helping in a family business, for one hour or more in the reference week. Those people who were absent from work in the reference week are also considered to be employed, unless they had been on unpaid leave for more than four weeks. This section contains information about people who are employed, including whether they worked full-time or part-time, the industry and occupation they worked in, and the characteristics of their employment arrangements.

Relating employment levels to population levels enables evaluation of the strength of job growth compared with population growth. The measure relating these two levels is the employment/population ratio. Its usefulness lies in the fact that, while movements in the employment level reflect net changes in the levels of persons holding jobs, movements in the ratio reflect net changes in the number of persons employed relative to changes in the size of the population.

The overall employment/population ratio rose from 58.4% in 1998–99 to 59.8% in 2003–04 (table 6.9). In 2003–04 the employment/population ratio for males was considerably higher than for females (67.6% compared with 52.3%), which reflects the higher participation of males in the labour force.

### 6.7 LABOUR FORCE STATUS(a), By birthplace(b) — 2003–04

	Employed		Unemployed '000	Labour force '000	Not in labour force '000	Unemployment rate %	Participation rate %
	Full-time workers '000	Total '000					
Born in Australia	5 084.9	7 197.5	434.8	7 632.3	3 716.4	5.7	67.3
Born overseas	1 755.4	2 362.0	151.2	2 513.2	1 850.7	6.0	57.6
Main English speaking countries	742.4	990.7	46.5	1 037.2	577.8	4.5	64.2
Other than main English speaking countries	1 013.0	1 371.3	104.7	1 476.0	1 272.8	7.1	53.7
<b>Total</b>	<b>6 840.3</b>	<b>9 559.5</b>	<b>586.0</b>	<b>10 145.5</b>	<b>5 567.1</b>	<b>5.8</b>	<b>64.6</b>

(a) Annual averages. (b) Excludes persons in institutions.

Source: *Labour Force, Australia, Detailed - Electronic Delivery (6291.0.55.001)*.

## 6.8 LABOUR FORCE STATUS, Relationship in household(a) — June 2004

	Employed		Unem- ployed '000	Labour force '000	Not in labour force '000	Civilian population aged 15 and over '000	Unemploy- ment rate %	Participation rate %
	Full-time	Total						
	'000	'000						
<b>MALES</b>								
Family member	3 708.1	4 355.7	225.0	4 580.8	1 616.4	6 197.2	4.9	73.9
Husband or partner	3 043.5	3 364.2	97.6	3 461.9	1 141.4	4 603.2	2.8	75.2
With dependants	1 745.4	1 869.4	52.8	1 922.3	148.8	2 071.1	2.7	92.8
Without dependants	1 298.1	1 494.8	44.8	1 539.6	992.5	2 532.1	2.9	60.8
Lone parent	77.9	91.3	8.9	100.2	44.0	144.2	8.9	69.5
With dependants	50.3	60.2	7.8	68.0	20.7	88.7	11.4	76.7
Without dependants	27.5	31.1	1.2	32.2	23.3	55.5	3.7	58.1
Dependent student	5.4	194.5	32.0	226.5	264.6	491.1	14.1	46.1
Non-dependent child(b)	501.8	609.2	71.3	680.6	105.8	786.4	10.5	86.5
Other family person	79.6	96.5	15.1	111.6	60.7	172.3	13.5	64.8
Non-family member	692.5	822.8	66.5	889.3	403.8	1 293.1	7.5	68.8
Lone person	445.4	516.8	39.8	556.6	304.6	861.2	7.1	64.6
Not living alone	247.2	306.0	26.8	332.7	99.1	431.9	8.0	77.0
<b>Total</b>	<b>4 400.7</b>	<b>5 178.5</b>	<b>291.6</b>	<b>5 470.1</b>	<b>2 020.2</b>	<b>7 490.3</b>	<b>5.3</b>	<b>73.0</b>
<b>FEMALES</b>								
Family member	1 844.7	3 593.2	211.0	3 804.2	2 629.3	6 433.5	5.5	59.1
Wife or partner	1 351.3	2 542.4	91.7	2 634.1	1 876.8	4 510.9	3.5	58.4
With dependants	545.5	1 265.4	54.4	1 319.8	695.4	2 015.3	4.1	65.5
Without dependants	805.8	1 277.0	37.3	1 314.3	1 181.3	2 495.6	2.8	52.7
Lone parent	164.3	338.4	38.5	376.8	357.9	734.7	10.2	51.3
With dependants	118.4	266.2	34.0	300.2	235.3	535.5	11.3	56.1
Without dependants	45.9	72.2	4.4	76.6	122.6	199.3	5.8	38.5
Dependent student	9.3	254.0	32.9	286.9	223.2	510.0	11.5	56.2
Non-dependent child(b)	272.3	387.9	41.7	429.7	56.3	486.0	9.7	88.4
Other family person	47.5	70.4	6.3	76.7	115.2	191.9	8.2	40.0
Non-family member	400.5	557.2	31.9	589.1	685.6	1 274.7	5.4	46.2
Lone person	258.0	346.7	16.6	363.4	603.1	966.4	4.6	37.6
Not living alone	142.5	210.5	15.2	225.7	82.5	308.3	6.8	73.2
<b>Total</b>	<b>2 245.2</b>	<b>4 150.4</b>	<b>242.9</b>	<b>4 393.3</b>	<b>3 314.9</b>	<b>7 708.2</b>	<b>5.5</b>	<b>57.0</b>
<b>PERSONS</b>								
Family member	5 552.8	7 948.9	436.1	8 385.0	4 245.8	12 630.7	5.2	66.4
Husband, wife or partner	4 394.8	5 906.7	189.3	6 096.0	3 018.1	9 114.1	3.1	66.9
With dependants	2 290.9	3 134.9	107.2	3 242.1	844.3	4 086.3	3.3	79.3
Without dependants	2 103.9	2 771.8	82.1	2 853.9	2 173.9	5 027.8	2.9	56.8
Lone parent	242.1	429.6	47.4	477.0	401.8	878.9	9.9	54.3
With dependants	168.8	326.4	41.8	368.2	256.0	624.1	11.4	59.0
Without dependants	73.4	103.3	5.6	108.9	145.9	254.7	5.1	42.7
Dependent student	14.7	448.5	64.9	513.4	487.7	1 001.1	12.6	51.3
Non-dependent child(b)	774.1	997.2	113.1	1 110.2	162.1	1 272.3	10.2	87.3
Other family person	127.1	166.9	21.4	188.3	175.9	364.3	11.4	51.7
Non-family member	1 093.0	1 380.0	98.4	1 478.4	1 089.4	2 567.8	6.7	57.6
Lone person	703.4	863.5	56.4	919.9	907.7	1 827.6	6.1	50.3
Not living alone	389.7	516.5	42.0	558.5	181.7	740.1	7.5	75.5
<b>Total</b>	<b>6 645.8</b>	<b>9 328.9</b>	<b>534.5</b>	<b>9 863.4</b>	<b>5 335.1</b>	<b>15 198.5</b>	<b>5.4</b>	<b>64.9</b>

(a) Civilians who were residents of private dwellings where family status was determined. Generally relationship in household is determined for more than 90% of all civilians aged 15 years and over in the Labour Force Survey. (b) Aged 15 years and over.

Source: Labour Force, Australia, Detailed - Electronic Delivery (6291.0.55.001).

### 6.9 EMPLOYED PERSONS, Employment/population ratios(a)

	1998–99	1999–2000	2000–01	2001–02	2002–03	2003–04
	%	%	%	%	%	%
Males	67.2	67.4	67.3	67.0	67.2	67.6
Females	50.0	50.8	51.6	51.5	52.5	52.3
<b>Persons</b>	<b>58.4</b>	<b>59.0</b>	<b>59.3</b>	<b>59.1</b>	<b>59.7</b>	<b>59.8</b>

(a) The employment/population ratio for any group is the annual average number of employed persons expressed as a percentage of the annual average civilian population aged 15 years and over in the same group.

Source: Labour Force, Australia, Detailed - Electronic Delivery (6291.0.55.001).

### Full-time and part-time employment

In the ABS Labour Force Survey, employed persons are regarded as either full-time or part-time, depending on the number of hours worked. Full-time workers are those who usually work 35 hours or more per week in all jobs, or, although usually working less than 35 hours a week, actually worked 35 hours or more during the reference week of the Labour Force Survey. Part-time workers are those who usually work less than 35 hours a week and either did so during the reference week, or were not at work during the reference week.

Graph 6.10 shows annual percentage changes in part-time and full-time employment since 1983–84. For most of this period, part-time employment increased at a greater rate than full-time employment. As a result the proportion of part-time employed persons has risen over the period, increasing from 17% in 1983–84 to 28% in 2003–04. However, between 2002–03 and

2003–04, full-time employment increased at a greater rate than part-time employment – the first time since the commencement of the monthly Labour Force Survey in 1978.

Following a period of strong economic growth in the late-1980s and early-1990s, and the subsequent recession of the early-1990s, employment growth fluctuated considerably. In 1988–89 growth in full-time employment peaked at 3.6%. Part-time employment grew strongly in 1989–90, peaking at 8.2%. Subsequently the rate of growth of full-time and part-time employment began to slow. At the onset of the recession in 1990–91, full-time employment fell by 1.6%. The impact of the recession and its effects on the demand for labour intensified in 1991–92 when full-time employment fell more strongly, recording a decrease of 3.4%. At the same time, the rate of growth of part-time employment increased slightly from 3.2% in 1990–91 to 3.8% in 1991–92.

6.10 EMPLOYED PERSONS, Percentage change in annual average employment



Source: ABS data available on request, Labour Force Survey.

A similar pattern was also evident in 2001–02, when a decrease in full-time employment was accompanied by a peak in the growth of part-time employment.

In 2003–04 there were 9.6 million employed persons, with 72% working full-time (table 6.11). Males were far more likely than females to work full-time (85% and 54% respectively). Part-time work was most prevalent among the younger (aged 15–19) and older (65 and over) age groups (67% and 56% respectively). For females, at least a third of each age group worked part-time, with the 20–24 and 25–34 year age groups having the lowest proportion of part-time workers (39% and 35% respectively).

### Employment by industry and occupation

The distribution of employed persons across industries and occupations, and the changes over time, provide an important insight into the structure of the labour market. Graph 6.12 provides information on the proportion of employed persons, by industry, for the years 1988–89 and 2003–04.

Since 1988–89 the industry composition of the labour market has changed considerably. Historically, the manufacturing industry has been the dominant employing industry, but its contribution to the number of employed persons has been declining. As recently as 1990–91, the manufacturing industry was the largest employer. However, it is now third to retail trade, and property and business services industries, which have 15.1% and 11.8% of employed persons respectively. Manufacturing has fallen from 15.9% of all employed persons in 1988–89 to 11.2% in 2003–04. Employment in other traditional commodity-based industries, such as the agriculture, forestry and fishing industry, and mining have also declined over this period.

Over the period 1988–89 to 2003–04, service-based industries have increased their share of employed persons and now include the two largest industries. The increase was greatest for the property and business services industry, from 7.3% to 11.8%, while health and community services has risen from 8.6% to 10.0%, accommodation, cafes and restaurants from 3.8% to 4.9%, and retail trade from 14.1% to 15.1%.

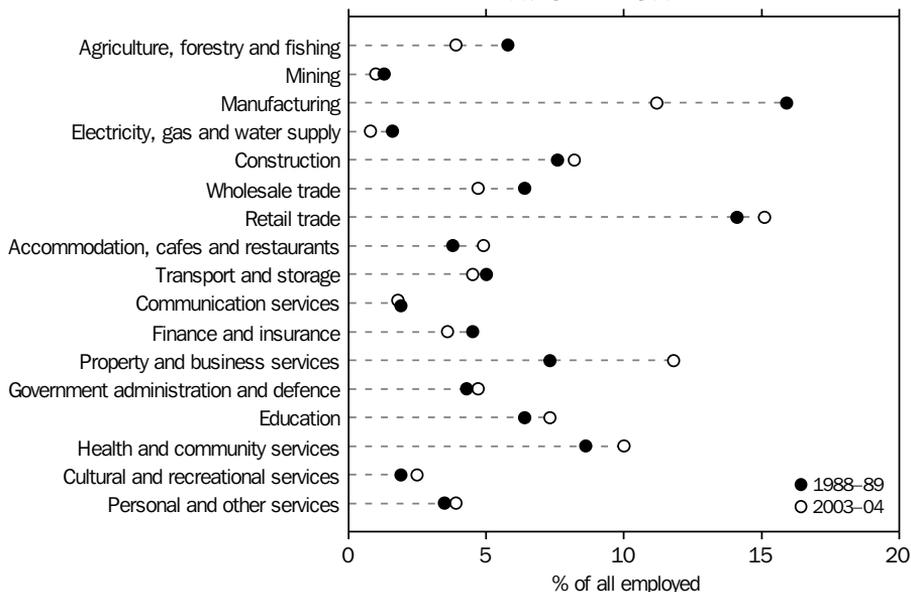
**6.11 EMPLOYED PERSONS(a), Full-time and part-time workers — 2003–04**

	Units	Age group (years)								Total
		15–19	20–24	25–34	35–44	45–54	55–59	60–64	65 and over	
<b>MALES</b>										
Full-time workers	'000	150.4	411.8	1 121.7	1 198.6	1 044.8	369.4	172.1	58.0	4 526.8
Part-time workers	'000	197.8	131.3	108.8	89.3	95.3	52.1	49.0	58.1	781.7
<b>Total</b>	'000	<b>348.2</b>	<b>543.1</b>	<b>1 230.5</b>	<b>1 287.9</b>	<b>1 140.1</b>	<b>421.5</b>	<b>221.1</b>	<b>116.1</b>	<b>5 308.5</b>
Proportion of part-time workers	%	56.8	24.2	8.8	6.9	8.4	12.4	22.2	50.0	14.7
<b>FEMALES</b>										
Full-time workers	'000	84.5	294.9	626.8	529.5	557.6	155.4	51.6	13.3	2 313.6
Part-time workers	'000	268.3	191.1	335.5	491.2	414.8	134.8	69.4	32.3	1 937.4
<b>Total</b>	'000	<b>352.8</b>	<b>486.0</b>	<b>962.3</b>	<b>1 020.7</b>	<b>972.4</b>	<b>290.2</b>	<b>121.0</b>	<b>45.6</b>	<b>4 251.0</b>
Proportion of part-time workers	%	76.0	39.3	34.9	48.1	42.7	46.5	57.4	70.8	45.6
<b>PERSONS</b>										
Full-time workers	'000	234.9	706.7	1 748.4	1 728.1	1 602.4	524.8	223.7	71.3	6 840.3
Part-time workers	'000	466.1	322.4	444.3	580.5	510.1	186.9	118.3	90.4	2 719.1
<b>Total</b>	'000	<b>701.0</b>	<b>1 029.1</b>	<b>2 192.8</b>	<b>2 308.6</b>	<b>2 112.5</b>	<b>711.6</b>	<b>342.0</b>	<b>161.7</b>	<b>9 559.5</b>
Proportion of part-time workers	%	66.5	31.3	20.3	25.1	24.1	26.3	34.6	55.9	28.4

a) Annual average.

Source: Labour Force, Australia, Detailed - Electronic Delivery (6291.0.55.001).

### 6.12 EMPLOYED PERSONS(a), By industry(b)



(a) Annual average of quarterly data. (b) Classified according to the Australian and New Zealand Standard Industrial Classification.

Source: *Labour Force, Australia, Detailed - Electronic Delivery (6291.0.55.001)*.

Table 6.13 shows the proportion of employed persons in each broad occupation group by age, for 2003–04. The most common occupation group was professionals (19.0%), followed by

intermediate clerical, sales and service workers (17.0%). Advanced clerical and service workers was the least prevalent occupation group (4.0%).

### 6.13 EMPLOYED PERSONS(a), By occupation(b) — 2003–04

	Units	Age group (years)								Total
		15–19	20–24	25–34	35–44	45–54	55–59	60–64	65 and over	
Managers and administrators	%	0.2	1.4	5.6	8.5	9.6	12.2	12.8	24.8	7.4
Professionals	%	1.7	11.9	22.8	20.9	22.1	19.7	17.3	18.4	19.0
Associate professionals	%	3.0	9.0	12.9	14.0	13.5	13.7	13.6	12.2	12.2
Tradespersons and related workers	%	12.6	16.5	14.2	12.5	11.3	10.7	11.1	8.4	12.8
Advanced clerical and service workers	%	1.0	3.2	3.9	4.5	4.3	5.0	5.1	5.1	4.0
Intermediate clerical, sales and service workers	%	16.1	23.9	17.7	16.4	16.1	14.4	12.1	8.2	17.0
Intermediate production and transport workers	%	6.2	6.8	7.9	8.9	8.8	9.8	10.4	7.5	8.3
Elementary clerical, sales and service workers	%	41.7	16.8	7.1	5.9	5.8	5.8	7.1	7.0	10.0
Labourers and related workers	%	17.6	10.7	7.9	8.2	8.6	8.5	10.4	8.4	9.3
All occupations	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	'000	689.1	1 025.2	2 188.9	2 300.9	2 111.9	711.0	342.4	158.5	9 528.0

(a) Annual average of quarterly data. (b) Classified according to the Australian Standard Classification of Occupations.

Source: *Labour Force, Australia, Detailed - Electronic Delivery (6291.0.55.001)*.

There is a correlation between age and occupation, with a higher proportion of employed persons in the younger age groups employed in the lower skilled occupations, and a higher proportion of employed persons in the older age groups employed in the more highly skilled occupations. For example, less than 1% of 15–19 year olds and less than 2% of 20–24 year olds were employed as managers and administrators, while at the other end of the age spectrum, in the age group 65 years and over, 24.8% were employed in this occupation group. In the 15–19 year age group, 41.7% of persons were employed as elementary clerical, sales and service workers, and a further 17.6% as labourers and related workers. The proportion of 20–24 year olds employed in these occupation groups was considerably lower (16.8% and 10.7% respectively), and continued to be lower in all other age groups.

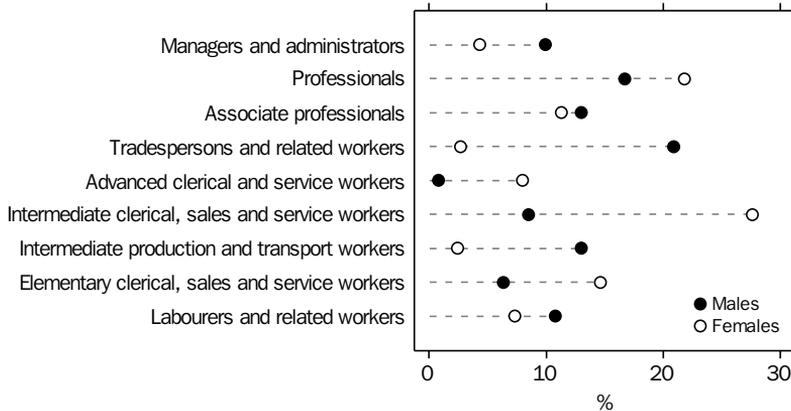
There are large gender differences in occupations. Females dominate clerical occupations groups, such as advanced clerical and service workers; intermediate clerical, sales and service workers;

and elementary clerical, sales and service workers. Males dominate the trade occupations, including tradespersons and related workers, and intermediate production and transport workers (graph 6.14). For example, a higher proportion of males were employed as tradespersons and related workers (20.9% compared with 2.7% of females), while a higher proportion of females were employed as intermediate clerical, sales and service workers (27.6% compared with 8.5% of males).

### Characteristics of employment

Working life in Australia continues to change. There are more diverse employment arrangements, more flexible working time patterns, and more people working part-time hours. This section looks at the types of arrangements people are employed under, and the hours they work.

**6.14 EMPLOYED PERSONS(a), By occupation(b) — 2003–04**



(a) Annual average of quarterly data. (b) Classified according to the Australian Standard Classification of Occupations.

Source: *Labour Force, Australia, Detailed - Electronic Delivery* (6291.0.55.001).

## Employment type

The ABS Forms of Employment Survey for November 2001 collected information on persons employed in a range of situations and described their working arrangements. Employed persons, excluding contributing family workers and persons working for payment in kind only, were classified to one of five employment types on the basis of their main job, that is, the job in which they usually worked the most hours. The employment types are: employees with paid leave entitlements; self-identified casuals; employees without paid leave entitlements who did not identify as a casual; owner managers of incorporated enterprises; and owner managers of unincorporated enterprises.

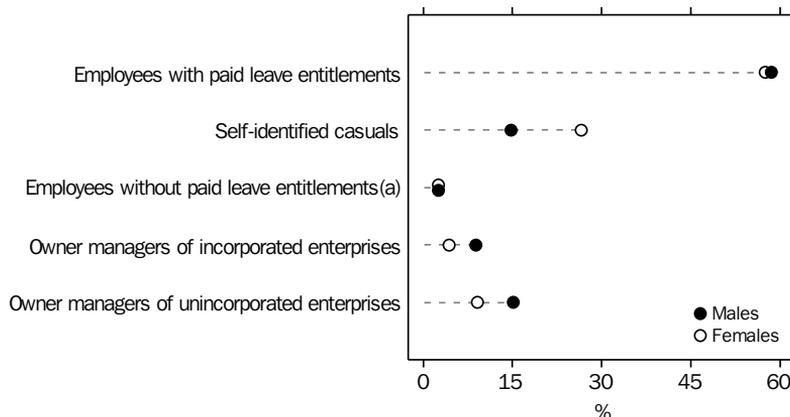
Of the 9.1 million employed persons at November 2001, over half (58%) were employees with paid leave entitlements. Other large groups were self-identified casuals (20%) and owner managers of unincorporated enterprises (13%).

Graph 6.15 shows that although the proportion of employed persons who were employees with paid leave entitlements was similar for males (59%) and females (58%), more females identified themselves as casual employees (27%) than males (15%). In contrast, the proportion of employed males working in their own business was higher than for females (24% compared with 14%).

## Hours worked

Hours data have a wide range of uses, including calculation of productivity, and monitoring working conditions. Information on hours worked allows the ABS to classify employed persons as full-time or part-time, and also to identify underemployed persons (in conjunction with measures of those wanting to work more hours). There are a number of measures of hours of work, and this section examines the number of hours that employed persons have actually worked in all jobs during the reference week.

**6.15 EMPLOYMENT TYPE — November 2001**



(a) Who did not identify as casual.

Source: *Forms of Employment, Australia, November 2001* (6359.0).

Average weekly hours worked is defined as aggregate hours worked by a group of employed persons during the reference week divided by the number of employed persons in that group.

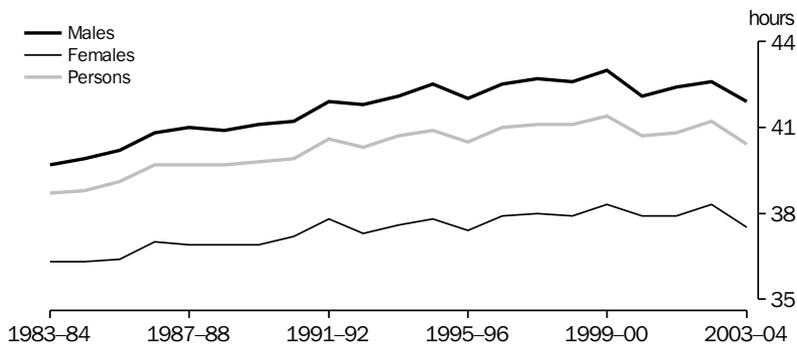
Graph 6.16 shows that the average weekly hours worked by full-time employed persons rose from 38.7 in 1983–84 to 41.4 in 1999–2000, an increase of 7%. In 2003–04 full-time employed persons worked an average of 40.4 hours per week, down from the 41.2 hours per week recorded in 2002–03.

As shown in graph 6.17, the average weekly hours worked in 2003–04 differed across occupations and gender. The greatest difference was in the

managers and administrators occupation group where, on average, males worked 10.5 hours per week longer than females.

Managers and administrators also recorded the highest average weekly hours for employed males (48.0 hours per week) and females (37.5), followed by associate professionals (43.8 and 35.5). The two occupation groups with the lowest average weekly hours worked for both males and females were elementary clerical, sales and service workers (28.2 hours per week for males and 21.3 hours per week for females), and labourers and related workers (32.5 for males and 23.7 for females).

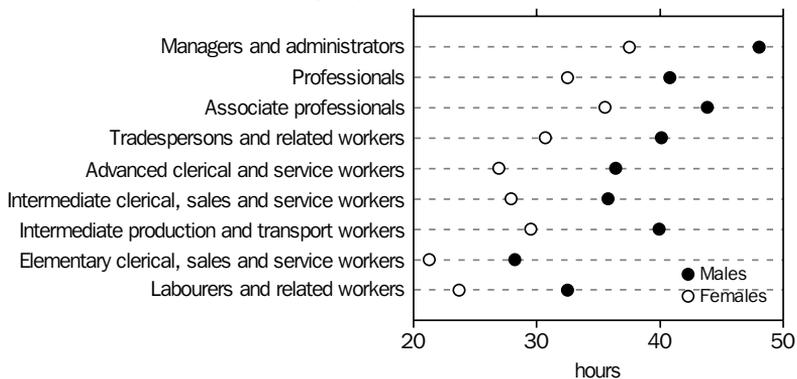
**6.16 AVERAGE WEEKLY HOURS WORKED(a), Full-time employed persons**



(a) Annual average.

Source: *Labour Force, Australia, Detailed - Electronic Delivery* (6291.0.55.001).

**6.17 AVERAGE WEEKLY HOURS WORKED(a), By occupation(b) of employed persons — 2003-04**



(a) Annual average of quarterly data. (b) Classified according to the Australian Standard Classification of Occupations.

Source: *Labour Force, Australia, Detailed - Electronic Delivery* (6291.0.55.001).

The overall average weekly hours worked for males (38.0) was over 10 hours greater than for females (27.7), as shown in table 6.18. This was due partly to males working longer average weekly hours in full-time employment (41.9) than females (37.5), and also because females were more likely than males to work part-time.

**6.18 EMPLOYED PERSONS(a), Average weekly hours worked(b) — 2003–04**

	Males hours	Females hours	Persons hours
Full-time workers	41.9	37.5	40.4
Part-time workers	15.7	16.0	15.9
All workers	38.0	27.7	33.4

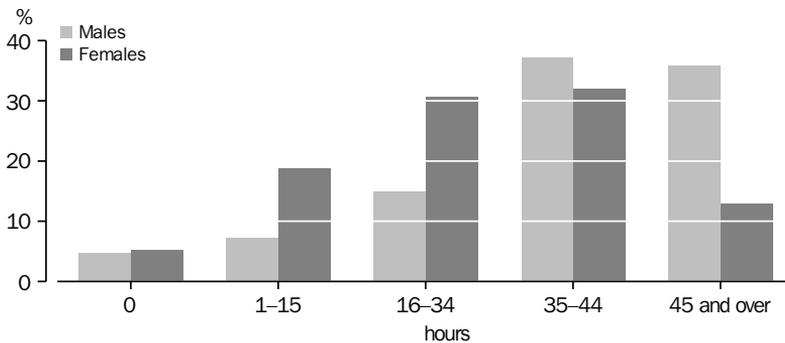
(a) Annual average. (b) Estimates refer to actual hours worked, not hours paid for.

Source: *Labour Force, Australia, Detailed - Electronic Delivery* (6291.0.55.001).

Graph 6.19 shows in June 2004, 37% of employed males worked between 35 and 44 hours per week and a further 36% worked 45 hours or more per week. In contrast, 32% of employed females worked between 35 and 44 hours per week, while a further 13% worked 45 hours or more per week.

Graph 6.20 shows from 1983–84 to 2003–04 there was a steady increase in the number of hours worked by part-time workers as a percentage of the total number of hours worked. In 1983–84, 8% of all hours worked were in part-time employment; by 2003–04 this proportion had risen to 14%. For males, 6% of the total number of hours worked were attributed to part-time employment in 2003–04, whereas for females the proportion was much greater (26%).

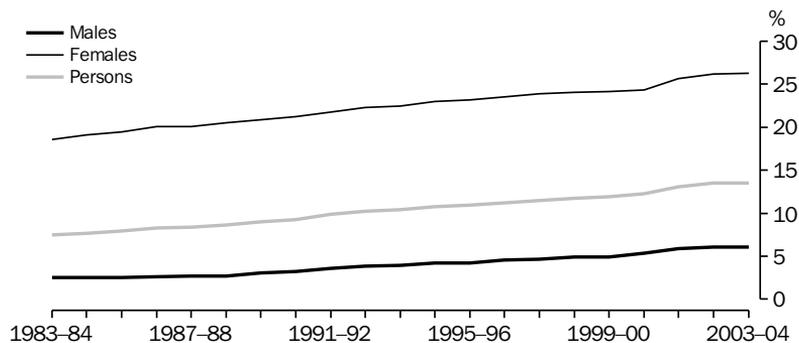
**6.19 EMPLOYED PERSONS(a), Hours worked in all jobs — June 2004**



(a) Includes employed persons who were away from work during the survey reference week.

Source: *Labour Force, Australia, Detailed - Electronic Delivery, June 2004* (6291.0.55.001).

## 6.20 PART-TIME HOURS AS A PROPORTION OF TOTAL HOURS WORKED(a)



(a) Annual average.

Source: *Labour Force, Australia, Detailed - Electronic Delivery (6291.0.55.001)*.

## Labour force experience

The Labour Force Experience Survey is a two-yearly survey of the civilian population in Australia aged 15–69 years. The survey provides information on labour force activity over a 12-month period, including how many weeks people spent working, looking for work or not in the labour force, and information about the characteristics (such as age, sex, and qualifications) of people involved in these activities. The information can be used to construct profiles of various groups within the labour force. The latest survey relates to the year ending February 2003.

This article looks at selected aspects of the experience of people inside and outside the labour force, including changes in labour force status during the 12 months ended February 2003 and differences in labour force participation between men and women.

### People who did not change their labour force status during the year

Table 6.21 shows 72% of people aged 15–69 years did not change their labour force status during the 12 months to February 2003. Most (68%) of the 9.9 million people whose labour force status did not change spent the entire year working.

About 3.0 million people aged 15–69 years remained outside the labour force for the entire year ended February 2003. There were almost

twice as many women as men who were not active in the labour force at any time during the year.

As well as those who worked for the whole year and those who were outside the labour force for the whole year, there was a relatively small group of people who looked for work for the entire year ended February 2003 (1.3% of civilian people aged 15–69 years, or 182,600 people).

### People who changed their labour force status during the year

Of those people aged 15–69 years who changed their labour force status during the 12 months ended February 2003, 88% worked for part of the year. More than half of the people in this group worked between 39 and 52 weeks.

### Participation in the labour force

There were 10.8 million people aged 15–69 years in the labour force at some time during the year ended February 2003. That is, 78% of Australians aged 15–69 years either worked or looked for work at some time during the year. As some people will move in to or out of the labour force during the year, the proportion of Australians aged 15–69 years who were in the labour force at some time during the year (78%) is higher than the proportion who were in the labour force at any point in time (71% on average, during the year ended February 2003).

## 6.21 LABOUR FORCE EXPERIENCE(a) — Year ended February 2003

	Units	Males	Females	Persons
No change in labour force status during the year	%	73.5	71.1	72.3
Not in the labour force at any time during the year	%	15.4	28.2	21.8
In the labour force for the whole year				
Worked whole year	%	56.5	41.9	49.2
Looked for work all year	%	1.6	1.0	1.3
Change in labour force status during the year	%	26.4	28.8	27.7
Worked part of the year(b)	%	24.1	25.7	25.0
Worked 1 to under 4 weeks	%	1.0	0.9	0.9
Worked 4 to under 13 weeks	%	2.5	3.0	2.8
Worked 13 to under 26 weeks	%	2.6	3.5	3.1
Worked 26 to under 39 weeks	%	4.1	4.6	4.4
Worked 39 to under 52 weeks	%	13.9	13.7	13.8
Other(c)	%	2.3	3.1	2.7
Total	%	100.0	100.0	100.0
Population	'000	6 893.0	6 856.3	13 749.3

(a) Civilian population aged 15–69 years. (b) Labour force status during the rest of the year not specified. (c) Looked for work for part of the year, not in the labour force the rest of the year.

Source: *Labour Force Experience, Australia, February 2003 (6206.0)*.

Most people participating in the labour force spent all or most of the year in the labour force. Almost three-quarters (71%) of people who were in the labour force at some time during the year ended February 2003 spent the whole year in the labour force.

About 85% of men aged 15–69 years participated in the labour force at some time in the 12 months to February 2003, while 72% of women participated in the labour force at some point during the same period.

Table 6.22 shows time spent working and time spent looking for work, for those people who were in the labour force at some time during the year ended February 2003. Most (63%) of the

people who were in the labour force at some point during the year spent the entire year working.

Of those in the labour force at some time during the year ended February 2003:

- 21% spent part of the year working and no time looking for work
- 11% spent part of the year working and part of the year looking for work
- 5% did not work during the year and spent at least part of the year looking for work
- 2% looked for work for the whole year without working.

## 6.22 PERSONS IN THE LABOUR FORCE(a), Time spent looking for work — Year ended February 2003

	Time worked				Total
	Worked 0 weeks	Worked for 1 to under 26 weeks	Worked for 26 to under 52 weeks	Worked for 52 weeks	
Time spent looking for work	%	%	%	%	%
Looked for 0 weeks	..	5.3	15.9	62.9	84.1
Looked for 1 to under 26 weeks	2.7	1.5	6.8	..	11.0
Looked for 26 to under 52 weeks	0.8	1.9	0.5	..	3.2
Looked for 52 weeks	1.7	..	..	..	1.7
Total	5.2	8.7	23.2	62.9	100.0

(a) Civilian population aged 15–69 years who were in the labour force at some time during the year.

Source: *ABS data available on request, Labour Force Experience Survey, February 2003*.

## Working arrangements

The Working Arrangements Survey provides a range of information about the working time arrangements of employees, including patterns of work and the flexibility of hours worked. The working arrangements of employees are important because they impact on the social and economic well-being of employees and their families. Changes in the working patterns of employees are monitored to gauge the extent to which employment arrangements are moving away from the traditional 9 am to 5 pm, Monday to Friday employment arrangement. Access to flexible working hours is of particular interest because of its potential to assist employees in balancing work and family responsibilities.

Information on patterns of work includes regular overtime, days of the week usually worked and shift work. Flexible working hours are reflected in measures such as whether an employee is able to work extra hours to take time off, and whether they have a say in their start and finish times.

### Days usually worked

The dominant pattern of days usually worked continues to be Monday to Friday, with 58% of employees working on this basis. Men were more likely to work Monday to Friday (64%) than women (52%). However, reflecting the high proportion of women working part-time (44%),

women were more likely to have a working arrangement of four or less weekdays (19%), than men (5%) (graph 6.23).

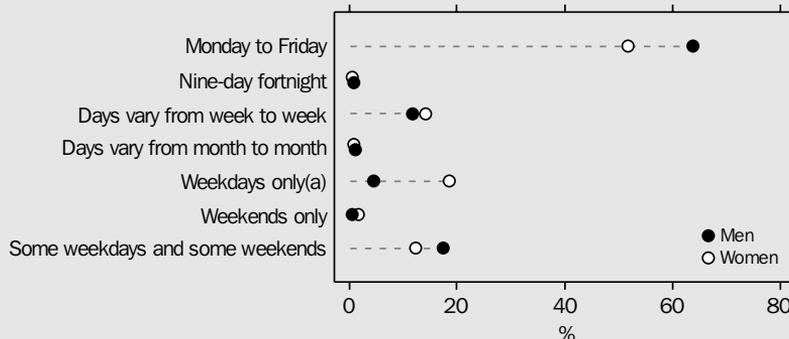
### Overtime

In November 2003, 37% of employees worked overtime in their main job on a regular basis, up from 33% in November 2000. The majority (90%) of those working regular overtime were employed full-time. Men were more likely to work overtime than women (44% and 29% respectively), in part reflecting the high proportion of women working part-time. Of those working full-time, 49% of men and 41% of women worked regular overtime.

A third of those working regular overtime were not paid for their most recent period of overtime worked, while 38% were paid. The remainder had overtime included in their salary package (21%), took time off in lieu of overtime (6%), or had some other arrangement (1%).

Nearly two-thirds (63%) of managers and administrators worked overtime on a regular basis, a higher proportion than any other occupation group. Managers and administrators who worked overtime were most likely to have overtime included in their salary package (45%). Another 40% were not paid for their most recent period of overtime.

6.23 EMPLOYEES IN MAIN JOB, Days usually worked — November 2003



(a) Refers to people who usually work four or less weekdays only.

Source: Working Arrangements, Australia, November 2003 (6342.0).

## Working extra hours for time off

In November 2003, 41% of employees were able to work extra time in order to take time off. Full-time employees were more likely to be able to work extra hours to take time off (44%) than part-time employees (34%).

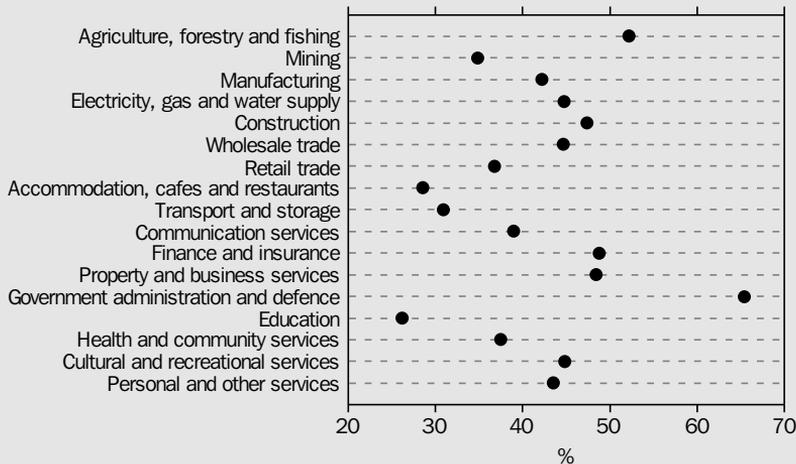
Employees working in the government administration and defence industry (65%), and the agriculture, forestry and fishing (52%) industry were most likely to be able to work extra hours to take time off. Employees were least likely to be able to work extra hours to take time off in the education (26%), and accommodation, cafes and restaurants (29%) industries (graph 6.24).

## Flexible start and finish times

In November 2003, 50% of employees had set start and finish times that were not negotiated with their employer. A further 16% had set start and finish times that they were able to negotiate with their employer. Part-time employees were more likely to work set hours negotiated with their employer (21%) than full-time employees (15%) (table 6.25).

One in five employees (22%) did not have set start and finish times and were able to choose their times on a day-to-day basis. A higher proportion of full-time employees were able to choose their times (24%) than part-time employees (19%).

**6.24 EMPLOYEES IN MAIN JOB, Proportion able to work extra hours in order to take time off — November 2003**



Source: Working Arrangements, Australia, November 2003 (6342.0).

**6.25 FLEXIBLE START AND FINISH TIMES OF EMPLOYEES — November 2003**

	Units	Full-time			Part-time			Total		
		Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
Start and finish times are not set										
Able to choose times day-to-day	%	25.7	20.1	23.7	20.7	17.8	18.5	25.1	19.1	22.3
Not able to choose times	%	11.6	9.0	10.7	16.8	12.5	13.6	12.2	10.5	11.5
Start and finish times are set										
Negotiated with employer	%	13.9	16.1	14.7	14.9	23.6	21.4	14.0	19.4	16.5
Not negotiated with employer	%	48.8	54.7	50.9	47.6	46.1	46.5	48.7	50.9	49.7
Total	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employees	'000	3 754.7	2 047.1	5 801.9	544.8	1 595.0	2 139.8	4 299.4	3 642.2	7 941.6

Source: Working Arrangements, Australia, November 2003 (6342.0).

## Young people in employment

Many people enter the work force for the first time between the ages of 15 and 24 years. Some combine employment with ongoing study while others spend time seeking employment or working in a variety of jobs. The income from work provides an important economic resource for the individual, while employment itself presents an opportunity to develop work and social skills.

This article looks at the participation of young people in the labour force and how they combine work and study. It also looks at the occupations and industries in which young people work.

Young people are more likely to be employed than unemployed or not in the labour force. In 2003–04 there were 2.8 million young people (aged 15–24 years) with over half (62%) of them in employment. Employment for young people can be quite different to that for older people, and is often characterised by lower paid jobs, less skilled occupations, and less job security.<sup>1</sup>

In 2003–04 more than a quarter (29%) of young people were not in the labour force (i.e. neither employed nor unemployed). Three-quarters (76%) of young people not in the labour force were in full-time education. Less than one in ten young people were unemployed (8%). This pattern was similar for both young men and young women.

## Young people in the labour force

The labour force participation rate for young people (aged 15–24 years) in 2003–04 was 70.6%, a small decrease from 1983–84 (71.3%). During this time the participation rate for young people peaked at 72.0% in 1989–90, with a low of 69.1% in 1992–93. In contrast, the participation rate for all people aged 15 years and over increased slightly in the 20 year period (from 60.5% in 1983–84 to 63.5% in 2003–04).

Young people are more likely to be employed than they were 20 years ago. Since 1983–84, the proportion of young people in employment has increased from 59% to 62% in 2003–04. Over the same period the proportion in unemployment has decreased from 13% in 1983–84 to 8% in 2003–04. In addition, there were changes in the number of hours that young people worked, with a shift away from full-time to part-time employment consistent with higher rates of participation in non-compulsory schooling. In 1983–84, 82% of employed young people were in full-time employment, compared with 54% in 2003–04 (table 6.26).

Of all employed young women in 2003–04, more than half (55%) were employed part-time, up from 24% in 1983–84. In contrast, 37% of young men were employed part-time in 2003–04 compared with just 12% in 1983–84. By the time people reach their late-20s and early-30s they are less likely to be working part-time. In 2003–04, only 9% of employed males aged 25–34 years worked part-time, compared with 35% of employed women in that age group.

**6.26 LABOUR FORCE PARTICIPATION OF YOUNG PEOPLE(a)**

	Units	1983–84(b)			2003–04(b)		
		15–19 years	20–24 years	Total aged 15–24 years	15–19 years	20–24 years	Total aged 15–24 years
Labour force participation rate(c)	%	60.5	81.7	71.3	60.1	81.1	70.6
Unemployment rate(d)	%	23.3	13.7	17.7	15.7	8.9	11.8
Employed(c)	%	46.4	70.5	58.7	50.7	73.9	62.3
Full-time(e)	%	71.9	88.7	82.2	33.5	68.7	54.4
Part-time(e)	%	28.1	11.3	17.8	66.5	31.3	45.6
Total employed	'000	593.8	936.8	1 530.6	701.0	1 029.1	1 730.2
Total unemployed	'000	180.3	148.6	328.9	130.7	100.5	231.2
Population	'000	1 278.7	1 328.1	2 606.8	1 383.3	1 393.3	2 776.6

(a) Civilian population aged 15–24 years. (b) Annual average. (c) As a proportion of the civilian population in that age group. (d) As a proportion of people in the labour force. (e) As a proportion of employed people.

Source: ABS data available on request, Labour Force Survey.

## Work and study

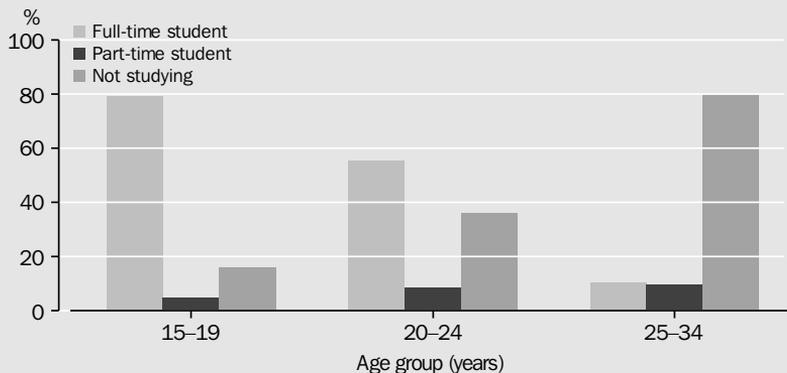
Changes in the pattern of full-time and part-time employment undertaken by young people are closely related to their increased participation in non-compulsory education and their growing tendency to combine work with study. There are a range of ways in which work and study can be combined, depending on the priorities of the individual. However, the combination of part-time work with part-time study is uncommon among 15–24 year olds, suggesting that one activity, either employment or study, tends to take precedence in their life.

In May 1984, 60% of all employed part-time workers aged 15–24 years were participating in study, increasing to 75% in May 2003. Young

people who were employed part-time and who were studying, were most likely to study full-time. Of those employed part-time in May 2003, 79% of 15–19 year olds were studying on a full-time basis, while 55% of 20–24 year olds were studying full-time (graph 6.27).

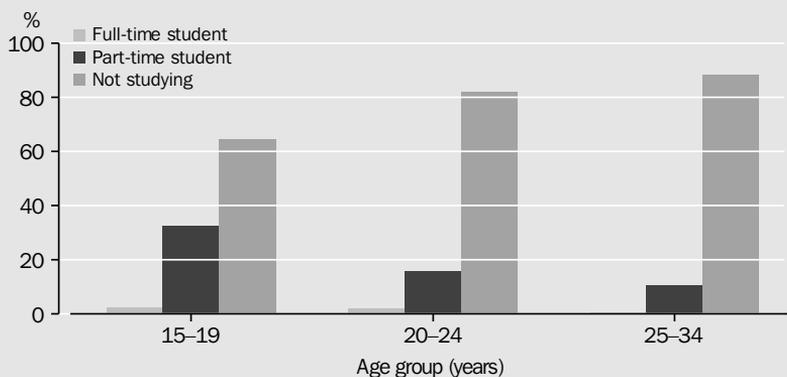
Many young people employed full-time in May 2003 were not studying (65% of 15–19 year olds and 82% of 20–24 year olds). By the time people reach their late-20s and early-30s, those working full-time are even less likely to be studying (89% of full-time employed 25–34 year olds in 2003–04 were not studying). Almost all people in these age groups who worked full-time and studied, undertook their study on a part-time basis (graph 6.28).

**6.27 PEOPLE EMPLOYED PART-TIME, By student status — May 2003**



Source: *Education and Work, Australia, May 2003* (6227.0).

**6.28 PEOPLE EMPLOYED FULL-TIME, By student status — May 2003**



Source: *Education and Work, Australia, May 2003* (6227.0).

## Occupation

Reflecting their lower levels of work experience and educational attainment (as most are still gaining their qualifications), the occupations in which young people are employed are generally less skilled. Such occupations characterise teenage (aged 15–19 years) employment in particular.

The most common occupations for people aged 15–24 years in 2003–04 were in clerical, sales and service work. Almost half of employed people in this age group (48%) held jobs in either the elementary (27%) or the intermediate (21%) clerical, sales and service workers occupation groups.

Teenagers were more likely to be working in occupations which offered part-time jobs and jobs which require lower levels of skill. In 2003–04, 55% of employed part-time workers aged 15–19 years were employed as elementary, clerical, sales and service workers. For 20–24 year olds, 32% of part-time workers were employed as elementary, clerical, sales and service workers and 31% in the more highly skilled intermediate, clerical, sales and service workers occupation group. Those aged 20–24 years were more likely to be employed full-time.

Full-time occupations for teenagers are generally ones which lead to a skill or further qualification such as apprenticeships or traineeships. In 2003–04, 35% of employed full-time workers aged 15–19 years were employed as tradespersons and related workers. Full-time occupations for

20–24 year olds are spread across a wider range of occupations as they move out of further education and begin their careers.

Young women made up 70% of 15–24 year olds employed in the elementary and the intermediate clerical, sales and service workers occupation groups. Young men, on the other hand, were more likely to be in occupation groups such as tradespersons and related workers (in 2003–04, 89% of all young people in this occupation group were men), intermediate production and transport workers (88%), and labourers and related workers (76%) (table 6.29).

## Industry

In 2003–04 the five most common industries employing young people aged 15–24 years accounted for 70% (1.2 million people) of all their employment. Young people were most likely to be employed in the retail trade industry, with just over a third (34%) employed in this industry, followed by accommodation, cafes and restaurants (10%), property and business services (10%), manufacturing (9%), and construction (8%) industries.

As stated previously, young people tend to work in industries offering part-time jobs, and in jobs which require lower levels of skill. In 2003–04 almost 70% (402,600 persons) of young people employed in the retail trade industry were working part-time. In contrast, young people who worked full-time were employed across a range of industries (table 6.30).

### 6.29 MAJOR OCCUPATIONS OF EMPLOYED YOUNG PEOPLE(a)(b) — 2003–04

Occupation group(c)	Units	Age group (years)						Total
		15–19		20–24		Total 15–24		
		Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	
Elementary clerical, sales and service workers	%	14.8	54.7	9.6	32.2	10.9	45.4	26.8
Intermediate clerical, sales and service workers	%	18.0	15.2	20.7	30.7	20.1	21.6	20.8
Tradespersons and related workers	%	34.8	1.9	22.3	3.9	25.3	2.7	14.9
Labourers and related workers	%	16.2	18.2	9.9	12.3	11.4	15.8	13.4
Professionals	%	2.1	1.5	14.0	7.2	11.1	3.8	7.8
Other(d)	%	14.1	8.5	23.4	13.7	21.1	10.7	16.3
Total occupations	'000	225.4	463.6	700.3	324.9	925.8	788.5	1 714.3

(a) Civilian population aged 15–24 years. (b) Annual average of quarterly data. (c) Classified according to the Australian Standard Classification of Occupations. (d) Includes: Associate professionals; Intermediate production and transport workers; Advanced clerical and service workers; and Managers and administrators.

Source: ABS data available on request, Labour Force Survey.

### 6.30 MAJOR INDUSTRIES OF EMPLOYED YOUNG PEOPLE(a)(b) — 2003–04

Industry(c)	Units	Age group (years)						
		15–19		20–24		15–24		
		Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Total
Retail trade	%	25.0	62.4	17.9	34.9	19.6	51.1	34.1
Accommodation, cafes and restaurants	%	5.5	12.4	5.8	18.0	5.7	14.7	9.8
Property and business services	%	9.3	4.2	13.9	9.1	12.8	6.2	9.7
Manufacturing	%	14.8	2.7	12.7	3.5	13.3	3.0	8.5
Construction	%	16.6	1.5	11.9	2.7	13.0	2.0	7.9
Other(d)	%	28.8	16.9	37.8	31.8	35.6	23.1	29.8
Total industries	'000	225.4	463.6	700.3	324.9	925.8	788.5	1 714.3

(a) Civilian population aged 15–24 years. (b) Annual average of quarterly data. (c) Classified according to the Australian and New Zealand Standard Industrial Classification. (d) Includes: Health and community services; Personal and other services; Cultural and recreational services; Wholesale trade; Education; Agriculture, forestry and fishing; Finance and insurance; Transport and storage; Government administration and defence; Communication services; Mining; and Electricity, gas and water supply.

Source: ABS data available on request, Labour Force Survey.

## Endnotes

- 1 Wooden, M & VandenHeuvel, A 1999, 'The labour market for young adults', *Australia's Young Adults: The deepening divide*, Dusseldorp Skills Forum, Sydney.

## Mature age workers

Over the past decade much social and economic debate has focused on the issues associated with Australia's ageing population. Between 2011 and 2030, the large generation born between 1946 and 1965, known as 'baby boomers', will turn 65 years old. Such a large number of people set to retire from Australia's workforce over the next few decades brings the possibility of a shortage of labour to meet future demands.

In recent years, the retention of mature age workers (for the purpose of this article, mature age workers are defined as employed people aged 45–64 years) in the labour force has been highlighted as a possible solution to the potential shortage of labour,<sup>1</sup> and has been the focus of certain public policy goals.<sup>2</sup> These policies include gradually increasing the age at which women can access the age pension, ongoing increases to the minimum age for accessing superannuation benefits, and the introduction of incentives for workers who stay on in employment beyond the Age Pension age (e.g. the Pension Bonus Scheme).

This article focuses on the characteristics of mature age workers. It looks at where mature age workers are employed and the difficulties mature age people can face in gaining employment.

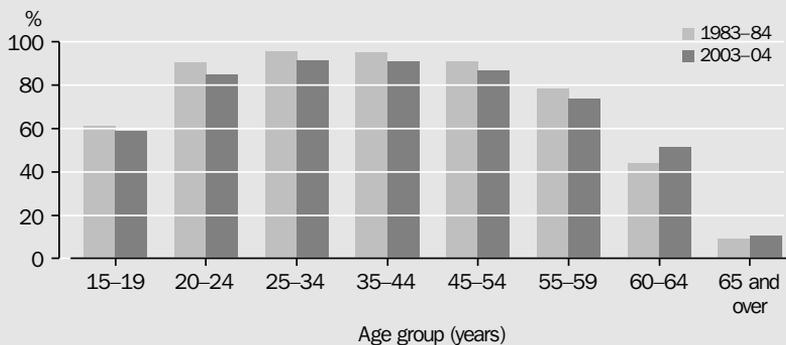
### Labour force participation and age

Some people retire or leave the labour force well before their 60s. This is reflected by lower labour force participation rates for men and women from their 40s and 50s onwards. In 2003–04 most men (87%) aged 45–54 years were participating in the labour force, as were 73% of women in this age group. Participation rates were lower for older age groups. For those aged 60–64 years the participation rates for men and women were 51% and 28% respectively (graph 6.31 and 6.32).

In 2003–04 people aged 45–64 years made up almost a third (32%) of the labour force, compared with 24% in 1983–84. This increase not only reflects larger numbers of people entering this age group, as the 'baby boomers' age, but also changes in labour force participation over the period. People aged 45–64 years were more likely than in the past to be labour force participants. Participation rates for this group increased from 57% to 68% between 1983–84 and 2003–04.

This increase in participation has been driven largely by the increased participation of women in the labour force, reflecting a range of social changes, including greater acceptance of, and opportunities for, women in the workforce. In 2003–04 the participation rate for women aged 45–64 years was 60%, well above the proportion participating in the labour force in 1983–84 (36%).

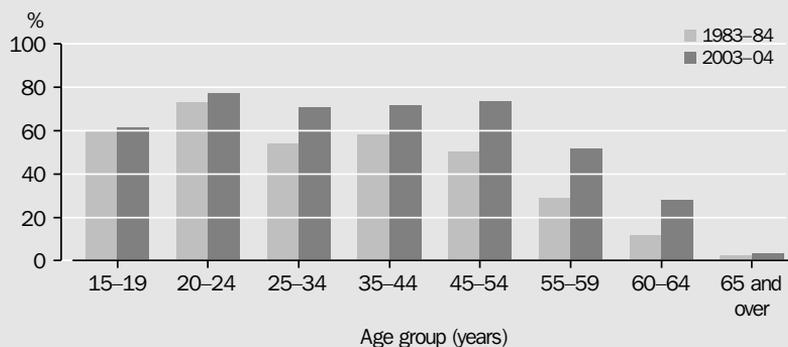
6.31 MALE LABOUR FORCE PARTICIPATION(a)



(a) Annual averages.

Source: ABS data available on request, Labour Force Survey.

### 6.32 FEMALE LABOUR FORCE PARTICIPATION(a)



(a) Annual averages.

Source: ABS data available on request, Labour Force Survey.

In comparison, participation for men decreased slightly over the last two decades in almost all age groups, although the participation rate for men aged 45–64 years remained stable (77% in 1983–84 and 2003–04).

### Characteristics of mature age workers

In 2003–04 there were 3.2 million mature age workers, making up a third of all employed people. Around 44% of these workers were women, the same proportion as that for all employed people. Just over a quarter (26%) of mature age workers were employed part-time, compared with 23% of employed 25–44 year olds. Men are generally less likely to work part-time than women, and this is true of mature age workers. In 2003–04, 11% of male mature age workers were employed part-time compared with 45% of their female counterparts.

The proportion of men working part-time increased from 8% for 45–49 year olds to 22% for 60–64 year olds. For women, the proportion working part-time was 42% for ages 45–49 years, increasing to 57% for those aged 60–64 years.

Both male and female mature age workers are more likely to work part-time as they approach retirement age, and this appears to be largely by choice. Overall, mature age part-time workers are less likely to want more hours of work (21%) than part-time workers aged 25–44 years (27%). In 2003–04 the proportion of people working part-time who wanted more hours was 24% for 45–54 year olds, 18% for 55–59 year olds, and 13% for 60–64 year olds.

### Where are mature age workers employed?

Mature age workers generally have skills and experience gained through many years in the workforce. In 2003–04 the education industry employed the highest proportion of mature age workers, with 47% of people employed in this industry aged 45–64 years. The health and community services industry employed the next highest proportion of mature aged workers in 2003–04 (42%), followed by electricity, gas and water supply, government administration and defence, and agriculture, forestry and fishing industries, with 41% of workers in each of these industries aged 45–64 years. The high proportion of mature age workers in the agriculture, forestry and fishing industry is consistent with the trend for fewer young people to enter farming as a vocation and with farmers often working beyond the age of 65 years.

Many occupations with relatively high proportions of mature age workers require higher skill levels. In the broad occupation group managers and administrators, 47% (332,800 people) were aged 45–64 years in 2003–04, followed by 38% (144,300 people) in advanced clerical and service workers, and 37% (666,400 people) in the professionals group. Of the mature age workers who were employed in the broad occupation group professionals, 12% were registered nurses, 10% were primary school teachers and 9% were secondary school teachers. Some occupations with lesser skill requirements also contained large numbers of mature age workers. In 2003–04, 483,200 intermediate

clerical, sales and service workers, 291,000 intermediate production and transport workers, and 277,500 labourers and related workers were aged 45–64 years.

### Difficulty finding work

The unemployment rate for mature age persons tends to be lower than most other age groups. In 2003–04 the unemployment rate for 45–64 year olds was 3.6% (table 6.33), representing 119,100 people. In comparison, the unemployment rate for 25–44 year olds was 4.9%. Over four-fifths (82%) of mature age jobseekers were seeking full-time work, a similar proportion to that for 25–44 year olds (81%).

While 45–64 year olds have lower unemployment rates than those in the labour force generally, unemployed people in this age group often have

more difficulty in obtaining work than younger jobseekers and are, therefore, at risk of remaining unemployed for a long time. In 2003–04, 32% of unemployed persons aged 45–54 years, and 44% of those aged 55–64 years, were long-term unemployed (i.e. had been unemployed for 52 weeks or more). This is noticeably higher than the proportion among unemployed 25–44 year olds (23%).

Consistent with the difficulties people aged 45–64 years may face finding work over a long period of time, they are more likely to become discouraged and drop out of the labour force altogether than people in younger age groups. In September 2003 more than half (52%) of all discouraged job seekers were aged 45–64 years.

### 6.33 SELECTED CHARACTERISTICS OF UNEMPLOYED PERSONS(a) — 2003–04

	Mature age persons			
	45–54 years	55–64 years	45–64 years	25–44 years
	%	%	%	%
Unemployment rate	3.6	3.7	3.6	4.9
Males	3.6	4.1	3.8	4.6
Females	3.6	3.0	3.4	5.3
Proportion of unemployed looking for full-time work	81.9	81.2	81.7	80.5
Males	92.1	88.1	90.5	92.5
Females	70.2	66.4	69.2	67.3
Proportion of unemployed who are long-term unemployed	32.3	43.7	36.2	22.6
Males	36.9	47.0	40.9	26.6
Females	27.0	36.6	29.5	18.1

(a) Annual averages.

Source: ABS data available on request, Labour Force Survey.

### Endnotes

- 1 Department of the Treasury 2004, *Australia's Demographic Challenges*, Treasury, Canberra.
- 2 Department of Health and Ageing 2002, *National Strategy for an Ageing Australia*, DoHA, Canberra.

## Unemployed persons

In the Labour Force Survey, people are considered to be unemployed if they satisfy three criteria: they are not employed; they are available for work; and they are taking active steps to find work.

Two important measures of unemployment are the number of persons unemployed and the unemployment rate. The unemployment rate, defined as the number of unemployed persons expressed as a percentage of the labour force, offers an insight into the degree of slack in the labour market.

Movements in the unemployment rate over the past 20 years are dominated by the economic downturns of the early-1980s and early-1990s, and the subsequent periods of economic recovery (graph 6.34). In trend terms, the unemployment rate peaked at 10.7% in December 1992, then generally fell over the rest of the 1990s, to stand at 5.6% in June 2004.

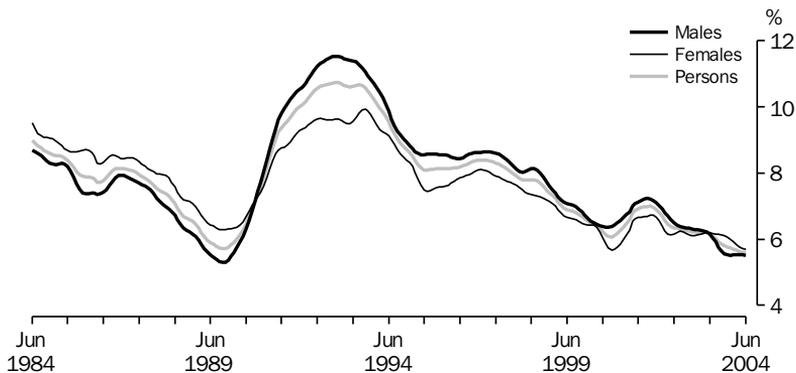
Historically, the unemployment rate for males has been lower than for females. Just prior to the downturn of the early-1990s, when

unemployment increased sharply, the male unemployment rate increased to a level above the female unemployment rate. However, since June 2003, this has reversed and the female unemployment rate has been slightly higher.

As graph 6.35 shows, unemployment has generally declined from the levels recorded in the early-1990s. For the unemployed seeking full-time work, the trend generally reflected the overall impact of the economic cycle. In contrast, over the past two decades or more, the trend for those seeking part-time work has generally increased steadily, rising from 91,900 persons (or 14% of unemployed persons) in June 1984 to 150,400 persons (or 26% of unemployed persons) in June 2004.

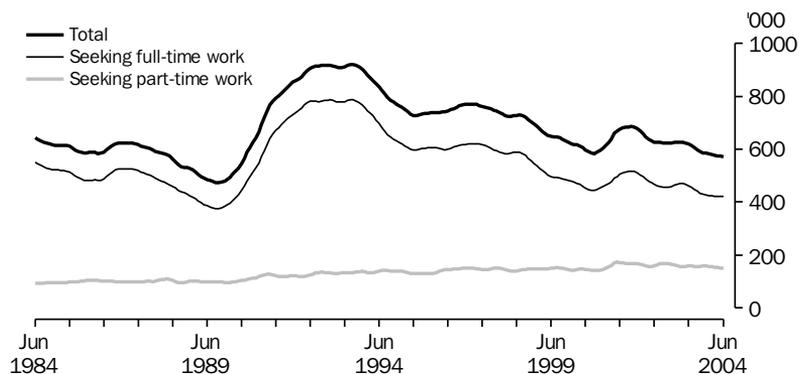
In recent years the proportion of the unemployed who had experienced unemployment for less than 26 weeks has been rising steadily, while the proportion who experienced unemployment for 52 weeks and over (long-term unemployment) has been in decline. In 2003–04, 66% of unemployed persons had been unemployed for less than 26 weeks, while the long-term unemployed made up 21% of unemployment (table 6.36).

**6.34 UNEMPLOYMENT RATE, Trend estimates**



Source: *Labour Force, Australia, Spreadsheets (6202.0.55.001)*.

### 6.35 UNEMPLOYED PERSONS, Trend estimates



Source: *Labour Force, Australia, Spreadsheets (6202.0.55.001)*.

### 6.36 UNEMPLOYED PERSONS(a)(b), By duration of unemployment

Weeks	Units	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
Under 8	%	29.7	33.4	35.5	35.8	37.0	38.6
8 to under 26	%	24.9	25.5	26.8	28.0	27.7	26.9
Under 26	%	54.7	58.9	62.3	63.8	64.7	65.5
26 to under 52	%	15.6	14.2	14.3	14.1	13.7	13.5
52 to under 104	%	13.1	10.7	9.6	8.8	8.9	9.0
104 and over	%	16.6	16.2	13.8	13.3	12.8	12.0
52 and over	%	29.8	26.9	23.4	22.1	21.6	21.0
Total	%	100.0	100.0	100.0	100.0	100.0	100.0
Number	'000	689.6	626.3	619.5	663.3	624.4	586.0

(a) Annual averages. (b) Data have not been revised to reflect definitional changes introduced in April 2001. Data collected from April 2001 onwards are not strictly comparable with data collected in earlier periods. For further information, see 'Information Paper: Implementing the Redesigned Labour Force Survey Questionnaire' (6295.0).

Source: ABS data available on request, *Labour Force Survey*.

Educational qualifications have a significant bearing on labour market prospects. Table 6.37 shows the relationship between the level of highest educational attainment and duration of unemployment. Of unemployed persons with a bachelor degree or above in July 2003, 20% were long-term unemployed, compared with 26% of those whose highest educational attainment was Year 10 or below.

Unemployed persons may encounter a variety of difficulties in finding work. In the July 2003 survey, males and females reported most of the more

common difficulties in largely similar proportions as shown in graph 6.38. However, females were more likely to report insufficient work experience as their main difficulty (16% compared with 10% for males), as well as difficulties that relate to concerns outside of the workplace, such as 'Unsuitable hours' (9% to 4%) and 'Difficulties with child care, other family responsibilities' (3% to 1%). Males were more likely to report their main difficulty as being 'Considered too young or too old by employers' (14% compared with 12% for females) and 'No vacancies at all' (10% compared with 7% for females).

### 6.37 UNEMPLOYED PERSONS, Educational attainment(a) and duration of unemployment — July 2003

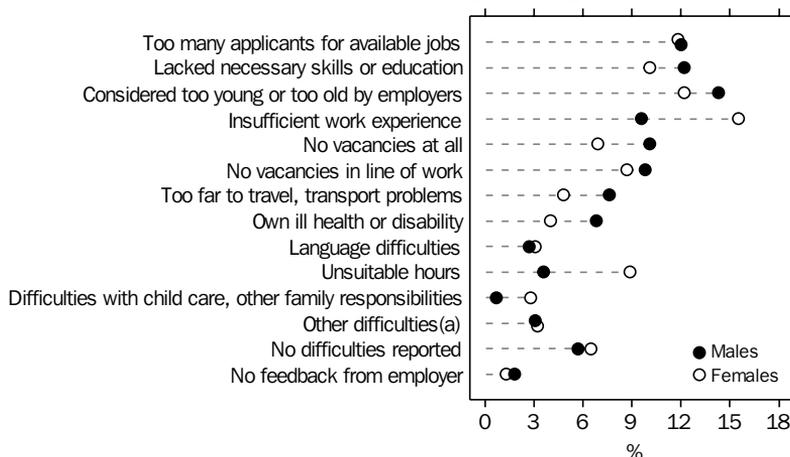
Level of highest educational attainment	Duration of current period of unemployment (weeks)					Total %	Number '000
	1 to under 8	8 to under 26	26 to under 52	52 to under 104	104 and over		
Bachelor degree or above	37.5	31.9	10.8	12.2	*7.5	100.0	51.8
Advanced diploma or diploma	31.0	28.5	18.1	*3.3	19.0	100.0	32.3
Certificate III / IV	34.0	25.0	19.8	12.0	9.2	100.0	71.3
Certificate I / II	*33.3	*29.8	*18.1	**4.6	*14.2	100.0	10.3
Certificate not further defined	—	**14.9	*28.1	*39.1	**17.9	100.0	3.8
Year 12(b)	45.4	24.8	14.2	7.7	7.9	100.0	118.5
Year 11(b)	34.6	33.0	13.8	*6.4	12.2	100.0	60.5
Year 10 or below(c)	33.8	26.1	14.0	8.5	17.7	100.0	211.3
All unemployed persons(c)	36.3	27.0	14.9	8.7	13.2	100.0	564.5

(a) The levels of education are not necessarily listed in order from highest to lowest. See paragraphs 15–17 of the Explanatory Notes in 'Education and Work, Australia' (6227.0) for further details on how level of highest educational attainment is determined.

(b) Includes persons who are currently undertaking school study. (c) Includes no educational attainment, and level not determined.

Source: Job Search Experience, Australia, July 2003 (6222.0).

### 6.38 UNEMPLOYED PERSONS, Main difficulty in finding work — July 2003



(a) Includes persons who reported difficulties because of ethnic background.

Source: Job Search Experience, Australia, July 2003 (6222.0).

## Persons not in the labour force

Persons not in the labour force represent that group of the population who, during the reference week of a Labour Force Survey, are neither employed nor unemployed (diagram 6.2). Interest in this group centres primarily on their potential to participate in the labour force.

There were 3.9 million persons aged 15–69 years not in the labour force at September 2003 (table 6.39). Some 21.6% of these persons not in the labour force (834,600) were marginally attached to the labour force. These people wanted to work and were either actively looking for work but not available to start work in the reference week, or available to start work (within four

weeks) but not actively looking for work. Of persons not in the labour force, the proportion of females who were marginally attached (23.2%) was higher than that for males (18.8%). Of the marginally attached, 10.9% of males were actively looking for work compared with 5.3% of females.

In September 2003 there were 79,800 discouraged jobseekers. Discouraged jobseekers are persons who are marginally attached to the labour force, who want to work and are available to start work, but are not actively looking for work as they believe they will not find a job for labour market related reasons. Of males who were marginally attached to the labour force, 10.1% were discouraged jobseekers, compared with 9.3% of females.

### 6.39 CIVILIAN POPULATION AGED 15–69, Labour force status — September 2003

	Males '000	Females '000	Persons '000
Civilian population aged 15–69 years	6 993.4	6 972.6	13 966.0
Persons in the labour force	5 594.4	4 509.0	10 103.4
Employed	5 275.2	4 242.1	9 517.3
Unemployed	319.2	266.9	586.1
Persons not in the labour force	1 399.0	2 463.5	3 862.6
With marginal attachment to the labour force	262.7	572.0	834.6
Wanted to work and were actively looking for work	28.8	30.4	59.2
Were available to start work within four weeks	17.1	22.3	39.4
Were not available to start work within four weeks	11.7	8.1	19.8
Wanted to work but were not actively looking for work and were available to start work within four weeks	233.9	541.6	775.5
Discouraged jobseekers	26.6	53.2	79.8
Other	207.3	488.4	695.7
Without marginal attachment to the labour force	1 136.4	1 891.6	3 028.0
Wanted to work but were not actively looking for work and were not available to start work within four weeks	123.1	255.3	378.4
Did not want to work	881.7	1 567.9	2 449.6
Permanently unable to work	131.6	68.4	200.0

Source: *Persons Not in the Labour Force, Australia, September 2003* (6220.0).

## Underutilised labour

The extent to which the available supply of labour is utilised is an important social and economic issue. The number of unemployed people and the unemployment rate are well known measures of labour underutilisation. In addition to information about unemployment, the ABS provides a wide range of data on available labour resources and the extent of their utilisation. These include data on persons with a marginal attachment to the labour force (in particular, discouraged jobseekers) and persons who are underemployed.

## Headcount measures of labour underutilisation

The ABS has developed a series of supplementary measures of labour underutilisation which were formed by combining information on unemployed persons with that of other groups whose labour is underutilised. There are five measures – the unemployment rate, the long-term unemployment rate, the underemployment rate, the labour force underutilisation rate and the extended labour force underutilisation rate. These are headcount measures and provide an indication of the proportion of the population affected by labour underutilisation.

The *underemployment rate* is the number of underemployed workers as a proportion of the labour force. Underemployed persons include part-time workers who want and are available to work more hours, and full-time workers who

worked part-time hours in the reference week for economic reasons (i.e. involuntarily). In September 2003 there were 567,400 underemployed people (table 6.40). The underemployment rate was higher for women (7.4%) than men (4.1%). This is related to the higher proportion of women who are in part-time employment.

The *labour force underutilisation rate* is the sum of the unemployment rate and the underemployment rate. In September 2003 the labour force underutilisation rate was 11.5%. Women have a higher labour force underutilisation rate than men, reflecting their higher rate of underemployment.

The *extended labour force underutilisation rate* is the broadest of the ABS measures of underutilised labour and is the sum of the unemployed, the underemployed, and two groups of persons marginally attached to the labour force, as a proportion of the labour force augmented by those two groups. The two groups of marginally attached persons are: (1) persons actively looking for work, not available to start work in the reference week, but available to start within four weeks; and (2) discouraged jobseekers. The extended labour force underutilisation rate was 12.5% in September 2003. The extended labour force underutilisation rate for women was higher than that for men, not only because women had a higher rate of underemployment, but also because women were more likely to be in the marginally attached populations that contribute to this rate.

Overall, movement in unemployment is the primary driver of movements in the headcount measures, although underemployment has been increasing in relative importance in recent years, particularly for women. Levels of unemployment, and the unemployment rate, fluctuate with the economic cycle. In the decade to 2003, the trend unemployment rate almost halved, from 10.6% in September 1993 to 5.9% in September 2003 (graph 6.41).

Differences in labour underutilisation between states and territories are primarily driven by differences in unemployment rates. In September 2003, Tasmania (13.5%), South Australia (12.5%) Queensland (12.3%) and Western Australia (11.5%) all had labour force underutilisation rates equal to or above the national average (11.5%) (table 6.42).

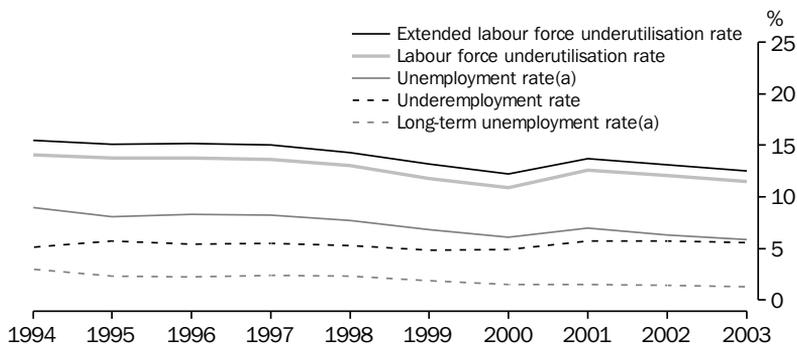
#### 6.40 LABOUR UNDERUTILISATION — September 2003

	Units	Males	Females	Persons
Unemployed	'000	321.0	275.2	596.3
Long-term unemployed	'000	84.0	45.1	129.1
Underemployed	'000	230.5	336.8	567.4
Marginally attached to the labour force(a)				
Actively looking for work, not available in reference week but available to start work within four weeks	'000	17.1	22.3	39.4
Discouraged jobseekers	'000	26.6	53.2	79.8
Labour underutilisation rates				
Long-term unemployment rate(b)	%	1.5	1.0	1.3
Unemployment rate(c)	%	5.7	6.0	5.9
Underemployment rate(d)	%	4.1	7.4	5.6
Labour force underutilisation rate(e)	%	9.8	13.4	11.5
Extended labour force underutilisation rate(f)	%	10.5	14.9	12.5

(a) In this table, marginal attachment to the labour force includes only a subset of the groups usually included. (b) The long-term unemployment rate is the long-term unemployed (persons unemployed for 12 months or more) expressed as a proportion of the labour force. (c) The unemployment rate is the unemployed expressed as a proportion of the labour force. (d) The underemployment rate is the underemployed expressed as a proportion of the labour force. (e) The labour force underutilisation rate is the unemployed, plus the underemployed, expressed as a proportion of the labour force. (f) The extended labour force underutilisation rate is the unemployed, plus the underemployed, plus a subset of persons marginally attached to the labour force, expressed as a proportion of the labour force augmented by the marginally attached persons.

Source: Australian Labour Market Statistics, July 2004 (6105.0).

#### 6.41 LABOUR UNDERUTILISATION RATES



(a) Trend series.

Source: Australian Labour Market Statistics, July 2004 (6105.0).

#### 6.42 LABOUR UNDERUTILISATION, By states and territories — September 2003

	Long-term unemployment rate(a)	Unemployment rate(b)	Underemployment rate(c)	Labour force underutilisation rate(d)	Extended labour force underutilisation rate(e)
	%	%	%	%	%
New South Wales	1.3	5.7	5.2	10.9	12.0
Victoria	1.2	5.5	5.7	11.3	12.2
Queensland	1.3	6.2	6.1	12.3	13.3
South Australia	1.4	6.1	6.4	12.5	13.5
Western Australia	1.3	6.4	5.1	11.5	12.5
Tasmania	2.0	7.3	6.1	13.5	15.4
Northern Territory	0.5	6.1	3.8	10.0	11.0
Australian Capital Territory	0.6	3.9	4.5	8.5	9.1
<b>Australia</b>	<b>1.3</b>	<b>5.9</b>	<b>5.6</b>	<b>11.5</b>	<b>12.5</b>

(a) The long-term unemployment rate is the long-term unemployed (persons unemployed for 12 months or more) expressed as a proportion of the labour force. (b) The unemployment rate is the unemployed expressed as a proportion of the labour force. (c) The underemployment rate is the underemployed expressed as a proportion of the labour force. (d) The labour force underutilisation rate is the unemployed, plus the underemployed, expressed as a proportion of the labour force. (e) The extended labour force underutilisation rate is the unemployed, plus the underemployed, plus a subset of persons marginally attached to the labour force, expressed as a proportion of the labour force augmented by the marginally attached persons.

Source: Australian Labour Market Statistics, July 2004 (6105.0).

#### Volume measures of labour force underutilisation

Labour underutilisation can also be measured in terms of the number of hours of labour that are unutilised. Such 'volume' measures represent the quantity of underutilised labour (rather than the number of people affected) and may be more relevant for analysing the spare capacity of the labour force than measures based on the number of people whose labour is underutilised. The volume of underutilised labour in the labour force is derived as the number of hours of work sought by unemployed persons plus the number of additional hours of work offered by underemployed workers. The volume labour force

underutilisation rate is the ratio of the number of hours that are unutilised to the total number of utilised and unutilised hours in the labour force.

Table 6.43 shows experimental volume measures of labour force underutilisation for September 2003. Separate rates relating to the volume of unemployment and the volume of underemployment can also be calculated from the way the volume labour force underutilisation rate is derived. For all three underutilisation measures (i.e. unemployment, underemployment and labour force underutilisation), the experimental volume rates were lower than the corresponding headcount rates.

#### 6.43 VOLUME MEASURES(a) OF LABOUR UNDERUTILISATION — September 2003

	Units	Males	Females	Persons
Volume of potential labour in the labour force				
Unemployed persons (hours of work sought)	'000 hours	10 924.5	7 822.8	18 747.3
Underemployed workers (additional hours of work offered)	'000 hours	4 203.3	4 806.3	9 009.6
Employed persons (usual hours of work performed)(b)	'000 hours	218 127.6	130 761.2	348 888.8
<b>Total(c)</b>	<b>'000 hours</b>	<b>233 255.3</b>	<b>143 390.3</b>	<b>376 645.7</b>
Experimental volume measures of labour force underutilisation				
Volume unemployment rate	%	4.7	5.5	5.0
Volume underemployment rate	%	1.8	3.4	2.4
Volume labour force underutilisation rate	%	6.5	8.8	7.4

(a) Experimental estimates, based on the number of hours of work sought and offered. (b) Actual hours worked in the reference week for underemployed full-time workers and usual hours worked for all other employed persons. (c) The volume of potential labour in the labour force is equal to the hours of labour sought by unemployed persons, plus the hours of labour offered by underemployed workers (both utilised and unutilised), plus the hours of labour usually provided by employed persons who are not underemployed.

Source: Australian Labour Market Statistics, July 2004 (6105.0).

In September 2003, hours sought by the unemployed (18.7 million hours) formed the largest component (68%) of the volume of underutilised labour in the labour force. Additional hours offered by the underemployed (9.0 million hours) formed the remainder. Table 6.44 shows the average number of weekly hours sought or offered by the two population groups included in the volume measures. On average, unemployed people sought 31 hours of work a week, with men seeking 34 hours compared with 28 hours for women. In contrast, underemployed people offered an average of 16 hours of additional labour, with men again offering more hours (18 hours) than women (14 hours).

Unlike the headcount measures of underutilised labour, the experimental volume measures take into account the number of hours worked or sought by individuals and this has the effect of weighting people according to the number of hours that they either worked or sought. For example, the large difference between the headcount and volume underemployment rates (5.6% and 2.4% respectively) reflects the large difference between the additional hours offered by the underemployed (15.6 hours a week) and the hours worked by the employed (36.5 hours).

**6.44 UNDERUTILISED LABOUR(a), Average weekly hours sought or offered by selected groups — September 2003**

	Males	Females	Persons
Unemployed	34.0	28.4	31.4
Seeking full-time work	37.8	33.6	36.1
Seeking part-time work	17.4	18.7	18.2
Underemployed	17.7	14.2	15.6
Seeking full-time work	21.0	17.5	20.1
Seeking part-time work	17.1	14.1	15.2

(a) Experimental estimates.

Source: *Australian Labour Market Statistics, July 2004* (6105.0).

## Earnings and benefits

Statistics on earnings are of interest to help evaluate the standard of living of employees and to make policy decisions regarding income redistribution, social welfare, taxation and wage fixation. Comprehensive earnings statistics are required by all levels of government, social and labour market analysts, industrial tribunals, trade

unions, employer associations, academics and international agencies. Information about the benefits received by workers provides a broader picture of working conditions and of rewards provided for work done.

The ABS concept of earnings is based on the definition adopted by the twelfth International Conference of Labour Statisticians in 1973. Earnings are considered to be remuneration to employees for time worked or work done, as well as remuneration for time not worked (e.g. paid annual leave). Many employees also receive other benefits in addition to earnings, including long-service leave and superannuation.

The ABS produces a range of statistics on earnings paid to workers. The quarterly Survey of Average Weekly Earnings (AWE) and the biennial Survey of Employee Earnings and Hours (EEH) both provide a statistical measure of the cash remuneration paid to employees. The EEH survey also provides estimates of earnings for each of the pay setting methods (i.e. awards, individual agreements and collective agreements). The Survey of Employee Earnings, Benefits and Trade Union Membership, which is run annually as a Labour Force Supplementary Survey, provides information about the earnings of employees, as well as the number and type of employee benefits received by workers. It does not, however, quantify the value of these benefits.

The quarterly Wage Cost Index (WCI) measures the quarterly changes to wages and salaries of a representative mix of employee jobs. Unlike the AWE and EEH surveys, the WCI is unaffected by changes in the quantity or quality of work performed. The ABS is currently developing a labour price index, which will also reflect changes in the price of 'non-wage' components (e.g. superannuation and workers' compensation) which contribute to the cost to employers of employing labour.

## Level of earnings

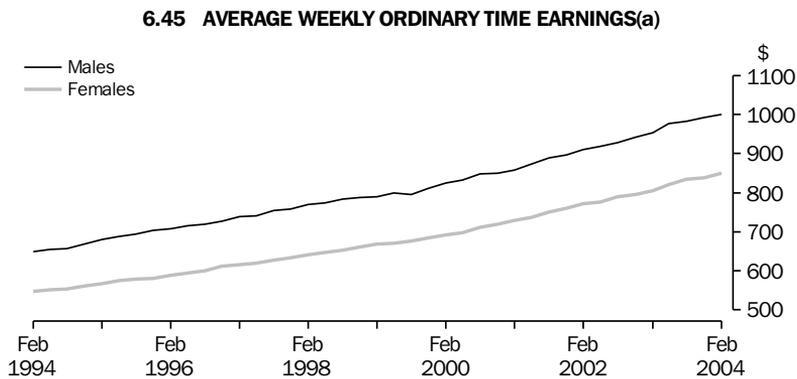
Data on the level of earnings reflect the variations within different population groups, and across industries and occupations, providing a more detailed picture of their comparative experiences. Differences in earnings are also of interest in reflecting the strength of labour demand and supply.

The AWE survey provides an estimate of the gross weekly earnings paid to employees by measuring earnings during a one-week reference period in the middle month of a quarter (excluding irregular earnings not related to the reference period). Data are collected from the payrolls of a sample of employers.

The AWE survey collects three types of earnings data. Average weekly ordinary time earnings for full-time adult employee jobs (commonly referred to as AWOTE) relate to that part of total earnings attributable to award, standard or agreed hours of work. A second measure is full-time adult total earnings, which includes both ordinary time and overtime pay. A third measure is total earnings for all employees (including full-time and part-time, adult and junior).

Graph 6.45 shows AWOTE from February 1994 to February 2004. Over the 10-year period AWOTE for male employees increased by 54%, from \$648.70 to \$1,000.70, while AWOTE for female employees increased by 56%, from \$546.70 to \$851.00.

Table 6.46 shows in February 2004 the difference between male and female average weekly earnings was least for AWOTE (females earned 85% of the male figure of \$1,000.70) and greatest for all employees total earnings (females earned 66% of the male figure of \$900.10). The latter difference reflects the inclusion of part-time employees (a higher proportion of female employees work part-time) and the inclusion of overtime pay (of which males earn more than females). In February 2004, 45% of female employees worked part-time compared with 14% of male employees.



(a) For full-time adult employees.

Source: *Average Weekly Earnings, Australia, February 2004 (6302.0)*.

**6.46 AVERAGE WEEKLY EARNINGS  
— February 2004**

	Males	Females	Persons
	\$	\$	\$
Full-time adult ordinary time earnings	1 000.70	851.00	947.80
Full-time adult total earnings	1 064.00	865.60	993.90
All employees total earnings	900.10	591.70	754.30

Source: *Average Weekly Earnings, Australia, February 2004* (6302.0).

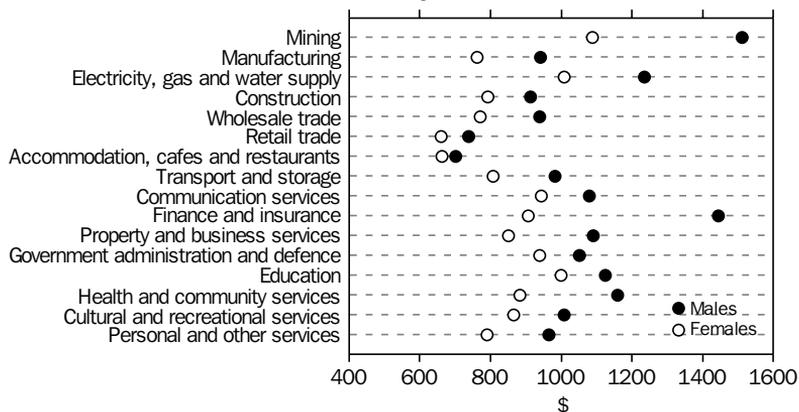
Table 6.47 presents the male and female AWOTE for full-time adults by state and territory in February 2004. The highest weekly earnings for both males and females were in the Australian Capital Territory. The lowest weekly earnings for males and females were in Tasmania.

**6.47 AVERAGE WEEKLY EARNINGS, By state and territory — February 2004**

	Full-time adult ordinary time earnings		
	Males	Females	Persons
	\$	\$	\$
New South Wales	1 044.60	897.20	991.40
Victoria	1 014.60	844.30	956.10
Queensland	927.30	807.50	884.60
South Australia	897.00	812.60	868.10
Western Australia	1 022.40	797.60	946.30
Tasmania	871.60	757.20	835.70
Northern Territory	981.40	865.00	932.60
Australian Capital Territory	1 151.90	960.70	1 067.80
<b>Australia</b>	<b>1 000.70</b>	<b>851.00</b>	<b>947.80</b>

Source: *Average Weekly Earnings, Australia, February 2004* (6302.0).

**6.48 AVERAGE WEEKLY ORDINARY TIME EARNINGS(a), By industry(b)  
— February 2004**



(a) For full-time adult employees. (b) Classified according to the Australian and New Zealand Standard Industrial Classification.

Source: *Average Weekly Earnings, Australia, February 2004* (6302.0).

Graph 6.48 shows in February 2004 the mining industry recorded the highest AWOTE for full-time adults of \$1,510.40 for males and \$1,088.10 for females. The industries with the lowest average for males and females were accommodation, cafes and restaurants (\$701.40 for males and \$662.90 for females) and retail trade (\$739.60 and \$662.00).

AWOTE for full-time adult females was less than for males in all industries. Full-time adult females earned approximately two-thirds (63%) of male full-time adult ordinary time earnings in the finance and insurance industry, rising to 95% in the accommodation, cafes and restaurants industry.

Data on average weekly earnings are also available from the biennial Survey of Employee Earnings and Hours (EEH). This survey provides additional classifications of the data, such as category of employee, type of earnings and occupation. Average weekly total earnings for full-time adult employees by occupation for May 2002 are presented in graph 6.49. For both males and females, elementary clerical, sales and service workers earned the lowest average weekly earnings of all the occupation groups (\$693.20 for males and \$578.40 for females), whereas the highest earnings were for managers and administrators (\$1,525.50 for males and \$1,240.00 for females).

Men had higher average earnings than women in each major occupation group. For full-time adult employees, the proportional difference between male and female average weekly total earnings was smallest for professionals (average earnings of females were 86% of those of males) and greatest for intermediate production and transport workers (72%).

### How pay is set

Information on the methods of setting the main part of employees' pay is collected in the biennial EEH survey. Three different methods of setting pay are identified in EEH: awards; collective agreements; and individual agreements. Data are

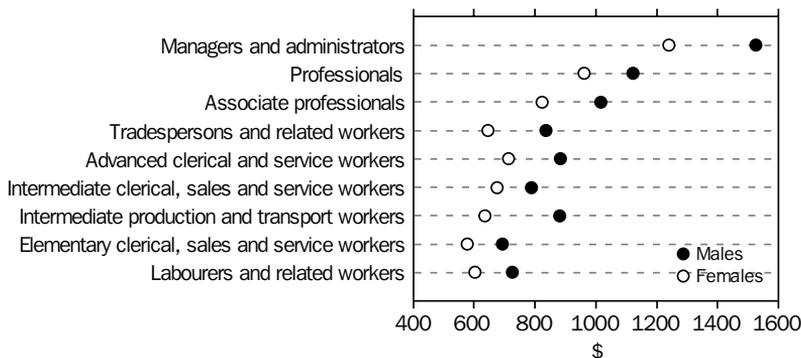
also collected on whether agreements (individual and collective) are certified, approved or registered with an industrial tribunal or authority.

Awards are legally enforceable determinations made by federal or state industrial tribunals that set the terms of employment, including pay. In the EEH survey, employees whose pay is set by 'award only' are those who have the main part of their pay set by an award and who are not paid more than the award rate of pay.

Collective agreements, which include enterprise and workplace agreements, are arrangements between one or more employers and a group of employees (or associations representing employees) that set the terms of employment, including pay, for a group of employees.

Individual agreements set the terms of employment, including pay, for an individual employee, and are agreed to by the individual. The agreement may be verbal or written. Employees whose pay is set by individual agreements include those who have registered individual agreements, those whose pay is set by an individual common law contract, employees receiving pay at more than the award rate by individual agreement, and working proprietors of incorporated enterprises who set their own rate of pay.

**6.49 AVERAGE WEEKLY TOTAL EARNINGS(a), By occupation(b) — May 2002**



(a) For full-time adult employees. (b) Classified according to the Australian Standard Classification of Occupations.

Source: *Employee Earnings and Hours, Australia, May 2002* (6306.0).

Table 6.50 shows in May 2002 the most common method of setting pay was individual agreements (41%), followed by collective agreements (38%) and awards only (20%). Half of all private sector employees had their pay set by individual agreements (50%). In contrast, only 6% of public sector employees had their pay set by individual agreements, with the majority covered by collective agreements (90%). Males were more likely than females to have their pay set by an individual agreement (48% compared with 35%), and less likely than females to have their pay set by an award only (15% compared with 26%). Part of the difference between male and female employees' pay setting methods can be attributed to their different occupation and industry mix.

### Changes in the price of labour

Changes in the price of labour are derived from quality adjusted average hourly rates of pay (excluding bonuses) of a representative sample of employee jobs. These data are compiled to form the quarterly wage cost index (WCI). The WCI is a 'pure' price index which measures changes over time in wage and salary costs in the Australian labour market. The WCI is unaffected by changes in the quality and quantity of work performed.

As shown in table 6.51, increases in the indexes for total hourly rates of pay excluding bonuses varied across sectors, and across states and territories. For Australia, the growth through the year to March quarter 2004 was the same as for the year through to the March quarter 2003 (3.6%). In the year through to March quarter 2004 (i.e. from the March quarter 2003 to the March quarter 2004), public sector wages grew by 4.3% and private sector wages grew by 3.3%. Since the March quarter 2001, the percentage growth (from the corresponding quarter of the previous year) of public sector wages has been higher than or equal to the growth in private sector wages with the exception of the September quarter 2002.

For the states and territories, the highest increase through the year to the March quarter 2004 was recorded by the Australian Capital Territory (4.2%) and the lowest by Western Australia (3.1%). The Northern Territory recorded the smallest increase through the year to the March quarter 2004 in the private sector (2.9%), and South Australia the highest (4.0%). For the same period, in the public sector Western Australia recorded the lowest increase (2.9%) and New South Wales the largest (5.1%).

**6.50 METHODS OF SETTING PAY, By sector — May 2002**

	Award only %	Collective agreement(a) %	Individual agreement(a) %	Total %
<b>Males</b>				
Private sector	17.7	25.8	56.6	100.0
Public sector	4.0	88.5	7.6	100.0
All sectors	15.1	37.3	47.5	100.0
<b>Females</b>				
Private sector	32.2	24.1	43.7	100.0
Public sector	5.1	90.9	4.0	100.0
All sectors	26.1	39.2	34.7	100.0
<b>Persons</b>				
Private sector	24.6	25.0	50.5	100.0
Public sector	4.6	89.8	5.6	100.0
<b>All sectors</b>	<b>20.5</b>	<b>38.2</b>	<b>41.3</b>	<b>100.0</b>

(a) Includes registered and unregistered agreements.

Source: *Employee Earnings and Hours, Australia, May 2002 (6306.0)*.

### 6.51 TOTAL HOURLY RATES OF PAY EXCLUDING BONUSES, By sector

	Index numbers(a)					Percentage change from March qtr 2003 to March qtr 2004
	March qtr 2003	June qtr 2003	September qtr 2003	December qtr 2003	March qtr 2004	
<b>PRIVATE</b>						
New South Wales	119.7	120.2	121.6	122.7	123.5	3.2
Victoria	119.0	119.7	121.2	122.1	122.7	3.1
Queensland	117.5	118.2	119.2	120.8	121.8	3.7
South Australia	118.4	119.1	121.0	122.2	123.1	4.0
Western Australia	119.2	119.9	121.4	122.3	123.1	3.3
Tasmania	115.9	116.7	118.2	119.4	120.0	3.5
Northern Territory	116.1	116.4	117.6	118.1	119.5	2.9
Australian Capital Territory	118.9	119.2	121.1	122.5	122.9	3.4
Australia	118.9	119.5	120.9	122.0	122.8	3.3
<b>PUBLIC</b>						
New South Wales	123.7	124.2	127.1	127.8	130.0	5.1
Victoria	120.0	121.4	122.5	123.3	124.1	3.4
Queensland	120.8	121.1	122.9	124.2	126.0	4.3
South Australia	120.8	121.2	123.3	125.2	125.9	4.2
Western Australia	119.1	119.5	121.1	121.9	122.5	2.9
Tasmania	117.8	118.7	120.7	121.3	121.7	3.3
Northern Territory	119.4	119.6	120.8	123.0	123.6	3.5
Australian Capital Territory	117.6	117.9	120.7	122.1	123.3	4.8
Australia	121.1	121.8	123.8	124.8	126.3	4.3
<b>ALL SECTORS</b>						
New South Wales	120.6	121.1	122.8	123.8	124.9	3.6
Victoria	119.2	120.0	121.5	122.3	123.0	3.2
Queensland	118.4	119.0	120.2	121.7	122.9	3.8
South Australia	119.1	119.7	121.6	123.0	123.9	4.0
Western Australia	119.2	119.8	121.3	122.2	122.9	3.1
Tasmania	116.6	117.4	119.0	120.0	120.6	3.4
Northern Territory	117.4	117.6	118.8	120.1	121.1	3.2
Australian Capital Territory	118.1	118.4	120.8	122.2	123.1	4.2
Australia	119.4	120.1	121.6	122.7	123.7	3.6

(a) Base of each index: September quarter 1997 = 100.0.

Source: Wage Cost Index, Australia (6345.0).

Graph 6.52 compares the rate of increase in wages across all major occupation groups for the year through to March quarter 2004 and the year through to the March quarter 2003. In both periods, wages growth for professionals (3.9% to March quarter 2004 and 4.2% to March quarter

2003) was greater than that for other major occupation groups. Managers and administrators, and labourers and related workers recorded the lowest annual growth rate of 3.2% for the year through to March quarter 2004.

### 6.52 TOTAL HOURLY RATES OF PAY EXCLUDING BONUSES, By occupation(a)



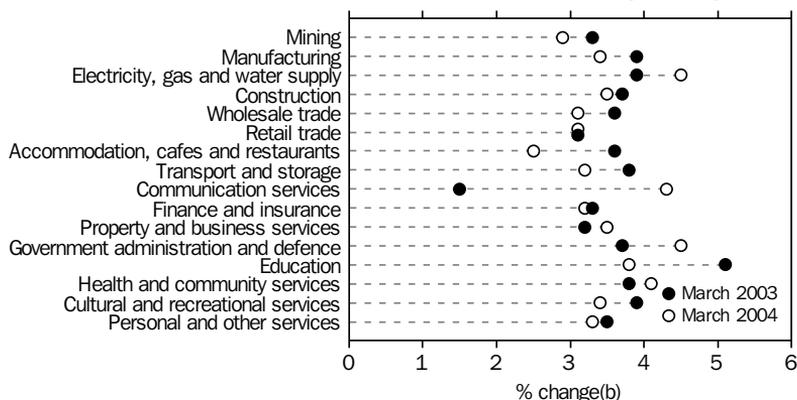
(a) Classified according to the Australian Standard Classification of Occupations. (b) Percentage change from corresponding quarter of previous year.

Source: *Wage Cost Index, Australia (6345.0)*.

Annual growth by industry is shown in graph 6.53. For the year through to the March quarter 2004, the increases in wages ranged from 2.5% for the accommodation, cafes and restaurants industry to 4.5% for electricity, gas and water supply, and government administration and defence industries. Communication services showed the greatest change with a 4.3% increase for the year through to March quarter 2004 compared with the 1.5% increase for the year through to the

March quarter 2003. The annual growth rate of the WCI was lower the year through to March quarter 2004 than for the previous year for the majority of industries, the exceptions being electricity, gas and water supply, communication services, property and business services, government administration and defence, and health and community services industries, with the rate remaining the same for the retail trade industry.

### 6.53 TOTAL HOURLY RATES OF PAY EXCLUDING BONUSES, By industry(a)



(a) Classified according to the Australian and New Zealand Standard Industrial Classification. (b) Percentage change from corresponding quarter of previous year.

Source: *Wage Cost Index, Australia (6345.0)*.

## Non-wage benefits

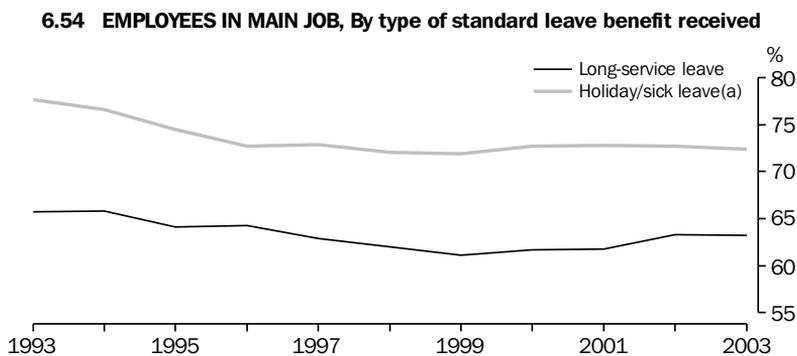
Types of non-wage benefits received by employees include leave benefits (such as holiday leave, sick leave, long-service leave, maternity/paternity leave), and superannuation. Data on these employment benefits are collected in the ABS Survey of Employee Earnings, Benefits and Trade Union Membership, covering the nature and type (but not value) of benefits.

### Leave benefits

As shown in graph 6.54, the proportion of employees entitled to paid holiday leave or sick leave declined over the period 1993–2003 (from 78% of all employees in 1993 to 72% in 2003), with most of the decline occurring between 1993 and 1996. Entitlement to long-service leave fell between 1993 and 1999 (from 66% to 61% of all employees), but has since increased to 63% in 2003.

Table 6.55 shows the proportion of employees entitled to standard leave benefits by occupation. In August 2003 about three-quarters (76%) of male employees were entitled to paid holiday and/or sick leave. More than 80% of males were entitled to holiday and/or sick leave in five occupation groups: managers and administrators, professionals, associate professionals, tradespersons and related workers, and advanced clerical and service workers.

Just over two-thirds (68%) of females were entitled to paid holiday and/or sick leave. For females there were three occupation groups with more than 80% of employees entitled to these leave benefits: managers and administrators, professionals, and associate professionals.



(a) Of those persons entitled to paid holiday and/or sick leave, 97% were entitled to both types of leave.

Source: *Employee Earnings, Benefits and Trade Union Membership, Australia (6310.0)*.

### 6.55 EMPLOYEES IN MAIN JOB, Leave entitlements — August 2003

Occupation(a)	Units	Sick leave and/or holiday leave(b)	Long-service leave
<b>MALES</b>			
Managers and administrators	%	85.7	72.6
Professionals	%	83.7	74.0
Associate professionals	%	81.6	69.3
Tradespersons and related workers	%	81.7	70.5
Advanced clerical and service workers	%	83.7	75.3
Intermediate clerical, sales and service workers	%	79.3	71.7
Intermediate production and transport workers	%	72.9	63.6
Elementary clerical, sales and service workers	%	49.9	42.6
Labourers and related workers	%	56.1	45.1
All occupations	%	76.0	65.7
Total number of employees	'000	3 311.2	2 861.1
<b>FEMALES</b>			
Managers and administrators	%	85.1	75.6
Professionals	%	83.6	78.8
Associate professionals	%	81.4	71.1
Tradespersons and related workers	%	65.8	43.6
Advanced clerical and service workers	%	72.3	61.0
Intermediate clerical, sales and service workers	%	69.5	61.2
Intermediate production and transport workers	%	64.7	58.2
Elementary clerical, sales and service workers	%	41.0	36.0
Labourers and related workers	%	47.1	38.6
All occupations	%	68.1	60.3
Total number of employees	'000	2 553.4	2 262.4
<b>PERSONS</b>			
Managers and administrators	%	85.6	73.3
Professionals	%	83.6	76.5
Associate professionals	%	81.5	70.0
Tradespersons and related workers	%	80.3	68.1
Advanced clerical and service workers	%	73.6	62.7
Intermediate clerical, sales and service workers	%	72.1	64.0
Intermediate production and transport workers	%	71.8	62.9
Elementary clerical, sales and service workers	%	44.1	38.2
Labourers and related workers	%	52.7	42.6
All occupations	%	72.4	63.2
Total number of employees	'000	5 864.6	5 123.5

(a) Classified according to the Australian Standard Classification of Occupations. (b) Of those persons entitled to paid holiday and/or paid sick leave, 97% were entitled to both types of leave.

Source: *Employee Earnings, Benefits and Trade Union Membership, Australia, August 2003 (6310.0)*.

## Superannuation

Under the *Superannuation Guarantee Act* (Cwlth) introduced in 1992, employers are obliged to make superannuation contributions on behalf of most employees. This has resulted in an increase in superannuation coverage provided by employers. As shown in graph 6.56, superannuation coverage increased from 80% of all employees in August 1992 to 90% in August 2003. There are some exempt employees: for example, employers are not obliged to contribute to superannuation for

employees aged less than 18 years who are working not more than 30 hours a week, or for employees on low earnings.

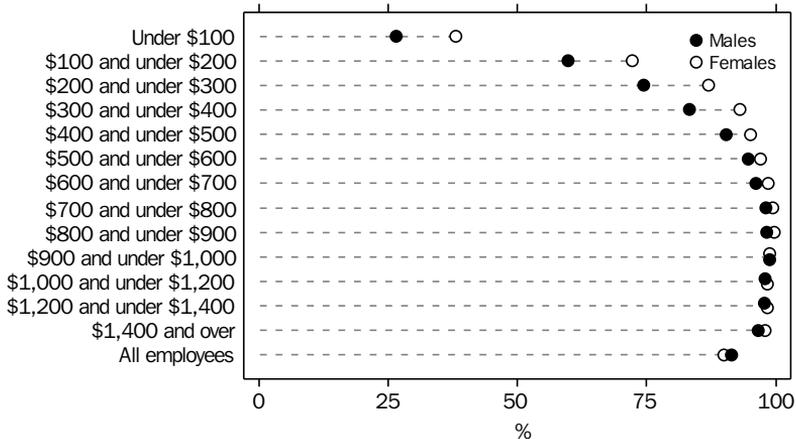
Graph 6.57 shows the proportion of employees entitled to superannuation by earnings group in August 2003. Overall, the proportion of male and female employees entitled to superannuation was similar (males 91%, females 90%). In the lower earnings groups, females have higher superannuation coverage than males. In August 2003, 58% of female employees earning less than \$200 a week were entitled to superannuation, compared with 43% of male employees.

**6.56 EMPLOYEES IN MAIN JOB, Entitled to superannuation**



Source: *Employee Earnings, Benefits and Trade Union Membership, Australia* (6310.0).

**6.57 EMPLOYEES ENTITLED TO SUPERANNUATION IN MAIN JOB, By weekly earnings — August 2003**

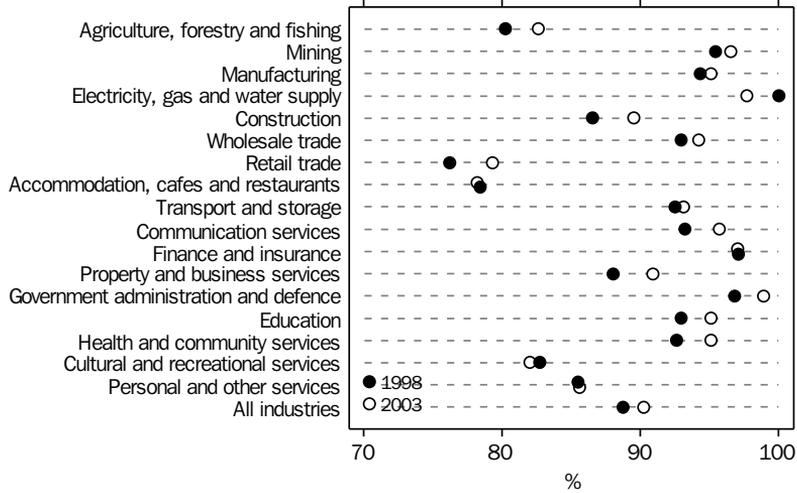


Source: *Employee Earnings, Benefits and Trade Union Membership, Australia, August 2003* (6310.0).

Between August 1998 and August 2003 superannuation coverage provided by employers increased for most industries. The largest increase over this period was in the retail trade industry, rising from 76% of all employees in August 1998 to 79% in August 2003.

In August 2003 superannuation coverage was highest in government administration and defence industry (99%). The accommodation, cafes and restaurants, and retail trade industries had the lowest superannuation coverage (78% and 79% respectively); the two industries also have the lowest average earnings (graph 6.58 and graph 6.48).

**6.58 EMPLOYEES ENTITLED TO SUPERANNUATION IN MAIN JOB, By industry(a)**



(a) Classified according to the Australian and New Zealand Standard Industrial Classification.

Source: *Employee Earnings, Benefits and Trade Union Membership, Australia (6310.0)*.

## Labour costs

The Survey of Major Labour Costs (MLC) obtains information from employing businesses about the main labour costs incurred as a consequence of employing labour. The MLC survey has been conducted on an irregular basis since 1985–86 and was most recently conducted in respect of 2002–03.<sup>1</sup>

The MLC collects information on the following components of labour costs:

- employee earnings
- employer contributions to superannuation
- payroll tax
- workers' compensation costs
- fringe benefits tax.

These costs are measured on a cash accounting basis, net of any reimbursements, subsidies or rebates.

A number of labour costs have not been covered by this survey. These include training, costs associated with employee welfare services, and recruitment. With the exception of training costs, these items are not considered to make a significant contribution to total labour costs.<sup>2</sup>

### Total labour costs

Total labour costs incurred by employers in 2002–03, as defined in the MLC survey, were \$354,150m (table 6.59). Total labour costs for the private sector were \$270,330m, representing 76% of the labour costs of all employers. Total labour costs for the public sector, which includes public

trading and financial enterprises as well as Australian (Commonwealth), state and local government departments and authorities, were \$83,821m.

### Components of labour costs

Table 6.59 shows the largest component of labour costs was employee earnings (\$306,609m), which accounted for 87% of total labour costs. Earnings, as defined in the MLC, includes gross wages and salaries, the value of salary sacrificed (excluding fringe benefits tax), the ungrossed value of fringe benefits provided by employers through arrangements other than salary sacrifice, and severance, termination and redundancy payments.

Superannuation was the next largest labour cost after earnings, with a total value of employer contributions paid on behalf of employees of \$26,930m (8% of total labour costs). Payroll tax accounted for \$10,121m (3%), Workers' compensation costs \$7,815m (3%), and Fringe benefits tax \$2,675m (1%).

### Labour costs per employee

In 2002–03 total labour costs per employee were \$42,578 (table 6.60). Labour costs per employee varied considerably across industries, with the mining industry having the highest labour costs per employee of \$96,399, followed by the electricity, gas and water supply industry with \$75,361. These high labour costs per employee industries reflect the high level of earnings in these industries.

**6.59 MAJOR LABOUR COSTS, By sector**

	Earnings \$m	Super- annuation \$m	Payroll tax \$m	Workers' compensation \$m	Other labour costs		Total labour costs \$m
					Fringe benefits tax \$m	Total \$m	
Private	233 955.8	20 086.4	7 708.3	6 276.3	2 302.7	36 373.7	270 329.6
Public	72 653.5	6 843.7	2 412.4	1 538.6	372.5	11 167.2	83 820.7
Commonwealth	13 450.3	1 163.3	294.4	176.4	118.9	1 753.0	15 203.3
State	53 323.4	5 203.9	2 090.6	1 155.4	214.6	8 664.4	61 987.8
Local	5 879.8	476.6	27.5	206.8	39.0	749.9	6 629.6
<b>All sectors</b>	<b>306 609.3</b>	<b>26 930.1</b>	<b>10 120.7</b>	<b>7 814.9</b>	<b>2675.2</b>	<b>47 540.9</b>	<b>354 150.3</b>

Source: Labour Costs, Australia (6348.0.55.001).

The service-related industries had the lowest labour costs with the accommodation, cafes and restaurants, and retail trade industries recording labour costs per employee of \$23,934 and \$25,061 respectively. In part, this reflects the high proportion of persons in these industries who are employed part-time (49% in accommodation, cafes and restaurants, and 47% in retail trade in 2002–03). In contrast, the proportion of part-time employees in mining, and electricity, gas and water supply – the two industries with the highest labour costs per employee – was only 3% and 5% respectively.

Table 6.60 also shows industries that traditionally involve a high degree of manual labour had the highest per employee workers' compensation costs. The mining industry recorded a per employee workers' compensation cost of \$3,026, followed by the construction (\$1,871) and manufacturing (\$1,652) industries. This could reflect the higher premiums as a result of the increased risk of physical injury in these industries.

**6.60 MAJOR LABOUR COSTS PER EMPLOYEE, By industry**

	Other labour costs						Total labour costs per employee
	Earnings	Super-annuation	Payroll tax	Workers' compensation	Fringe benefits tax	Total	
	\$	\$	\$	\$	\$	\$	
Mining	81 335	6 040	4 297	3 026	1 701	15 064	96 399
Manufacturing	43 510	3 624	1 985	1 652	526	7 787	51 297
Electricity, gas and water supply	64 296	5 669	3 534	1 147	715	11 065	75 361
Construction	37 397	3 237	821	1 871	*191	6 120	43 517
Wholesale trade	41 723	3 774	1 501	881	891	7 047	48 770
Retail trade	21 958	1 801	662	527	113	3 103	25 061
Accommodation, cafes and restaurants	20 844	1 712	561	737	81	3 090	23 934
Transport and storage	43 871	3 740	1 951	1 631	278	7 600	51 471
Communication services	56 611	(a)1 635	2 854	869	698	6 057	62 667
Finance and insurance	52 395	3 626	2 521	373	930	7 451	59 846
Property and business services	37 435	3 545	1 108	594	314	5 561	42 996
Government administration and defence	45 056	4 856	842	889	297	6 884	51 940
Education	38 598	4 028	1 605	589	144	6 365	44 963
Health and community services	35 443	3 210	219	939	85	4 454	39 897
Cultural and recreational services	28 404	2 384	994	505	247	4 131	32 535
Personal and other services	34 154	3 295	1 173	1 182	224	5 873	40 027
<b>All industries</b>	<b>36 855</b>	<b>3 240</b>	<b>1 221</b>	<b>939</b>	<b>323</b>	<b>5 722</b>	<b>42 578</b>

(a) The superannuation costs of the Communication services industry were particularly affected by the use of surplus funds in some defined benefit schemes to offset employer contributions.

Source: *Labour Costs, Australia* (6348.0.55.001).

## Endnotes

- 1 Estimates for the 2002–03 MLC were published in *Labour Costs, Australia* (6348.0.55.001).
- 2 For more information on training costs, refer to *Employer Training Expenditure and Practices, Australia* (6362.0).

## Industrial relations

Industrial relations can be regarded as the relationships and interactions in the labour market between employers and employees (and their representatives), and the intervention in these relations by governments, government agencies and tribunals (e.g. the Australian Industrial Relations Commission).

Historically, governments have regulated the Australian labour market to varying degrees. Changes to the structure or processes underpinning the industrial relations environment have generally followed changes in governments, and periods of social or economic change. For most of the last century, employee-employer relationships were shaped by highly centralised Commonwealth and state tribunal-based systems of conciliation and arbitration. However, since the late-1980s, the industrial relations environment in Australia has undergone significant change and is now characterised by more decentralised arrangements.

The field of industrial relations is complex and diverse and, for statistical purposes, is not easily measured. The ABS collects information on a number of topics to provide an insight into the state of the industrial relations environment, including industrial disputes, trade union

membership, and the methods used for setting pay (i.e. collective agreements, individual agreements and awards, see *How pay is set*).

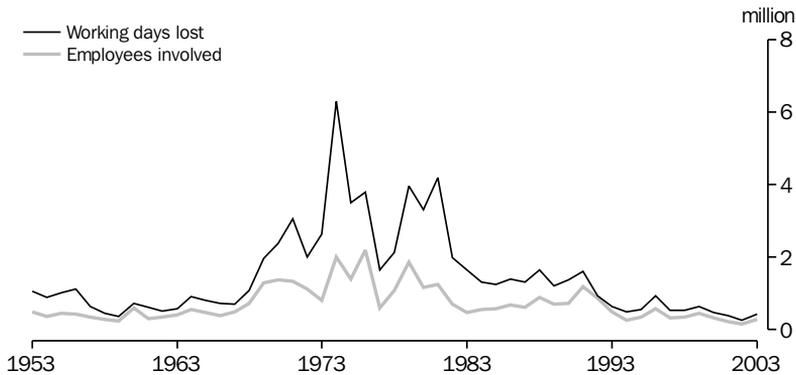
## Industrial disputes

In ABS statistics, an industrial dispute is a state of disagreement over a particular issue or group of issues between an employer and its employees, that results in employees ceasing work. Industrial disputes comprise strikes, which are a withdrawal from work by a group of employees; and lockouts, which are a refusal by an employer or group of employers to permit some or all of their employees to work.

This section presents statistics on industrial disputes involving the loss of 10 working days or more at the locations where the stoppages occurred. Working days lost refers to working days lost by workers directly or indirectly involved in disputes at those locations. Directly involved employees are those who actually participated in the dispute, while indirectly involved employees are those who ceased work at the location where the stoppages occurred, but who were not themselves parties to the dispute.

The number of working days lost per year, and the number of employees involved, have fluctuated from year to year, but have demonstrated a significant downward trend over the last two decades (graph 6.61).

**6.61 INDUSTRIAL DISPUTES**



Source: *Industrial Disputes, Australia (6321.0)*; *Industrial Disputes, Australia (6321.0.55.001)*.

Table 6.62 shows 439,400 working days were lost in 2003, a rise of 70% from 2002. Over the same period the total number of employees involved in industrial disputes rose by 73% to 275,600. This was the first increase in both the number of working days lost and the number of employees involved since 1999. In contrast, the 643 disputes that occurred in 2003 represented a decrease of 16% over the number recorded in 2002 (767). Correspondingly, the average number of working days lost per dispute almost doubled, from 338 in 2002 to 683 in 2003.

Table 6.63 shows the number of working days lost per thousand employees increased from 33 in 2002 to 54 in 2003. This was the first increase in the number of working days lost per thousand employees since 1999.

Of the industries shown, coal mining had the highest number in each year between 1998 and 2003, although the 375 working days lost per thousand employees in 2003 was considerably less than the number in 1998 (3,018). The construction industry had the second highest number of working days lost per thousand employees in each year between 1998 and 2002, while the other mining industry had the second highest number of working days lost per thousand employees in 2003. Other mining recorded a large increase between 2002 and 2003, from 20 to 330 working days lost per thousand employees. The metal products, machinery industry and equipment manufacturing industry (up from 92 to 215) and the combined education, and health and community services industry (up from 3 to 76) also recorded large increases between 2002 and 2003.

### 6.62 INDUSTRIAL DISPUTES

	Disputes no.	Employees involved '000	Working days lost '000	Working days lost per dispute no.
1998	520	348.4	526.3	1 014
1999	731	461.2	650.6	890
2000	700	325.4	469.1	670
2001	675	225.7	393.1	582
2002	767	159.7	259.0	338
2003	643	275.6	439.4	683

Source: *Industrial Disputes, Australia* (6321.0.55.001).

### 6.63 WORKING DAYS LOST PER THOUSAND EMPLOYEES(a)

Industry(b)	1998 '000	1999 '000	2000 '000	2001 '000	2002 '000	2003 '000
Mining						
Coal	3 018.4	1 431.9	2 070.4	1 154.3	361.8	375.1
Other	21.3	35.9	63.1	32.9	19.6	330.1
Manufacturing						
Metal products; Machinery and equipment	72.8	283.2	173.1	269.2	92.2	214.9
Other	106.1	131.0	120.8	149.4	82.7	59.6
Construction	519.0	379.0	239.0	280.2	224.6	248.6
Transport and storage; Communication services	163.8	59.4	77.4	39.4	54.2	53.7
Education; Health and community services	51.3	149.0	71.0	7.0	3.1	76.1
Other industries(c)	7.5	6.9	8.7	7.1	8.7	4.9
<b>All industries</b>	<b>71.9</b>	<b>87.3</b>	<b>61.0</b>	<b>50.4</b>	<b>32.5</b>	<b>53.7</b>

(a) Following the introduction of quarterly industrial disputes statistics in March 2004, the methodology for calculating working days lost per thousand employees has changed. As a result, the historical series has been revised on the new basis. (b) Classified according to the Australian and New Zealand Standard Industrial Classification. (c) Includes: Agriculture, forestry and fishing; Electricity, gas and water supply; Wholesale trade; Retail trade; Accommodation, cafes and restaurants; Finance and insurance; Property and business services; Government administration and defence; Cultural and recreational services; and Personal and other services.

Source: *Industrial Disputes, Australia* (6321.0.55.001).

## Trade union membership

A trade union is defined as an organisation, consisting predominantly of employees, whose principal activities include the negotiation of rates of pay and conditions of employment for its members. In August 2003 there were 1,866,700 employees who were trade union members in their main job. As shown in table 6.64, this represents 23% of all employees. The public sector has a higher rate of unionisation, with 47% of employees having trade union membership, compared with 18% in the private sector. A slightly higher proportion of males than females are trade union members (24% compared with 22%).

**6.64 TRADE UNION MEMBERSHIP — August 2003**

Sector	Males %	Females %	Persons %
Public	52.4	42.4	46.9
Private	19.0	15.8	17.6
All sectors	24.1	21.8	23.0

Source: *Employee Earnings, Benefits and Trade Union Membership, Australia, August 2003* (6310.0).

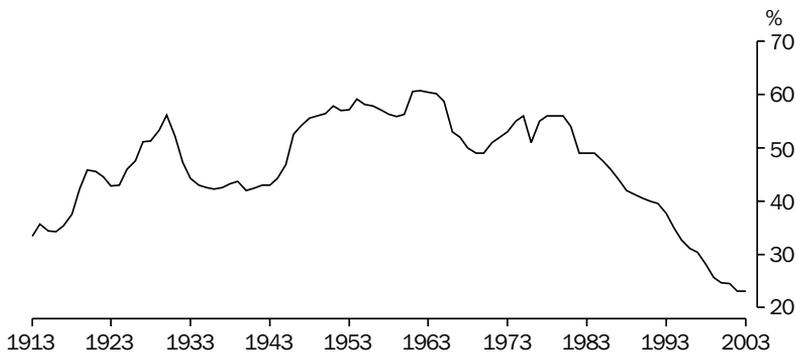
Trade union membership in Australia experienced growth throughout much of the 20th century, peaking at 61% in 1962 (graph 6.65). Between

1962 and 1970 trade union membership declined rapidly. This was followed by increasing membership during the 1970s. However, since then the proportion of employees who were trade union members has steadily declined.

Some of the factors contributing to the decline in trade union membership include the changing workplace relations environment and the changing industry composition of the labour market, for example, declines in employment levels in traditionally highly unionised industries and the emergence of industries that are not highly unionised.

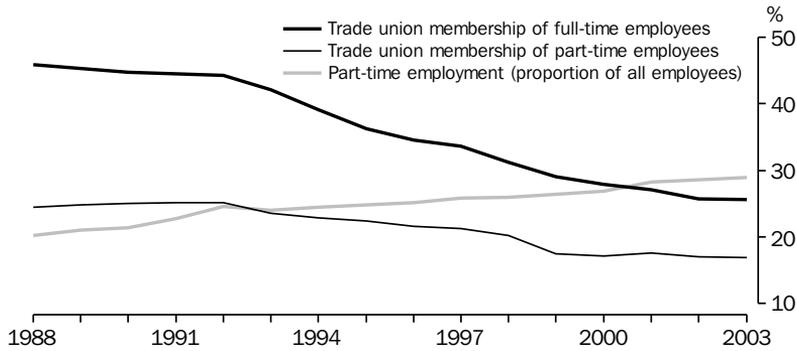
Another factor in the decline in trade union membership is the increases in part-time and casual employment which historically have been less unionised than full-time employment. Graph 6.66 shows the proportion of part-time employees has increased from 20% in August 1988 to 29% in August 2003. Over this same period the proportion of full-time and part-time employees who were trade union members has decreased, with trade union membership of full-time employees declining from 46% to 26%, and trade union membership of part-time employees declining from 25% to 17%.

**6.65 TRADE UNION MEMBERSHIP, Proportion of employees**



Source: *Employee Earnings, Benefits and Trade Union Membership, Australia* (6310.0); *Labour Report, 1912–1958*; *Trade Union Members, Australia* (6325.0).

### 6.66 EMPLOYEES WHO WERE TRADE UNION MEMBERS



Source: *Employee Earnings, Benefits and Trade Union Membership, Australia (6310.0); Labour Force, Australia (6202.0).*

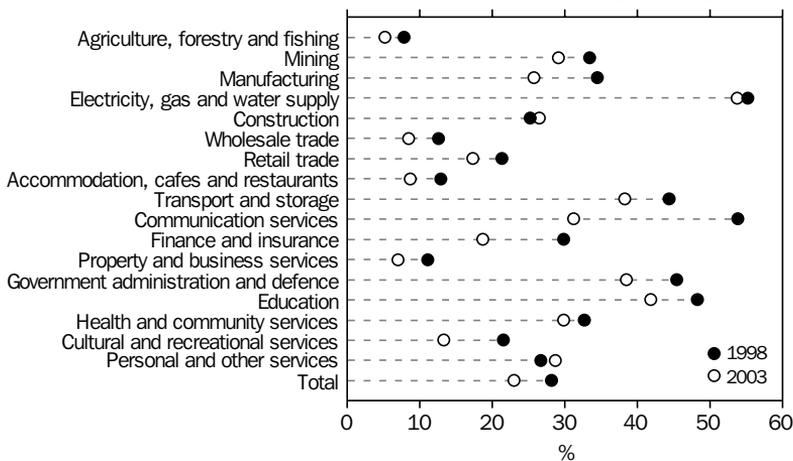
The level of trade union membership varies considerably across industries, with the electricity, gas and water supply (54%), education (42%), and government administration and defence (38%) industries being the most unionised in 2003 (graph 6.67). The least unionised industries were agriculture, forestry and fishing (5%), property and business services (7%), and wholesale trade (9%).

Between 1998 and 2003 most industries experienced a drop in their rate of unionisation. The largest declines occurred in the more unionised industries, with the proportion of employees who were trade union members falling in the communication services industry (from 54%

to 31%), finance and insurance (from 30% to 19%) and manufacturing (from 35% to 26%). The construction, and personal and other services industries were the only industries to experience an increase in the proportion of trade union members.

While the fall in the proportion of trade union members in the communication services industry was greater than in manufacturing, the fall in manufacturing had a more significant impact on the overall number of trade union members, as the manufacturing industry has a much higher level of employment.

### 6.67 EMPLOYEES WHO WERE TRADE UNION MEMBERS, By industry(a)



(a) Classified according to the Australian and New Zealand Standard Industrial Classification.

Source: *Employee Earnings, Benefits and Trade Union Membership, Australia (6310.0).*

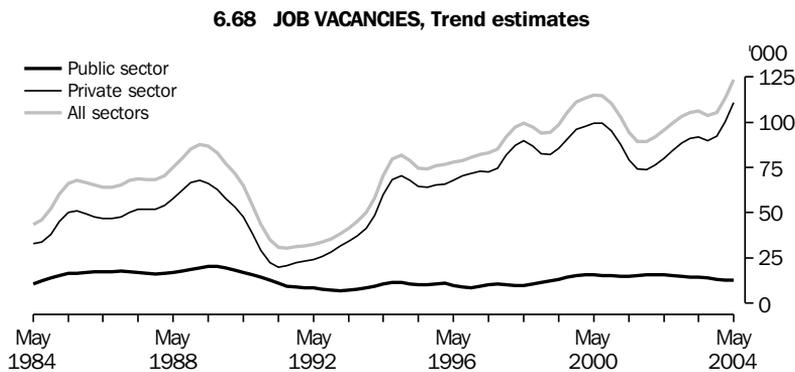
## Job vacancies

Job vacancy statistics can be used to assess changes in the demand for labour. The ABS conducts the quarterly Job Vacancies Survey. In this survey, a job vacancy is defined as a job available for immediate filling on the survey reference date and for which recruitment action has been taken by the employer.

Graph 6.68 presents quarterly trend estimates of job vacancies for the period May 1984 to May 2004. It shows the number of job vacancies rose

from a low of 30,300 in August 1991, reflecting the labour market downturn in the early-1990s, to a peak of 114,900 in May 2000. Job vacancies then fell until November 2001, before rising to a record high of 123,600 in May 2004.

Table 6.69 shows the number of job vacancies in May 2004 was highest in the property and business services industry (27,700) followed by the retail trade (21,800) and manufacturing (16,100) industries.



Source: *Job Vacancies, Australia, May 2004 (6354.0)*.

**6.69 JOB VACANCIES, By industry(a) — May**

	1999	2000	2001	2002	2003	2004
	'000	'000	'000	'000	'000	'000
Mining	1.1	0.8	1.2	1.1	1.1	2.0
Manufacturing	13.7	*14.0	9.6	11.6	10.9	16.1
Electricity, gas and water supply	0.3	0.4	0.3	0.4	0.3	0.4
Construction	**5.3	*5.2	*4.0	*9.2	*5.5	*7.1
Wholesale trade	*7.6	6.1	*6.9	4.4	*4.1	7.3
Retail trade	*8.7	8.1	7.6	10.9	18.1	21.8
Accommodation, cafes and restaurants	*8.6	*8.2	*5.9	*6.3	5.0	*3.8
Transport and storage	**2.6	2.9	1.5	2.4	*1.6	*3.0
Communication services	1.4	1.8	0.7	0.4	0.5	0.7
Finance and insurance	3.2	5.6	5.1	4.0	5.0	4.7
Property and business services	*18.5	21.8	16.5	14.2	*18.8	27.7
Government administration and defence	4.8	5.1	6.1	5.8	4.9	4.9
Education	3.3	7.4	3.9	3.1	5.0	4.5
Health and community services	7.8	9.9	11.2	11.1	12.0	12.1
Cultural and recreational services	*3.4	3.2	3.1	1.9	3.6	*2.0
Personal and other services	**3.0	*7.2	*3.8	*3.5	*3.1	*4.6
<b>All industries</b>	<b>93.5</b>	<b>107.6</b>	<b>87.4</b>	<b>90.3</b>	<b>99.5</b>	<b>122.7</b>

(a) Original estimates, classified according to the Australian and New Zealand Standard Industrial Classification.

Source: *Job Vacancies, Australia, May 2004 (6354.0)*.

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## Web sites

- Centrelink, last viewed October 2004 <<http://www.centrelink.gov.au>>
- Australian Government, Department of Employment, Workplace Relations (DEWR), last viewed October 2004 <<http://www.dewr.gov.au>>
- International Labour Organisation (ILO), last viewed October 2004 <<http://www.ilo.org>>
- United Nations (UN), last viewed October 2004 <<http://www.un.org>>

# History of the monthly Labour Force Survey

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Each month the Australian Bureau of Statistics (ABS) releases official estimates of employment and unemployment. These estimates come from the Labour Force Survey (LFS), which is the largest household survey conducted by the ABS. It is the Bureau's longest-running household survey, dating back to 1960 and has provided the basis on which the ABS has built an extensive program of labour and social surveys of the population.

Information about the number of employed and unemployed people, the unemployment rate and other labour statistics are important economic and social indicators. Labour statistics are used for a range of purposes by government and business analysts, academic researchers, employee and employer organisations, and the community.

Reflecting the importance of labour statistics, the ABS has been collecting information on employment and unemployment, together with selected characteristics such as occupation and duration of unemployment, since the early-1900s. Until the 1960s the periodic population censuses provided the most comprehensive information about the labour force. Other sources of information were administrative sources and trade unions. The first regular statistical measure of employment dates from the introduction of payroll tax in 1941. Monthly measures of jobseekers, available from administrative data from the Commonwealth Employment Service (CES), also became available in the 1940s.

## The first LFS

Household surveys have a number of advantages over administrative sources – they can cover the whole target population consistently over time; questionnaires can be designed to collect relevant and conceptually

sound data; and rigorous sample designs and survey procedures can be applied. In the late-1950s the ABS started to develop a program of household surveys, and, in November 1960, the first LFS was conducted as the first ABS household survey.

The initial LFS was restricted to a sample of households in state capital cities only, and included the non-Indigenous civilian population aged 14 years and over. It was conducted quarterly in February, May, August, and November. Initial publication of LFS estimates was in January 1964.

In February 1964 the LFS was extended to cover all geographical areas of Australia. In August 1966 the scope of the survey was changed to the civilian population aged 15 years and over because of changes to the school leaving age and inclusion of the Indigenous population. The survey continued to be conducted quarterly until November 1977.

## Increasing the frequency of the survey

The monthly CES registered jobseeker series, which reflected the administrative needs of the CES, was becoming less useful for measuring the level and movement of unemployment in Australia. In response to an increasing demand for more frequent and better statistics of unemployment, as well as for more comprehensive information on the labour market, the frequency of the LFS was increased to monthly from February 1978. The range of information collected was also substantially expanded in the monthly survey. As a result of the increase in frequency, LFS unemployment statistics were adopted as the official measure of unemployment in Australia.

## What it collects

The concepts underpinning the LFS have always been aligned closely with international standards for labour force statistics. Although the survey questionnaire has been modified from time to time, there has been relatively little change in concepts and definitions used, reflecting the stability of international standards over this period. Consequently, statistical series from the LFS have maintained a high degree of consistency over time.

The content of the LFS has expanded progressively over the years since 1960. Much of the increase resulted from changes introduced in February 1978. In addition to information on the number of people employed and unemployed, the survey currently collects a range of other information about the population. For employed people, information is collected on whether they work full time or part time, and their industry, occupation, hours worked and status in employment. For people who are currently unemployed, the survey collects information about whether they are looking for a full-time or part-time job, how long they have been unemployed, and the characteristics of their last job (industry, occupation and reason for leaving). The survey also collects personal characteristics such as sex, age, marital status, relationship in household, participation in school and tertiary education, birthplace and year of arrival in Australia.

## Supplementary topics

In addition to collecting regular information on the labour force, the LFS has proven to be a cost-effective vehicle for collecting less regular information on a range of other topics. The first supplementary topic was included as early as the November 1961 survey. The topics, which have become known as supplementary surveys, have covered a wide range of labour market and other issues relevant to particular sub-groups of the population. Some of the topics relevant in the 1960s, such as labour force experience, school leavers entering work, and multiple job holding, are still considered important for analysing today's labour market.

The number and size of supplementary surveys, and the range of topics covered, increased substantially when the LFS became a monthly survey. Supplementary surveys are now run in all months other than December

and January. The topics covered reflect the information requirements for monitoring the social and economic well-being of Australians, and for developing and evaluating government policies and programs. In addition to labour issues, the program also includes a wide range of social and economic topics, such as the environment, crime and safety, and child care. Recurrent labour topics include:

- labour force experience, entering and leaving the labour force, job search experience, retirement
- employment, underemployment, multiple job holding, labour mobility, working arrangements, trade union membership, education and work
- earnings, employee benefits
- not in the labour force, discouraged jobseekers, marginal attachment to the labour force.

## How it collects information

Ever since the LFS was first conducted, the information collected has been obtained from occupants in selected dwellings by specially trained interviewers. Households are included in the survey for eight consecutive months (eight quarters prior to February 1978), and interviews are conducted over a two-week period each month (over a four-week period each quarter prior to February 1978).

Two main changes have been made to the method of interviewing. Between August 1996 and March 1997, the ABS introduced telephone interviewing into the LFS. More recently, between October 2003 and August 2004, computer assisted interviewing was progressively implemented to replace the traditional 'pen and paper' method.

## Main changes in content

During the 44 years the ABS has been conducting the LFS there have been several major changes in content – these are summarised below. A description of all changes, including to collection and sampling methods, concepts, data item definitions, classifications, and time series analysis techniques, is available in *Labour Statistics: Concepts, Sources and Methods* (6102.0.55.001).

A number of additional questions were included in the LFS questionnaire in February 1975 to ask respondents if they looked for work in the last four weeks (rather than in the last week, as asked previously) and about their availability to start work in the survey reference week. Statistics reflecting these questionnaire changes were first released in May 1976, with data revised back to February 1975.

Substantial changes were made to the LFS when it became a monthly survey in February 1978. The questionnaire was revised, with redesigned question wording, structure and sequencing, and it collected a wider range of information. Only minor adjustments were made to the employed and unemployed definitions.

The LFS remained essentially unchanged until April 1986, when the underlying employment definition was changed to align with changes to international standards made in 1982 by the International Labour Organisation (ILO). The definition of employed persons was changed to

include persons who worked without pay between 1 and 14 hours in the survey reference week, in a family business or on a farm (i.e. contributing family workers). Prior to this change, these unpaid workers were counted as employed only if they worked at least 15 hours in the reference week.

In 2001 the LFS questionnaire underwent its first major redesign since 1978. This new questionnaire allowed the collection of new or extended data on: future starters; job tenure; underemployment; hours worked; duration of unemployment; and marginal attachment to the labour force. The new questionnaire also incorporated minor definitional changes to employment and unemployment relating to: short term absences; unavailability due to illness; and contributing family workers. These changes were made principally to improve alignment of the employment and unemployment definitions with ILO standards. Most of these changes were reflected in LFS statistics from April 2001.

# 7

## INCOME AND WELFARE

The economic wellbeing or standard of living of individuals is largely dependent on the economic and social resources available to provide for their consumption of goods and services and for participation in society. Such resources may be in the form of cash income received from wages and salaries, investments, income support from government, and the like. Other resources can also contribute to the level of consumption of goods and services, including personal resources such as savings, and other sources of wealth; the resources of government and welfare organisations which provide services such as aged care, respite care and child care; and, the resources of family and friends who provide assistance when needed.

Government programs aim to help the economically disadvantaged to achieve social and economic outcomes and to participate in society. Such programs provide income support for the retired, people with disabilities, carers, unemployed people, students, families with children, and Indigenous Australians. Others provide income support for other special groups, such as war veterans, war widows and their families, and students. In addition to providing income security, government programs help those with low incomes to meet specific needs. Assistance is also provided for a range of goods and services through pensioner concession and health cards. Other types of programs aim to provide assistance with employment, and advocacy for people with disabilities.

This chapter provides information on the levels and sources of income of Australia's population and on the levels of wealth. Information is provided on the main income support programs of the Australian Government, describing the eligibility requirements, numbers of beneficiaries and government expenditure on these programs. These topics are covered in the sections: *Income and community support programs* (contributed by the Australian Government Department of Family and Community Services); *Aged care programs* (contributed by the Australian Government Department of Health and Ageing); and *Services provided to veterans and their families* (contributed by the Australian Government Department of Veterans' Affairs).

## Household income and wealth

### Income

This section provides indicators of the level and distribution of after tax (disposable) household cash income, after adjusting for household size and composition. The estimates of disposable income are derived from the gross cash income data collected in the 2000–01 Survey of Income and Housing Costs (SIHC), after deducting estimates of income tax liability and the Medicare levy. Gross cash income is defined as regular and recurring cash receipts from:

- wages and salaries
- profit or loss from own unincorporated business
- investment income in the form of interest
- rent and dividends
- private transfers in the form of superannuation and child support
- cash transfers from government pensions and allowances.

The restriction to cash incomes is one of practical measurement and is assessed to provide a reasonable, broad picture of the level and distribution of income. However, readers are advised that the relative mix of cash and non-cash incomes across sub-populations will be different, and can change over time.

While income is usually received by individuals, it is normally shared between partners in a couple relationship and with dependent children. To a lesser degree, there may be sharing with other members of the household. Even when there is no transfer of income between members of a household, nor provision of free or cheap accommodation, members are still likely to benefit from the economies of scale that arise from the sharing of dwellings. The income measures shown in this section therefore relate to household income. However, larger households normally require a greater level of income to maintain the same material standard of living as smaller households, and the needs of adults are normally greater than the needs of children. The income

estimates are therefore adjusted by an equivalence scale to standardise the income estimates with respect to household size and composition while taking into account the economies of scale that arise from the sharing of dwellings. The equivalised disposable income estimate for any household in this section is expressed as the amount of disposable cash income that a single person household would require to maintain the same standard of living as the household in question, regardless of the size or composition of the latter.

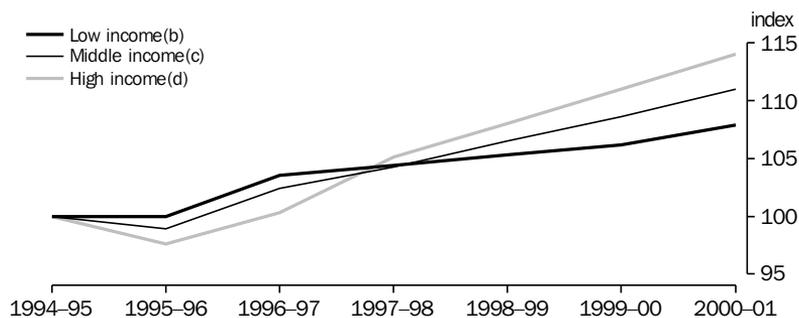
In 2000–01 there were approximately 18.9 million people living in private dwellings in Australia – an increase of 7% on the number of people in 1994–95. In ‘real’ terms (i.e. after adjustment for changes in prices), equivalised disposable household income for all people, on average, increased by 12% between 1994–95 and 2000–01 (from \$419 to \$469 per week). As illustrated in graph 7.1, over that same period the real mean (or average) income of low income people increased by 8% (from \$227 to \$245 per week) with the increase spread reasonably evenly over the period. The real mean income of middle income and high income people increased by 12% (from \$497 to \$555 per week) and 14% (from \$792 to \$903 per week) respectively.

### Household characteristics

Households with different income levels tend to differ with respect to other characteristics, as shown in table 7.2. Wages and salaries were the principal source of income for households with middle and high income levels, while government pensions and allowances dominated for low income households. However, low income households had the highest incidence of full ownership of their home, reflecting the high proportion of elderly people in the low income category.

Middle income households were larger on average than high income households (2.9 persons compared with 2.5) but contained considerably less earners (1.3 compared with 1.9). Low income households only had an average of 0.3 earners, and an average size of 2.3 persons.

## 7.1 INDEXES OF REAL MEAN EQUIVALISED DISPOSABLE HOUSEHOLD INCOME(a)



(a) Base for each index is 1994-95 = 100.0. (b) Persons in the second and third income deciles after being ranked by their equivalised disposable household income. (c) Persons in the fifth and sixth income deciles after being ranked by their equivalised disposable household income. (d) Persons in the ninth and tenth income deciles after being ranked by their equivalised disposable household income.

Note: No survey was conducted in 1998-99. The values shown in the graph for that year are simple interpolations between the survey values for 1997-98 and 1999-2000.

Source: *Household Income and Income Distribution, Australia (6523.0)*.

## 7.2 HOUSEHOLD CHARACTERISTICS BY INCOME GROUP — 2000-01

	Units	Low income(a)	Middle income(b)	High income(c)
Mean equivalised disposable household income per week	\$	245	413	903
Has PSI of wages and salaries(d)	%	15.2	73.7	87.9
Has PSI of government pensions and allowances(d)	%	75.9	6.1	—
Owns home without a mortgage	%	51.5	38.1	30.4
Owns home with a mortgage	%	15.8	34.8	46.4
Rents from state/territory housing authority	%	8.7	2.3	**0.2
Rents from private landlord	%	19.5	21.3	21.1
Average number of persons in the household	no.	2.3	2.9	2.5
Average number of earners in the household	no.	0.3	1.3	1.9

(a) Persons in the second and third income deciles after being ranked by their equivalised disposable household income.

(b) Persons in the fifth and sixth income deciles after being ranked by their equivalised disposable household income. (c) Persons in the ninth and tenth income deciles after being ranked by their equivalised disposable household income. (d) Principal source of income.

Source: *Household Income and Income Distribution, Australia, 2000-01 (6523.0)*.

The range of income levels across the population partly reflects the different life stages that people have reached. Of the household composition groups included in table 7.3, younger couples without children show the highest average income. Their mean equivalised disposable household income was \$692 per week, with the average number of earners in the household being 1.8. For couples with dependent children only, and with the eldest child being under 5 years, the average numbers of earners dropped by about a quarter to 1.4. Because those households

consisted of an average of 3.4 persons, compared with 2.0 in couple only households, their mean equivalised disposable household income of \$466 per week was about a third lower than the \$692 per week disposable income of the younger couple only households. Mean equivalised disposable incomes were higher for households with non-dependent children, reflecting higher numbers of earners in those households, but were lower for households comprising older couples and lone persons, where the numbers of earners declined substantially.

People aged 65 years and over had the lowest mean equivalised disposable household incomes, with lone persons' incomes (\$274 per week) somewhat lower than older couple only household incomes (\$321 per week). Elderly lone persons were more likely than elderly couples to have government pensions and benefits as their principal source of income (79% compared with 72%), while couples were more likely to fully own their home (88% compared with 74%).

Households comprising one parent with dependent children had a mean equivalised disposable household income of \$329 per week, similar to that of elderly couples (\$321 per week), but only 14% of the one-parent households fully owned their home and therefore a substantially greater proportion had to make mortgage or rental payments from their income. Of those households, 53% had government pensions and benefits as their principal source of income.

### States and territories

There are considerable differences in the average levels of household income per week between the states and territories, with three having mean equivalised disposable household incomes below the national average of \$469 per week (table 7.4). Tasmania's mean weekly income was 17% below the national average income level, followed by South Australia (9% below) and Queensland

(6% below). The Northern Territory has the highest mean equivalised disposable household income (34% above the national average). This high income level reflects in part the younger age profile of the Northern Territory. However, it also reflects the exclusion from the results of sparsely settled areas of the Northern Territory which, if included, would be likely to significantly reduce the mean incomes in the Northern Territory. The Australian Capital Territory recorded the second highest mean equivalised disposable household income (24% above the average), also reflecting in part its relatively younger population. New South Wales and Victoria both recorded mean incomes at 3% above the national average, with Western Australian incomes at about the national level.

There are also considerable differences between the incomes recorded in capital cities in Australia compared with those earned elsewhere. At the national level, mean equivalised disposable household income in the capital cities was 20% above that in the balance (rest) of state. In each state (separate information is not available for the Northern Territory and Australian Capital Territory) the mean incomes in the capital city were above those in the balance of state. The largest difference was recorded for New South Wales where the capital city incomes were 30% above the average incomes across the balance of the state.

### 7.3 INCOME AND HOUSEHOLD CHARACTERISTICS BY HOUSEHOLD COMPOSITION — 2000–01

Household composition	Average number of persons	Average number of earners	Proportion with govt. benefits as PSI(a)	Mean equivalised disposable household income per week	Proportion owning home without mortgage
	no.	no.	%	\$	%
Lone person under 35	1.0	0.8	13.7	513	6.9
Couple only, reference person under 35	2.0	1.8	*2.8	692	6.9
Couple with dependent children only					
Eldest child under 5	3.4	1.4	9.4	466	8.9
Eldest child 5–14	4.2	1.5	9.9	434	20.6
Eldest child 15–24	4.2	1.6	8.1	481	33.0
Couple with					
Dependent and non-dependent children only	4.9	2.4	*6.7	502	39.5
Non-dependent children only	3.3	2.2	11.0	597	61.2
Couple only, reference person 55–64	2.0	0.9	28.2	475	72.6
Couple only, reference person 65 and over	2.0	0.1	71.7	321	88.5
Lone person 65 and over	1.0	—	79.2	274	73.7
One-parent, one-family households with dependent children	3.0	0.7	53.0	329	13.8

(a) Principal source of income (PSI).

Source: *Household Income and Income Distribution, Australia, 2000–01* (6523.0).

## 7.4 HOUSEHOLD INCOME PER WEEK, By state and territory — 2000–01

	NSW	Vic.	Qld	SA	WA	Tas.	NT(a)	ACT(a)	Aust.(a)
<b>CAPITAL CITY</b>									
Gross household income per week									
Mean income	1 191	1 049	928	856	1 033	796	1 353	1 275	1 062
Median income	949	846	787	731	842	652	1 180	1 150	860
Equivalised disposable household income per week									
Mean income	528	498	456	442	487	421	630	581	499
Median income	460	453	422	392	419	385	547	564	443
<b>BALANCE OF STATE</b>									
Gross household income per week									
Mean income	780	879	846	722	854	686	n.a.	n.a.	816
Median income	621	702	631	539	749	570	n.a.	n.a.	645
Equivalised disposable household income per week									
Mean income	405	441	426	383	426	369	n.a.	n.a.	416
Median income	351	384	364	320	395	328	n.a.	n.a.	361
<b>ALL HOUSEHOLDS</b>									
Gross household income per week									
Mean income	1 029	1 002	883	822	985	732	1 353	1 275	972
Median income	808	803	701	665	815	612	1 180	1 150	773
Equivalised disposable household income per week									
Mean income	482	483	439	426	471	391	630	581	469
Median income	423	433	388	368	408	350	547	564	414

(a) Capital city estimates for the NT and ACT relate to total NT excluding sparsely settled areas and total ACT respectively.

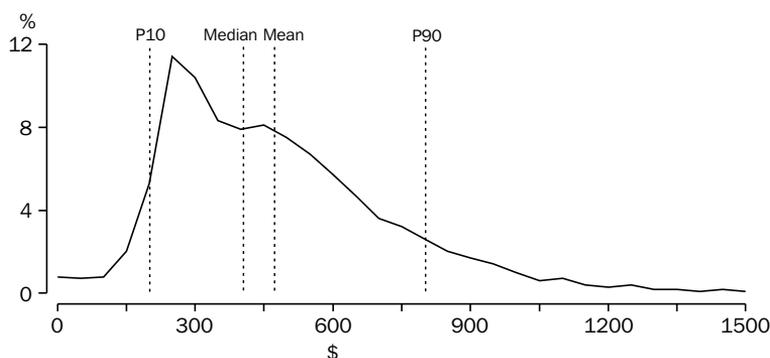
Source: *Household Income and Income Distribution, Australia, 2000–01* (6523.0).

### Summary income distribution indicators

While the mean (or average) equivalised disposable household income of all households in Australia in 2000–01 was \$469 per week, the median (i.e. the midpoint when all people are ranked in ascending order of income) was

somewhat lower at \$414. This difference reflects the typically asymmetric distribution of income where a relatively small number of people have relatively very high household incomes, and a large number of people have relatively lower household incomes, as illustrated in graph 7.5.

### 7.5 DISTRIBUTION OF EQUIVALISED DISPOSABLE HOUSEHOLD WEEKLY INCOME — 2000–01



Source: *Household Income and Income Distribution, Australia, 2000–01* (6523.0).

Percentile ratios are one measure of the spread of incomes across the population. P90 (i.e. the income level dividing the bottom 90% of the population from the top 10%) and P10 (i.e. dividing the bottom 10% of the population from the rest) are shown. In 2000–01, P90 was \$802 per week and P10 was \$202 per week, giving a P90/P10 ratio of 3.97. Various percentile ratios for the years 1994–95 to 2000–01 are shown in table 7.6. Changes in these ratios can provide a picture of changing income distribution over time.

Another measure of income distribution is provided by the income shares going to groups of people at different points in the income distribution. The table shows in 2000–01, 10.5% of total equivalised disposable household income went to people in the 'low income' group, with 38.5% going to the 'high income' group.

The Gini coefficient is a single statistic that lies between 0 and 1 and is a summary indicator of the degree of inequality of income distribution, with values closer to 0 representing a lesser degree of inequality, and values closer to 1 representing greater inequality. For 2000–01 the Gini coefficient was 0.311. The coefficients for earlier years are shown in table 7.6.

The indicators in table 7.6 are based on data collected in sample surveys. They may differ from the results that would have been obtained from data collected from the whole population. After taking into account the likelihood of such variability, the extent and pattern of growth in the various indicators suggests some rise in income inequality over the second half of the 1990s.

#### 7.6 SELECTED INCOME DISTRIBUTION INDICATORS, EQUIVALISED DISPOSABLE HOUSEHOLD INCOME

	Units	1994–95	1995–96	1996–97	1997–98	1999–2000	2000–01
Ratio of incomes of households at top of selected income percentiles							
P90/P10	ratio	3.77	3.74	3.66	3.77	3.89	3.97
P80/P20	ratio	2.56	2.58	2.54	2.56	2.64	2.63
P80/P50	ratio	1.55	1.57	1.56	1.56	1.57	1.56
P20/P50	ratio	0.61	0.61	0.61	0.61	0.59	0.59
Percentage share of total income received by persons with:							
Low income(a)	%	10.8	10.9	11.0	10.8	10.5	10.5
Middle income(b)	%	17.7	17.7	17.8	17.6	17.6	17.7
High income(c)	%	37.8	37.3	37.1	37.9	38.4	38.5
Gini coefficient	no.	0.302	0.296	0.292	0.303	0.310	0.311

(a) Persons in the second and third income deciles after being ranked by their equivalised disposable household income.

(b) Persons in the fifth and sixth income deciles after being ranked by their equivalised disposable household income. (c) Persons in the ninth and tenth income deciles after being ranked by their equivalised disposable household income.

Source: *Household Income and Income Distribution, Australia, 2000–01 (6523.0)*.

## Distribution of wealth

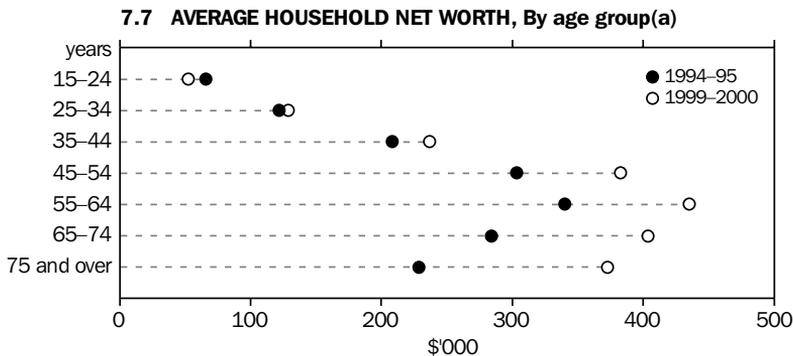
There is considerable interest in the composition and distribution of wealth across Australian households, and how this is changing over time. However, distributional wealth data have not been collected in Australia on a regular basis in the past. This section reports the findings of an exploratory study which constructed experimental distributional wealth data for Australia, using modelling techniques. A fuller explanation of the wealth model can be found in *Working Papers in Econometrics and Applied Statistics: No 2002/1 Experimental Estimates of the Distribution of Household Wealth, Australia, 1994–2000* (1351.0).

Average and median household wealth increased as the age of the household reference person increased, peaked in the 55–64 year age group, and then declined. This illustrates how households build their wealth while householders are working, then draw upon this wealth in retirement (graph 7.7). As expected, this pattern is different from the distribution of income across age groups, which falls away more rapidly for older households.

For many households, the major assets are their owner occupied dwelling and their superannuation assets. Growth in the value of these assets led to strong growth in the average wealth of households in middle and older age groups (i.e. those where the reference person is aged 45 years and over).

The distribution of wealth between different types of households is closely linked to the effects of both age and income level on wealth accumulation. Couple households had higher average net worth than lone-parent or lone-person households with reference people of a similar age. This is to be expected, as couples may have had access to two incomes for much of their lives.

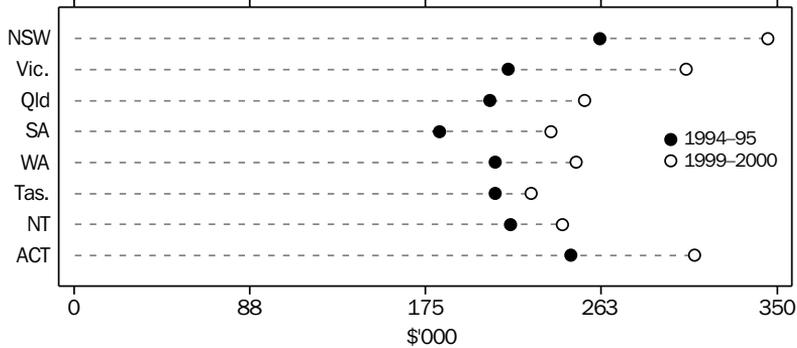
Average household net worth grew in all states and territories between 1994–95 and 1999–2000. Average household net worth was highest in New South Wales, where average dwelling values were higher than those in other states (graph 7.8).



(a) Age of reference person.

Source: *Working Papers in Econometrics and Applied Statistics: No 2002/1 Experimental Estimates of the Distribution of Household Wealth, Australia, 1994–2000* (1351.0).

**7.8 AVERAGE HOUSEHOLD NET WORTH, By state and territory**



Source: *Working Papers in Econometrics and Applied Statistics: No 2002/1 Experimental Estimates of the Distribution of Household Wealth, Australia, 1994-2000 (1351.0)*.

## Income and community support programs

*This section was contributed by the Australian Government Department of Family and Community Services (October 2004).*

The Australian income support system, administered by the Australian Government Department of Family and Community Services (FaCS), provides financial assistance to a variety of groups, including families, job seekers, the aged, people with a disability, carers, mature age people, students and Indigenous Australians. Over 4 million, or 1 in 5 individuals, are direct beneficiaries of the FaCS portfolio's income

support payments at any one time. In June 2004, 1.8 million families with 3.5 million children were receiving fortnightly family payments through the Family Tax Benefit. Recent and ongoing reforms to the income support system in Australia aim to improve social and economic participation while retaining a strong and effective safety net for people unable to support themselves.

The main income support payments provided by the Australian (Commonwealth) Government for the financial years 2000-01 to 2003-04 are listed in table 7.9. Details of the payments in effect in the 2003-04 financial year, together with associated statistics, are presented in this chapter.

## 7.9 INCOME SUPPORT PAYMENTS(a)(b)

	2000-01	2001-02	2002-03	2003-04
	\$'000	\$'000	\$'000	\$'000
<b>Family assistance</b>				
Family Allowance(c)	-39 532	-37 291	-1 306	-1 495
Family Tax Payment(c)	-2 286	-3 348	-2 620	16
Family Tax Benefit — Centrelink payments(c)	10 076 463	10 927 703	10 473 856	12 869 904
Family Assistance Legislative Amendment (More Help for Families — One-off payments) 2004 payments	..	..	..	2 222 990
Maternity Allowance(d)	217 899	216 887	216 634	223 256
Double Orphan Pension	1 977	1 976	2 052	2 165
<b>Youth and student support</b>				
Youth Allowance	2 101 915	2 213 719	2 235 020	2 257 447
Austudy	249 258	280 794	270 623	258 848
Student Financial Supplement	161 510	500 967	114 359	65 423
Fares Allowance	644	525	1 304	1 176
<b>Child care support</b>				
Child Care Benefit(e)	1 037 137	1 315 912	1 364 358	1 387 946
Child Care Cash Rebate(e)	-14 597	63	20	—
Child Care for eligible parents undergoing training(f)	7 301	11 067	12 985	12 880
<b>Labour market assistance</b>				
Newstart Allowance	4 918 349	5 078 220	4 831 069	4 754 733
Parenting Payment	5 325 681	5 571 718	5 731 117	5 995 135
Mature Age Allowance	352 596	364 210	381 155	372 523
Partner Allowance	728 679	817 599	860 768	860 462
Widow Allowance	324 919	389 550	429 662	469 276
Bereavement Allowance	719	813	986	1 075
Pensioner Education Supplement	58 248	65 784	68 574	72 139
Special Benefits	114 778	119 811	116 286	113 141
<b>Support for people with a disability</b>				
Disability Support Pension	5 849 799	6 404 351	6 851 608	7 492 532
Mobility Allowance	59 367	67 852	74 975	82 163
Wife Pension (DSP)	446 564	401 969	351 491	326 083
Sickness Allowance	95 554	93 724	85 528	85 375
<b>Support for carers</b>				
Carer Payment	480 944	595 810	702 649	(h)921 008
Carer Allowance(g)	533 247	645 722	744 488	(h)965 430
<b>Support for the aged</b>				
Age Pension	15 616 477	16 665 653	17 740 214	19 540 401
Aged Persons Savings Bonus	1 581 231	23 723	-144	13
One-off Payment to Seniors(i)	536 581	(f)10 454	-2	-5
Self Funded Retirees' Supplementary Bonus	582 828	28 519	569	169
Telephone allowance for Commonwealth Seniors Health Card Holders	—	8 668	11 668	12 251
Widow Class B Pension	84 296	59 787	39 804	26 275
Wife Pension (age)	233 080	216 160	195 071	194 176
<b>Total Special Appropriations(j)</b>	<b>51 753 433</b>	<b>53 118 246</b>	<b>53 891 837</b>	<b>61 661 345</b>

(a) Outlays on Pensions, Allowances and Family Tax Benefits include expenditure on rent assistance. Details of rent assistance are included in 'Chapter 8 Housing'. (b) Negative values are recoveries from previous years. (c) Family tax benefit replaced Family Allowance and Family Tax Payment on 1 July 2000. (d) Maternity Allowance includes Maternity Immunisation Allowance. (e) Child Care Benefit commenced on 1 July 2000 and incorporated the Child Care Cash Rebate and Child Care Assistance. (f) Not included in the Special Appropriations total as they are Other Administered Expenses. (g) Carer allowance was introduced on 1 July 1999. It combined Child Disability Allowance with Domiciliary Nursing Care Benefit, which was the responsibility of the Department of Health and Ageing. (h) Includes 'one-off' carer bonus payments. (i) Program included both an annual and a special appropriation. Program now ceased and recoveries relate to the annual appropriation. (j) Components do not add to total as some minor allowances and appropriation adjustments are excluded.

Source: Department of Family and Community Services.

Most allowance types are adjusted once or twice a year in line with movements in the Consumer Price Index (CPI) to maintain purchasing power. Pension payments are adjusted in line with the CPI and male total average weekly earnings, ensuring the single pension rate does not fall below 25% of male total average weekly earnings. Many income support payments are subject to income, assets and activity tests, to ensure benefits are targeted to those in greatest need. Details of the rates in effect at 30 June 2004 are listed in table 7.10.

Since September 1997 Centrelink has delivered most income support payments on behalf of FaCS. Centrelink is a statutory agency established to deliver a range of Australian Government services to the Australian community. It operates under the *Services Delivery Agency Act 1997* (Cwlth). Centrelink provides advice about payment entitlements, provides referrals to Centrelink specialist staff for additional assistance, and may refer customers to other departments, agencies or community organisations where appropriate. The Department of Veterans Affairs delivers the Service Pension to eligible veterans and their families.

Numbers of income support customers referred to in this section generally relate to June of the reference year. These numbers are taken from extracts of administrative data as close to 30 June as possible. The dates of extracts, however, can vary between payment types. All financial data refer to the full financial year.

## Income support programs

### Family assistance

Family assistance policies are formulated to provide income support to families to assist with the costs of raising children, including newborns, in a way that recognises the needs and choices of both single and dual income families.

Family Tax Benefit Part A (FTB Part A) helps families with the cost of raising dependent children. It is paid to families with dependent children up to 21 years and young people between 21 and 24 years who are studying full time (and not receiving Youth Allowance or a similar payment). Payment is payable in respect of each dependent child and is means tested on family income.

## 7.10 MAXIMUM RATES FOR INCOME SUPPORT PAYMENTS AND BENEFITS — 30 June 2004

	\$
Age Pension(a)	
Single	464.20
Couple(b)	387.60
Age Pension Savings Bonus	variable
Austudy(a)	
Single or partnered, no children	318.50
Single, with children	417.40
Partnered, with children	349.80
Bereavement Allowance(c)	464.20
Carer Allowance(a)	90.10
Child Care Benefit	
Approved care(d)	
Non-school age child	2.74
School age child	2.33
Registered care(d)	
Non-school age child	0.46
School age child	0.39
Disability Support Pension(a)	
Single	464.20
Couple(b)	387.60
Double Orphan Pension(a)	45.20
Education Entry Payment(e)	208.00
Family Tax Benefit Part A(a)	
For each dependent child	
Aged under 13 years	130.48
Aged 13–15 years	165.48
Aged 16–17 years	42.00
Aged 18–24 years	56.42
Family Tax Benefit Part B(a)	
Age of youngest child	
Aged under 5 years	112.00
Aged 5–15 years	78.12
Aged 16–18 years and full-time students	78.12
Maternity Allowance One-off lump sum, per birth	842.64
Maternity Immunisation Allowance One-off lump sum	210.66
Mobility Allowance(a)	68.00
Newstart Allowance(a)	
Single	
Aged 21 or over, no children	389.20
Aged 21 or over, with children	421.00
Aged 60 or over, after 9 months	426.80
Partnered(b)	351.10
Parenting Payment(a)	
Sole parents	464.20
Partnered parents	351.10
Partner Allowance(a)	351.10

For footnotes see end of table.

...continued

**7.10 MAXIMUM RATES FOR INCOME SUPPORT  
PAYMENTS AND BENEFITS –  
30 June 2004 – continued**

	\$
Pensioner Education Supplement(a)	
At least 50% study load	62.40
At least 25% study load	31.20
Youth Allowance(a)	
Single, no children	
Aged under 18 years, at home	174.30
Aged 18 years and over, at home	209.70
Away from home	318.50
Single with children	417.40
Partnered with no children	318.50
Partnered with children	349.80

(a) Per fortnight. (b) Each. (c) Per fortnight for a maximum of seven fortnights. (d) Per hour. (e) One-off.

Note: For Carer Payment, Widow Class B Pension, Wife Pension (Age) and Wife Pension (DSP) see Age Pension. For Mature Age Allowance, Sickness Allowance, Widow Allowance see Newstart Allowance. Special Payment generally as for Newstart/Youth Allowance.

Source: Centrelink, 'A guide to Australian Government payments 20 March – 30 June 2004'.

Family Tax Benefit Part B (FTB Part B) provides extra assistance for families with only one main income earner, particularly those with children under 5 years. It is paid to families for children up to the age of 16 years and children aged between 16 and 18 years who are studying full time. Payment to a family is based on the age of the youngest child, and is assessed on the income of the family's second income earner.

At the end of June 2004, payments for FTB Part A were made to 1.8 million families to provide support for 3.5 million children, and FTB Part B payments made to 1.2 million families to provide support for 2.3 million children. FTB Part A and Part B payments are administered by the Family Assistance Office and are available as a direct payment from Centrelink, either fortnightly or as a lump sum, or via tax instalment deductions or an end of year lump sum payment through the Australian Taxation Office (ATO). Some FTB recipients can receive fortnightly payments for part of the tax year with the balance as a lump sum at the end of the tax year.

The 'More Help for Families' package introduced in the 2004–05 Budget includes a universal Maternity Payment, which recognises the extra costs associated with the birth or adoption of a child. All families with a child born or adopted from 1 July 2004 will be eligible for the payment. There is no income or assets test. This payment replaced Maternity Allowance and the Baby Bonus (administered by ATO) from 1 July 2004.

Other measures in the package included a one-off \$600 per child bonus payment to over 2 million families and an ongoing increase of \$600 per child in the base and maximum rates of FTB Part A, payable as a lump sum supplement. The Maternity Immunisation Allowance is not subject to an income test for children born on or after 1 January 2003.

Double Orphan Pension is not means tested and is a payment for children who have at least one deceased parent and who cannot have contact with the other parent (e.g. because that parent is a long-term prisoner or their whereabouts is unknown).

Table 7.11 shows the number of recipients and expenditure for Family Assistance.

**Youth and student support**

Youth and Student Support contributes to FaCS 'Stronger Families' social policy outcome by:

- promoting a family orientation to the development of youth policy
- helping low to middle-income families through the provision of income support for young people seeking work or undertaking education and training
- improving the capacity of young people to undertake and participate in education, training or work by supporting flexible activity options and greater financial incentives
- targeting assistance to young people particularly those who are at risk of failing to make successful transitions to independence
- developing new partnership arrangements within and across levels of government to support innovations in youth and family support arrangements around young people's transitions to independence and adulthood.

Youth Allowance is the main income support payment for young people aged 16–20 years who are actively seeking employment and for full-time students aged 16–24 years. It is subject to a personal income and assets test. If the person does not meet the Youth Allowance independence criteria then parental income, family assets, and family actual means tests also apply. If the person is independent and partnered, a partner income test applies and the couple's combined assets are assessed.

## 7.11 RECIPIENTS AND EXPENDITURE FOR FAMILY ASSISTANCE

	Units	2000-01	2001-02	2002-03	2003-04
<b>Family Tax Benefit</b>					
Centrelink					
Recipients(a)					
Part A – fortnightly instalments(b)	no.	1 801 285	1 795 355	1 785 123	1 809 122
Part B – fortnightly instalments(b)	no.	1 181 069	1 199 233	1 223 572	1 205 760
Lump sum payments(c)	no.	..	40 319	59 323	63 946
Claims lodged with ATO but paid by Centrelink(d)	no.	..	16 792	14 016	12 083
Total payments (Part A and Part B)(e)	\$'000	10 076 463	10 927 703	10 473 856	12 869 904
Australian Taxation Office					
Recipients(a)(d)					
Paid by tax instalment deduction or on assessment	no.	..	80 326	83 762	99 075
Payments					
Paid by tax instalment deduction or on assessment(d)	\$'000	(f)11 000	171 380	193 796	243 493
Reconciliation credits(d)	\$'000	..	164 570	217 975	257 466
Family Assistance Legislative Amendment (More help for families – One off payments) 2004 payments	\$'000	..	..	..	2 222 990
Maternity Allowance					
Recipients	no.	210 120	212 237	207 029	209 218
Payments(e)(g)	\$'000	217 899	216 887	216 634	180 063
Maternity Immunisation Allowance					
Recipients	no.	203 939	206 803	203 900	203 658
Payments(e)(g)	\$'000	..	..	..	43 193
Double Orphan Pension					
Recipients	no.	1 242	1 207	1 137	1 151
Payments(e)	\$'000	1 977	1 976	2 052	2 165

(a) Recipients who claimed assistance using more than one payment method for the year are included in each category. (b) Number of customers in June. (c) Figures for lump sum payments refer to payments made in the relevant tax year ending 30 June for the FTB entitlement for the previous year. (d) Expenditure data are presented on an accruals accounting basis. Most Australian Taxation Office payments of FTB are paid on assessment of taxation returns. Number of recipients and expenditure refer to payments at the last Friday of June of the relevant tax year for 2001-02, 2002-03, 2003-04. (e) Expenditure refers to total payments – at end of June of the relevant tax year. (f) Estimated expenditure. (g) Separate expenditure figures are not available for Maternity Allowance and Maternity Immunisation Allowance for years prior to 2003-04.

Source: Department of Family and Community Services; Department of the Treasury.

To qualify for Youth Allowance a young person must meet the Youth Allowance activity test by undertaking approved activities that may include full-time study or a combination of activities such as job search, Work for the Dole, literacy and numeracy courses, part-time education, part-time employment and voluntary work. Unless exempt, young people aged under 18 years are required to undertake full-time study in order to receive payment. Youth Allowance recipients aged 18 years and over who are not full-time students may be required to undertake Mutual Obligation activities.

The rate of Youth Allowance is determined on the young person's age, whether they are single or partnered, whether they have children, whether they live at home or need to live away from home, and whether the person is a 'long-term income support student'.

Austudy payment is paid to students 25 years and over whose financial circumstances are such that without financial help, full-time study would not be possible. The rate of Austudy is dependent on whether the person is single or partnered, whether they have children, and whether the person is a 'long-term income support student'. An individual and (if applicable) partner income and assets test applies.

Eligible students receiving Youth Allowance, Austudy or Pensioner Education Supplement, who live away from home to study, can receive a Fares Allowance which contributes to their travel costs.

Table 7.12 shows the number of Youth and Student Support recipients and expenditure by payment type.

## 7.12 RECIPIENTS(a) AND EXPENDITURE FOR YOUTH AND STUDENT SUPPORT

	Units	2000–01	2001–02	2002–03	2003–04
Youth Allowance (YA)					
Full-time students	no.	308 663	308 192	310 009	297 140
Other(b)	no.	84 542	87 304	90 625	84 665
Total YA population	no.	393 205	395 496	400 639	381 805
Total payments	\$'000	2 101 915	2 213 719	2 235 020	2 257 447
Austudy					
Recipients	no.	41 992	41 007	39 092	35 026
Total payments	\$'000	249 258	280 794	270 623	258 848
Student financial supplement payments(c)	\$'000	161 501	500 967	114 359	65 423
Fare allowance payments	\$'000	644	525	1 304	1 176

(a) Number of customers in June. (b) Jobseekers + Part-time students – including those undertaking full-time training/agreement study. (c) The Government announced on 24 April 2003 that no loans would be issued under the Student Financial Supplement Scheme from 1 January 2004. The closure of the Scheme from 1 January 2004 does not affect repayment arrangements.

Source: Department of Family and Community Services.

### Child care support

Child care support policies have been developed to help families to participate in the economic and social life of the community through providing support for child care.

The availability of affordable quality child care helps families balance their work and parenting roles; contributes to the development and education of children; and provides a focus for early intervention initiatives for vulnerable families and children.

Child care services include centre-based long-day care, family day care, in-home care, before and after school hours care, vacation care, occasional care, and Multi-functional Aboriginal Children's Services. Flexible services that can combine various models of care are also available to meet the needs of families in rural and remote areas.

Child Care Benefit (CCB) helps families with the cost of child care, with financial assistance proportionally higher for lower income families. Eligible families can have the benefit paid directly to the child care service to reduce their ongoing fees. Alternatively they can receive the benefit as a lump sum refund at the end of the financial year. Families using informal carers (i.e. care provided by a friend or neighbour), rather than formal care in an approved service, are eligible for the minimum rate of CCB if the carer is registered with the Family Assistance Office. This is paid for up to 50 hours per week of work-related child care.

The Child Care Support Program (CCSP) provides targeted support to child care and related services to promote access to quality child care for children, families and communities with thorough strategies that complement the assistance provided through CCB. The CCSP includes programs to improve access to child care services for Indigenous and rural/remote communities; support for inclusion of children with additional needs into quality child care; professional support for child care workers; and support for the child care quality assurance system.

Jobs Education and Training (JET) Child Care provides flexible child care assistance to parents receiving certain Centrelink payments who wish to undertake study, work or job search activities and are aiming to enter or re-enter the workforce. JET Child Care can help meet the costs of child care which for many parents is one of the barriers preventing them from studying, training or seeking entry or re-entry into paid employment. Most parents will still make a small contribution towards the cost of child care.

JET Child Care also supports JET crèches. Crèches are flexible and innovative services that enable particularly vulnerable groups of parents to participate in training and work activities in areas where no other suitable child care services are available.

Table 7.13 shows the number of recipients and expenditure for CCB.

### 7.13 RECIPIENTS(a) AND EXPENDITURE FOR CHILD CARE SUPPORT

	2000-01		2001-02		2002-03		2003-04	
	no.	\$'000	no.	\$'000	no.	\$'000	no.	\$'000
Child Care Benefit (CCB)								
Approved service(a)	630 156	..	672 016	..	697 912	..	n.y.a.	..
Registered carers(b)	47 236	..	53 900	..	57 600	..	n.y.a.	..
Total CCB expenditure	..	1 037 137	..	1 315 912	..	1 364 358	..	1 387 946
Child Care for Eligible Parents Undergoing Training	13 276	7 301	(c)18 352	11 067	(d)12 941	12 985	12 388	12 880
Support for Child care (incl. SPP)(e)	..	180 230	..	187 166	..	190 706	..	199 792

(a) Includes CCB paid to recipients as a reduction in service fees and a lump sum payment (nationally weighted data). (b) CCB for registered care is paid at minimum rate. (c) Does not include five months of data for NT and seven months of data for the ACT. (d) Number of children in child care assisted through JET. Due to improved recording methods, comparisons between previous years are not appropriate. (e) Support for child care is funded through the annually appropriated Child Care Support Program (previously known as the Child Care Broadband). This program was introduced in 1997 to encompass all of the ongoing and new programs the department funds to support child care (SPP – Special Purpose Payment).

Source: Department of Family and Community Services.

### Labour market assistance

Labour market assistance programs help people of working age by providing income support to those seeking work or undertaking other activities such as training or community work or caring for children. Most income support payments are subject to a means test, which assesses family income and assets.

There are two main income support payments for labour market assistance: Newstart Allowance (NSA) and Parenting Payment.

NSA is paid to people aged 21–64 years who are unemployed and actively searching for work. They must be willing to undertake suitable paid work, which includes full-time, part-time or casual employment. They may also qualify if undertaking a vocational training course, participating in a labour market program or undertaking other agreed activities to improve their employment prospects.

NSA and Youth Allowance jobseekers aged 18–49 years may be asked to undertake Mutual Obligation activities, in addition to their job search, after six months of unemployment and annually thereafter. Mutual Obligation requires people to take part in activities to improve their skills and work habits. It aims to enhance the person's job prospects and competitiveness in the labour market, promotes involvement in community work and facilitates transition from welfare to employment. People aged 50 years and over on NSA are not subject to Mutual Obligation but have a Personal Adviser to ensure that their requirements are appropriate, and that they have access to appropriate services.

Parenting Payment is paid to single and partnered low-income parents with responsibility for the care of at least one dependent child aged under 16 years. It provides a safety net for parents who would otherwise be at risk of hardship. From September 2003, parents whose youngest child is aged 13 years and over have a participation requirement of 150 hours in each six-month period in activities like study, training or part-time work. These activities are intended to help prepare them for future workforce engagement. Assistance is being provided to these customers through the services of specially trained Centrelink personnel and JET Advisers. Parents whose youngest child is aged 6 years or over are required to attend annual interviews with these Centrelink staff.

Other non-activity tested payments for people of workforce age include Mature Age Allowance, Partner Allowance, Widow Allowance and Special Benefit. Special Benefit provides assistance to people in severe financial need and for whom no other pension, allowance or other support is available. There is also a Bereavement Allowance, which is a short-term payment for recently widowed people without dependent children, payable for up to 14 weeks.

Since 20 September 2003 the non-activity tested Mature Age Allowance and Partner Allowance have been closed to new entrants. People receiving Mature Age or Partner Allowance immediately before 20 September 2003 can stay on these payments while they remain eligible. The closure of Mature Age Allowance and Partner Allowance complements other measures in the Australian Government's Australians Working Together (AWT) initiative that are designed to improve the

job prospects of older Australians of workforce age who face added difficulty in the labour market. Most people who would have qualified for these payments are now eligible for NSA. This gives them full access to support services and programs to help them increase their economic and social engagement, including new flexible participation requirements and individually focused support for recipients aged 50 years and over.

Additional assistance is provided through Pensioner Education Supplement, Education Entry Payment and Employment Entry Payment, which

help with the costs of taking up study and entering the work force. Work for the Dole (WfD) Supplement and Community Development Employment Project (CDEP) Scheme Participant Supplement provide supplementary financial assistance to help with the costs of participating in the WfD and CDEP programs.

Table 7.14 shows the number of labour market assistance recipients by expenditure and payment type.

**7.14 LABOUR MARKET ASSISTANCE(a)(b)**

	Units	2000-01	2001-02	2002-03	2003-04
<b>Newstart Allowance</b>					
Short-term (less than 12 months)					
Males	no.	185 235	160 677	144 691	128 530
Females	no.	72 353	65 486	58 744	60 155
Persons	no.	257 588	226 163	203 435	188 685
Long-term (12 months and over)					
Males	no.	228 193	224 073	210 834	196 006
Females	no.	90 190	95 299	98 063	98 402
Persons	no.	318 383	319 372	308 897	294 408
Total payments	\$'000	4 918 349	5 078 220	4 831 069	4 754 733
<b>Parenting Payment</b>					
Single					
Males	no.	31 661	32 966	33 909	34 866
Females	no.	385 000	394 880	403 049	414 446
Persons	no.	416 661	427 846	436 958	449 312
Total payments	\$'000	3 861 774	4 145 834	4 350 133	4 657 296
Partnered					
Persons	no.	204 576	191 576	181 405	177 157
Total payments	\$'000	1 463 907	1 425 884	1 380 984	1 337 839
<b>Mature Age Allowance</b>					
Recipients	no.	38 903	40 125	41 070	32 905
Total payments	\$'000	352 596	364 210	381 155	372 523
<b>Partner Allowance</b>					
Recipients	no.	92 106	102 325	102 805	90 930
Total payments	\$'000	728 679	817 599	860 768	860 462
<b>Widow Allowance</b>					
Recipients	no.	36 786	41 271	43 202	45 315
Total payments	\$'000	324 919	389 550	429 662	469 276
<b>Special Benefit</b>					
Recipients	no.	12 691	13 091	12 228	11 216
Total payments	\$'000	114 778	119 811	116 286	113 141
<b>Bereavement Allowance</b>					
Recipients	no.	51	41	55	69
Total payments	\$'000	719	813	986	1 075
<b>Pensioner Education Supplement</b>					
Recipients	no.	45 540	50 865	52 923	50 445
Total payments	\$'000	58 248	65 784	68 574	72 139

(a) Number of customers in June. (b) The number of Newstart, Mature Age, Partner and Widow Allowance customers in this table excludes Community Development Employment Projects (CDEP) participants. CDEP participants receive a CDEP scheme payment and may be eligible for the CDEP Scheme Participant Supplement and certain social security 'add-ons', such as rent assistance and pharmaceutical allowance. However, the basic rate of these labour market allowances is not payable to CDEP scheme participants, hence their exclusion from the customer numbers data.

Source: Department of Family and Community Services.

## Support for people with a disability

The policy to support people with disabilities is designed to promote independence and self-reliance through the provision of rehabilitation services, specialist employment services and other services for people with a disability. It also aims to help support people with disabilities who have limited private income through the provision of income support.

Disability Support Pension (DSP) is the main form of income support for people with a physical, intellectual or psychiatric impairment that prevents them from working for at least 30 hours per week at award wages, or being retrained for such work, for at least two years. DSP is income and assets tested, however recipients who are permanently blind are exempt from the income test. DSP for people aged 21 years and over is paid at the same rate as Age Pension. Youth rates apply to those aged under 21 years. These are largely tied to Youth Allowance rates, but include a supplement of \$90.10 per fortnight in recognition of the additional costs faced by people with disabilities. Youth rates are not subject to parental income or assets tests.

In September 2002 the Better Assessment and Early Intervention measure (part of the AWT package of measures) introduced a greater focus

on the assessment of work capacity for people who are ill, injured or have a disability, and on the early identification of interventions, such as rehabilitation and employment assistance, to help people maximise their economic and social participation.

Other support for people with a disability includes Mobility Allowance and Sickness Allowance. Mobility Allowance is intended to help those who are involved in paid work, vocational training or voluntary work or a combination of these, who are unable to use public transport without substantial assistance. Sickness Allowance may be paid to people aged between 21 years and Age Pension age, who are temporarily unable to work or continue with their full-time study due to illness or injury but who have a job or study to return to.

Wife Pension (DSP) provides an income for a woman who is a partner of a DSP recipient, is aged below Age Pension age and is not receiving any other payment in her own right. This payment is gradually being phased out, with new grants of Wife Pension ceasing after 30 June 1995.

Table 7.15 shows the number of recipients of support for people with a disability, and expenditure by payment type.

**7.15 SUPPORT FOR PEOPLE WITH A DISABILITY(a)**

	Units	2000-01	2001-02	2002-03	2003-04
Disability Support Pension					
Males	no.	392 354	406 893	412 777	418 829
Females	no.	231 572	252 022	260 557	277 913
Persons	no.	623 926	658 915	673 334	696 742
Total payments	\$'000	5 849 799	6 404 351	6 851 608	7 492 532
Wife Pension (DSP)					
Recipients	no.	51 225	44 238	37 880	33 183
Total payments	\$'000	446 564	401 969	351 491	326 083
Mobility Allowance					
Recipients	no.	37 574	41 456	44 239	46 847
Total payments	\$'000	59 367	67 852	74 975	82 163
Sickness Allowance					
Recipients	no.	11 058	9 540	8 755	8 478
Total payments	\$'000	95 554	93 724	85 528	85 375

(a) Number of customers in June.

Source: Department of Family and Community Services.

## Support for carers

There are two forms of Australian Government financial assistance that may be available in a caring situation – Carer Payment and Carer Allowance.

Carer Payment provides income support to people who, due to the demands of their caring role, are unable to support themselves through substantial workforce participation. Carer Payment is subject to income and assets tests and is paid at the same rate as other social security pensions.

Carer Allowance is a supplementary payment that is available to people who provide daily care and attention at home for an adult or child with a disability or severe medical condition. Carer Allowance is not income or assets tested. It can be paid in addition to a social security income support payment.

Table 7.16 shows the number of support for carer recipients and expenditure by payment type.

## Support for the aged

Policies relating to support for the aged are designed to help retirees make the best use of their own financial resources to maintain their standard of living, and to support the aged with limited means through providing income support. They are also intended to provide information and foster opportunities for older people to participate in the community.

The principal form of support is the Age Pension. Age Pension age for men is 65 years and for women is being progressively raised to 65 years by 2014. The qualifying age for women depends on their date of birth, with the minimum age increasing by six months at two-year intervals until it reaches 65 years for those born on or after 1 January 1949.

Other payments available for older Australians include Wife Pension and Widow B Pension. These payments were designed to provide financial assistance to women below the pension age who are either the partner of an age pensioner or who have lost the financial support of a male partner through death, separation or divorce. The concepts behind these payments have been updated to reflect a more modern society and consequently these payments have been closed to new entrants. From 1 July 1995 for Wife Pension, and from 21 March 1997 for Widow B Pension, payments have been confined to women already receiving the payment on those dates.

The ageing of the Australian population will increase the financial commitment of the Australian economy to support the aged. It is expected Age Pension expenditure will increase from 3.0% of gross domestic product to 4.6% by 2050.

Table 7.17 shows the number of recipients and expenditure by payment type for support for the aged.

### 7.16 SUPPORT FOR CARERS

	Units	2000–01	2001–02	2002–03	2003–04
Carer Payment					
Recipients(a)	no.	57 190	67 260	75 937	84 082
Total payments	\$'000	480 944	595 810	702 649	(b)921 008
Carer Allowance					
Recipients(a)	no.	235 041	272 045	299 609	297 607
Total payments	\$'000	533 247	645 722	744 488	(b)965 430

(a) Number of customers in June. (b) Includes 'one-off' carer bonus payments.

Source: Department of Family and Community Services.

### 7.17 SUPPORT FOR AGED(a)

	Units	2000–01	2001–02	2002–03	2003–04
<b>Age Pension(b)</b>					
Males	no.	688 776	714 324	739 187	761 025
Females	no.	1 104 932	1 103 881	1 121 868	1 115 225
Persons	no.	1 793 708	1 818 205	1 861 055	1 876 250
Total payments	\$'000	15 616 477	16 665 653	17 740 214	19 540 401
<b>Widow B Pension</b>					
Recipients	no.	6 456	5 130	2 986	1 879
Total payments	\$'000	84 296	59 787	39 804	26 275
<b>Wife Pension (Age)(b)</b>					
Recipients	no.	26 580	23 823	20 319	19 728
Total payments	\$'000	233 080	216 160	195 071	194 176

(a) Number of customers in June. (b) Includes the Pension Savings Bonus Scheme, and amounts paid by the Department of Veterans' Affairs in relation to the Aged Pension, related Wife Pension and Disability Support Pension.

Source: Department of Family and Community Services.

## Other support programs

### Family assistance support

Family assistance support programs help support and strengthen families through services to enhance family relationship, lower the incidence of family breakdown and prevent child abuse.

The aim of the Stronger Families and Communities Strategy is to enhance the strength of families and communities. The Strategy is a four-year program that commenced in 2000–01. It takes a prevention and early intervention approach to helping families and communities build resilience and the capacity to deal with problems before they develop. It encourages the development of practical and innovative projects that address locally identified issues.

The Strategy focuses on three important family areas: early childhood and families with young children; marriage and relationships; and balancing work and family. It targets the following groups:

- families with young children
- isolated families
- families at risk
- young people, particularly in rural and regional Australia
- emerging non-traditional community leaders such as older women and young people
- Indigenous families and communities.

A longitudinal study of child health and development was also initiated under the Strategy.

The Australian Government has been funding the Family Relationships Services Program (FRSP) since the early-1960s. The Program aims to enable children, young people and adults to develop and sustain safe, supportive and nurturing family relationships and to minimise the emotional, social and economic costs associated with disruption to family relationships. The Australian Government Attorney-General's Department contributes part of the funding for the FRSP.

Early Intervention and Parenting projects are aimed at preventing child abuse, improved parenting skills and strengthening families. A key focus of these projects is meeting the special needs of families in rural and remote areas, Indigenous families and families from multicultural backgrounds. Opportunities are also provided for children under 5 years and their carers, to interact with other children and their carers.

The Australian Government Financial Counselling Program provides free financial counselling services to people in low-income groups experiencing financial crises due to circumstances such as unemployment, sickness, credit over-commitment and family breakdown.

### Youth and student support

Youth and community support programs develop new partnerships within and across levels of government and with community organisations to support innovations in youth and family support arrangements around young people's transition to independence and adulthood.

The Strengthening and Supporting Families Coping with Illicit Drug Use initiative is an early intervention, family-focused part of the wider

National Illicit Drugs Strategy – *Tough on Drugs* – demand reduction measures. Programs funded under this measure provide support, advice, information, referral and outreach services to families with members coping with, or at risk of, illicit drug use and substance abuse before the problem becomes entrenched.

Reconnect is an early intervention program for young people, aged 12–18 years, who are homeless or at risk of homelessness, and their families. Reconnect services offer counselling, adolescent mediation and practical support to both young people and their families.

The Youth Activities Services/Family Liaison Worker Program (YAS/FLW) provides innovative structured activities and positive peer support programs after school, over the weekend and during vacations for 11–16 year olds in disadvantaged areas. YAS/FLW also provides practical support and guidance to young people and their families to help them deal with difficulties such as family conflict and lack of communication, and refer them to specialist services as required.

The Job, Placement, Employment and Training (JPET) program assists young people aged 15–21 years who are homeless or at risk of homelessness, to overcome personal and social barriers and engage more fully in the life of their communities to achieve greater social and economic participation.

Green Corps is a youth development and environmental training program for young people aged 17–20 years. Green Corps provides young people with the opportunity to volunteer their commitment to conserve, preserve and restore Australia's natural environment and cultural heritage.

Projects are mostly located in regional and remote areas and are developed in conjunction with a range of partner agencies including non-government conservation organisations, community groups and local, state and territory governments.

Each Green Corps project involves 10 young people taking part in a range of activities and experiences over a 26-week period. During their placement, participants receive a weekly participant allowance. Green Corps participants gain improved career and employment prospects

through accredited training and personal development opportunities in areas such as leadership and teamwork. Participants are also provided with an opportunity to develop improved connections with the community.

The Mentor Marketplace Program encourages the use of mentoring to increase outcomes for young people, particularly those at greatest risk of disconnection from their families, community, education and work.

The Transition to Independent Living Allowance (TILA) provides one-off assistance (with a value of up to \$1,000) to young people aged 15–25 years who are approaching their independence and making the transition from state-supported care arrangements to independent living. TILA targets young people in greatest need exiting care arrangements.

### **Child support**

The Child Support Scheme is administered by the Child Support Agency (CSA) within FaCS. The Agency manages the assessment, collection and enforcement of child support liabilities. It aims to ensure that parents continue to financially support their children after separation, according to their capacity to do so. Parents may transfer their assessed liability privately, or have it collected and transferred through CSA. Parents are required to take reasonable action to obtain child support if they wish to receive Family Tax Benefit Part A at more than the basic rate.

The total amount transferred between parents in 2003–04 was \$2.19b, an increase of \$250m over the previous financial year (\$1.94b). This includes child support assessed by CSA and transferred directly between parents, as well as child support assessed and collected by CSA. In addition, Child Support associated with parents who elect to transfer payments privately amounted to approximately \$1.4b in 2003–04.

In 2003–04, 51.8% of all parents registered with CSA transferred their child support privately, with minimal CSA intervention. This was an increase on 2002–03 (50.6%).

The CSA is also the central authority for the collection of international child maintenance originating overseas or requiring referral overseas.

## **Housing support**

Housing support policies are in place to assist low and moderate income householders to access appropriate affordable housing, and provide supporting initiatives to assist homeless people.

The Supported Accommodation Assistance Program is a joint Australian Government and state/territory government program, which provides transitional, supported accommodation and a range of related support services to people who are homeless or at imminent risk of homelessness. It also aims to resolve crises, re-establish family links where appropriate and re-establish the capacity of clients to live independently of the program.

FaCS housing assistance programs are discussed further in *Chapter 8 Housing*.

## **Volunteering**

Volunteering is an essential part of the Australian Government's objective to promote social and economic participation, and to strengthen connections within communities. Volunteering provides benefits to individual volunteers, the organisations for which they volunteer and the broader community in which they participate. The Australian Government supports volunteering through a number of programs.

The Volunteer Small Equipment Grants provide funding to volunteer involving organisations that provide family support and strengthen local communities. Grants of up to \$5,000 are available to help organisations purchase equipment that directly assists volunteers by making their volunteering activities easier, safer or more enjoyable.

The Volunteer Management Program funds 26 Volunteer Resource Centres to provide volunteer matching and referral services throughout Australia. People who wish to volunteer can approach these centres for assessment and referral to organisations needing volunteers. The centres provide information and advice on volunteering and access to a wide range of volunteering opportunities. Under the Volunteer Management Program, Volunteer Resource Centres also provide training to volunteers and volunteer managers in community organisations. Volunteer involving organisations can also use Volunteer Resource Centres if they need assistance with recruiting and training volunteers.

The Voluntary Work Initiative also refers and matches people to volunteer positions with a specific focus on income support customers. The program aims to improve the take-up and effectiveness of voluntary work among income support customers of working age. Volunteering Australia manages the Voluntary Work Initiative on behalf of FaCS through its national network of Volunteer Resource Centres.

## **Community support**

Community support programs and policies support and strengthen communities by developing community capacity and self-reliance, supporting leadership, volunteering and innovative local responses, helping people in rural and regional areas access services that support their special needs and helping them to take advantage of opportunities. Other strategies involve encouraging partnerships between business, community and government sectors, helping in crisis situations and assisting low-income families and individuals with living costs.

The Stronger Families and Communities Strategy supports early intervention and prevention approaches to help families with young children and communities deal with issues before they become serious problems. It recognises that families and communities all have some degree of strength that can be built on to respond to issues and create opportunities. The Strategy is about community involvement and ownership and giving community organisations the chance to think about local issues and how they can best be addressed. It is about building partnerships between all spheres of government, community organisations and business to provide easier access to a comprehensive range of services that will help our children and our families have better outcomes. The key focus of the Strategy is to provide better chances for children and their families, and to build stronger communities that allow these children and their families to flourish and achieve their potential.

The Emergency Relief Program provides grants to community and charitable organisations so that they can assist individuals and families in a financial crisis. Typical forms of assistance include food vouchers, help with accommodation, payment of outstanding accounts, sometimes cash, and where possible, referrals to other services, programs and supports. Assistance is provided in a way that promotes self-reliance and

maintains the dignity of those needing assistance. The program also provides training support for paid and voluntary workers in the sector.

The Family and Community Networks Initiative (FCNI) aims to enhance the capacity of communities and services to work together effectively to address the needs of families and communities. Since February 2003, FCNI has been primarily focused on supporting Indigenous communities participating in the Council of Australian Governments (COAG) Indigenous Community Coordination Pilots (ICCP) and other Indigenous projects around Australia. Grants are available to incorporated community bodies, businesses and local government agencies to fund projects that contribute to the overall aims of the COAG ICCP and projects aimed at strengthening Indigenous community networks, leadership and community governance across Australia.

Australian Government concessions cards, (the Pensioner Concession Card, the Health Care Card and the Australian Government Seniors Health Card), are also part of Community Support policies. They are issued mainly to assist eligible individuals and/or their families with the cost of Pharmaceutical Benefits Scheme prescription items.

The Prime Minister's Community Business Partnership is a group of prominent Australians from the community and business sectors that have been advising and assisting the Government on initiatives to develop and promote a culture of corporate and individual social responsibility. The Partnership operates on the premise that communities are stronger and more cohesive when individuals, not-for-profit organisations, governments and business all work together – each offering its own set of unique skills. Key achievements of the Partnership have been: a new Community Business Partnership 'brokerage' service to help businesses link up with community groups; a celebratory Partnerships Week in July 2004 that rewards and features best practice partnerships; an annual awards program and an essay competition to encourage students – the future business and community leaders – to think about corporate social responsibility.

The Australian Government funds the Commonwealth Financial Counselling Program which provides access to quality financial counselling services, free of charge, to people in low-income groups experiencing financial crisis

due to circumstances such as unemployment, sickness, credit over-commitment and family breakdown.

The Government continues to offer a wide range of assistance and support to survivors and families of those who died as a result of the Bali bombings (October 2002). This has included the provision of: streamlined access to income support (assistance with airfares, accommodation and funeral costs); medical and other costs not otherwise covered by Medicare and private health insurance; lifetime rehabilitation assistance for those injured; emergency financial assistance; and continuing personal support from Centrelink Family Liaison Officers. In addition, the Baliassist web site (<http://www.baliassist.gov.au>) and *BaliUpdate* newsletter continue to provide information to survivors and families.

The Australian Government is concerned with the potential consequences associated with gambling and in response has taken a number of steps to try and address the issue and minimise the impact on the community at large. These include the establishment of the National Advisory Body on Gambling, and a Ministerial Council on Gambling.

The responsible regulation of gambling is primarily a state and territory function. The Ministerial Council on Gambling brings states and territories together to consider policy issues related to problem gambling, and has established a national research program relating to problem gambling. Research priorities have been developed, and the Australian Government has committed \$0.3m per year to the program for five years as well as continuing its own research.

The National Framework on Problem Gambling was agreed to at the Ministerial Council meeting held in July 2004. The Framework provides a platform to share information and best practice between jurisdictions on issues associated with problem gambling. It will build on work already undertaken by jurisdictions.

The National Framework has four themes:

- prevention
- early intervention and continuing support
- building effective partnerships
- national research and evaluation.

The National Problem Gambling Research Program is focusing on various aspects of problem gambling and related issues to build our knowledge base and inform policy development.

The major outcomes for the program will be:

- development of an improved collective understanding of problem gambling by states and territories
- development of a high quality benchmark information base on the nature, causes and consequences of problem gambling, and development of best practice support services for problem gamblers
- research that informs policy development and public debate in Australia
- improvements in the quality and quantity of research on the effectiveness of various forms of treatment and support services.

### **Labour market assistance**

Labour market assistance policies are designed to foster a culture of self-reliance in the community by promoting appropriate understanding, expectations and behaviour.

The AWT initiative provides assistance to people of workforce age including job seekers, parents, people with disabilities, the unemployed, mature age people and Indigenous Australians. Initiatives include a Working Credit to encourage people on income support to take up full-time, part-time or irregular casual work, Training Credits, the Language, Literacy and Numeracy supplement, more places in employment services and initiatives to assist Indigenous Australians.

The Personal Support Programme (PSP), which commenced on 1 July 2002, helps those people on income support payments who face multiple non-vocational obstacles to employment. These barriers include homelessness, drug and alcohol problems, psychiatric disorders or domestic violence problems. The PSP has broad objectives that recognise social as well as economic participation. Social outcomes are often more achievable and appropriate to participants with these sorts of multiple barriers to employment.

Personal Advisors are providing extra help to a range of eligible customers including those at a high risk of long-term dependency on income support. Personal Advisors work with people to identify goals and options, and to develop a plan to achieve them. They make sure people get the

right help by referring them to service providers, linking them to other community support specialists within and outside Centrelink such as psychologists, and keeping in touch with them about their progress.

JET is a voluntary program that assists with skills development and entry or re-entry into the paid workforce. Assistance provided includes: access to education, training and employment assistance; referrals to government and community services; and child care assistance. People receiving Parenting Payment, Widow Allowance, Partner Allowance, Widow B Pension, Carer Payment and some Special Benefit recipients are eligible to participate in JET.

### **Support for people with a disability**

The Australian Government and state/territory governments share responsibility for providing specialist disability services under the Commonwealth-State/Territory Disability Agreement (CSTDA). The Government is responsible for providing employment assistance for people with disabilities while the state/territory governments provide non-employment services such as respite and accommodation. The Government contributes funds towards the states' and territories' service responsibilities.

The Disability Employment Assistance Program funds organisations under the *Disability Services Act 1986* (Cwlth) to provide employment support to people with a disability who require assistance to gain and/or retain paid employment. This assistance may be provided in the open labour market or within a supported employment setting.

In addition to this support, the Australian Government also funds programs designed to encourage employers to provide durable job opportunities for people with disabilities; workplace modifications; supported wage assessments; wage subsidies; and the provision of information and job placement services.

The Australian Government also funds an Advocacy program which is designed to enable people with a disability to participate more fully in community life, and achieve and maintain their rights as citizens. The Advocacy program involves families of individuals where possible and appropriate. Advocacy is a shared Commonwealth-State responsibility under the CSTDA.

Other services supporting people with disabilities funded by the Government include:

- carer respite centres which provide short-term and emergency respite for carers of young people with severe or profound disabilities who have been unable to access existing state respite care
- print disability services which provide materials in alternative format such as audiotape and Braille to people who, because of their disabilities, are unable to read, hold or manipulate printed materials in standard form
- information and captioning services which assist people with disabilities to access information on recreation, tourism, sport and the arts, and captioned entertainment videos for people who are deaf or hearing impaired.

Support for people with disabilities is also provided through rehabilitation services to improve function and independence in people with a disability so they can gain or retain suitable employment, or live independently.

### **Retirement planning assistance**

The National Information Centre on Retirement Investments (NICRI) is an independent body funded by the Australian Government to provide the public with free information on financial investments, financial industry services and saving for retirement. NICRI can assist customers to provide for their retirement and to make the investment choices that are best for them. NICRI does not represent government or the financial industry. NICRI delivers its services to the public through a toll-free telephone inquiry service, a website, and an extensive range of information leaflets. NICRI also publishes media articles and makes presentations at external seminars and Centrelink Financial Information Service seminars.

The Financial Information Service (FIS) provided by specialist Centrelink officers, is an education and information service available to everyone in the community. FIS helps people make informed decisions about investment and financial issues for their current and future financial needs. FIS is independent, free and confidential, and provides services by phone, personal interview and through its seminar program.

FaCS produces a range of free publications that provide practical and easy to read information on topics such as investment options,

accommodation choices, concessions, seniors' organisations and other support available. These publications have been produced with financial industry bodies, other agencies and community groups to help people improve their lifestyle in retirement.

## **Aged care programs**

*This section was contributed by the Australian Government Department of Health and Ageing (October 2004).*

The Australian Government, in conjunction with the state, territory and local governments has put together systems for the delivery of health, income support, and housing and community services to support the ageing people of Australia. All these systems are major areas of concern for all three levels of government.

## **National Strategy for an Ageing Australia**

Recognising the significant implications of population ageing across a number of public policy areas, the Australian Government has developed the National Strategy for an Ageing Australia. It provides a basic framework to address current issues facing older people and to prepare for future demographic changes as Australia's population ages over the next 50 years. It also highlights that the ageing of Australia's population is an issue for all Australians – governments, businesses, community organisations and individuals.

The main themes of the National Strategy are:

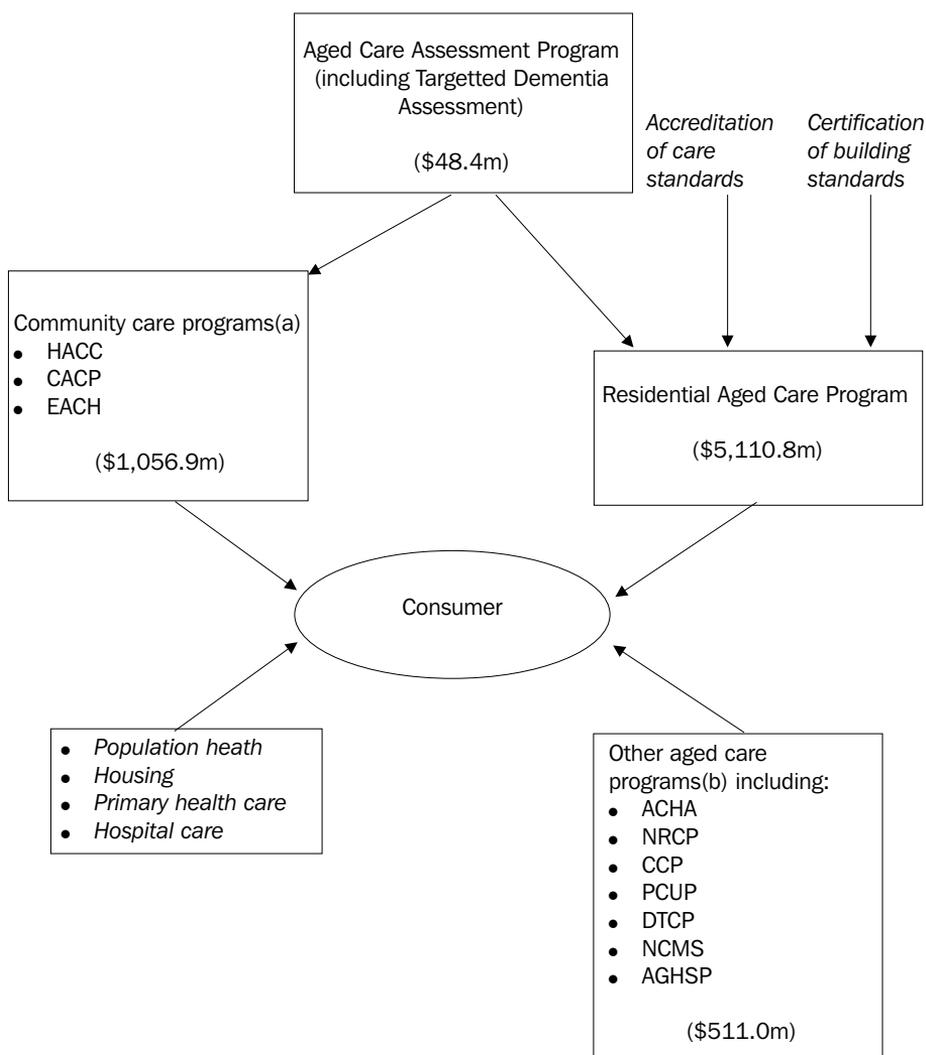
- retirement income – pensions and superannuation
- a changing workforce – employment for mature age workers
- attitude, lifestyle and community support issues – housing, transport, lifelong learning and volunteering
- healthy ageing – health promotion, maintaining health and wellbeing through physical, mental and social activity
- world-class care issues – health and aged care.

## System of aged care programs

The main purpose of aged care programs is to support healthy ageing for older Australians and quality, cost effective care for frail older people and support for their carers. The system of aged care programs in Australia is structured around

two main forms of care delivery – residential and community care. There are various other associated aged care programs such as Day Therapy Centres, Multi-purpose Services and Advocacy Systems, that also form part of the aged care system (diagram 7.18).

**7.18 AGED CARE SYSTEM, Australian Government expenditure — 2003–04**



(a) Individual programs are described within this chapter. (b) The larger programs are discussed within this chapter and the total (\$511.0m) includes expenditure on smaller programs (\$133.7m).

Source: Department of Health and Ageing.

## Aged Care Assessment Program

The Australian Government provides grants to state and territory governments specifically to operate Aged Care Assessment Teams (ACATs). In 2003–04 the Government contributed \$48.4m for the operation of 119 ACATs throughout Australia, as well as an evaluation unit in each state.

ACATs assess the care needs of people and their eligibility for accessing the required services. The main professional groups represented on ACATs are geriatricians, social workers, nurses, physiotherapists, occupational therapists, psychologists and psychogeriatricians.

ACATs assess the whole care needs of an individual, using a multi-disciplinary and multi-dimensional approach. As part of the holistic assessment process, a person's medical, physical, social, psychological and restorative care needs are assessed before an approval for care is made. ACATs are also well positioned to provide advice on aged care services and to act as an interface between aged care services and the health care system.

Clients need to be assessed as eligible by an ACAT before they can receive a subsidy for residential care, a Community Aged Care Package, or some forms of flexible care, such as under the Extended Aged Care at Home Program.

## Residential Aged Care Program

The aim of the Residential Aged Care Program is to enhance the quality of life of older Australians through support for the provision of a cohesive framework of high quality and cost effective residential care services for frail older people. There are two types of residential aged care – high level care ('nursing home') and low level care ('hostel'). Aged care places are allocated in proportion to the number of people aged 70 years and older.

The Australian Government subsidises the costs for each person in a residential care setting. The level of funding depends on the care needs of the resident. Also, residents can be asked to pay fees and charges. Each aged care home that provides care is required to meet specific care and building standards and to be accredited by the Aged Care Standards and Accreditation Agency in order to receive Government funding. Capital funding is available on a competitive basis to support residential aged care where the aged care provider is unable to fund necessary building works. Australian Government expenditure on residential aged care in 2003–04 is shown in table 7.19.

## Community care programs

The main aim of these programs is to assist people being maintained in their own homes. The main community care programs are the Home and Community Care, the Community Aged Care Packages and the Extended Aged Care at Home programs.

**7.19 COMMONWEALTH EXPENDITURE ON RESIDENTIAL AGED CARE(a)**

	Residential Care (recurrent)		Residential Care (capital)	
	2002–03	2003–04	2002–03	2003–04
	\$m	\$m	\$m	\$m
New South Wales	1 543.0	1 806.4	4.5	3.1
Victoria	1 046.9	1 257.4	3.6	5.2
Queensland	774.7	915.7	4.2	4.2
South Australia	347.8	507.1	3.9	2.1
Western Australia	417.6	414.3	2.6	0.6
Tasmania	125.1	144.2	3.8	2.1
Northern Territory	36.1	16.1	0.7	0.0
Australian Capital Territory	19.1	49.5	0.1	0.0
<b>Australia(b)</b>	<b>4 310.3</b>	<b>5 110.8</b>	<b>23.3</b>	<b>17.3</b>

(a) Includes expenditure by the Department of Health and Ageing and the Department of Veterans' Affairs, in accrual terms. Actual expenditures may change slightly due to late claims and adjustments. (b) Totals may vary due to rounding.

Source: Department of Health and Ageing.

### **Home and Community Care (HACC) Program**

The HACC program is a joint Australian Government and state government cost-shared program which provided \$1.2b nationally for the 2003–04 financial year to service provider organisations. Of the total, the Australian Government made available \$732.8m or 60%, with the states and territories providing the remaining 40%.

The Australian Government provides funding for HACC, but the day-to-day administration, priority setting and approval of project allocations is the responsibility of the state and territory governments.

The aim of the HACC program is to provide basic maintenance and support services to enable frail older people (and younger people with disabilities) to remain living in their home and the community and to prevent premature admission to long-term residential care. HACC funded services also assist the carers of these groups. The types of HACC funded services available include home maintenance and modification, as well as domestic assistance, food services, personal care, community nursing, transport and respite care.

### **Community Aged Care Packages (CACP) Program**

The CACP program is funded by the Australian Government to provide a community alternative to low level residential care to assist frail older people with complex needs to remain living in the community.

Service providers use a case management approach to develop and monitor care delivery to eligible older people. One of the benefits of the CACP program is its flexibility in service delivery which is designed to meet individual needs. This flexibility enables people to be given assistance through a package of care services which may include personal care, assistance with preparing meals, home help and assistance with transport.

By June 2004, 27,626 packages have been approved under the program. Total expenditure for 2003–04 was \$308.6m.

### **Extended Aged Care at Home (EACH) Program**

The EACH program commenced as a three-year pilot in 1998 to test the feasibility of providing the equivalent of high level residential age care to people living at home. The program has expanded to a total of 924 places at 30 June 2004, with funding in 2003–04 of \$15.4m.

EACH service providers are required to deliver individually tailored, coordinated packages of care in keeping with a client's care plan. Services can include, but are not limited to, the following:

- personal care including continence care
- specialist nursing care and 24-hour emergency assistance
- support for people with cognitive deficits
- assistance with meals
- home help and maintenance.

The 2001 Budget Initiative on EACH provided an additional \$2m over two years for development work to lay the foundations for possible expansion of the EACH Program and address data management, quality and accountability issues. During 2003–04 substantial progress was made on the development of an accountability framework for both the CACP and EACH programs. The primary objectives are to ensure that care recipients continue to receive the levels of care they need and to improve measurement and reporting of the operation of the programs. There has been work on each of three critical aspects of accountability included in the framework – financial accountability, quality of service delivery and levels of service provision.

### **Community Partners Program**

A dedicated program of aged care support services for established culturally and linguistically diverse communities, worth \$11.6m over the next four years, is to commence on 1 January 2005.

It has been frequently observed that older people from culturally and linguistically diverse backgrounds make less use of residential aged care services than the rest of Australia's older population. This difference intensifies as the level of English proficiency of these people decreases. As established immigrant communities become relatively more aged, it is becoming more important to ensure that these communities

receive support to access culturally appropriate aged care services across the full continuum of care.

The new program will build links between established communities and services, and will help aged care service providers understand the needs of established migrant communities.

### **Other aged care programs**

The Australian Government also provides funding for other support and community services. The following are the main programs funded by the Government.

#### ***Assistance with Care and Housing for the Aged (ACHA) Program***

The ACHA program assists frail, low-income older people who are renting, are in insecure/inappropriate housing or are homeless, to remain in the community by accessing suitable housing linked to community care.

The Australian Government contributes recurrent funds to organisations that provide support through paid workers and/or volunteers, assisting clients to access and be maintained in secure and affordable housing. The primary role of program workers is to link clients to appropriate mainstream housing and/or care services.

In 2003–04 the program funded 46 projects nationally through funding of \$2.7m. The funding for each project varies according to identified community need, the number of staff employed by individual services and the tenure of employment (i.e. full time or part time). Most projects are located in inner city areas where there is a concentration of frail elderly people living in insecure accommodation.

#### ***National Respite for Carers Program (NRCP)***

The aim of the NRCP is to contribute to the support and maintenance of caring relationships between carers and their dependent family and friends. It provides information, respite care and other support or assistance appropriate to carers' individual needs and circumstances, and those of the people for whom they care.

A national network of over 90 Commonwealth Carer Respite Centres and regional office outlets has been established to improve coordination of respite service provision and help meet emergency and unplanned respite needs. Commonwealth Carer Respite Centres provide

carers with a single contact point for respite care assistance whether the respite service required is in an aged care facility, in the community or in the carer's home. The NRCP provides funding for over 450 carer respite services, which include in-home, family-based, centre-based and peer support services, to supplement mainstream respite services offered through the HACC and other state-based programs as well as local government and community initiatives. An allowance is also paid to carers who are looking after people with high level needs.

Funding for the NRCP increased from \$19m in its inception year, 1996–97, to \$99.7m in 2003–04. The NRCP funds Commonwealth Carer Resource Centres, Commonwealth Carer Respite Centres and respite services.

#### ***Commonwealth Carelink Program (CCP)***

Over 60 Commonwealth Carelink Centres across Australia provide information on local community aged care, disability and other support services to an average of 16,000 clients each month. Clients include care professionals such as general practitioners, service providers, individuals and their carers. Program funding in 2003–04 was \$13.9m.

#### ***Psychogeriatric Care Units (Dementia) Programs (PCUP)***

The Australian Government funds a number of care programs that exclusively or partly target people with dementia and their carers. The Dementia Education and Support Program with funding of \$1.5m, has the primary function of operating a 24-hour National Dementia Helpline that provides an information and referral service as well as acting as a 'gateway' to other more intensive support services. A second telephone support service for carers of people with dementia and challenging behaviours and respite workers is provided under the National Dementia Behaviour Advisory Service. The funding in 2003–04 for this service was \$0.4m.

The Early Stage Dementia Support and Respite Project, with funding of \$1.5m, provides a nationally coordinated support and respite service for people in the early stages of dementia and their carers. In 2003–04 the Carer Education and Workforce Training project with \$1.1m provided a coordinated national education and training program, focusing on carers and respite workers. In addition to these services, the Psychogeriatric Care Units, with funding of \$4.3m for 2003–04, provide specialist psychogeriatric support to

residential aged care homes and community carers looking after people with dementia who exhibit significant behaviours of concern.

### **Day Therapy Centres Program (DTCP)**

The DTCP has been in operation since 1988 when rationalisation of nursing home funding led to the separate funding of the therapy function. There are 155 centres across Australia providing a wide range of therapy services to frail older people living in the community and to residents of Australian Government funded aged care homes. Funding provided by the Government in 2003–04 was \$31.6m.

### **National Continence Management Strategy (NCMS)**

The 'Staying at Home – Care and Support for Older Australians 1998' package included \$15m over four years to address the needs for improved continence management for older Australians through the NCMS. In 2002 an additional \$4m per year over four years was approved for the continuation of the strategy. Under this Strategy, a number of national research and service development initiatives are being trialed to complement existing continence care.

The Australian Government also funds the Continence Aids Assistance Scheme (CAAS) which was established to assist people of working age who have a permanent disability-related incontinence condition. CAAS currently provides a subsidy to eligible individuals of \$470 per year. CAAS funding for 2003–04 was \$8.7m.

### **Australian Government Hearing Services Program (AGHSP)**

The role of the AGHSP is to reduce the consequence of hearing loss for eligible clients, and reduce the incidence of hearing loss in the broader community. Administration of the AGHSP is the responsibility of the Office of Hearing Services (OHS), in the Department of Health and Ageing.

Access to hearing services for eligible adults – 21 years and over – is provided through the Hearing Services Voucher System. The Voucher System expenditure in 2003–04 was \$178m. Eligible adults include:

- holders of Pensioner Concession Cards
- holders of Gold Repatriation Health Cards issued to Veterans for all conditions
- holders of White Repatriation Health Cards issued to Veterans for conditions that include hearing loss
- Sickness Allowees
- dependants of the above categories
- CRS Australia clients undergoing a vocational rehabilitation program and referred by their case manager
- serving Defence personnel.

There are 164 accredited hearing services providers contracted by the OHS to provide services under the Hearing Services Voucher System. Services are provided at 408 permanent sites and around 990 visiting sites throughout Australia by qualified hearing services practitioners (audiologists and audiometrists). OHS also has supply contracts with 15 hearing devices suppliers for the supply of quality hearing devices into the program.

In addition, the Australian Government funds Australian Hearing to provide specialised hearing services for children and young adults under the age of 21 years, and to ensure access to appropriate hearing services for eligible adults with special needs. These clients include those who live in remote locations, who are Aboriginal or Torres Strait Islander peoples, or who have complex hearing needs. Funding is also provided to Australian Hearing Services to undertake, through its research arm, the National Acoustic Laboratories, research to increase understanding of issues related to hearing loss, hearing rehabilitation and the harmful effects of noise. Total funding of these Community Service Obligation activities in 2003–04 was \$29.9m.

## Services provided to veterans and their families

*This section was contributed by the Australian Government Department of Veterans' Affairs (October 2004).*

The Repatriation Commission determines services provided to veterans, via the *Veterans' Entitlements Act 1986* (VEA) (Cwlth). The Commission currently provides services to more than half a million veterans and members of the Australian Defence Force (ADF), their partners, veteran widows, widowers and children. The Commission has no staff of its own. The Australian Government Department of Veterans' Affairs (DVA) provides the administrative machinery through which the Commission operates. The Commission, comprising three full-time members, has the following functions:

- to grant pensions and other benefits and provide treatment for veterans, their dependants and other eligible persons
- to advise the minister on the operation of the VEA
- generally to administer the VEA, subject to the control of the minister.

The VEA also gives the Commission the power to take necessary actions in connection with the performance of its functions, duties and powers. The responsible minister under the VEA is the Minister for Veterans' Affairs. The minister does not have any powers to direct the Commission beyond the power to approve various actions of the Commission.

Repatriation benefits are provided under the VEA for eligible service that includes:

- wartime service (World War I, World War II, and certain post World War II conflicts including eligible South-East Asia service such as Korea, Malaysia and Vietnam)
- peacekeeping service
- Merchant Navy service during World War II
- peacetime service between 1972 and 1994 – it should be noted that the administration of the Military Compensation and Rehabilitation Service which covers peacetime service prior to 1972 and post-1994 was transferred from Defence to DVA in December 1999.

Under the *Papua New Guinea (Members of the Forces Benefits) Act 1957* (Cwlth), indigenous inhabitants of Papua New Guinea who served in the Australian forces during World War II, and members of the Royal Papuan Constabulary and New Guinea Police Force who also served in that conflict, are eligible for compensation-type benefits.

Members of other Commonwealth countries' forces and allied veterans are generally not eligible for compensation-type benefits from DVA in respect of their service, unless they were domiciled in Australia immediately before their enlistment. However, they may qualify for a DVA income support payment (see the section *Income support*).

Qualifications for receiving subsidised housing loans, granted under the Defence Service Homes Act, generally depend on service with the ADF in World War I or World War II, or specified service in Korea, Malaya, South-East Asia, Namibia, the Middle East for the Kuwaiti crisis, Cambodia, the former Yugoslavia, or East Timor, and for service in the Regular Defence forces on or after 7 December 1972, provided the person's first service in the forces was before 15 May 1985. Certain civilians may also be eligible.

More detailed information on repatriation allowances, benefits and services is available from DVA.

### Compensation program

The principal objective of the compensation program is to ensure that eligible veterans, their war widows and widowers, and their dependants, have access to appropriate compensation and income support in recognition of the effects of war or defence service.

### Disability compensation

The main disability benefits provided include a range of disability pensions and the War/Defence Widow(er)s' Pension. Table 7.20 shows the number of pensions at 30 June in 2004 and in each of the four preceding years.

The Disability Pension compensates persons for incapacity resulting from eligible war, defence or peacekeeping service. General Rate Disability Pensions range from 10% up to and including 100%, depending on the degree of war-caused or service-related incapacity. Higher rates of pension – extreme disablement adjustment, intermediate and special rates – are available. The Intermediate

Rate Pension and Special Rate Pension include components designed to recompense the veteran for loss of earnings. A veteran who is blind or who has certain amputations because of war-caused or service-related conditions is granted the Special Rate of pension without any reference to employment.

Compensation is also available to compensate dependants for the death of a spouse or parent as a result of eligible service. The compensation is available as War/Defence Widow(er)s' Pensions, Dependants' Pensions and Orphans' Pensions.

Various ancillary benefits may also be provided, including attendant allowance (paid to carers), clothing allowance, decoration allowance, loss of earnings allowance, recreation transport allowance, vehicle assistance scheme, goods and services tax exemption on cars and car parts, bereavement payment and funeral benefit.

Dependent children of ADF members who have been killed or severely injured were given access to educational guidance and counselling from the Veterans' Children Education Boards from 1 January 2001. Long Tan bursaries are available for the children of Vietnam veterans. From 1 January 2001 the children of Vietnam veterans are eligible for Veterans' Children Education Scheme (VCES) benefits where the child is diagnosed as having a depressive disorder or if the opinion of an appropriately qualified professional is that the child is vulnerable.

Table 7.21 shows the number of disability pensioners at 30 June 2004 by conflict type. In this table, a person is allocated to the conflict relating to the first disability claim they lodged, regardless of later claims by the person relating to either earlier or later conflicts in which they served.

Table 7.22 shows the number of disability pensions as at 30 June 2004 and in each of the nine preceding years.

## 7.20 DISABILITY AND WAR WIDOWS' PENSIONERS — 30 June

Recipient	2000	2001	2002	2003	2004
Incapacitated veterans	162 730	162 505	159 425	157 865	154 602
Wives and widows(a)	56 596	51 148	47 016	43 078	39 399
Children	3 165	1 690	1 404	243	206
War widows and widowers(b)	107 953	110 656	113 059	114 235	114 418
Orphans	410	382	344	298	270
Other dependants	683	657	600	576	555
<b>Total(c)</b>	<b>330 388</b>	<b>325 829</b>	<b>320 571</b>	<b>314 358</b>	<b>307 514</b>

(a) Wives of incapacitated veterans and widows of deceased veterans who have not died from an accepted war caused condition.

(b) Widows and widowers of deceased veterans who have died from an accepted war caused condition. (c) The totals do not equal the sum of the components due to overlaps.

Source: Department of Veterans' Affairs.

## 7.21 DISABILITY PENSIONERS — 30 June 2004

	World War I	World War II(a)	Seaman's War Pension	Korea/Malaya	FESR(b)	Vietnam	Peacetime forces	Gulf War(c)	East Timor	Others	Total
General Rate – from 10% to 100%	1	65 599	443	5 207	2 277	12 210	23 468	207	802	363	110 577
Extreme Disablement Adjustment	—	13 427	106	753	127	166	13	—	—	11	14 603
Intermediate Rate	—	346	1	50	19	328	223	—	6	—	973
Special Rate (TPI or equivalent)	—	6 603	10	1 723	610	16 950	2 399	38	93	23	28 449
<b>Total</b>	<b>1</b>	<b>85 975</b>	<b>560</b>	<b>7 733</b>	<b>3 033</b>	<b>29 654</b>	<b>26 103</b>	<b>245</b>	<b>901</b>	<b>397</b>	<b>154 602</b>

(a) Includes interim forces. (b) Far East Strategic Reserve. (c) A number of veterans of the Gulf War are officially recorded as members of the Defence/Peacekeeping forces.

Source: Department of Veterans' Affairs.

## 7.22 DISABILITY AND WAR WIDOWS' PENSIONS

	Disability pensions in force at 30 June				
	Incapacitated veterans(a)	Dependants of incapacitated veterans(b)	Dependants of deceased veterans(c)	Total(d)	Annual expenditure(e)
	no.	no.	no.	no.	\$'000
1994–95	157 298	85 837	90 039	333 174	1 570 136
1995–96	159 178	80 204	94 473	333 855	1 720 239
1996–97	160 145	74 405	98 493	333 043	1 819 338
1997–98	161 829	69 484	101 647	332 960	1 888 416
1998–99	162 810	64 486	105 417	332 713	2 067 783
1999–2000	162 730	60 011	108 796	330 388	2 099 205
2000–01	162 505	53 080	111 453	325 829	2 314 052
2001–02	159 425	49 020	113 403	320 571	2 501 200
2002–03	157 865	43 321	114 533	314 358	2 615 170
2003–04	154 602	39 909	114 939	307 514	2 743 604

(a) All Disability Pensioners in payment. (b) Includes Disability Pensioners' spouse/widow(er)s, Disability Pensioners' children and Adequate Means of Support (AMS) incapacitated. (c) Includes war widow(er)s, orphans and AMS deceased cases. (d) The totals for 1999–2000 to 2001–02 do not equal the sum of the components due to overlap. (e) Includes associated allowances.

Source: Department of Veterans' Affairs.

The VCES provides financial help, guidance and counselling to certain students up to 25 years of age (tables 7.23 and 7.24). To be eligible a student must be the child of a veteran, an Australian mariner, or a member of the Forces, who is (or has been) in receipt of a Special Rate or Extreme Disablement Adjustment Disability Pension.

Children of former prisoners of war, of veterans, or of Australian mariners whose death has been accepted as war-caused, are also eligible. Benefits include education allowances and other forms of assistance appropriate to the particular type and stage of education.

### 7.23 VETERANS' CHILDREN EDUCATION SCHEME, Cost of education beneficiaries

	NSW(a)	Vic.	Qld	SA(b)	WA	Tas.	Aust.
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1994–95	1 906	1 164	1 601	372	792	492	6 326
1995–96	2 401	1 399	1 878	433	925	553	7 590
1996–97	2 914	1 695	2 430	522	1 136	621	9 318
1997–98	3 536	2 072	3 024	685	1 442	719	11 478
1998–99	3 970	2 421	3 609	812	1 714	789	13 315
1999–2000	3 858	2 585	3 904	976	1 919	789	14 031
2000–01	4 189	3 039	4 632	1 320	2 294	884	16 357
2001–02	4 634	3 229	5 445	1 534	2 576	903	18 320
2002–03	4 893	3 273	5 821	1 773	2 603	873	19 236
2003–04	5 385	3 384	5 562	1 717	2 604	857	19 510

(a) Includes the ACT. (b) Includes NT.

Source: Department of Veterans' Affairs.

### 7.24 VETERANS' CHILDREN EDUCATION SCHEME, Number of children receiving benefits — 30 June 2004

Type of training	NSW(a)	Vic.	Qld	SA(b)	WA	Tas.	Aust.
At school							
Primary(c)	270	155	390	109	197	60	1 181
Secondary	648	393	856	197	292	126	2 512
Total	101	—	148	—	73	10	332
Tertiary	250	228	273	135	161	45	1 092
<b>Total</b>	<b>1 269</b>	<b>776</b>	<b>1 667</b>	<b>441</b>	<b>723</b>	<b>241</b>	<b>5 117</b>

(a) Includes the ACT. (b) Includes NT. (c) Receive an annual payment rather than fortnightly payment like others.

Source: Department of Veterans' Affairs.

## Income support

There are three main forms of income support pension paid by DVA:

- the Service Pension, which is similar to the Age and Disability Support Pensions paid by Centrelink
- the Partner Service Pension
- the Income Support Supplement (ISS).

All income support pensions are subject to income and assets tests except those granted to people who are blind in both eyes.

The Age Service Pension (ASP) is payable to veterans with qualifying service at 60 years of age. Veterans with qualifying service may be paid the Invalidity Service Pension at any age if they are permanently incapacitated for work. Prior to 1 July 1995, the ASP was paid to female veterans with qualifying service at age 55 years. The Government introduced changes to the minimum age at which a female veteran can be granted an ASP. Under the changes the minimum age is to be progressively lifted from 55 to 60 years in six-monthly increments every two years over the period 1995–2013. This means that the qualifying age for female veterans for an ASP at 1 July 2004 is 57 years and six months.

For service during World War I and World War II, qualifying service generally means service in an area and at a time when the veteran incurred danger from hostile enemy forces. Qualifying service for post-World War II deployments generally covers service in an operational area while allotted for duty in that area. Members of certain peacekeeping forces whose service is considered to be war-like also have qualifying service.

Veterans of other Commonwealth and Allied countries may also qualify for a service pension if they served in wars or war-like conflicts in which

Australia was involved. Veterans of Commonwealth forces must have served outside the country of enlistment or be entitled to the award of a campaign medal for service within that country. Allied veterans must have served in formally raised forces. The veteran must be an Australian resident with at least 10 years residency. A Partner Service Pension may be provided on the basis that the person is the partner or widow(er) of a veteran with qualifying service.

ISS is paid to war/defence widow(er)s of service pension age. It may be paid to a widow(er) under service pension age if he or she has a dependent child, is caring for a severely handicapped person or is permanently incapacitated for work. The ISS is subject to income and asset testing and the War/Defence Widow(er)s' Pension is counted as income when assessing income support supplement.

The maximum ISS was a frozen amount for many years. However, from 20 September 2002 it was unfrozen and is indexed twice a year by the same percentage as the ASP.

All recipients of income support payments are eligible for supplementary benefits, provided by the Australian Government, including some medical and hospital treatment, pharmaceutical benefits and the payment of a telephone allowance. They are also entitled to a range of concessions provided by state/territory and local governments. A number of additional supplementary benefits are also available, including Rent Assistance, Remote Area Allowance and Bereavement Payment.

Table 7.25 shows the total number of service pensions as at 30 June 2004, and table 7.26 shows the number of pensions and annual expenditure for the years 1994–95 to 2003–04.

## 7.25 SERVICE PENSIONS, By conflict — 30 June 2004

	World War I	World War II(a)	Korea/Malaya and FESR(b)	Vietnam	Commonwealth and Allied	Post '72(d)	Unknown	Total
<b>Veterans</b>								
Old age	3	82 886	9 537	6 338	20 999	—	40	119 803
Permanently incapacitated	—	—	263	16 893	1 576	70	52	18 854
Tuberculosis(c)	—	79	3	—	1	—	—	83
<b>Total</b>	<b>3</b>	<b>82 965</b>	<b>9 803</b>	<b>23 231</b>	<b>22 576</b>	<b>70</b>	<b>92</b>	<b>138 740</b>
<b>Wives and widows</b>	<b>57</b>	<b>65 649</b>	<b>7 253</b>	<b>17 734</b>	<b>23 223</b>	<b>47</b>	<b>48</b>	<b>114 011</b>
<b>Total</b>	<b>60</b>	<b>148 614</b>	<b>17 056</b>	<b>40 965</b>	<b>45 799</b>	<b>117</b>	<b>140</b>	<b>252 751</b>

(a) Includes Australian Merchant Mariners. (b) Far East Strategic Reserve. (c) Eligibility on these grounds ceased on 2 November 1978. (d) Includes Gulf War and East Timor.

Source: Department of Veterans' Affairs.

## 7.26 SERVICE PENSIONS AND EXPENDITURE

	Pensions in force at 30 June			Annual expenditure(a) \$'000
	Veterans no.	Wives and widows no.	Total no.	
1994–95	198 739	148 974	347 713	2 426 579
1995–96	192 342	145 481	337 823	2 609 460
1996–97	186 228	142 520	328 748	2 644 118
1997–98	179 673	138 906	318 579	2 602 122
1998–99	172 654	135 904	308 558	2 680 409
1999–2000	165 940	131 136	297 076	2 587 972
2000–01	161 655	129 040	290 695	2 832 326
2001–02	155 099	124 419	279 518	2 778 546
2002–03	147 617	119 887	267 504	2 802 200
2003–04	138 740	114 011	252 751	2 830 518

(a) Includes associated allowances.

Source: Department of Veterans' Affairs.

### Defence Service Homes (DSH) Scheme

The DSH Scheme provides financial benefits to recognise the contribution of certain men and women who have served Australia in either peacetime or wartime. The benefits include housing loan interest subsidies, comprehensive homeowners insurance cover at competitive rates, and home contents insurance (table 7.27).

The Scheme was established in 1918 as the War Service Homes Scheme. In 1972 its name was changed to the DSH Scheme to recognise the extension of eligibility to those with qualifying peacetime service.

The Australian Government sold the DSH mortgage portfolio to Westpac Banking Corporation, which became the Scheme's lender in December 1988. Under the Agreement between the Australian Government and Westpac, the Australian Government subsidises Westpac for the low-interest loans provided. The subsidy is paid

directly to Westpac and represents the difference between the concessional interest rate paid by the borrower and the agreed benchmark interest rate.

Since 1918, the *Defence Service Homes Act* has made provision for DSH insurance. Building insurance is available to all persons eligible under the *Defence Service Homes Act* or the VEA. This benefit is also available to those who obtain assistance under the Defence Home Owner Scheme. DSH contents insurance, a comprehensive insurance package underwritten by QBE Mercantile Mutual Ltd, is available to veterans and the service community.

The maximum loan available under the DSH Scheme is \$25,000 repayable over 25 years. The maximum interest rate is capped at 6.85% for the term of the loan and veterans are guaranteed an interest rate of 1.5% below market rates.

### 7.27 DEFENCE SERVICE HOMES SCHEME

	Units	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
Subsidised loans									
Loans granted	no.	6 518	6 380	5 477	4 850	2 182	2 224	2 936	2 565
Loan accounts at 30 June	no.	91 029	80 802	73 530	69 677	63 468	57 096	51 120	45 755
Interest subsidy	\$m	29.2	12.2	17.2	15.4	14.7	12.0	10.5	9.2
Building insurance									
Homes insured at 30 June	no.	133 711	126 799	123 068	118 430	114 369	109 517	104 509	100 022

Source: Department of Veterans' Affairs.

### Military Compensation and Rehabilitation Service (MCRS)

The objective of MCRS is to ensure that current and former members of the ADF, who suffer an injury or disease which is related to service in the ADF, are provided with compensation and rehabilitation benefits and services. The MCRS is responsible for providing benefits through the *Safety, Rehabilitation and Compensation Act 1988* (Cwlth). Table 7.28 summarises activities under the MCRS for 2003-04.

The Safety, Rehabilitation and Compensation Act has provided compensation cover for injury or disease sustained during 'peacetime' service since 3 January 1949 and during operational service from 7 April 1994 until 30 June 2004. Once liability has been accepted for an injury or disease, any or all of the following benefits may be payable in an individual case:

- Weekly incapacity for work benefits are made on the basis of evidence of loss of ability to earn as a result of an accepted injury or disease. For the aggregate of the first 45 weeks of incapacity for work, benefits are based on 100% of the member's 'normal weekly earnings' (NWE) before the injury. After the first 45 weeks of incapacity for work, benefits are based on 75% of NWE, although there is provision to base benefits on higher percentages (between 80% and 100%) depending on the number of hours the member is able to work. Both the amount the member is able to earn in suitable employment and any Commonwealth funded superannuation benefits are taken into account in calculating weekly compensation entitlements for incapacity for work.
- Lump sum payments of compensation for permanent whole person impairment due to 'compensable' injury or disease are assessed in accordance with a permanent impairment guide developed by Comcare Australia. The minimum threshold before such a lump sum can be

awarded is 10% in most cases; 100% whole person impairment attracts a maximum possible award of \$184,272.99 (rate from 1 July 2004).

- Death benefits are payable to defined dependants of former and current members who die because of injuries or disease arising from ADF service. One lump sum payment up to a maximum from 1 July 2004 of \$201,025.04 is payable in respect of all eligible dependants. A funeral benefit of \$4,640.43 is also payable. A weekly amount of \$66.99 is payable for the benefit of each dependent child of the deceased.
- Additional Defence Act payments are available (with effect from 7 April 1994) to 'top up' payments for death of the deceased as well as permanent impairment payments to those who suffer from 'severe injury' due to compensable injury or disease. The severe injury adjustment and additional death benefit increases the lump sum amount payable for a death or severe injury on or after 7 April 1994 to \$241,556.66, with an additional \$60,389.17 payable for each dependent child.
- Medical benefits are payable in respect of the cost of medical treatment which is 'reasonably required' in relation to the accepted injury. Medical treatment is broadly defined.
- Vocational and other rehabilitation services are assessed and provided where a need for such assistance is identified by the injured member or by MCRS staff. The purpose of rehabilitation generally is to assist injured members to live as well as possible with the effect of compensable injury or disease and, if possible, to return to some form of suitable employment. Assistance available can include short-term or sometimes long-term work retraining, provision of medical and other aids and appliances as well as alterations to homes, workplaces and motor vehicles.

- Benefits for the cost of Household and Attendant Care services are available at a statutory rate (\$335.03 from 1 July 2004) to ensure as far as possible that eligible injured members are able to maintain their household and/or remain in their home.
- Appeal and review mechanisms are available for clients who do not agree with decisions made by MCRS Delegates. Rights include access to an internal review followed by application to the Administrative Appeals Tribunal (AAT), with a mandatory conciliation step.

**7.28 MILITARY COMPENSATION AND REHABILITATION SERVICE, Activities — 2003–04**

	no.
Total lump sum and incapacity payees for 12 months ended 30 June 2004 (incl. dependent children)	5 261
New primary injury claims received	6 874
New permanent impairment claims received	5 027
New rehabilitation referrals received	893
New reconsideration requests received	1 585
New applications made to the AAT	388
All accounts paid (incl. medical household services and attendant care)	97 932

Source: Department of Veterans' Affairs.

### Health program

Health care treatment is provided to people whose disabilities have been accepted by DVA as service-related, and for pulmonary tuberculosis, post-traumatic stress disorder and malignant neoplasia whether they are service-related or not. Vietnam veterans with anxiety and depression and Gulf War veterans with undiagnosable conditions are also eligible for health care treatment whether the conditions are service-related or not.

In addition, and subject to certain conditions, health care treatment in Australia is provided to certain veterans of Australia's defence forces for all health conditions. Eligible veterans include:

- ex-prisoners of war
- veterans and mariners of World War II aged 70 years or over who have qualifying service from that conflict
- those receiving a Disability Pension at or above the maximum (100%) general rate
- World War II veterans and mariners receiving both a Service Pension at any rate and a Disability Pension at 50% rate or higher
- veterans, mariners or nurses who served in World War I
- certain service pensioners
- veterans of post World War II conflicts who are 70 years of age or over and who have qualifying service.

War widow(er)s and certain other dependants of deceased veterans are also entitled to treatment for all conditions.

Younger veterans from post-World War II conflicts have needs additional to those of their older counterparts. These needs are addressed by a range of services which include integrated out-patient, in-patient and support services for the treatment and rehabilitation of veterans with war-related mental health conditions. Intensive in-patient treatment programs are available in each state. Community-based psychological services are provided by the Vietnam Veterans' Counselling Service and individual providers.

From July 2000 additional assistance is available for the Vietnam veteran community through a series of initiatives to support veterans and their families in response to the validated findings of the Vietnam Veterans' Health Study. These include mental health support for veterans, their partners and children, assistance with treatment costs for Vietnam veterans' children with spina bifida, cleft lip/palate, adrenal gland cancer and acute myeloid leukaemia, and preventive health programs for veterans. Children of Vietnam veterans also have increased access to the Veterans' Children Education Scheme and additional educational support through the Long Tan Bursary Scheme. The role of the Australian Centre for Post-traumatic Mental Health has been expanded to address mental health problems affecting the wider veteran community, and funding is being increased for research into veterans' health issues that may be the result of operational service.

Vocational rehabilitation services are available to support those who are leaving the ADF, those at risk of losing employment, and those who wish to return to the workplace. Rehabilitation Allowance may be available to people whose pension entitlement is affected – the intention is that no financial loss should be incurred by individuals taking up paid employment. Safety net arrangements enable a return to former pension status in the event that employment cannot be

sustained (this applies to pensioners receiving above general rate levels of Disability Pension or Service Pension through invalidity).

With the transfer of the Repatriation General Hospitals to the states, or their sale to the private sector, hospital care is provided through the Repatriation Private Patient Scheme. The Scheme provides acute hospital care for veterans or war widow(er)s in local facilities. Under the Scheme, a veteran or war widow(er) may be admitted directly to a local public hospital, former repatriation hospital or a contracted private Tier 1 veteran partnering hospital, as a private patient, in a shared ward, with the doctor of his or her choice with no prior financial authorisation necessary. Treating doctors must still contact the department for prior financial authorisation for admissions to registered psychiatric beds, respite care, cosmetic surgery, other specific treatments nominated in writing from time to time and treatment which does not attract a Medicare Benefits Schedule item number. In addition, because White Cardholders are only eligible for treatment of specific conditions for which the department has accepted responsibility, approval should still be sought where eligibility is uncertain.

In short, the Repatriation Private Patient Scheme has an order of preference for hospital admissions according to three tiers:

*Tier 1* – all public hospitals, all former repatriation hospitals and selected veteran partnering private hospitals in all states.

*Tier 2* – contracted private hospitals.

*Tier 3* – non-contracted private hospitals.

Financial responsibility for hospital and medical treatment in a public hospital, a former repatriation hospital or a veteran partnering private hospital is accepted by the department with no cost to the patient. Should a veteran require hospital care, the treating doctor would be able to arrange treatment at an appropriate local facility.

On a state-by-state basis the Repatriation Commission sought tenders from private hospitals to be selected as veteran partnering hospitals, which allows the same access as public hospitals and former repatriation hospitals (where no prior financial authorisation is required for admission, once eligibility is established). These hospitals have been selected by the department because they are conveniently located for most veterans,

offer a full range of services at competitive rates, and perform consistently to industry-approved standards.

Under arrangements with state governments, entitled persons requiring custodial psychiatric care for a service-related disability are treated at departmental expense in state psychiatric hospitals.

Entitled persons may also be provided with dental treatment through the Local Dental Officer Scheme, which comprised approximately 6,920 local dental officers at 1 June 2003. Optometrical services, including the provision of spectacles, the services of allied health professionals, and a comprehensive range of aids, appliances and dressings, may be provided to entitled persons.

In addition, entitled persons may be provided with pharmaceuticals through the Repatriation Pharmaceutical Benefits Scheme.

Through the Repatriation Transport Scheme entitled persons are eligible to receive transport assistance when travelling to receive approved medical treatment.

DVA also assists the veteran community through the Veteran and Community Grants Scheme, which aims to maintain and improve the independence and quality of life of members of the veteran and ex-service community through activities and/or services that sustain and/or enhance wellbeing. The grants focus on the delivery of funding through in-home and community streams. Veteran and Community Grants provide funding for projects that address the needs of members of the veteran and ex-service communities through a range of support initiatives. These may be through:

- promotion of health issues and healthy lifestyles
- supporting quality independent living at home
- support for carers
- reducing social isolation.

Veteran and Community Grants are intended to provide assistance to encourage the development of projects that will become financially viable and self-sufficient. Grant funds are not provided for recurrent or ongoing financial assistance. There are three funding rounds each financial year – in July, October and March.

Following a major review of the delivery of its health services in 1999, the DVA has placed considerable emphasis on health promotion activities. Its five-year strategic plan targets seven key health priorities. As part of its health promotion activities, DVA also produces a range of health promotion resource materials for the veteran community.

The Veterans' Home Care program provides a range of home support services including personal care, domestic assistance, home and garden maintenance and respite care. Other services, such as delivered meals, are provided under arrangements with state and territory governments. Veterans' Home Care services are available to eligible veterans and war widow(er)s who are assessed as needing care to remain in their homes.

Veterans' Home Care has a strong preventive focus, and particularly targets veterans and war widow(er)s with low-level care needs. The program delivers savings due to better health outcomes for veterans, reducing avoidable illness, injury and associated health costs. Better health

means that veterans spend less time in hospital and need less medication and other high cost services. More importantly, they are able to lead fuller, more active lives.

### **Vietnam Veterans' Counselling Service (VVCS)**

The VVCS provides counselling to veterans of all conflicts and their families, as well as working with the ex-service community to promote understanding and acceptance of veterans' problems.

The VVCS is staffed by psychologists and social workers who have specialised knowledge of military service, particularly in Vietnam, and its impact on veterans and their families.

Access to counselling services for rural veterans and their families was greatly improved with the establishment of the Country Outreach Program in 1988, followed soon after by a toll-free 1800 telephone link to all VVCS centres. Recent service enhancement initiatives include the creation of group programs aimed at promoting better health for veterans. Table 7.29 shows use of the VVCS.

**7.29 VIETNAM VETERANS' COUNSELLING SERVICE**

Type of counselling	Units	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
Centre-based consultation	visits	(a)30 000	(a)27 000	27 421	29 991	31 603	30 210	27 550
Group session consultation	hours	(a)7 870	(a)7 630	(a)14 020	(a)10 670	(a)15 910	14 792	13 709
Country outreach consultation	visits	(a)27 000	(a)26 000	26 885	28 063	31 353	36 314	39 518

(a) Estimates.

Source: Department of Veterans' Affairs.

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## HOUSING

Housing satisfies the essential needs of people for shelter, security and privacy. Shelter is recognised throughout the world as a basic human right. The adequacy or otherwise of housing is an important component of individual wellbeing. Housing also has great significance in the national economy, with its influence on investment levels, interest rates, building activity and employment.

The ways in which Australian families and individuals are housed reflect social, political and economic factors over the last century. For example, public health concerns towards the end of the 19th century resulted in legislation in the states which gave local government the authority to make building regulations and inspect dwellings, a responsibility they have to this day. Also at that time, demand for housing exceeded supply, rents were high, and overcrowding and slum conditions continued to be a problem into the 20th century. This led to states introducing further legislation for the provision of public rental housing for low income earners. In the 1920s, the Commonwealth Government moved to provide financial assistance for access to home ownership to moderate and low income groups, and a number of policy initiatives over recent decades have focused on this goal. Governments have continued to actively promote home ownership as part of an overall policy directed at achieving people's self-reliance in housing, and a quality of housing adequate for their needs.

The predominance of separate, free-standing houses situated on 'quarter-acre blocks' is a feature of Australian urban development. More recently, governments have moved to promote higher housing density, to provide greater choice of housing types and to make better use of existing infrastructure. This has resulted in changes to urban planning and building regulation. There have been some changes in the nature of housing, and efficiencies in the use of land and infrastructure. However, even within this new framework, green field developments and free-standing houses still predominate.

This chapter provides information on the types of dwellings Australians live in and their tenure arrangements, the affordability of housing, and the government assistance provided through housing and income support programs. It is based largely on information from the Australian Bureau of Statistics (ABS) 2000–01 Survey of Income and Housing Costs, but also draws on house price index, data about finance commitments for owner occupation, and administrative data relating to public housing and rent assistance. Care should be taken when comparing statistics from different sources because of differences in the timing, conceptual bases and scope of individual statistical sources.

## Types of dwellings

The separate house is the most popular type of dwelling in Australia, making up almost 80% of total dwellings in 2000–01. Table 8.1 shows the different dwelling structure types in each state and territory in 2000–01. Tasmania had the highest proportion of separate houses (88%) and the Northern Territory the lowest (68%).

Flats, units or apartments comprise 11% of total dwellings. New South Wales had the highest proportion of flats, units or apartments (15%), followed by the Northern Territory (14%). Western Australia, Tasmania and the Australian Capital Territory had relatively low percentages of flats, units or apartments (5% to 7%).

Semi-detached, row or terrace houses, and townhouses accounted for 10% of total dwellings. There was a substantially greater proportion of semi-detached housing than of flats, units or apartments in Western Australia, South Australia

and the Australian Capital Territory. Conversely, New South Wales had substantially more flats, units or apartments than semi-detached housing.

## Number of bedrooms

One indicator of dwelling size is the number of bedrooms. In 2000–01 half of all dwellings had three bedrooms, 25% had four or more bedrooms and 20% had two bedrooms (table 8.2). Of separate houses, 57% had three bedrooms, while two bedroom dwellings were more common in semi-detached houses and in flats, units and apartments (46% and 64% respectively).

Nearly a fifth (18%) of three bedroom dwellings had only one person living in them, over a third (38%) had only two persons, a further 19% had three persons, and 18% had four persons (table 8.3). Of two bedroom dwellings, most had one or two persons living in them (48% and 38% respectively).

**8.1 ALL HOUSEHOLDS, By dwelling structure and state/territory — 2000–01**

	Separate house	Semi-detached/row or terrace house/ townhouse	Flat/unit/ apartment	Total(a)	All households(a)
	%	%	%	%	'000
New South Wales	74.1	9.9	15.0	100.0	2 402.2
Victoria	81.1	8.7	10.0	100.0	1 841.7
Queensland	78.1	8.4	12.1	100.0	1 392.2
South Australia	79.6	12.4	7.8	100.0	610.7
Western Australia	80.5	14.1	5.4	100.0	708.4
Tasmania	88.4	*3.9	*6.7	100.0	190.0
Northern Territory(b)	67.6	*16.4	*13.6	100.0	55.8
Australian Capital Territory	78.6	*15.8	*5.3	100.0	114.0
<b>Australia</b>	<b>78.1</b>	<b>9.9</b>	<b>11.3</b>	<b>100.0</b>	<b>7 314.9</b>

(a) Includes other dwelling structures. (b) Excludes remote and sparsely settled areas.

Source: ABS data available on request, Survey of Income and Housing Costs, 2000–01.

**8.2 ALL HOUSEHOLDS, By dwelling structure and number of bedrooms — 2000–01**

	Separate house	Semi-detached/row or terrace house/ townhouse	Flat/unit/ apartment	All households(a)
	'000	'000	'000	'000
One bedroom	51.2	61.7	208.1	339.6
2 bedrooms	606.2	334.5	525.7	1 493.5
3 bedrooms	3 262.7	294.9	78.7	3 642.4
4 or more bedrooms	1 791.7	32.4	n.p.	1 828.5
<b>Total(b)</b>	<b>5 711.8</b>	<b>723.5</b>	<b>825.0</b>	<b>7 314.9</b>

(a) Includes other dwelling structures. (b) Includes bedsits and dwellings with zero bedrooms.

Source: ABS data available on request, Survey of Income and Housing Costs, 2000–01.

### 8.3 ALL HOUSEHOLDS, By number of persons and number of bedrooms — 2000–01

	One person	Two persons	Three persons	Four persons	Five or more	Total	All households
	%	%	%	%	%	%	'000
One bedroom	79.4	18.7	**1.2	n.p.	—	100.0	339.6
2 bedrooms	47.7	38.2	8.9	4.1	*1.1	100.0	1 493.5
3 bedrooms	18.5	37.8	18.7	18.2	6.8	100.0	3 642.4
4 or more bedrooms	7.5	23.9	17.4	27.5	23.8	100.0	1 828.5
<b>Total(a)</b>	<b>24.6</b>	<b>33.5</b>	<b>15.5</b>	<b>16.8</b>	<b>9.6</b>	<b>100.0</b>	<b>7 314.9</b>

(a) Includes bedsits and dwellings with zero bedrooms.

Source: ABS data available on request, Survey of Income and Housing Costs, 2000–01.

## Home ownership and renting

Of the 7.3 million households in Australia in 2000–01, 70% were living in their own home, and 26% were renting their dwelling from a private landlord or a state or territory housing authority (table 8.4).

In 2000–01, 38% of households owned their homes outright. In addition, 32% of households were paying off a mortgage or loan secured against their dwelling.

Of the approximately two million households renting their dwellings, 77% were renting from a private landlord, 18% were renting from a state or territory housing authority and the remaining 5% from other landlords such as the owner/manager of a caravan park, an employer (including a

government authority) or a community or church group.

Almost 90% of owners lived in separate houses in 2000–01. Of renter households, 52% lived in separate houses and 28% lived in flats, units or apartments.

Over a third of households (34%) owning their own home outright were couples with no children. One-parent households accounted for only 3% of outright owners, and lone-person households made up 28% (table 8.5).

For couple households with dependent children only, the majority (79%) were owners, while 19% were renting. Of one-parent families, 40% were home owners, 41% were renting from a private landlord and 16% were renting from a state or territory housing authority.

### 8.4 ALL HOUSEHOLDS, By dwelling structure and tenure and landlord type — 2000–01

Tenure and landlord type	Separate house	Semi-detached/row or terrace house/townhouse	Flat/unit/apartment	All households(a)
	'000	'000	'000	'000
Owner without a mortgage	2 457.3	171.6	138.3	2 796.9
Owner with a mortgage	2 104.4	137.5	103.8	2 350.5
<b>Renter</b>				
State/territory housing authority	185.4	88.7	89.1	363.2
Private landlord	787.8	294.8	445.1	1 536.3
<i>Total(b)</i>	1 034.7	395.1	560.5	2 001.4
Other tenure(c)	115.4	*19.3	22.4	166.1
<b>Total</b>	<b>5 711.8</b>	<b>723.5</b>	<b>825.0</b>	<b>7 314.9</b>

(a) Includes other dwelling structures. (b) Includes other landlord types. (c) Includes rent free and life tenure.

Source: ABS data available on request, Survey of Income and Housing Costs, 2000–01.

### 8.5 ALL HOUSEHOLDS, By tenure and landlord type and household composition — 2000–01

	Owner		Renter				All households '000
	Without a mortgage	With a mortgage	State/ territory housing authority	Private landlord	Total(a)	Other tenure(b)	
	'000	'000					
Couple, one family							
Couple only	963.7	491.6	33.9	237.5	283.8	36.0	1 775.0
Couple with dependent children only	348.6	975.8	40.6	262.2	321.4	24.5	1 670.3
Couple – other(c)	420.7	295.9	**19.5	80.5	109.8	n.p.	828.5
Total	1 733.0	1 763.3	94.0	580.3	715.0	62.6	4 273.8
One parent, one family(d)	74.9	143.7	86.0	220.3	317.1	**6.1	541.8
Lone person	793.6	283.5	143.9	464.7	647.6	77.1	1 801.8
Other	195.4	160.1	39.4	270.9	321.7	20.3	697.5
<b>Total</b>	<b>2 796.9</b>	<b>2 350.5</b>	<b>363.2</b>	<b>1 536.3</b>	<b>2 001.4</b>	<b>166.1</b>	<b>7 314.9</b>

(a) Includes other landlord types. (b) Includes rent free and life tenure. (c) Includes couples with non-dependent children and may include other family members. (d) Includes one-parent families with dependants or non-dependent children and may include other family members.

Source: ABS data available on request, Survey of Income and Housing Costs, 2000–01.

Tenure patterns vary across states and territories. Victoria, South Australia and the Australian Capital Territory had a high proportion of overall home ownership, each having 75% of dwellings either owned outright or owned with a mortgage (table 8.6). The lowest proportion of overall home ownership (52%) was in the Northern Territory. The Australian Capital Territory, Western Australia and Victoria had the highest proportion of households with a mortgage on their home (42%, 35% and 35% respectively).

The Northern Territory had the highest proportion of renters at 45%. This was considerably higher than the national rate of 27%. The proportion of households renting from private landlords ranged from 14% in South Australia to 28% in Queensland and the Northern Territory.

The differences in tenure partly reflect differences in the age and life structures across states and territories (see *Housing and life cycle*).

### 8.6 ALL HOUSEHOLDS, By tenure and landlord type and state/territory — 2000–01

	Owner		Renter				All households '000	
	Without a mortgage	With a mortgage	State/ territory housing authority	Private landlord	Total(a)	Other tenure(b)		
	%	%						%
New South Wales	40.2	29.6	5.0	21.4	27.8	2.4	100.0	2 402.2
Victoria	39.5	35.0	4.4	17.9	23.5	2.1	100.0	1 841.7
Queensland	34.2	29.8	4.4	28.2	34.1	1.9	100.0	1 392.2
South Australia	40.6	34.7	6.1	14.0	22.2	2.5	100.0	610.7
Western Australia	35.2	35.3	4.1	21.2	26.9	2.6	100.0	708.4
Tasmania	42.0	29.0	*9.5	15.7	26.2	*2.8	100.0	190.0
Northern Territory(c)	21.1	30.5	*15.4	28.0	45.1	**3.3	100.0	55.8
Australian Capital Territory	33.7	41.6	*7.0	16.0	23.3	**1.3	100.0	114.0
<b>Australia</b>	<b>38.2</b>	<b>32.1</b>	<b>5.0</b>	<b>21.0</b>	<b>27.4</b>	<b>2.3</b>	<b>100.0</b>	<b>7 314.9</b>

(a) Includes other landlord type. (b) Includes rent free and life tenure. (c) Excludes remote and sparsely settled areas.

Source: ABS data available on request, Survey of Income and Housing Costs, 2000–01.

## Housing costs and income

Housing costs cover different items for different types of tenure. For owners who have no mortgage, housing costs comprise the rates paid. For owners with a mortgage, housing costs consist of the value of the mortgage payments as well as property rates. For households renting their dwelling, housing costs comprise the regular rental amounts paid to landlords.

In the 2000–01 Survey of Income and Housing Costs, owners with a mortgage reported average housing costs of \$220 per week, somewhat higher than the average housing costs for other forms of tenure (table 8.7). Households renting from private landlords had average weekly housing costs of \$173, compared with \$73 for tenants of state or territory housing authorities.

### 8.7 OWNER AND RENTER HOUSEHOLDS, Housing costs by household composition — 2000–01

Tenure and landlord type	Couple, one family						Other	Total
	Couple only	Couple with dependent children only	Couple – other	Total couples, one family	One parent, one family	Lone person		
<b>AVERAGE WEEKLY HOUSING COSTS (\$)</b>								
Owner without a mortgage	22	29	29	25	26	18	25	23
Owner with a mortgage	230	233	210	229	179	180	232	220
Renter – state/territory housing authority	79	108	123	100	72	47	105	73
Renter – private landlord	197	184	227	195	165	140	188	173
Total renters(a)	179	169	197	177	137	115	176	150
<b>Total owner and renter households</b>	<b>107</b>	<b>177</b>	<b>116</b>	<b>136</b>	<b>133</b>	<b>81</b>	<b>145</b>	<b>123</b>
<b>AVERAGE GROSS WEEKLY INCOME (\$)</b>								
Owner without a mortgage	699	1 395	1 550	1 046	688	370	1 126	850
Owner with a mortgage	1 349	1 335	1 821	1 421	829	742	1 460	1 305
Renter – state/territory housing authority	436	664	948	640	398	199	607	404
Renter – private landlord	1 069	1 077	1 448	1 126	606	532	1 137	873
Total renters(a)	988	1 040	1 350	1 067	547	446	1 068	784
<b>Total owner and renter households</b>	<b>930</b>	<b>1 290</b>	<b>1 621</b>	<b>1 206</b>	<b>642</b>	<b>459</b>	<b>1 177</b>	<b>981</b>
<b>AVERAGE HOUSING COSTS AS A PROPORTION OF INCOME (%)</b>								
Owner without a mortgage	3	2	2	2	*4	5	2	3
Owner with a mortgage	17	17	12	16	22	24	16	17
Renter – state/territory housing authority	*18	16	**13	16	18	24	*17	18
Renter – private landlord	18	17	16	17	27	26	17	20
Total renters(a)	18	16	15	17	25	26	16	19
<b>Total owner and renter households</b>	<b>11</b>	<b>14</b>	<b>7</b>	<b>11</b>	<b>21</b>	<b>18</b>	<b>12</b>	<b>13</b>
<b>HOUSEHOLDS ('000)</b>								
Owner without a mortgage	963.7	348.6	420.7	1 733.0	74.9	793.6	195.4	2 796.9
Owner with a mortgage	491.6	975.8	295.9	1 763.3	143.7	283.5	160.1	2 350.5
Renter – state/territory housing authority	33.9	40.6	*19.5	94.0	86.0	143.9	39.4	363.2
Renter – private landlord	237.5	262.2	80.5	580.3	220.3	464.8	270.9	1 536.3
Total renters(a)	283.8	321.4	109.8	715.0	317.1	647.6	321.7	2 001.4
<b>Total owner and renter households</b>	<b>1 739.0</b>	<b>1 645.8</b>	<b>826.4</b>	<b>4 211.2</b>	<b>535.7</b>	<b>1 724.7</b>	<b>677.2</b>	<b>7 148.8</b>
<b>HOUSEHOLD AND DWELLING SIZE (no.)</b>								
Average persons in household	2.0	4.0	4.0	3.2	3.0	1.0	2.7	2.6
Average bedrooms in dwelling	3.0	3.4	3.6	3.3	3.0	2.4	3.0	3.0

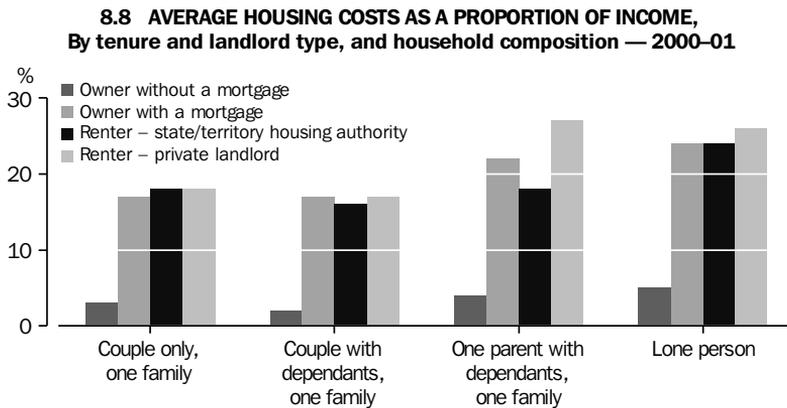
(a) Includes other landlord types.

Source: ABS data available on request, Survey of Income and Housing Costs, 2000–01.

For many households, weekly housing costs are a significant proportion of their gross weekly income. In 2000–01 housing costs represented 17% of gross weekly income for owners with a mortgage, 18% of gross weekly income for tenants of a state or territory housing authority and 20% of gross weekly income for tenants renting from a private landlord (table 8.7). Housing costs as a

proportion of income differed depending on tenure type, landlord type and household composition (graph 8.8 and table 8.9).

See also *Housing costs – capital cities*, which focuses on capital city households, drawing on results from the same survey.



Source: ABS data available on request, Survey of Income and Housing Costs, 2000–01.

### 8.9 OWNER AND RENTER HOUSEHOLDS, Housing costs as a proportion of income — 2000–01

Housing costs as a proportion of income	Units	Owner				Renter		Total
		Owner without a mortgage	Owner with a mortgage	State/territory housing authority	Private landlord	Total(a)		
25% or less	%	97.6	70.9	79.5	57.4	62.5	79.0	
More than 25%–30%	%	*0.3	9.1	11.7	9.5	9.8	5.9	
More than 30%–50%	%	0.6	13.4	7.7	21.9	18.7	9.9	
More than 50%	%	1.5	6.6	**1.1	11.3	9.0	5.3	
Total(b)	%	100.0	100.0	100.0	100.0	100.0	100.0	
Number of households	'000	2 796.9	2 350.5	363.2	1 536.3	2 001.4	7 148.8	

(a) Includes other landlord types. (b) Includes households with nil or negative total income.

Source: ABS data available on request, Survey of Income and Housing Costs, 2000–01.

## Housing and life cycle

As people progress through different life-cycle stages and their family structures and financial situations change, so do their housing needs and preferences. An understanding of the relationships between life-cycle stage, income, housing costs and level of investment in home ownership can be useful in developing policies which enable home purchase among those who would otherwise find this difficult.

There are long-term benefits in home ownership. Initially, the cost of home purchase is often far greater than renting (due to the costs of deposits and fees, as well as ongoing mortgage repayments). However, the much lower costs associated with owning a home outright, and the investment that a home represents, can be major factors in the ongoing economic wellbeing of many Australians, particularly as many retire on considerably reduced incomes.

In the 2000–01 Survey of Income and Housing Costs, ongoing housing costs comprised:

- mortgage or loan repayments (secured or unsecured) where the purpose of the loan was to buy or build, add to or alter the dwelling
- rental payments
- water and general council rates.

Only payments which related to the dwelling occupied at the time of the survey interview were included.

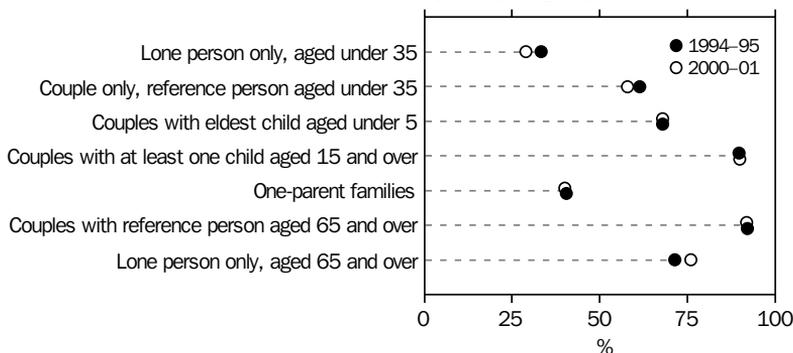
The survey estimated that the average weekly housing costs for all households were \$123. Outright owners (those without a mortgage) had the lowest average weekly housing costs (\$23), while those with a mortgage had the highest costs, spending an average of \$220 per week. On average, those households that were renting paid \$150 per week in housing costs (table 8.7).

Most Australian households live in separate houses (78% in 2000–01). However, as with tenure, the type and size of dwellings and housing costs vary across different life-cycle groups.

The life-cycle groups whose housing circumstances are discussed in this section include:

- lone person aged under 35 years
- couple only, reference person aged under 35 years
- couple, eldest child aged under 5 years
- couple, at least one dependent child aged 15 years and over
- lone-parent family with dependent children
- couple only, reference person aged 65 years and over
- lone person aged 65 years and over.

**8.10 HOME OWNERS, By life-cycle group**



Source: ABS data available on request, *Surveys of Income and Housing Costs, 1994-95 and 2000-01*.

*Dependent children* are children aged under 15 years plus full-time students aged 15–24 years living with a parent and without a partner or child of their own in the household.

The *reference person* for each household is chosen by applying, to all usual residents aged 15 years and over in the household, the following selection criteria, in order of precedence:

- the person with the highest tenure type ranked from owner without a mortgage, owner with a mortgage, renter, other tenure, or
- the person with the highest income, or
- the oldest person.

In 2000–01, 70% of Australian households owned their homes (table 8.6). The tenure of a household is strongly related to life-cycle stages, generally following a pattern of renting in early adulthood, moving to home purchase and mortgages as partnerships are formed and children are born, and owning the home outright in older age. However for some, family breakdown disrupts this pattern.

Between 1994–95 and 2000–01 the home ownership rates of various life-cycle groups showed little change. However, there were exceptions. For young households, both lone person and couples without children, the rate fell (33% to 29% and 61% to 58% respectively). For older (aged 65 years and over) lone-person households, the rate increased from 71% to 76% (graph 8.10).

### **Young households (under 35 years)**

In 2000–01 young lone-person and couple-only households (those with a reference person aged under 35 years), comprised about 10% of all households in Australia (each group around 5%). People in these households are generally more mobile. Many are studying or starting their careers, and are likely to be on lower incomes than they will be at later stages in their lives. In many cases, they are yet to move into home ownership.

Young lone-person households were most likely of all life-cycle groups to be renting (66%), with most of these (92%) renting from private landlords (table 8.11). Less than a third of young lone-person households had moved into home

ownership, and most that had, did so with a mortgage. However, young people are more inclined to move into home ownership as they form couples. Just over half of young couple households without children owned their own home. As was the case for young lone-person households, most of these couples had a mortgage.

In keeping with their larger household size, young couples without children lived in dwellings where the average number of bedrooms was higher than for young lone persons (2.7 compared with 2.1). Young couple households without children were also more likely than young lone-person households to live in separate dwellings (65% compared with 33%), with the majority of young singles living in semi-detached dwellings or flats.

Reflecting their lower household incomes, young lone persons spent on average over a fifth (23%) of their income on housing. Young couple households without children (many of whom are on dual incomes) on average spent a lower proportion of their income on housing costs (18%) than young lone-person households, despite the fact that they had much higher average weekly housing costs (\$234 compared with \$150).

### **Families with children**

As families are formed and grow, housing needs and preferences change. The birth of children increases family size and often results in the household shifting back to dependence on a single income when children are very young. The trend to home purchase and moving into larger dwellings increases as couples and their children grow older. At this time, parents' incomes are likely to be higher than those in younger life-cycle groups due to their more established careers and the move of parents (mainly mothers) back into the workforce and full-time employment.

Of couple families with all children aged under 5 years, 68% were home owners (59% were paying off a mortgage) (table 8.12). Among households containing couple families with older children (at least one aged 15 years and over), home ownership was higher (90%) than for those with younger children and over a third (37%) owned their home outright.

### 8.11 YOUNG PEOPLE, Selected characteristics — 2000–01

	Units	Household composition	
		Lone person aged under 35 years	Couple only, reference person aged under 35 years
<b>Tenure type</b>			
Owner without a mortgage	%	6.9	6.9
Owner with a mortgage	%	22.6	50.9
Renters	%	66.0	39.4
<b>Average housing costs as a proportion of income</b>			
Owner without a mortgage	%	*3	**5
Owner with a mortgage	%	28	20
Renters	%	25	17
All households	%	23	18
<b>Proportion of income spent on housing costs</b>			
25% or less	%	51.7	74.5
More than 50%(a)	%	13.8	*4.6
<b>Proportion in a separate house</b>	%	33.3	64.9
<b>Average weekly housing costs</b>			
Owner without a mortgage	\$	18	**52
Owner with a mortgage	\$	257	297
Renters	\$	137	201
All households	\$	150	234
<b>Average bedrooms in dwelling</b>	no.	2.1	2.7
<b>Total households</b>	<b>'000</b>	<b>331.5</b>	<b>374.3</b>

(a) Includes households with nil or negative total income.

Source: ABS data available on request, Survey of Income and Housing Costs, 2000–01.

Income levels vary considerably over a person's life cycle. Household incomes for couples, and hence their capacity to pay for larger, more expensive homes, usually increase as their children grow older. In 2000–01, most couple households with young children lived in separate houses and in homes with three or more bedrooms (87% and 85% respectively). However, couple households with older dependent children were even more likely to do so (96% and 98% respectively). Despite this, housing costs for couple households with young children were generally higher (\$200 on average per week, representing 17% of their average weekly income) than for couples with older children (\$141 which constituted 9% of their weekly income). This is likely to reflect the fact that couple households with young children usually have less equity in their homes than couples with older children. The former households are also more likely to have bought their home more recently and therefore to have purchased their house at a higher price.

For those who owned a house, average weekly housing costs for couples with young children ranged from \$255 for those with a mortgage to

\$26 for those without a mortgage. For couples with older children, average weekly housing costs ranged from \$211 for those with a mortgage to \$28 for those without a mortgage. In contrast, households containing couple families which were renting had similar costs regardless of the age of children present.

When families are disrupted through divorce or separation, the trend towards home ownership is often reversed, reflecting reduced household incomes and the splitting of family assets. As a result, the household may move from home ownership back to renting, and also into a smaller, more affordable home. Lone-parent households with dependent children were more likely to be renting (59%) than to own their home (40%), and they were the life-cycle group most likely to be renting through a state or territory housing authority (16%). In 2000–01, while most lone-parent households with dependent children lived in separate dwellings (77%) and in dwellings with at least three bedrooms (83%), these proportions were lower than for couples with dependent children.

Average weekly housing costs for lone-parent households with dependent children were \$131 or 20% of their average weekly income. Among these households, private renters paid \$165, on average, in housing costs which represented 27% of average weekly income. Lone-parent households with dependent children were more than three times as likely as couple households with at least one dependent child aged 15 years or over to spend more than 25% of their income on housing (41% compared with 12%). Just 8% of lone-parent households with dependent children spent more than 50% of their income on housing.

### Older persons (65 years and over)

Home ownership is very high among older people, with outright ownership by far the most common tenure type for Australians aged 65 years

and over. The benefits of this to older people include lower housing costs, security of tenure, and having an asset that may be realised for future expenditure or passed on to later generations as inheritance.

In 2000–01 older persons living in a couple only household (those where the reference person was aged 65 years or over) had very high ownership rates (92%), with 89% owning their home outright. Older lone-person households (which are often formed when a partner dies) had a home ownership rate of 77%, with 74% owning their home outright. Older lone-person households were more likely to be renting than older couple only households (19% compared with 6%) with 9% of older people living alone renting from state or territory housing authorities.

## 8.12 FAMILIES WITH CHILDREN, Selected characteristics — 2000–01

	Units	Household composition		
		Couple with eldest child aged under 5 years	Couple with at least one dependent child aged 15 years and over	Lone parent with dependent children
<b>Tenure type</b>				
Owner without a mortgage	%	8.9	36.8	13.8
Owner with a mortgage	%	59.4	53.6	26.5
Renters	%	30.0	8.7	58.5
<b>Average housing costs as a proportion of income</b>				
Owner without a mortgage	%	*2	2	*4
Owner with a mortgage	%	21	12	22
Renters	%	15	*16	25
All households	%	17	9	20
<b>Proportion of income spent on housing costs</b>				
25% or less	%	68.6	89.5	58.7
More than 50%(a)	%	5.1	*1.6	8.0
Proportion in a separate house	%	87.1	95.5	77.2
<b>Average weekly housing costs</b>				
Owner without a mortgage	\$	26	28	26
Owner with a mortgage	\$	255	211	179
Renters	\$	155	196	137
All households	\$	200	141	131
Average persons in household	no.	3.4	4.4	3.0
Average bedrooms in dwelling	no.	3.1	3.7	3.0
<b>Total households</b>	<b>'000</b>	<b>415.1</b>	<b>661.4</b>	<b>541.8</b>

(a) Includes households with nil or negative total income.

Source: ABS data available on request, Survey of Income and Housing Costs, 2000–01.

In 2000–01 the average weekly income of older person households was lower than for any other life-cycle group (reflecting the likelihood that household members had retired). However, average weekly housing costs for this group were also lower than for other life-cycle groups (\$23 for couple households and \$26 for lone-person households). Even for those older person households with a mortgage, average weekly housing costs were relatively low (\$55 for older couple households and \$46 for older lone-person households) (table 8.13). This partly reflects the fact many of these households purchased their first home some decades earlier when home prices and mortgages were considerably lower. However, for the small proportion who were renting, housing payments consumed a relatively large proportion of their incomes. The 7% of older lone-person households that were renting from private landlords spent a very high proportion of their income (36%) on housing costs.

Reflecting their smaller household size, the homes of older lone-persons were more likely to be smaller than those of older couples. Older lone-persons were less likely to live in separate dwellings than older couples (64% compared with 88%) and more likely to be living in dwellings with fewer bedrooms than older couples (2.4 bedrooms on average compared with 3.0).

For many older people the onset of diminished health and disabilities, and the need for security and ready access to services such as public transport, are often key considerations in their choice of housing, especially after the death of a partner. The growing proportion of older persons (in particular of persons aged 80 years and over) has led to the emergence of new types of housing such as self-care dwellings in retirement villages. Results from the 2001 census show there were 62,570 occupied dwellings of this type.

### 8.13 OLDER PEOPLE, Selected characteristics — 2000–01

	Units	Household composition	
		Couple only, reference person aged 65 years and over	Lone person aged 65 years and over
<b>Tenure type</b>			
Owner without a mortgage	%	88.5	73.7
Owner with a mortgage	%	*3.3	2.8
Renters	%	5.9	19.0
<b>Average housing costs as a proportion of income</b>			
Owner without a mortgage	%	4	6
Owner with a mortgage	%	*11	*19
Renters	%	22	28
All households	%	5	9
<b>Proportion of income spent on housing costs</b>			
25% or less	%	97.5	89.7
More than 50%(a)	%	*1.1	*2.0
<b>Proportion in a separate house</b>	%	88.0	64.1
<b>Average weekly housing costs</b>			
Owner without a mortgage	\$	19	16
Owner with a mortgage	\$	55	*46
Renters	\$	88	66
All households	\$	23	26
<b>Average bedrooms in dwelling</b>	no.	3.0	2.4
<b>Total households</b>	<b>'000</b>	<b>569.9</b>	<b>694.6</b>

(a) Includes households with nil or negative total income.

Source: ABS data available on request, Survey of Income and Housing Costs, 2000–01.

## Housing costs – capital cities

In 2000–01 the average weekly housing costs for households in all capital cities were \$138 (table 8.14). However, there was considerable variation between capital cities. Hobart had the lowest average housing costs at \$79 per week.

Sydney had the highest average weekly housing costs for most tenure and landlord types. Canberra recorded the second highest average weekly housing costs for total households (\$140 compared with Sydney's \$170), partially reflecting the larger proportion of households in Canberra with mortgages on their homes.

### 8.14 CAPITAL CITY OWNER AND RENTER HOUSEHOLDS, Housing costs — 2000–01

Tenure and landlord type	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Canberra	All capital cities(a)
<b>AVERAGE WEEKLY HOUSING COSTS (\$)</b>								
Owner without a mortgage	29	23	28	20	20	21	28	25
Owner with a mortgage	316	228	210	182	218	158	226	244
Renter – state/territory housing authority	81	73	72	67	55	70	74	74
Renter – private landlord	246	175	168	141	147	130	180	192
Total renters(b)	215	156	148	116	134	104	148	167
<b>Total owner and renter households</b>	<b>170</b>	<b>128</b>	<b>127</b>	<b>103</b>	<b>126</b>	<b>79</b>	<b>140</b>	<b>138</b>
<b>AVERAGE GROSS WEEKLY INCOME (\$)</b>								
Owner without a mortgage	1 049	944	814	743	1 011	804	1 259	962
Owner with a mortgage	1 624	1 372	1 271	1 144	1 247	1 049	1 566	1 396
Renter – state/territory housing authority	432	358	404	372	280	362	360	397
Renter – private landlord	1 064	890	847	789	876	776	1 029	935
Total renters(b)	951	786	773	651	789	601	830	827
<b>Total owner and renter households</b>	<b>1 199</b>	<b>1 059</b>	<b>940</b>	<b>869</b>	<b>1 044</b>	<b>803</b>	<b>1 287</b>	<b>1 072</b>
<b>AVERAGE HOUSING COSTS AS A PROPORTION OF INCOME (%)</b>								
Owner without a mortgage	3	2	3	3	2	3	2	3
Owner with a mortgage	19	17	17	16	18	15	14	18
Renter – state/territory housing authority	*19	*20	*18	*18	*20	*19	*21	19
Renter – private landlord	23	20	20	18	17	*17	17	21
Total renters(b)	23	20	19	18	17	17	18	20
<b>Total owner and renter households</b>	<b>14</b>	<b>12</b>	<b>14</b>	<b>12</b>	<b>12</b>	<b>10</b>	<b>11</b>	<b>13</b>
<b>HOUSEHOLDS ('000)</b>								
Owner without a mortgage	582.9	532.3	205.1	173.7	181.7	35.7	38.4	1 761.5
Owner with a mortgage	441.5	465.9	189.4	163.2	196.4	18.8	47.5	1 539.7
Renter – state/territory housing authority	72.4	53.6	36.0	27.8	17.5	10.2	8.0	234.0
Renter – private landlord	328.2	251.0	175.3	69.0	111.5	12.1	18.2	980.9
Total renters(b)	406.0	311.7	220.3	105.5	132.5	23.1	26.6	1 250.7
<b>Total owner and renter households</b>	<b>1 430.4</b>	<b>1 309.8</b>	<b>614.7</b>	<b>442.4</b>	<b>510.5</b>	<b>77.6</b>	<b>112.5</b>	<b>4 551.9</b>

(a) Includes households in the NT, for which disaggregated data are not sufficiently accurate for most purposes. (b) Includes other landlord type.

Source: ABS data available on request, Survey of Income and Housing Costs, 2000–01.

## House prices

In 2003–04 the price index for established houses increased in all capital cities (table 8.15). Brisbane recorded the greatest rise in established house prices, increasing by 32.0% in 2003–04. Other capital city price rises were in Canberra (21.8%), Adelaide (21.5%), Hobart (19.4%), Perth (18.6%), Sydney (13.1%), Darwin (12.4%) and Melbourne (9.5%). The weighted average of eight capitals index rose by 16.2% in 2003–04.

In 2003–04 project home prices (cost of new dwellings excluding land) rose in all capital cities (table 8.16). Brisbane recorded the largest increase (13.2%), followed by Perth (9.4%), Canberra (9.1%), Hobart (8.5%), Adelaide (6.4%), Darwin (5.5%), Sydney (4.1%) and Melbourne (4.0%). The index for the weighted average of eight capitals rose by 7.4% in 2003–04.

The price index of materials used in house building is discussed in *Chapter 19 Construction*.

### 8.15 PRICE INDEXES FOR ESTABLISHED HOUSES(a)(b)

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra	Weighted average of eight capital cities
INDEX NUMBER									
2001–02	192.2	193.7	169.8	150.1	145.5	140.1	204.2	173.1	178.0
2002–03	233.0	216.4	211.8	182.6	164.4	157.1	218.2	207.2	209.9
2003–04	263.5	237.0	279.6	221.9	195.0	187.5	245.3	252.4	244.0
CHANGE FROM PREVIOUS YEAR (%)									
2001–02	17.3	21.7	13.7	14.5	8.7	4.4	2.8	16.1	16.5
2002–03	21.2	11.7	24.7	21.7	13.0	12.1	6.9	19.7	17.9
2003–04	13.1	9.5	32.0	21.5	18.6	19.4	12.4	21.8	16.2

(a) Reference base year is 1989–90 = 100.0. (b) The separate city indexes measure price movement within each city individually. They do not compare price levels between cities.

Source: *House Price Indexes: Eight Capital Cities (6416.0)*.

### 8.16 PRICE INDEXES FOR PROJECT HOMES(a)(b)

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra	Weighted average of eight capital cities
INDEX NUMBER									
2001–02	141.3	142.1	133.5	148.2	128.8	145.1	158.5	161.3	138.1
2002–03	145.2	147.2	142.9	155.9	132.9	158.5	167.2	171.4	144.1
2003–04	151.2	153.1	161.7	165.9	145.4	172.0	176.4	187.0	154.8
CHANGE FROM PREVIOUS YEAR (%)									
2001–02	2.1	3.8	1.1	4.4	2.1	3.1	1.1	5.1	2.4
2002–03	2.8	3.6	7.0	5.2	3.2	9.2	5.5	6.3	4.3
2003–04	4.1	4.0	13.2	6.4	9.4	8.5	5.5	9.1	7.4

(a) Reference base year is 1989–90 = 100.0. (b) The separate city indexes measure price movement within each city individually. They do not compare price levels between cities.

Source: *House Price Indexes: Eight Capital Cities (6416.0)*.

## Value of dwellings

In the 2000–01 Survey of Income and Housing Costs, owners were asked to estimate the value of their dwelling. These estimates may differ significantly from valuations made by accredited valuers and from an achievable sale price of the dwelling. The extent of the possible difference has not been measured. Therefore some care needs to be exercised in the use of these data.

The median owner-estimated value of dwellings for capital cities was \$200,000, 10% higher than the national median (\$180,000). The median value was highest in Sydney at \$320,000 and lowest in Hobart at \$130,000 (table 8.17).

## Housing finance for owner occupation and investment

In 2003–04 a total of 647,449 housing finance commitments for owner occupation were made by all lenders, a moderate increase on the previous year total of 628,753 (table 8.18). The recent upturn began during the December quarter of 2002 and continued into the first quarter of 2003–04 before weakening over the remainder of 2003–04. The total value of commitments for owner occupied housing increased to \$123,763m, up from \$106,699m in 2002–03. The number of commitments grew by 3% in 2003–04 over the previous year, while the value of commitments grew by 16%, taking the average loan size from \$169,700 in 2002–03 to \$191,200 in 2003–04.

Construction finance commitments for owner occupied housing grew slightly in 2003–04, rising by 0.5% from the previous year to 64,865 commitments. Commitments to purchase new

dwellings for owner occupation rose by 24.4% from 2002–03 to 21,809. The total value of commitments for owner occupied housing increased strongly to \$12,500m (up 14.5%) for the construction of dwellings and \$4,927m (up 43.7%) for the purchase of new dwellings.

The number of commitments for the purchase of established dwellings for owner occupation (including refinancing) continued to grow, increasing by 2.6% (or 14,105 commitments) in 2003–04. The total value of commitments for owner occupied housing also continued to grow, increasing by 15.1% in 2003–04 to reach \$106,335m. The average loan size for the purchase of established dwellings for owner occupation increased to \$189,600 in 2003–04, rising from \$168,900 in 2002–03.

In number terms, bank commitments for owner occupied housing rose by 3.2% in 2003–04, while commitments from permanent building societies remained virtually unchanged. Other lenders, which include credit unions and wholesale lenders, increased commitments by 2.7% in 2003–04.

There were 87,475 commitments for owner occupied housing to first home buyers in 2003–04, down on the previous year total of 99,281. First home buyers accounted for 13.5% of all commitments for owner occupied housing in 2003–04, down from the 2002–03 figure of 15.8%.

In 2003–04, \$75,873m was approved for investment housing purposes, up 16.4% on the figure recorded in 2002–03. The largest component of investment housing, the purchase of dwellings for rent or resale by individuals was the primary driver of this growth, rising to \$63,368m in 2003–04, up 22.7% on the previous year (table 8.19).

**8.17 CAPITAL CITY OWNER HOUSEHOLDS, Value of dwelling(a) by dwelling structure — 2000–01**

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Canberra	Capital city owner households(b)	Total owner households
MEDIAN ESTIMATED VALUE OF DWELLING (\$'000)									
Separate house	320.0	200.0	150.0	140.0	180.0	135.0	200.0	200.0	180.0
Semi-detached/row or terrace house/townhouse	350.0	200.0	*120.0	120.0	140.0	**100.0	*135.0	200.0	180.0
Flat/unit/apartment	260.0	178.0	*110.0	*110.0	*130.0	n.p.	n.p.	200.0	185.0
Total(c)	320.0	200.0	150.0	140.0	180.0	130.0	180.0	200.0	180.0
NUMBER ('000)									
Households	1 024.4	998.1	394.4	336.9	378.1	54.5	85.9	3 301.2	5 147.4

(a) As reported by owners. (b) Includes households in the NT, for which data are not available separately due to high sampling error. (c) Includes other dwelling structure.

Source: ABS data available on request, Survey of Income and Housing Costs, 2000–01.

**8.18 SECURED HOUSING FINANCE COMMITMENTS FOR OWNER OCCUPATION(a),  
By purpose and type of lender(b)**

	Units	Type of lender			Total
		Banks	Permanent building societies	Other lenders(c)	
<b>CONSTRUCTION OF DWELLINGS</b>					
Dwelling units					
2000-01	no.	44 127	2 755	6 105	52 987
2001-02	no.	66 009	3 697	7 861	77 567
2002-03	no.	55 294	2 608	6 651	64 553
2003-04	no.	53 117	2 644	9 104	64 865
Value of commitments					
2000-01	\$m	6 088	412	894	7 394
2001-02	\$m	9 873	548	1 111	11 532
2002-03	\$m	9 540	417	956	10 913
2003-04	\$m	10 485	451	1 564	12 500
<b>PURCHASE OF NEWLY ERECTED DWELLINGS</b>					
Dwelling units					
2000-01	no.	14 656	475	2 566	17 697
2001-02	no.	16 823	283	3 154	20 260
2002-03	no.	14 062	379	3 089	17 530
2003-04	no.	15 104	425	6 280	21 809
Value of commitments					
2000-01	\$m	2 322	55	361	2 738
2001-02	\$m	3 029	39	443	3 511
2002-03	\$m	2 914	56	460	3 430
2003-04	\$m	3 573	71	1 283	4 927
<b>PURCHASE OF ESTABLISHED DWELLINGS(d)</b>					
Dwelling units					
2000-01	no.	378 526	19 479	85 607	483 612
2001-02	no.	395 758	22 918	114 261	532 937
2002-03	no.	399 120	22 512	125 038	546 670
2003-04	no.	415 334	22 425	123 016	560 775
Value of commitments					
2000-01	\$m	50 722	2 244	11 327	64 293
2001-02	\$m	61 427	2 971	17 041	81 439
2002-03	\$m	69 849	3 179	19 328	92 356
2003-04	\$m	80 878	3 397	22 060	106 335
<b>TOTAL</b>					
Dwelling units					
2000-01	no.	437 309	22 709	94 278	554 296
2001-02	no.	478 590	26 898	125 276	630 764
2002-03	no.	468 476	25 499	134 778	628 753
2003-04	no.	483 555	25 494	138 400	647 449
Value of commitments					
2000-01	\$m	59 132	2 711	12 581	74 424
2001-02	\$m	74 329	3 558	18 595	96 482
2002-03	\$m	82 303	3 651	20 744	106 699
2003-04	\$m	94 936	3 920	24 907	123 763

(a) Excludes alterations and additions. (b) Caution should be exercised in using these statistics to calculate market share because, while all banks and permanent building societies are selected, only a sample of other lenders are selected. (c) Includes wholesale lenders n.e.c. (d) Includes refinancing.

Source: *Housing Finance, Australia (5609.0)*.

## 8.19 FINANCE COMMITMENTS FOR INVESTMENT HOUSING, By purpose

	2000-01	2001-02	2002-03	2003-04
	\$m	\$m	\$m	\$m
Construction of dwellings for rent or resale	3 772	4 443	8 001	6 200
Purchase of dwellings by individuals for rent or resale	24 870	39 317	51 651	63 368
Purchase of dwellings by others for rent or resale	2 634	3 846	5 535	6 305
<b>Total</b>	<b>31 276</b>	<b>47 606</b>	<b>65 187</b>	<b>75 873</b>

Source: *Housing Finance, Australia* (5609.0).

## Housing assistance

*This section was contributed by the Australian Government Department of Family and Community Services (September 2004).*

While most Australians are able to house themselves without government assistance, such assistance remains important for various population groups, especially low income earners and social security recipients. Housing assistance is provided by the Australian Government, and the state and territory governments through a range of housing and other programs. Assistance for people with low incomes is provided through public housing, home purchase assistance and rent assistance schemes. Assistance is also provided to community organisations and local governments for refugees and crisis accommodation.

The Commonwealth State Housing Agreement (CSHA) is an agreement made between the Australian, state and territory governments under the *Housing Assistance Act 1996* (Cwlth) to provide

strategic direction and funding certainty for the provision of housing assistance. The aim of this agreement is to provide appropriate, affordable and secure housing assistance for those who most need it, for the duration of their need.

The Australian Government Minister for Family and Community Services, and state and territory Housing Ministers committed to a new CSHA to operate from July 2003 to June 2008. Ministers expressed commitment to the development of positive options for a new CSHA that will create a modern, sustainable housing system; support community development and the renewal of public housing estates; support wider government outcomes in health, education and labour market reform; and stimulate private sector investment in the supply of low cost housing. The Australian Government contribution will be \$4.75b over the five-year agreement. The CSHA sets out the terms for the provision of housing assistance for rental housing, home purchase and other specific housing programs. Details of Australian Government assistance provided under the CSHA for 2003-04 are set out in table 8.20.

## 8.20 COMMONWEALTH STATE HOUSING AGREEMENT, Payments to states and territories — 2003-04

	NSW	Vic.	Qld	WA	SA	Tas.	ACT	NT	Aust.
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Base funding	239 388	175 929	134 579	69 629	54 690	21 189	16 747	13 079	<b>725 230</b>
Community Housing Program	21 578	15 858	12 131	6 276	4 930	1 534	1 044	639	<b>63 990</b>
Aboriginal Rental Housing Program	17 777	3 638	27 598	18 177	8 926	696	—	24 188	<b>101 000</b>
Crisis Accommodation Program	13 372	9 827	7 518	3 889	3 055	951	647	396	<b>39 655</b>
<b>Total</b>	<b>292 115</b>	<b>205 252</b>	<b>181 826</b>	<b>97 971</b>	<b>71 601</b>	<b>24 370</b>	<b>18 438</b>	<b>38 302</b>	<b>929 875</b>

Source: *Department of Family and Community Services*.

## Home purchase assistance (HPA)

Home Purchase Assistance (HPA) is provided by some states to assist low-to-moderate income households to purchase a home or to provide help with mortgage repayments. Some of the mechanisms used to assist low-to-moderate income earners include loans, shared equity schemes, deposit assistance and mortgage relief. States offer HPA options in line with local market conditions. The emphasis given to loan products varies significantly between jurisdictions. Western Australia and South Australia placed the greatest emphasis on various forms of subsidised loan products, partly due to lower housing prices, which make home purchase feasible on lower incomes. Other jurisdictions such as New South Wales gave greater emphasis to mortgage relief for home purchasers experiencing hardship.

## Rent assistance

The Australian Government pays rent assistance, a non-taxable income supplement, to eligible social security customers who pay rent in the private rental market. Rent can include private rent, lodgings, board and lodgings, site fees, fees to moor a vessel, or service and maintenance fees in a retirement village.

To be eligible for rent assistance, a customer must first pay rent above a certain threshold level, then rent assistance is paid at the rate of 75 cents in each dollar above the threshold, until a maximum amount is reached. Maximum rates and thresholds vary depending on a person's family situation.

Rent assistance is indexed twice-yearly in March and September to the consumer price index.

At June 2004 there were 927,895 income units in receipt of rent assistance, where an income unit is defined as a single person with or without dependants, or a couple with or without dependants. The average rent paid by rent assistance customers in June 2004 was \$274 per fortnight while the average rent assistance received was \$77 per fortnight.

A large proportion of rent assistance customers are either single people or sole parents. In June 2004, 54% of rent assistance customers were single with no dependent children, 24% were

single with dependent children, 14% were couples with dependent children and 8% were couples without dependent children.

Under CSHA, the state and territory governments also assist low-income earners with the costs of rent, bonds and relocation in the private rental market. In 2001–02 almost \$80m was provided through these arrangements.

Table 8.21 provides details of the number of rent assistance customers, average fortnightly rates of rent assistance and average fortnightly rents in March 2004. Outlays on rent assistance are included in the total expenditure on Pensions, Allowance and Family Tax Benefits, details of which are provided in *Chapter 7 Income and welfare*.

## Crisis accommodation

The Australian Government, and the state and territory governments provide assistance to people who are homeless or at imminent risk of homelessness, through the Supported Accommodation Assistance Program (SAAP) (AIHW 2002). Under the SAAP IV Bilateral Agreements 2000–05, national funding (i.e. total Australian, state and territory government contributions) will be over \$1.4b.

## Housing assistance program for Indigenous persons

*This section was contributed by the Aboriginal and Torres Strait Islander Commission (August 2004).*

During 2003–04 the Aboriginal and Torres Strait Islander Commission (ATSIC) and Aboriginal and Torres Strait Islander Services (ATSIS) administered a number of programs to improve the living environment of Aboriginal and Torres Strait Islander peoples. The Community Housing and Infrastructure Program (CHIP), ATSIS's second largest program, aimed to provide appropriate, safe and affordable housing, and to improve community and individual health and wellbeing. Since 1 July 2004 the Department of Family and Community Services (FaCS) has assumed responsibility for this program.

## 8.21 RECIPIENTS OF RENT ASSISTANCE, Average rent assistance and rent paid — March 2004

	Income units(a) no.	Average Rent Assistance(b) \$ per fortnight	Average rent paid(c) \$ per fortnight
<b>All recipients</b>	<b>927 895</b>	<b>77</b>	<b>274</b>
Primary payment type(d)			
Youth Allowance	74 270	62	204
Age Pension	161 608	71	238
Disability Support Pension	165 764	78	240
Newstart Allowance	188 645	73	246
Parenting Payment (single)	193 784	90	324
Parenting Payment (partnered)	26 583	101	386
Family Tax Benefit Part A	78 342	76	399
Other	38 899	77	260
Income unit type			
Single – no dependent children	499 560	70	219
Couple – no dependent children	78 388	74	300
Single – 1 or 2 dependent children	185 117	86	320
Single – 3 or more dependent children	34 638	100	354
Couple – 1 or 2 dependent children	89 642	85	382
Couple – 3 or more dependent children	37 864	95	394
Couple – temporarily separated	2 686	95	324

(a) Income units are couples or singles either with or without dependent children. Dependent children are those for whom Family Tax Benefit is being paid. Income units are counted if either member is entitled to Rent Assistance as at 5 March 2004. (b) Average Rent Assistance is taken to be 14 times the daily entitlement to Rent Assistance for 5 March 2004. (c) Average rent is the average rent taken into account in working out entitlements for 5 March 2004. (d) One member of a couple is treated as the reference person for the income unit, based on the type of payment they receive. The general order of priority is Pensions, Allowances, Family Tax Benefit. An income unit will be reported as receiving Parenting Payment (Partnered) only if neither member of the couple receives another social security payment. They will only be reported as receiving FTB Part A if neither receives a social security payment.

Source: Department of Family and Community Services.

CHIP provides funds for the construction, purchase, repair and management of community housing as well as for the provision and maintenance of housing-related infrastructure (essential services such as water, sewerage, electricity and community roads) and recurrent funding for the provision of municipal services. Through CHIP, grants are provided to:

- Indigenous community organisations
- state Indigenous housing authorities where bilateral agreements are in place
- Indigenous community organisations under the National Aboriginal Health Strategy (NAHS) where the financial and technical aspects of the projects are managed under Contracted Program Management arrangements.

In 2003–04 CHIP expenditure totalled \$201m, of which over half went to the provision of housing. Over 500 houses were purchased or constructed and over 1000 houses were upgraded or renovated. CHIP has a particular focus on environmental health-related infrastructure, via a specific sub-program called the NAHS. Projects in

the NAHS are generally large-scale, targeting priority housing and infrastructure including power, water and waste removal, mainly in rural and remote Indigenous communities.

As shown in table 8.22 most expenditure under the CHIP Program is in the Northern Territory, Western Australia and Queensland.

ATSIC engaged the ABS to undertake a Community Housing and Infrastructure Needs Survey (CHINS) during 2001. The CHINS 2001 report, which was released in May 2002, provides a comprehensive picture of Indigenous housing circumstances across all tenures at a single point in time. A review of the 2001 CHINS, completed in June 2004, recommended the survey continue in 2006 with a number of enhancements.

CHIP supplements the efforts of state and territory governments, who also receive earmarked Indigenous Housing funds from the Australian Government under the Aboriginal Rental Housing Program (\$101m in 2003–04).

## 8.22 COMMUNITY HOUSING AND INFRASTRUCTURE PROGRAM EXPENDITURE — 2003–04

	Expenditure	
	\$	Proportion of total %
New South Wales	27 699 286	13.8
Victoria	7 333 760	3.6
Queensland	45 284 345	22.5
South Australia	16 700 192	8.3
Western Australia	47 083 023	23.4
Tasmania	1 417 378	0.7
Northern Territory	55 733 431	27.7
<b>Australia</b>	<b>201 251 415</b>	<b>100.0</b>

Source: Department of Family and Community Services.

Over recent years the Australian Government, and state and territory governments have established Indigenous Housing Agreements in order to maximise Indigenous housing program efficiency and effectiveness through a coordinated approach to planning and delivery of housing and housing-related services. At June 30 2004, Housing Agreements or Memorandums of Understanding had been signed in all states and territories with the exception of Tasmania.

### National Indigenous housing reforms

The Standing Committee on Indigenous Housing (SCIH) comprises Commonwealth, and state and territory representatives. It reports on its activities directly to the Housing Ministers' Advisory Council (HMAC) and, in particular, provides advice on strategic Indigenous housing issues to HMAC and manages the implementation of Housing Ministers' Ten Year Statement of New Directions (*Building a Better Future: Indigenous Housing to 2010*).

In adopting *Building a Better Future: Indigenous Housing to 2010*, housing ministers resolved to improve Indigenous housing outcomes in the next ten years through three major strategies:

- measuring and addressing Indigenous housing need
- improving coordination of program delivery, research and data collection and reporting
- building the capacity of the Indigenous community housing sector to manage and maintain houses effectively.

SCIH has identified 13 key priority areas for attention including: addressing homelessness;

coordination with mainstream programs; Commonwealth State Housing Agreement (CSHA) re-negotiations; Council of Australian Governments (COAG) reconciliation agenda; skills development; viability of Indigenous housing organisations; sustainability of housing; and a range of data collection issues the development of models for targeting funds.

Over the past year ATSIIC and FaCS have been members of various SCIH Working Groups, and have been involved in a range of activities including:

- the development of a National Reporting Framework to provide the basis for data collection work at a jurisdictional level and to also provide the relevant information for all National reporting structured around the outcomes required by *Building a Better Future*
- a research analysis of the multi-measure approach to measuring Indigenous housing need, which was completed during 2003–04; ATSIIC funded the report, which analysed Indigenous housing need against the three SCIH endorsed dimensions of need: overcrowding, homelessness and affordability; this report was presented to HMAC and was published by FaCS in 2004.

In line with the agreed outcomes as outlined in *Building a Better Future*, all funding agencies including the Indigenous State Housing Authorities will be developing strategies to achieve the agreed outcomes within their jurisdiction.

## Home ownership

The ATSI Home Ownership Program aims to reduce the disparity between the rate of home ownership in Indigenous communities and that in the wider Australian community. The rate of home ownership for Indigenous family and lone-person households was estimated in the 2001 census to be 32%. This compares with a national non-Indigenous figure of 71%.

The scheme provides home loans at concessional interest rates to Aboriginal and Torres Strait Islander families. The scheme targets low income Indigenous families with the capacity to repay a long-term loan, but who have difficulty obtaining finance from traditional lending institutions. The loan portfolio currently includes 3,559 loans valued at \$339m. In 2003–04, 469 new loans were provided.

## Other programs

*This section was contributed by the Australian Government Department of Family and Community Services and the Australian Government Department of Health and Ageing (September 2004).*

The Australian Government, through the Department of Health and Ageing, finances and

regulates residential care for frail older people. The residential care is usually provided by the non-government sector, including religious, charitable and other private sector providers. A small number of residential services are operated by the state and local government sectors. Capital assistance for upgrading or construction of facilities is made available to those aged care services catering largely for residents with special needs or on low incomes, and those in rural and remote areas of Australia (see *Residential aged care program, Chapter 7 Income and welfare*).

The Commonwealth State Territory Disability Agreement provides the national framework for the provision of government support to services for people with disabilities. Under the three agreements signed so far (the first in 1991) all parties are responsible for funding specialist services for people with disabilities. The Australian Government has responsibility for the planning, policy setting and management of specialised employment assistance. The state and territory governments have similar responsibilities for services other than employment (see *Support for people with a disability, Chapter 7 Income and welfare*).

## **Bibliography**

### **ABS publications**

*House Price Indexes: Eight Capital Cities* (6416.0)

*Housing Finance, Australia* (5609.0)

### **Other publications**

AIHW (Australian Institute of Health and Welfare), 2002, *SAAP National Data Collection Annual Report 2001–02 Australia*, AIHW, Canberra

The latest annual reports of the state and territory government housing authorities, and the latest annual report of the Department of Family and Community Service in relation to the *Housing Assistance Act 1996* (Cwth), show further details of government activities in the field of housing

### **Web sites**

Australian Government Department of Family and Community Services, last viewed October 2004  
<<http://www.facs.gov.au>>

Australian Government Department of Health and Ageing, last viewed October 2004  
<<http://www.health.gov.au>>

Australian Housing and Urban Research Institute, last viewed October 2004 <<http://www.ahuri.edu.au>>

Australian Institute of Health and Welfare, last viewed October 2004 <<http://www.aihw.gov.au>>



## HEALTH

The Australian health system has a diversity of arrangements for planning, funding, delivering and regulating health services, featuring a mix of private and public sector involvement.

The Australian Government, through the Health and Ageing portfolio, has significant financial and policy responsibility for health services, including hospitals, public health and mental health, while the state and territory governments are largely responsible for the direct provision of such services. Local governments and non-government organisations are also involved in the direct provision of health services. Private, non-salaried practitioners provide most medical, dental and allied health care. Two major national subsidy schemes, Medicare and the Pharmaceutical Benefits Scheme, are funded by the Australian Government to cover all Australian citizens and permanent residents, and are discussed in the section *Health care delivery and financing*. In 2002–03 total expenditure on health as a proportion for Australia's gross domestic product was 9.5%.

Under the National Health Information Agreement, to which the Australian Bureau of Statistics (ABS), the Australian Institute of Health and Welfare (AIHW), Australian Government Department of Health and Ageing, and the various state and territory health authorities are signatories, the National Health Information Development Plan sets out agreed national priorities for health information to be considered by the Australian Health Ministers' Advisory Council.

The chapter provides information on various aspects of the health of the population and the health-related activities of government and other bodies. A listing of web sites is provided at the end of this chapter where additional information on health topics and organisations involved in health-related activities can be obtained.

The chapter contains two articles. The first, *Cancer trends*, examines incidence of cancer, cancer mortality and relative survival ratios of persons with cancer since the early-1980s. The second, *Living with asthma*, examines rates of asthma in 2001 and associated outcomes such as hospitalisation and the use of asthma medication.

## National health surveys

Data in this chapter are obtained from the most up-to-date sources available including information collected in the 2001 National Health Survey (NHS) on the health status of Australians conducted by the ABS and data from the ABS Causes of Death Collection. Previous National Health Surveys were conducted in 1989–90, 1995 and 2001.

Data from the 2001 NHS presented in this chapter are based on the International Classification of Diseases, 10th revision (ICD-10). Comparisons between the Indigenous and non-Indigenous populations are presented after adjusting for their differing age structures.

## How Australians rate their health

The World Health Organization (WHO) defines health as ‘a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity’. While the level of disease or

infirmity can be assessed by mortality, disability and morbidity statistics, the presence of positive wellbeing is more difficult to measure.

## Health and wellbeing

In 2001 the majority of Australians aged 15 years and over considered themselves to be in good health, with 82% reporting their health status as good, very good or excellent (table 9.1). This is similar to the proportion reported in the 1995 NHS (83%). In general, a higher proportion of younger people reported their health to be either excellent, very good or good compared to those in the older age groups.

In 2001 persons with higher educational qualifications were generally more likely to report their health to be excellent. Persons who were employed, or in a higher income unit were more likely to report their health as very good or better.

**9.1 SELF-ASSESSED HEALTH STATUS(a), Persons aged 15 years and over — 2001**

Population characteristics	Excellent %	Very good %	Good %	Fair %	Poor %
<b>Highest educational qualification(b)</b>					
Associate diploma or above	23.7	37.7	27.3	8.8	2.5
Other qualification	17.5	32.1	31.1	14.3	4.9
<b>Labour force status</b>					
Employed	21.2	37.4	29.8	9.8	1.8
Unemployed	20.8	28.7	34.4	12.6	3.5
Not in the labour force	14.5	25.1	30.5	19.7	10.2
<b>Location</b>					
Major Cities of Australia	19.2	33.1	30.1	12.8	4.8
Inner Regional Australia	18.5	32.0	30.9	14.1	4.4
Outer Regional Australia/other areas	17.6	32.5	29.9	15.0	4.9
<b>Household composition</b>					
Person living alone	14.7	27.3	31.2	18.8	8.0
Couple only	16.3	30.8	31.2	15.5	6.1
Couple with children	22.1	36.2	29.4	9.7	2.6
All other households	18.1	31.9	30.2	14.4	5.5
<b>Income unit income</b>					
1st quintile (lowest income)	12.1	23.1	32.2	21.6	11.1
5th quintile (highest income)	25.7	39.3	27.7	6.3	0.9
<b>Index of socioeconomic disadvantage(c)</b>					
1st quintile (most disadvantaged)	13.8	28.5	31.9	17.9	7.9
5th quintile (least disadvantaged)	23.3	35.9	28.0	9.8	3.1
<b>Persons</b>	<b>18.9</b>	<b>32.8</b>	<b>30.2</b>	<b>13.3</b>	<b>4.8</b>

(a) This table shows the percentage of persons in the specified population (e.g. persons employed) who have reported their health status as either excellent, very good, good, fair or poor. The age distribution of the population should be considered in interpreting these estimates. (b) Persons aged 18 years and over. (c) Where the first quintile represents the first 20% of the total population living in areas with the highest levels of disadvantage and the fifth quintile represents the 20% of the population with the lowest levels of disadvantage.

Source: ABS data available on request, 2001 National Health Survey.

## Health status

### Morbidity

The 2001 NHS found almost 78% of the Australian population reported one or more long-term conditions (i.e. conditions that have lasted, or are expected to last, six months or more). In most cases, respondents were asked about conditions which had been medically diagnosed.

Among adults aged 18 years and over in 2001, females in general were more likely than males to report selected long-term conditions with the exception of total/partial hearing loss (table 9.2). While similar proportions of females and males reported having back problems, diabetes and neoplasms, females were more likely to consult health professionals. For example, in 2001 it was estimated 27% of females had consulted a doctor in the two weeks prior to the survey interview, compared with 21% of males. Females also have a longer life expectancy. This results in higher proportions of females in the older age groups where long-term conditions are common. Adult males had a higher prevalence of neoplasms and hearing loss.

The proportion of persons who reported back pain, back problems and disc disorders increased rapidly after early teenage years from 2% among those aged 10–14 years, to 30% among persons aged 40–44 years. Prevalence then decreased among those aged between 65 and 85 years before increasing slightly among persons in very old age (graph 9.3).

The proportion of persons reporting diabetes mellitus as a long-term condition remained below 1% among persons aged less than 35 years before

slowly increasing. Rates then remained between 10% and 12% for those aged in their early-60s to late-70s before the proportion declined.

The proportion of persons who reported having malignant neoplasms also remained relatively low at under 1% among persons aged less than 35 years. After this age, proportions of persons reporting having a malignant neoplasm steadily increased to 6% among those aged 70 years and over.

### Mortality

There were 133,707 deaths registered in 2002, consisting of 68,885 male and 64,822 female deaths (table 9.4). The number of deaths registered in 2002 represented an increase of 4.0% on the corresponding figure for 2001 (128,544 deaths). The age-standardised death rate of 665 per 100,000 population in 2002 was slightly higher than the corresponding rate of 662 in 2001. Malignant neoplasms (cancer) and ischaemic heart diseases were the leading underlying causes of death, accounting for 28% and 20% respectively of total deaths registered (table 9.4).

The age-standardised death rate of 665 deaths per 100,000 population in 2002 was 21% lower than the corresponding rate of 838 in 1992. This is consistent with continuing improvements in life expectancy in Australia.

Over the 10 years to 2002 there were quite different patterns of decline in the two leading causes of death from malignant neoplasms and ischaemic heart diseases, which together account for nearly half the total deaths. Between 1992 and 2002 the standardised death rate for malignant neoplasms decreased by 10%, while the rate for ischaemic heart diseases decreased by 41% (graph 9.5).

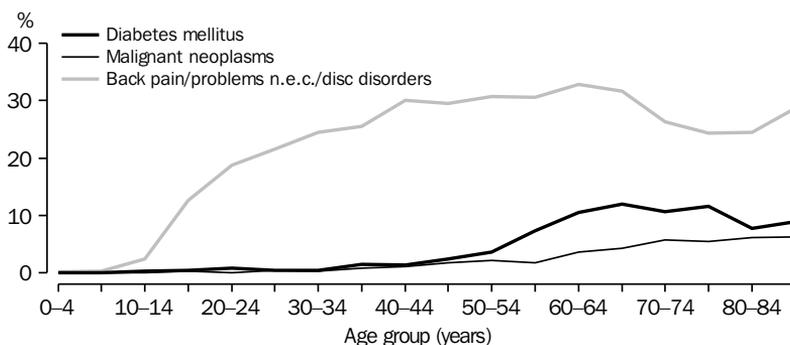
#### 9.2 SELECTED LONG-TERM CONDITIONS(a), Persons aged 18 years and over — 2001

Long-term condition	Males		Females		Persons	
		%		%		%
Long sightedness	25.6		30.7		28.2	
Short sightedness	23.0		29.4		26.2	
Back problems(b)	27.4		26.6		27.0	
Arthritis	14.9		21.1		18.1	
Asthma	8.9		12.7		10.8	
Hayfever and allergic rhinitis	17.0		18.5		17.8	
Total/partial hearing loss	17.5		9.7		13.5	
Hypertensive disease	12.5		14.4		13.4	
Diabetes mellitus	3.9		3.8		3.9	
Neoplasms	2.5		1.8		2.1	

(a) Conditions which have lasted or are expected to last 6 months or more. (b) Includes back pain, back problems n.e.c. and disc disorders.

Source: National Health Survey, Summary of Results, Australia, 2001 (4364.0).

### 9.3 SELECTED LONG-TERM CONDITIONS(a) — 2001



(a) Conditions which have lasted or are expected to last 6 months or more.

Source: ABS data available on request, 2001 National Health Survey.

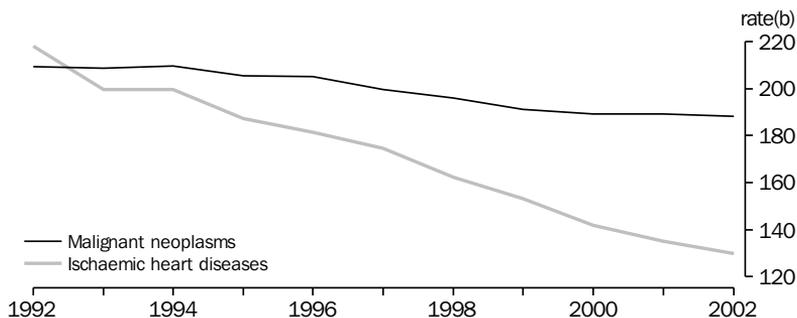
### 9.4 LEADING CAUSES OF DEATH — 2002

Cause of death (ICD-10 code)	Males	Females	Persons	Proportion of total deaths
	no.	no.	no.	%
<b>All causes</b>	<b>68 885</b>	<b>64 822</b>	<b>133 707</b>	<b>100.0</b>
Malignant neoplasms (cancer) (C00–C97)(a)	21 041	16 581	37 622	28.1
Trachea, bronchus and lung (C33, C34)	4 760	2 543	7 303	5.5
Ischaemic heart diseases (I20–I25)	13 855	12 208	26 063	19.5
Cerebrovascular diseases (stroke) (I60–I69)	4 969	7 564	12 533	9.4
Chronic lower respiratory diseases (incl. asthma, emphysema and bronchitis) (J40–J47)	3 567	2 689	6 256	4.7
Accidents (V01–X59)	3 099	1 807	4 906	3.7
Transport accidents (V01–V99)	1 403	504	1 907	1.4
Diabetes mellitus (E10–E14)	1 771	1 558	3 329	2.5
Diseases of arteries, arterioles and capillaries (incl. atherosclerosis and aortic aneurysm) (I70–I79)	1 382	1 259	2 641	2.0
Intentional self-harm (X60–X84)	1 817	503	2 320	1.7
Organic, including symptomatic, mental disorders (F00–F09)	841	1 706	2 547	1.9
Influenza and pneumonia (J10–J18)	1 353	1 731	3 084	2.3
<b>All other causes</b>	<b>15 190</b>	<b>17 216</b>	<b>32 406</b>	<b>24.2</b>

(a) Includes deaths from non-melanocytic skin cancer.

Source: Causes of Death, Australia, 2002 (3303.0).

### 9.5 AGE-STANDARDISED DEATH RATES FROM CANCER AND HEART DISEASES(a)



(a) Ischaemic heart diseases. (b) Per 100,000 population, age standardised to the 2001 population (persons).

Source: AIHW 2004a.

## International comparisons

### Healthy life expectancy

The WHO has proposed healthy life expectancy as a measure of the expected number of years to be lived without reduced functioning. Healthy life expectancy calculations adjust the overall life expectancy (see *Life expectancy, Chapter 5 Population*) by the years of life lived with reduced functioning because of ill health.

Australia's healthy life expectancy is among the highest in the world. Australian males can expect to live 70.9 years of life without reduced functioning, and females 74.3 years. Table 9.6 shows healthy life expectancy for selected countries in 2002.

### Infant mortality rates

The infant mortality rate (IMR) is defined as the number of deaths per 1,000 live births between birth and exactly one year of age. In 2002, 1,260 infant deaths were registered in Australia. The number of infant deaths registered in 2002 was 31.4% lower than the number registered in 1992 (1,840), and 49.1% lower than in 1982 (2,500). Infant mortality rates of 5.0 infant deaths per 1,000 live births in 2002 was 28.6% lower than the IMR in 1992 (7.0 deaths per 1,000 live births), and 51.5% lower than in 1982 (10.3 deaths per 1,000 live births). Australia's infant mortality has declined by 95% in the last 100 years. In 1902, over 1 in 10 infants born did not survive to their first birthday (IMR of 107.1). In 2002, 1 in 200 infants born will not survive their first year of life (IMR of 5.0) (graph 9.7).

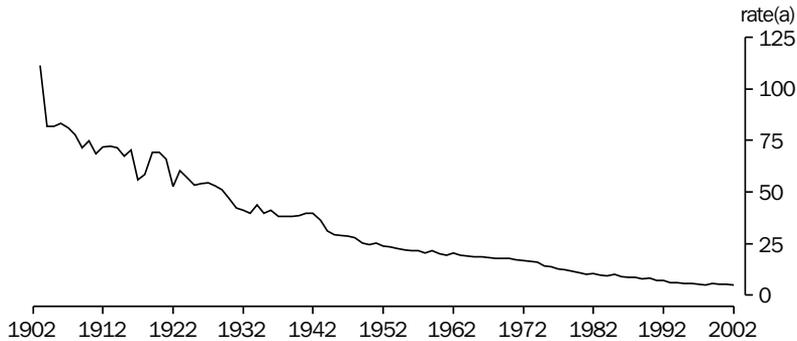
The early decline in infant mortality has been linked to improvements in public sanitation and health education. Later declines may be a consequence of the introduction of universal health insurance (Medicare) and improvements in medical technology, such as neonatal intensive care units.

## 9.6 HEALTHY LIFE EXPECTANCY, Selected countries — 2002

	Healthy life expectancy years
<b>Males</b>	
Japan	72.3
Iceland	72.1
Sweden	71.9
Switzerland	71.1
<b>Australia</b>	<b>70.9</b>
Italy	70.7
Norway	70.4
Canada	70.1
Spain	69.9
Germany	69.6
New Zealand	69.5
France	69.3
Austria	69.3
United Kingdom	69.1
Greece	69.1
Belgium	68.9
Singapore	68.8
Finland	68.7
Denmark	68.6
Ireland	68.1
United States of America	67.2
Portugal	66.7
Poland	63.1
Russian Federation	52.8
South Africa	43.3
<b>Females</b>	
Japan	77.7
Spain	75.3
Switzerland	75.3
Sweden	74.8
France	74.7
Italy	74.7
<b>Australia</b>	<b>74.3</b>
Canada	74.0
Germany	74.0
Iceland	73.6
Norway	73.6
Austria	73.5
Finland	73.5
Belgium	73.3
Greece	72.9
New Zealand	72.2
United Kingdom	72.1
Portugal	71.7
Ireland	71.5
Singapore	71.3
United States of America	71.3
Denmark	71.1
Poland	68.5
Russian Federation	64.1
South Africa	45.3

Source: WHO 2004.

## 9.7 INFANT MORTALITY RATE



(a) Per 1,000 live births.

Source: *Deaths, Australia (3302.0)*.

### National Health Priority Areas (NHPAs)

The NHPAs initiative is a collaborative approach to dealing with a range of conditions which account for 70% of the burden of disease and a high financial burden in Australia. It is overseen by the National Health Priority Action Council, which was established as a sub-committee of the Australian Health Ministers' Advisory Council (AHMAC) in June 2000, and comprises representatives of the Australian Government, each of the states and territories, a representative of Aboriginal and Torres Strait Islander peoples and a representative for consumer issues.

The identification of diseases and conditions as national health priority areas involves a national consultation process and consideration of issues such as:

- the health burden associated with the disease/condition (including incidence, prevalence, mortality, morbidity, quality of life, economic costs)
- the potential for health gain (including improved health outcomes, and potential to change behaviour)
- the potential for progress through national collaboration
- the potential for cost-effective health gain using interventions known to be effective (including existing and potential intersectoral action)
- the potential for sustainability of programs to address the health area
- the potential to reduce health inequalities.

At present, seven NHPAs have been endorsed by the Australian Health Ministers' Conference covering cardiovascular health, cancer control, injury prevention and control, diabetes mellitus, mental health, asthma, and arthritis and musculoskeletal conditions. A range of program initiatives has been established aimed at improving health outcomes in these areas. More information on NHPAs, can be obtained from the Australian Government Department of Health and Ageing web site and other relevant web sites, the addresses of which are at the end of this chapter.

Table 9.8 shows health expenditure on the seven NHPA conditions. In total, expenditure on NHPAs in 2000–01 accounted for \$21.4b, that is 44% of allocated recurrent expenditure or 35% of total health expenditure for the year. Hospital expenditure accounted for 50.6% of all expenditure on NHPAs (AIHW 2004b).

### Cardiovascular disease

Cardiovascular disease, also known as 'circulatory disease', comprises all diseases and conditions involving the heart and blood vessels including high blood pressure, heart disease, stroke, and peripheral vascular diseases. Although the death rates from cardiovascular disease have notably decreased over the last three decades, it is still the leading cause of death in Australia (AIHW 2002). Total health expenditure attributable to cardiovascular disease is \$5.4b, which accounts for 11% of allocated recurrent health system expenditure in 2000–01 (AIHW 2004b). Because its health and economic burden exceeds any other group of diseases, and because of its potential for prevention, cardiovascular disease was established as one of the original priority areas in 1996.

## Morbidity

The 2001 NHS indicated that around 3.2 million Australians (17%) reported having a circulatory system condition as a long-term condition (having lasted or being expected to last six months or more). The most common cardiovascular condition reported was hypertension (high blood pressure) which affected 10% of the population.

The prevalence of long-term circulatory system conditions increases with age. For people aged 55 years and over, the prevalence of all circulatory system conditions is 48%. The prevalence of hypertensive disease is 34%, and ischaemic heart disease (also called coronary heart disease) is 5.8%. The prevalence of cerebrovascular disease (stroke) is 2.2%.

## Mortality

In 2002 over 38% (50,294) of all deaths were due to diseases of the circulatory system. Ischaemic heart disease accounted for 19.5% of all deaths, and cerebrovascular diseases a further 9.4% (table 9.4). Between 1992 and 2002, age-standardised death rates for diseases of the circulatory system declined by 36% for males (from 465 to 297 per 100,000 population), and 35% for females (from 322 to 209 per 100,000 population). In the same period age-standardised death rates for persons declined from 386 to 249 per 100,000 population (graph 9.9).

Despite declines in mortality rates in the past 30 years, cardiovascular disease (or diseases of the circulatory system) remains one of the leading causes of death in Australia in 2002, accounting for 50,294 or 38% of all deaths.

## Arthritis and other musculoskeletal diseases

In July 2002, AHMAC announced arthritis and musculoskeletal conditions as a new (seventh) NHPA in recognition of the major burden these diseases place on the community. Osteoarthritis, rheumatoid arthritis and osteoporosis are the most commonly occurring musculoskeletal conditions. Although they are not immediately life threatening and have low associated mortality, they have substantial influence on the quality of life and impose a heavy economic burden on the community. Total health expenditure attributable to musculoskeletal diseases is \$4.7b, which accounts for 9.6% of allocated recurrent health system expenditure in 2000–01 (AIHW 2004b).

Osteoarthritis is one of the most common types of arthritis and affects the cartilage in the joints. Cartilage cushions the ends of bones where bones meet to form a joint. In osteoarthritis this cartilage degenerates. Osteoarthritis is most commonly found in the knees, neck, lower back, hip and fingers.

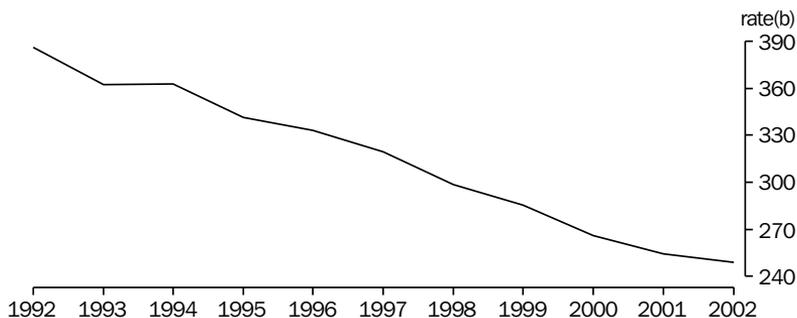
### 9.8 ALLOCATED RECURRENT HEALTH EXPENDITURE ON NATIONAL HEALTH PRIORITY AREAS — 2000–01

Disease group	Hospital \$m	Aged care homes(a) \$m	Out-of- hospital medical services \$m	Other professional services(b)(c) \$m	Pharmaceuticals \$m	Research \$m	Total \$m
Cardiovascular diseases	2 533	526	716	78	1 386	153	5 393
Arthritis and other musculoskeletal conditions	1 828	482	908	760	691	55	4 725
Injuries	2 830	105	647	284	190	6	4 061
Mental disorders(d)	1 196	366	589	144	615	109	3 018
Cancer	1 988	37	273	24	226	215	2 764
Diabetes mellitus	289	38	187	36	251	35	836
Asthma	179	16	103	21	290	6	615
<b>All NHPAs</b>	<b>10 842</b>	<b>1 570</b>	<b>3 423</b>	<b>1 347</b>	<b>3 650</b>	<b>580</b>	<b>21 412</b>

(a) Includes expenditure on residents that require and receive a level of care that falls within one of the four highest levels in residential aged care services. (b) Based on preliminary AIHW estimates. (c) Includes services delivered outside of hospitals by paramedical professionals such as physiotherapists, chiropractors, occupational therapists, audiologists, speech therapists, hydropaths, podiatrists, therapeutic and clinical massage therapists, clinical psychologists, dietitians and osteopaths. (d) Does not include expenditure on community mental health services.

Source: AIHW 2004b.

### 9.9 AGE-STANDARDISED DEATH RATES FROM CARDIOVASCULAR DISEASE(a)



(a) ICD-10 codes I00–I99. (b) Per 100,000 population, age standardised to the 2001 population (persons).

Source: AIHW 2004a.

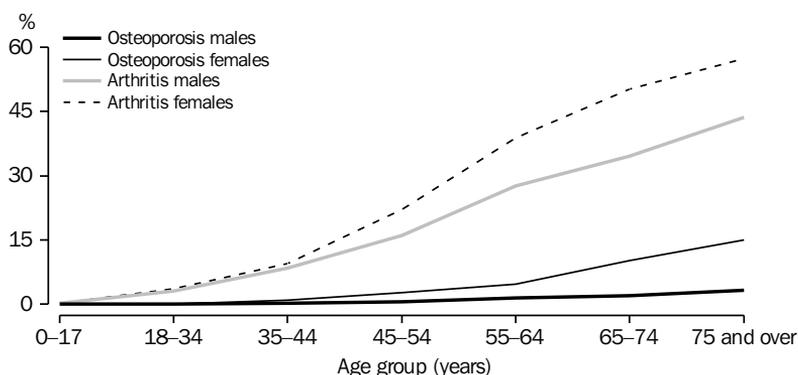
Rheumatoid arthritis is the most common form of inflammatory arthritis. Inflammatory arthritis is characterised by joint swelling and destruction. In rheumatoid arthritis the immune system attacks the tissues lining the joints. As a result of this attack, inflammation occurs causing pain, heat and swelling. The disease can also cause inflammation of connective tissue, blood vessels and organs.

Osteoporosis (porous bones) is a disease where bone density and structural quality deteriorate, leading to an increased risk of fracture. The most common sites of fracture are the bones of the spine, the hip and the wrist. However other bones are commonly affected, including the shoulder, ribs and the pelvis.

### Morbidity

The 2001 NHS shows over 2.5 million Australians (14%) had some form of arthritis and over 299,000 Australians (1.6%) had osteoporosis. The prevalence is greater in females at nearly all ages. The overall prevalence of arthritis is 16% for females compared with 11% for males, while the prevalence of osteoporosis is 3.0% for females and 0.6% for males. The prevalence of arthritis and osteoporosis was increasingly higher for older age groups in 2001 (graph 9.10). For people aged 65 years and over, the prevalence of arthritis was 47% and the prevalence of osteoporosis was 8.0%.

### 9.10 PREVALENCE OF ARTHRITIS — 2001



Source: ABS data available on request, 2001 National Health Survey.

## Injuries and deaths due to external causes

Injury and poisoning are broad terms that encompass the adverse effects on the human body that may result from events. These events may be accidental, such as falls, vehicle accidents and exposure to chemicals, or intentional such as suicide attempts and assaults by other people. Such events, and the factors involved in them, are collectively known as ‘external causes of injury and poisoning’, and are a significant source of preventable illness, disability and premature death in Australia.

Males and females, and people in different age groups, experience different levels and types of risk from injury events (risk in this sense refers to both the probability of an injury event occurring and the severity of the injuries that may result).

### Morbidity

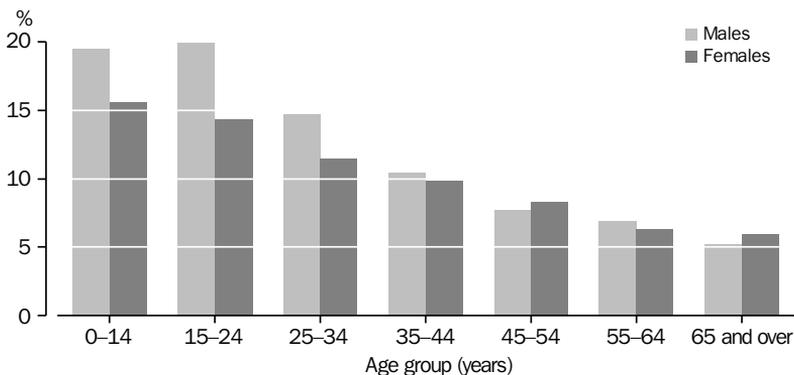
Respondents to the 2001 NHS were asked about events in the four weeks prior to interview that resulted in an injury for which they had sought medical treatment or taken some other action. Injuries data from the survey are presented in graph 9.11 and highlight differences in the reporting of injury events among males and females of different age groups.

During the 1990s, the number of people dying as a result of injury from traffic accidents decreased. However, traffic accidents remain a serious source of preventable death, injury and disability. Results from the 2001 NHS indicate 3 in 1,000 people experienced a recent injury as a result of a vehicle accident. Inexperienced road users are an acknowledged risk group in terms of the potential for death or injury from vehicle accidents (Australian Transport Council 2001). Results from the 2001 NHS showed people aged 15–34 years experienced a higher rate of recent injury from vehicle accidents compared with people aged 35 years and over (graph 9.12).

### Mortality

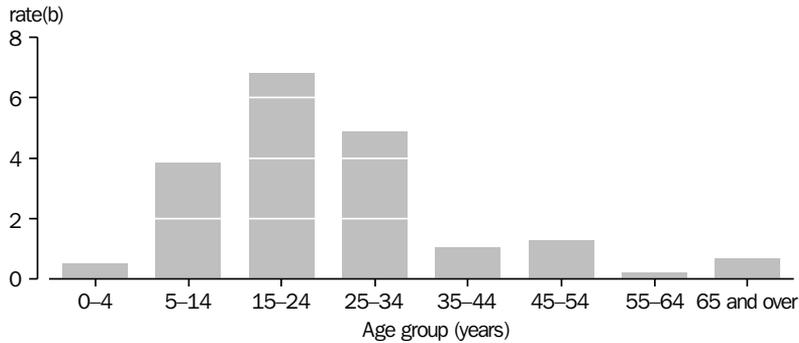
External causes were responsible for 7,820 deaths (5.8% of all deaths) registered in 2002 (table 9.13). Since 1992 there has been a 11% decrease in the standardised death rate for deaths from external causes of injury and poisoning. This decrease has been influenced largely by the decline in deaths from motor vehicle accidents. In 2002, intentional self-harm and transport accidents accounted for 54% of all injuries reported for deaths due to external causes. There were 2,320 deaths attributed to intentional self-harm (suicide) in 2002, accounting for 30% of the total deaths from external causes. Transport accidents accounted for 24% of total registered deaths in 2002 due to external causes.

**9.11 PROPORTION WHO WERE RECENTLY INJURED — 2001**



Source: National Health Survey: Injuries, Australia (4384.0).

### 9.12 RECENTLY INJURED BY VEHICLE ACCIDENT(a) — 2001



(a) Includes motorised and non-motorised vehicles. (b) Rate per 1,000 persons.

Source: National Health Survey: Injuries, Australia (4384.0).

### 9.13 EXTERNAL CAUSES OF DEATH — 2002

Cause of death (ICD-10 code)	no.	%	Crude death rate(a)		
			Males	Females	Persons
Suicide (intentional self-harm) (X60–X84)	2 320	29.7	18.6	5.1	11.8
Transport accidents (V01–V99)	1 907	24.4	14.4	5.1	9.7
Accidental poisoning by and exposure to noxious substances (X40–X49)	568	7.3	3.8	2.0	2.9
Falls (W00–W19)	629	8.0	3.4	3.0	3.2
Assault (X85–Y09)	291	3.7	1.9	1.1	1.5
Accidental drowning and submersion (W65–W74)	232	3.0	1.8	0.6	1.2
Other	1 873	24.0	10.1	9.0	9.5
<b>All external causes</b>	<b>7 820</b>	<b>100.0</b>	<b>54.0</b>	<b>25.8</b>	<b>39.8</b>

(a) Per 100,000 population.

Source: ABS data available on request, Causes of Death Collection.

## Mental health

Most people in Australia enjoy good mental health. However, in 2001, approximately 1.8 million people (9.6% of the population) reported having a long-term mental or behavioural problem that had lasted, or was expected to last, for six months or more. Mental illness is not a major direct cause of death, but it is associated with a proportion of deaths due to suicide and some other conditions, and can lead to chronic disability. For males, substance use disorders (from alcohol or other drugs) accounted for 33% of the mental health burden, while for females affective disorders such as depression accounted for 39% of the mental health burden (AIHW 1999). Together, mental disorders accounted for 6.1% of allocated recurrent health system expenditure.

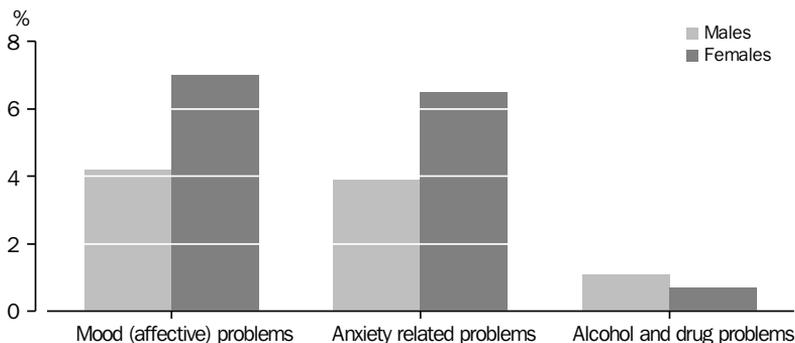
## Morbidity

In the 2001 NHS, information on long-term mental and behavioural problems was collected from all respondents. A long-term condition was defined

as one which the respondent regarded as having lasted or was expecting to last six months or more. Respondents in the survey were not specifically asked if they had been diagnosed with any mental disorders, so the information they provided could be based on self-diagnosis rather than diagnosis by a health professional.

In 2001, 9.6% of the Australian population reported that they had a long-term mental or behavioural problem. Proportionally more females (11%) than males (8.5%) reported these problems. The most commonly reported problems for adults (aged 18 years and over) were classified into two groups: anxiety related problems and mood (affective) problems such as depression and bipolar disorder; each were reported by approximately 4% of all males and 7% of all females. In addition, around 1% of the population reported that they had a mental and behavioural disorder due to substance use (graph 9.14).

**9.14 SELF-REPORTED MENTAL DISORDER(a) — 2001**



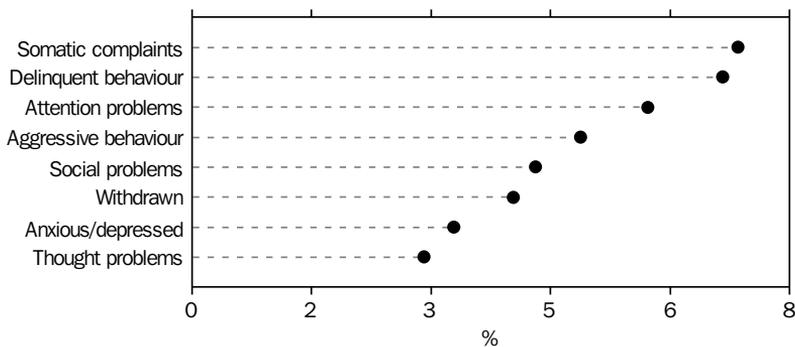
(a) Persons aged 18 years and over.

Source: ABS data available on request, 2001 National Health Survey.

The child and adolescent component of the 1998 National Survey of Mental Health and Wellbeing studied 4,500 children and young people from metropolitan and rural areas across Australia. The results show 14% of children and young people (aged 4–17 years) had mental health problems. The specific problems most frequently identified by parents were somatic complaints (chronic

physical complaints without known cause or medically verified basis) and delinquent behaviour, with 7% of children and adolescents scoring in the clinical range on each scale. The next most frequently identified problems were attention problems (6%) and aggressive behaviour (5%) (graph 9.15).

**9.15 PREVALENCE OF MENTAL HEALTH PROBLEMS: YOUNG PEOPLE(a) — 1998**



(a) Persons aged 4–17 years.

Source: DoHA 2000.

## Cancer

Cancer is a disease caused by abnormal cells which grow in an uncontrolled way and invade and spread to other parts of the body. Cancer can develop from most types of cells in different parts of the body, and each cancer has its own pattern of growth and spread. Some cancers remain in the body for years without showing any symptoms. Others can grow, invade and spread rapidly, and are fatal in a short period of time. Cancer is a major cause of death in Australia and accounted for 5.6% of allocated recurrent health system expenditure in 2000–01.

## Morbidity

In the 2001 NHS, an estimated 261,300 Australians (1.4%) reported they currently had a malignant neoplasm.

The AIHW cancer registry data shows there were 85,231 registered new cancer cases in 2000. The most common registrable cancers are the combination of cancers of the colon and rectum (12,405), breast cancer (11,400), prostate cancer (10,512), melanoma (8,531) and lung cancer (8,060). Together they accounted for 60% of all registrable new cancer cases in that year. Cancer occurs more commonly in males than females. At the incidence rates prevailing in 2000, it would be expected that 1 in 3 men and 1 in 4 women would be diagnosed with a malignant cancer before the age of 75 years (AIHW 2003a).

## Mortality

In 2002 malignant neoplasms (cancer) accounted for 37,215 deaths (excluding deaths from non-melanocytic skin cancer), or 28% of all deaths registered (table 9.16). Of these, there were 20,771 male deaths and 16,444 female deaths. Overall, cancer of the trachea, bronchus and lung was the leading cause of cancer deaths, accounting for 20% of all cancer deaths. There were some differences in cancer death rates between males and females. Among males, the leading causes of cancer deaths were cancer of the trachea, bronchus and lung (23% of all male cancer deaths), prostate cancer (14%) and colon cancer (8%). Among females the leading causes of cancer deaths were breast cancer (16% of all female cancer deaths), cancer of the trachea, bronchus and lung (15%) and colon cancer (10%).

Apart from age groups between 30 and 54 years, age-specific death rates for cancer increased markedly with age, and were generally greater for males than for females.

Mortality is influenced by the number of new cases of cancer (incidence) and the length of time lived after the initial diagnosis of cancer is made (survival). Relative survival is a measure that takes into consideration the crude survival (time between diagnosis and death) in the cancer population, and the corresponding expected survival in the general population. Expressed as a percentage, it is the cancer population that survives a specific number of years after the diagnosis divided by the general population that survives the same number of years.

In the general population during 1992–97, the expected proportion of males aged 60–69 years who survive for the next five years was 91%. The observed survival rate during 1992–97 after five years for males diagnosed with lung cancer at age 60–69 years is 11%. The five-year relative survival proportion for males diagnosed with lung cancer at age 60–69 years is the ratio of these two percentages, that is 12% (AIHW 2001).

By convention, the proportion of people surviving is measured at one, five and ten years after diagnosis. The periods reflect different stages of management during the life of a person diagnosed. For instance, the proportion of people surviving after one year can be a measure of the success of the interventions on the immediately detectable cancer, whereas five-year and ten-year measurements are strong indicators for remission or cure.

During 1992–97 the five-year relative survival proportions for all cancers for females (63%) were higher than those for males (57%) (table 9.16). Australian five-year relative survival proportions for all cancers was ranked second behind the United States of America for both males and females when compared with other Western countries for which relative survival data are available.

The article *Cancer trends* examines incidence of cancer, cancer mortality and relative survival ratios of persons with cancer, since the early-1980s.

## 9.16 DEATH, INCIDENCE AND SURVIVAL RATES FOR COMMON REGISTRABLE CANCERS

Cancer site	Deaths (2002)		Incidence (2000)		Five-year relative survival (1992–97)	
	Males no.	Females no.	Males no.	Females no.	Males %	Females %
Stomach	762	457	1 267	713	22.6	24.8
Colon	1 610	1 616	4 141	3 830	58.3	58.7
Rectum(a)	838	585	2 722	1 712	56.6	60.6
Pancreas	943	891	912	896	5.4	5.2
Lung(b)	4 760	2 543	5 278	2 782	11.0	14.0
Skin (melanoma)	716	339	4 770	3 761	90.0	94.6
Breast	18	2 698	86	11 314	n.a.	84.0
Uterus	—	347	—	1 564	—	81.4
Cervix	—	227	—	745	—	74.6
Ovary	—	852	—	1 201	—	42.0
Prostate	2 852	—	10 512	—	82.7	—
Testis	27	—	578	—	95.4	—
Bladder	644	282	2 139	747	70.8	64.7
Kidney(c)	549	364	1 470	935	59.9	57.5
Brain	652	492	778	576	23.8	23.8
Thyroid	36	66	265	775	87.9	95.6
Unknown primary	1 268	1 378	1 607	1 558	13.4	11.5
Hodgkin's Lymphoma	38	31	232	189	82.6	84.4
Non-Hodgkin's Lymphoma	826	702	1 864	1 593	54.6	55.8
Leukaemia	843	581	1 428	942	41.2	43.2
<b>All cancers(d)</b>	<b>20 771</b>	<b>16 444</b>	<b>45 935</b>	<b>39 296</b>	<b>56.8</b>	<b>63.4</b>

(a) Including rectosigmoid junction, anus and anal canal. (b) Including trachea and bronchus. (c) Including ureter and urethra. (d) Excluding non-melanocytic skin cancer.

Source: ABS data available on request, *Causes of Death Collection*; AIHW 2001, 2004c.

### Diabetes mellitus

Diabetes is a long-term condition characterised by high blood glucose (a type of sugar) level, which results from either the body producing little or no insulin, or the body not using the insulin properly (insulin resistance). Insulin is a hormone produced by the pancreas that helps the body cells use glucose.

There are three major types of diabetes mellitus. Type 1 diabetes is marked by extremely low levels of insulin. Type 2 diabetes is marked by reduced levels of insulin, or the inability of the body to use insulin properly. Gestational diabetes (which occurs in about 4–6% of pregnancies of women, who have not been previously diagnosed with diabetes) is not usually long-term. However, for women diagnosed with gestational diabetes, there is an increased risk of developing Type 2 diabetes later in life (AIHW 2003b).

Diabetes is a costly disease, associated with substantial morbidity and mortality, primarily from cardiovascular complications, eye and kidney diseases, and limb amputations. Total health

expenditure attributable to diabetes was greater than \$0.8b in 2000–01, accounting for 1.7% of allocated recurrent health system expenditure.

### Morbidity

Results from the 2001 NHS indicate over half a million Australians (around 3%) reported having diabetes as a long-term condition. Results from the three successive National Health Surveys show diabetes is a growing health problem in Australia. The prevalence of diabetes has risen from 1.2% in 1989–90 to 2.0% in 1995, and to 2.9% in 2001.

People born in some overseas regions have a higher prevalence of diabetes than people born in Australia. This difference may be largely due to a combination of genetic, biological, behavioural and environmental risk factors. In 2001, men born in the Middle East and North Africa were 3.6 times as likely to report having diabetes as Australian-born men; women born in Southern and Eastern Europe and Central Asia were 1.5 times as likely to report diabetes as Australian-born women (AIHW 2004d).

## Mortality

In 2002 diabetes mellitus was the underlying cause of death in 3,329 deaths, 2.5% of all deaths registered. Of these, 1,771 deaths were males and 1,558 females. The age-standardised death rate due to diabetes was 16.6 per 100,000 persons (21 for males and 13 for females per 100,000 persons). Since 1992 there has been a 1.8% increase in the standardised death rate for deaths from diabetes.

In addition, there were a further 11,467 deaths where diabetes was listed as an associated cause. When diabetes was recorded as the underlying cause, conditions listed as associated causes included coronary heart disease (50% of cases), stroke (22%) and renal failure (15%) (AIHW 2004d).

## Asthma

Asthma is a chronic inflammatory disorder of the lung's air passages which makes them narrow in response to various triggers. This leads to episodes of shortness of breath and wheezing. Asthma can begin at all ages, including the very young. The disease can start as a mild chronic cough and lead to mild or severe wheezing, and sometimes even to respiratory arrest.

Although asthma has low associated mortality, people with asthma can experience reduced quality of life and require a range of health services, from general practitioner care to emergency department visits or hospital in-patient care. It is one of the most frequent reasons for hospitalisation among children aged 0–14 years (AIHW 2004d).

The management of asthma is an important public health issue because of the personal burden it places on those with asthma, often with onset in childhood, and the financial burden it places on the health system. In 2000–01 asthma accounted for \$0.6b, which represented 1.2% of allocated recurrent health expenditure. Also, different from other NHPA conditions, the greatest cost of asthma is in pharmaceuticals.

## Morbidity

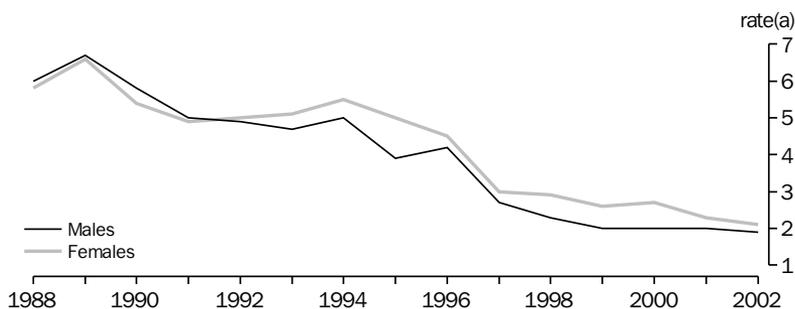
The prevalence of asthma in Australia is one of the highest in the world (AIHW 2003c), with more than two million Australians (12%) reporting the disease in 2001. Asthma is more prevalent in young people than older age groups. For people under 25 years of age, the prevalence of asthma is 15%. Up to 14 years of age, asthma was more common among males than among females. In older age groups, however, asthma was more common among females than among males.

## Mortality

Asthma was identified as the underlying cause of 0.3% of deaths registered in Australia in 2002 (158 males and 239 females). The most recent peak in asthma deaths occurred in 1989, and standardised death rates for asthma have been declining since then (graph 9.17). Most asthma deaths occur in older age groups.

The article *Living with asthma* examines rates of asthma in 2001 and associated outcomes such as hospitalisation and the use of asthma medication.

9.17 AGE-STANDARDISED DEATH RATES FROM ASTHMA



(a) Per 100,000 population, age standardised to the 2001 population (persons).

Note: Changes in coding rules for ICD-10 (1997 onwards) have resulted in substantially decreased reporting of asthma as underlying cause of death (see 'Causes of Death, Australia, 2001' (3303.0)).

Source: AIHW 2004a.

## Cancer trends

Cancer is a major cause of death and disability in Australia. It affects both the physical and emotional wellbeing of individuals and their families, and represents costs to the community in terms of health care infrastructure, absence from work, and premature mortality. However, over recent decades developments in the detection and treatment of cancer have improved the chances of survival for people with cancer. Cancer (malignant neoplasm) refers to several diseases which result when the process of cell division, by which tissues normally grow and renew themselves, becomes uncontrolled and leads to the development of malignant cells. These cancer cells multiply in an uncoordinated way to form a tumour. If left untreated, most malignant tumours will eventually result in death. Cancers are classified according to where they initially develop in the body.

The government designated cancer as a National Health Priority Area (NHPA) in 1996, identifying lung, melanoma skin, non-melanocytic skin, cervical, breast, colorectal and prostate cancers, and non-Hodgkin's lymphoma as priority cancers to be targeted (DoHAa). The NHPA initiative focuses public attention and policy on health areas known to contribute most to the burden of disease in Australia, and which have potential for significant health gains (AIHW 2002a).

Early in the 20th century, cancer accounted for a relatively small proportion of deaths (7% of all male deaths and 8% of all female deaths in 1909). The death rate from cancer peaked in the 1980s, then declined slightly from 215 deaths per 100,000 people in 1985 to 188 per 100,000 in 2002, when cancer accounted for 31% of all male deaths and 26% of all female deaths.

Paradoxically, the increased proportion of cancer deaths partly reflects longer life expectancy in the population. That is, cancer is predominantly a disease of the elderly, and the longer people live, the more likely they are to die from cancer than from other conditions.

## Cancer incidence

While there has been a decrease in cancer deaths since 1985, the cancer incidence rate increased between 1985 and 2000. In 1985, there were 392 new cases of cancer diagnosed per 100,000 population. A high incidence of prostate cancer, combined with slightly higher rates for breast and ovarian cancer, contributed to an overall peak in cancer incidence in 1994, when 478 new cases per 100,000 population were diagnosed. Cancer incidence then fell to a rate of 451 in 2000.

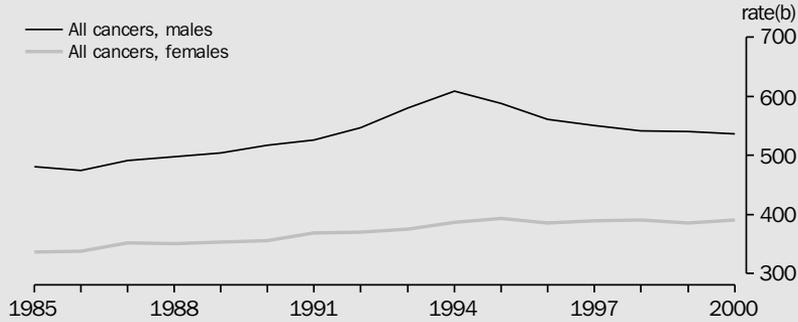
Cancer incidence among men increased from 481 new cases per 100,000 men in 1985, to a peak of 608 in 1994, declining to 536 per 100,000 in 2000 (graph 9.18). The peak in 1994 occurred around the time when there was a peak in the number of men tested using the prostate specific antigen (PSA) test (Smith & Armstrong 1998). This test identified prostate cancers that previously may not have been diagnosed through other tests or the presence of symptoms (DoHAb).

Women consistently had lower cancer incidence rates than men. In 2000 the cancer incidence rate for women was around 70% of the rate for men. Although the relative growth in cancer incidence was higher among women than men between 1985 and 2000, the increase was more steady over the period.

Cancer incidence is lowest in late childhood and increases with age (AIHW 2002a). The most common forms of cancer among children aged 0–14 years are lymphatic leukaemia, and brain and central nervous system cancers, which together accounted for 51% of cancer incidence in this age group in 2000. For almost all cancers, incidence is higher among boys than among girls (AIHW 2002b).

Of the seven priority cancers for which data are routinely collected, the incidence of lung cancer among men, and cervical cancer among women, decreased between 1985 and 2000. There was an increase in the incidence of prostate and colorectal cancer among men; lung and breast cancer among women; and melanoma skin cancer and non-Hodgkin's lymphoma for both men and women (table 9.19).

### 9.18 CANCER INCIDENCE(a)



(a) Excludes non-melanocytic skin cancers as data on this are not routinely collected by registries.  
 (b) Per 100,000 population, age standardised to the 2001 population (persons).

Source: AIHW and AACR 2003.

### 9.19 INCIDENCE RATES(a) OF SELECTED CANCERS

Selected cancers	Males				Females			
	1985	1990	1995	2000	1985	1990	1995	2000
Prostate	82.8	102.4	167.8	124.9	..	..	..	..
Breast	1.0	1.1	0.8	1.0	84.2	94.6	115.7	115.4
Colorectal	72.4	74.3	78.2	80.2	54.3	51.4	53.6	53.8
Lung	80.6	78.1	69.8	62.1	19.2	23.7	25.9	27.4
Melanoma skin	33.6	43.1	51.2	53.7	31.3	32.8	36.7	38.0
Non-Hodgkin's lymphoma	16.0	19.5	19.4	21.5	11.4	12.6	15.1	15.6
Cervical	..	..	..	..	14.5	13.3	10.7	7.6
All registrable cancers(b)	481.2	517.3	587.3	535.7	336.9	355.7	393.3	390.4

(a) Rate per 100,000 population and age standardised to the 2001 population (persons). (b) Excludes non-melanocytic skin cancers.

Source: AIHW, Interactive cancer data.

While changes in the incidence rates for specific cancers may reflect more, or fewer, people developing a type of cancer, they may also relate to medical advances that improve detection and identification of the site of origin of cancer in the body. For example, the increased incidence of prostate cancer has been largely attributed to the PSA test, which increased detection and reporting of latent prostate cancers (Smith & Armstrong 1998). Conversely, the halving of the incidence rate for cervical cancer between 1985 and 2000 (from 15 new cases per 100,000 women to 8) may be partly due to a national cervical screening program introduced in the early-1990s (AIHW 2002a). Cervical cancer is one of the most preventable and curable of all cancers – up to 90% of cases of the most common type of cervical cancer can be prevented if cell changes are detected and treated early (DoHAc). Thus screening, which encouraged women to have regular Pap smear tests, supported more effective control of this cancer.

Smoking is associated with an increased risk of developing many diseases including lung cancer. In 2001, 24% of the adult population were current smokers, a decrease since 1989–90 when 28% smoked. Smoking rates were consistently higher among men. In keeping with this, the rate of incidence of lung cancer was also higher among men. However, the gap between men and women is closing, with the incidence of lung cancer declining among men (from 81 new cases per 100,000 men in 1985, to 62 in 2000) but increasing among women (from 19 to 27). As there is a time lag between exposure to the carcinogenic agents of tobacco and the onset of cancer, this increase reflects smoking patterns of around 20 years ago, when the proportion of female smokers increased relative to male smokers.

Data on non-melanocytic skin cancers are not routinely collected by state and territory cancer registries, and instead, estimates are provided by periodic national surveys. It is estimated there were 374,000 new cases of non-melanocytic skin cancer diagnosed in 2002 (NCCI).

### Surviving cancer

Measuring the chance of survival for people diagnosed with cancer, relative to people without cancer, assists in assessing the broad impacts of early detection methods such as screening, and the efficacy of treatment. The chances of surviving at least five years after diagnosis with any type of registrable cancer improved considerably between 1982–1986 and 1992–1997 (table 9.20).

There were improvements in survival ratios for the priority cancers, with prostate cancer showing the greatest relative improvement (about 40%). That is, while there was an increase in the incidence of prostate cancer, there was not an equal increase in mortality. The introduction of PSA testing, combined with the tendency for prostate cancer to have slow, non-life threatening growth, and affect mainly older men, could partly explain the increase in survival ratio between 1987–1991 and 1992–1997 (Stricker & Eisinger 1997; Smith & Armstrong 1998; AIHW & AACR 2003). However, factors other than PSA testing may be involved (Smith & Armstrong 1998, AIHW 2001).

Relative improvement in the survival ratio for breast cancer was similar to that for colorectal cancer (about 15%), although the survival ratio

for colorectal cancer was lower. Earlier detection and diagnosis, and improved treatments are likely to have increased the chances of surviving such cancers.

The likelihood of surviving for five or more years after being diagnosed with lung cancer also improved between the 1980s and the 1990s (from 10% to 12%). That said, lung cancer remained the cancer with by far the lowest likelihood of survival of all of the selected priority cancers.

### Cancer deaths

The death rate for a specific cancer is influenced both by how commonly it occurs, and by how likely people are to survive it. For example, although non-melanocytic skin cancers are the most commonly diagnosed cancer in Australia, relatively few people die of this cancer if treated early. Death rates from cancer declined for both men and women between 1985 and 2002, although men continued to experience a higher rate of death from cancer than women (table 9.21).

Childhood cancer is relatively uncommon (children aged 0–14 years made up less than 1% of all cancer patients in each year from 1983 to 2000) (AIHW 2002b). However, cancer is a leading cause of death among children aged 1–14 years (118 children in this age group died from cancer in 2002). Death rates for children improved from four deaths per 100,000 children aged 0–14 years in 1993, to three per 100,000 in 2000, reflecting advances in various cancer treatments (AIHW & AACR 2002).

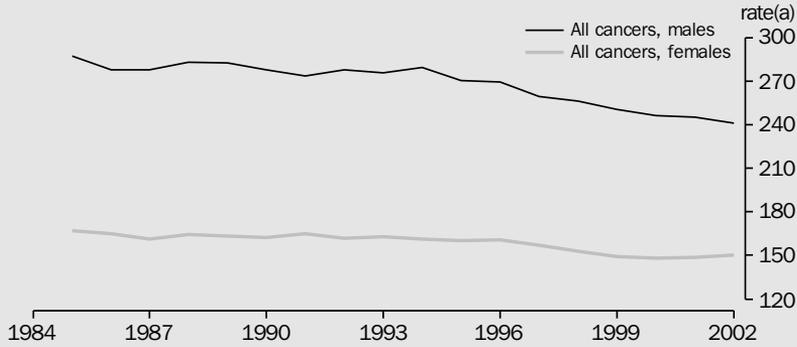
#### 9.20 FIVE-YEAR RELATIVE SURVIVAL RATIO FOR SELECTED CANCERS

Selected cancers	1982–1986	1987–1991	1992–1997
	%	%	%
Prostate(a)	59.3	64.3	82.7
Lung	9.9	11.0	12.0
Breast(b)	72.3	77.8	84.0
Colorectal	50.6	54.2	58.4
Non-Hodgkin's lymphoma	49.8	52.6	55.1
Cervical(b)	69.6	72.0	74.6
Melanoma skin	87.1	90.2	92.1
All registrable cancers(c)	49.4	53.4	59.9

(a) Ratio refers to males only. (b) Ratio refers to females only. (c) Excludes non-melanocytic skin cancers.

Source: AIHW 2001; unpublished data from AIHW for colorectal cancer.

### 9.21 CANCER MORTALITY



(a) Per 100,000 population, age standardised to the 2001 population (persons).

Source: Deaths, Australia, 2002 (3302.0).

Of all the priority cancers, lung cancer has consistently been the leading cause of death for men since the early-1950s (AIHW). However, as with incidence rates for lung cancer, the difference between men and women is reducing slightly. Female death rates for lung cancer increased between 1985 and 2002, from 17 deaths per 100,000 women to 24, while the male death rate decreased from 77 deaths per 100,000 men to 53 (table 9.22).

In 1985 there were 36 deaths per 100,000 men as a result of prostate cancer. While there were substantial improvements in the likelihood of surviving prostate cancer between 1985 and 2002, the death rate for this condition stayed much the same over this period (36 deaths per 100,000 men in 2002).

For women there was a decrease in deaths due to colorectal cancer between 1985 and 2002 (from 28 to 20 deaths per 100,000 women). The incidence rate for colorectal cancer remained relatively steady over the period (around 53 new cases per 100,000 women each year), so the reduction in deaths may be due to increased chance of survival. The slight improvement in the survival ratio for cervical cancer combined with the improved ability to prevent cervical cancer through effective screening, resulted in mortality decreasing by more than half.

While the incidence of breast cancer in females increased between 1985 and 2000, the death rates decreased (from 31 to 25 deaths per 100,000 women). This may be attributed to earlier detection and/or improvements in treatment leading to a better chance of surviving the disease for longer.

### 9.22 DEATH RATES(a) FROM SELECTED CANCERS

Selected cancers	Males					Females				
	1985	1990	1995	2000	2002	1985	1990	1995	2000	2002
Breast	0.2	0.3	0.4	0.2	0.2	31.3	31.0	29.5	24.7	25.1
Cervical	..	..	..	..	..	5.1	4.3	3.8	2.6	2.1
Colorectal	37.9	35.2	33.9	30.5	27.7	28.0	24.3	22.6	20.5	19.6
Lung	77.2	68.5	63.9	54.7	53.3	17.1	19.3	21.9	22.2	23.5
Melanoma skin	6.8	7.6	8.1	7.4	8.0	3.8	3.8	3.6	3.5	3.1
Non-Hodgkin's lymphoma	8.0	10.0	9.9	10.4	9.5	6.2	6.5	7.4	7.0	6.3
Non-melanocytic skin	3.1	3.6	3.8	3.2	3.2	0.7	0.7	1.2	1.0	1.1
Prostate	35.7	39.9	41.4	35.9	35.5	..	..	..	..	..
All cancers	287.3	277.7	270.6	246.6	241.3	167.2	162.6	160.3	147.9	150.3

(a) Rate per 100,000 population, age standardised to the 2001 population (persons).

Source: AIHW 2003.

## Years of life lost through cancer

Years of potential life lost measures the extent of premature mortality, which is assumed to be any death before the age of 79 years. In 2002 the years of potential life lost through cancer deaths amounted to 189,562 for men and 156,522 for women (table 9.23). For a specific cancer, the number of years of potential life lost reflects not only the incidence and survival rates for that cancer, but the age at which deaths from that cancer commonly occur. For example, although the death rate for non-Hodgkin's lymphoma was higher than for melanoma skin cancer, slightly more years of potential life were lost due to the latter. This indicates that melanoma skin cancer affects people earlier in life, resulting in more premature deaths.

Although death rates due to prostate cancer were the second highest of all the priority cancers in men, this type of cancer resulted in a comparatively low number of years of potential life lost, as it mainly afflicts older men. While a similar number of women died from breast

cancer as died from lung cancer in 2002, there were more years of potential life lost through breast cancer (36,684 years) than through lung cancer (22,909), as women with breast cancer are more likely to die at a younger age than women with lung cancer.

**9.23 YEARS OF POTENTIAL LIFE LOST(a) FROM SELECTED CANCERS — 2002(b)**

Selected cancers	Males	Females
	years	years
Breast	221	36 684
Cervical	..	3 592
Colorectal	22 146	16 299
Lung	40 988	22 909
Melanoma skin	9 178	4 183
Non-Hodgkin's lymphoma	7 730	5 598
Prostate	10 850	..
All cancers	189 562	156 522

(a) Measures the extent of premature mortality which is assumed to be any death at ages 1–78 years inclusive.  
(b) Data are age standardised to the 2001 population (persons).

Source: ABS data available on request, *Causes of Death Collection*.

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## Living with asthma

Asthma is a disease characterised by recurrent episodes of wheezing, shortness of breath and sometimes coughing (AIHW 2003a). Although the cause of asthma is still unclear, it tends to run in families and is closely linked to allergies (AIHW 2002). In 1999, the Australian Health Ministers designated asthma as a National Health Priority Area. This decision was in recognition of the significant personal, social, and economic costs that asthma imposes on individuals and the community. Asthma is still a major reason for health care visits and lost productivity, and there is widespread concern about the high prevalence of asthma among children and young adults.

In 2001, 175 males and 247 females died from asthma, representing 0.3% of deaths registered in Australia in that year (AIHW 2003b). Although the risk of dying from asthma is low, this risk increases with age. The majority of deaths caused by asthma occur among people aged 65 years and over.

### How common is asthma?

The prevalence of asthma in Australia is among the highest in the world. In the 2001 National Health Survey, 12% of the population reported they had current asthma. Asthma was more prevalent among children and young adults aged 0–19 years (14%) than among people aged 20 years and over (11%). Boys were more likely to have current asthma than girls (15% of boys aged

0–14 years, and 12% of girls of that age), and it peaked at a much earlier age for boys (5–9 years) than for girls (15–19 years). However, although prevalence of current asthma decreased with age for both men and women, women were more likely to report having asthma than men in each age group from the age of 20 years (graph 9.24).

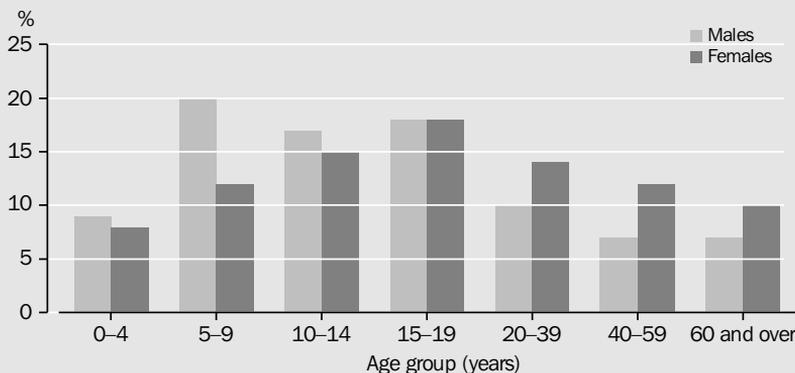
### Asthma in children

In 2001 asthma was the most commonly reported long-term health condition for children aged 0–14 years (13%). Of those aged 0–4 years, 8% currently had asthma which had been diagnosed by a doctor or nurse, and this increased to 16% for both 5–9 year olds and 10–14 year olds.

Asthma is difficult to diagnose in children, but is commonly a cause of wheeze. For this reason, several studies have investigated the presence of wheeze among children. In 1997, 27% of children aged 0–14 years were reported to have had wheeze in the past 12 months (Woolcock et al. 2001).

The prevalence of wheeze among Australian children is also high by international standards. In a study conducted in over 30 countries across all continents, Australia had the second highest prevalence of a current wheeze among 6–7 year olds, and the third highest among 13–14 year olds (Beasley et al. 1998).

9.24 PREVALENCE OF ASTHMA — 2001



Source: ABS data available on request, 2001 National Health Survey.

## Managing asthma

Asthma can largely be controlled by good management, under the guidance of a general medical practitioner (GP). On average, there were 16 asthma-related GP visits per 100 population per year between July 1998 and June 2002 (3% of all GP consultations over that period) (AIHW 2003a).

Asthma Action Plans (AAPs) have formed part of national guidelines for the management of asthma since 1989. There is evidence that the use of a written AAP, in conjunction with training in self-management and regular medical reviews, improves health outcomes for people with asthma. Better outcomes include improved lung function and a reduced need for hospitalisation, urgent GP visits and additional medication. In 2001, 12% of people with asthma reported having a standard AAP provided by a GP. Children aged 0–14 years with asthma were more likely to have a standard AAP (18%) than people aged 15 years and over with asthma (10%).

The use of medication is the most common health-related action taken by people with asthma. In 2001, 59% of people of all ages with asthma used asthma medication to prevent and/or relieve their symptoms.

There is evidence that preventers (inhaled corticosteroids) are effective in controlling the symptoms of asthma and in preventing complications. However, in 2001, less than a third of people with asthma (31%) used preventers,

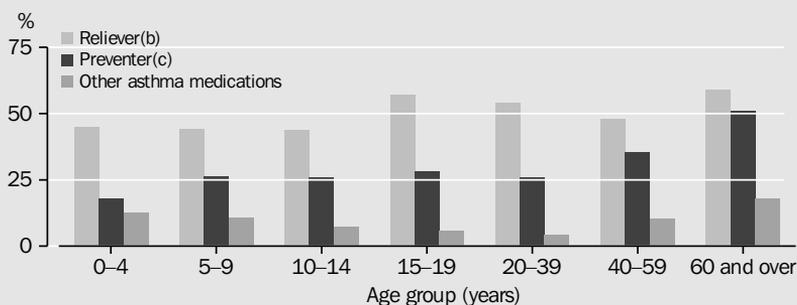
while over half (51%) of people with asthma used relievers. People aged 0–39 years with asthma were almost twice as likely to use relievers (51%) as they were to use preventers (26%). The use of preventers increased markedly after the age of 40 years, with people aged 60 years and over the most likely of all age groups to use preventers (graph 9.25).

Despite the range of ways in which people with asthma may manage their symptoms, acute asthma episodes can still result in hospitalisation. Asthma accounted for 41,000 hospital separations in 2001–02 and is one of the most common reasons for emergency department attendance and hospitalisation among children. In 2001–02 just over half (51%) of the 41,000 hospital separations with a principal diagnosis of asthma (20,900) were for children aged 0–14 years (AIHW 2003c).

While the prevalence of asthma increases as children move into their teens, hospitalisation for asthma is highest among much younger children (aged 0–4 years), and steadily decreases over the life cycle (graph 9.26). The reasons for the disparity between asthma prevalence and the rate of hospitalisation of very young children are not known, but are likely to reflect a range of complex issues.

Consistent with asthma prevalence, boys are more likely to be admitted to hospital for asthma than girls, while, from late teens, women are more likely than men to be admitted to hospital for asthma.

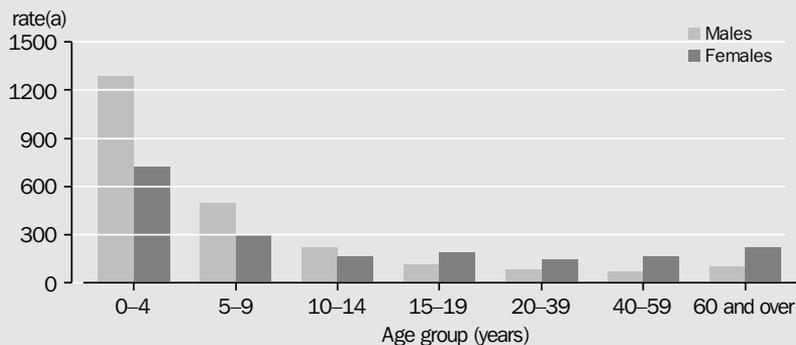
**9.25 USE OF ASTHMA MEDICATION(a) — 2001**



(a) Based on brand of medication used in the two weeks prior to interview. (b) Includes salbutamol, terbutaline, ipratropium, fenoterol and orciprenaline. (c) Includes beclomethasone dipropionate, budesonide and fluticasone propionate.

Source: ABS data available on request, 2001 National Health Survey.

## 9.26 HOSPITAL SEPARATIONS FOR ASTHMA — 2001–02



(a) Hospital separations per 100,000 population.

Source: AIHW 2003c.

### Quality of life

People with asthma can experience a reduced quality of life and be restricted in their daily activities. In 2001 people aged five years and over with asthma were more likely to report that they had experienced days where they had to reduce their usual activities (18%) than people without asthma (11%). Adults with asthma were also more likely to rate their health as poor or fair

(28%) than people without asthma (17%), and less likely to rate their health as good, very good or excellent (72% compared with 83%).

While the number of deaths of children caused by asthma is very low, asthma can affect and disrupt children's lives in a range of ways. Asthma is a major cause of school absenteeism, and children aged 5–14 years who had asthma were more likely to have had a day away from study in the previous two weeks (24%) than children in the same age group who did not have asthma (16%).

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## Communicable diseases

Communicable diseases are those diseases capable of being transmitted from one person to another, or from one species to another. Two major groups of communicable diseases, classified in the *International Classification of Diseases (ICD-10)*, are infectious and parasitic diseases (ICD-10 codes A00–B99) and acute respiratory infections (ICD-10 codes J00–J22) which includes influenza and pneumonia as well as other acute upper and lower respiratory infections. In 2002 these two groups accounted for 3.7% of all deaths in Australia (4,955 deaths). Influenza and pneumonia accounted for 62% (3,084) of these deaths. Death rates increase with age, and were greater for males than females in most age groups. In 2002–03, there were 92,810 hospital separations in Australia with a principal diagnosis of infectious and parasitic diseases (AIHW 2004a, 2004e). Acute respiratory infections including influenza and pneumonia were responsible for a further 128,415 separations.

Under the National Notifiable Diseases Surveillance System (NNDSS), state and territory health authorities submit reports of more than 50 communicable disease notifications for compilation by the Department of Health and Ageing (DoHA). In 2001, the diseases reported to NNDSS were revised to include cryptosporidiosis, influenza, pneumococcal disease, Japanese encephalitis, Kunjin virus, Murray Valley encephalitis, anthrax, Australian bat lyssavirus, and other lyssavirus infections. At the same time, diseases that were becoming rare or of less public health significance in Australia, namely chancroid, lymphogranuloma venereum, hydatid disease and yersiniosis were removed from the NNDSS.

The provisional total of notifications to NNDSS in 2003 is 102,203, a small increase (3.0%) on the 99,195 notifications in 2002 (table 9.27). In 2003 sexually transmitted infections (STI) were the most commonly reported communicable diseases, accounting for 37% of all notifications, followed by gastrointestinal diseases (23%) and blood-borne diseases (20%). Chlamydia was the most common STI (29,493 notifications, 78% of total STIs), campylobacteriosis the most common gastroenteritis (14,951 notifications, 63% of total) and hepatitis C (unspecified) was the most common blood-borne disease (14,106

notifications, 68% of total). Compared with 2002, there were increases in notifications of STIs due mainly to increases in chlamydia; while there were decreases in reports of blood borne diseases (except campylobacteriosis), gastrointestinal diseases and vaccine preventable diseases.

## HIV and AIDS

In collaboration with the state and territory health authorities and the Australian Government, surveillance for human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) is conducted by the National Centre in HIV Epidemiology and Clinical Research. This centre is part of the Faculty of Medicine, University of New South Wales and is funded primarily by DoHA through the Australian National Council on AIDS, Hepatitis C and Related Diseases.

At 31 December 2003 the cumulative number of HIV cases (since 1985) was 23,306. The number of new HIV infections decreased steadily and reached a low in 1999. However, from then on, HIV infections have increased. The cumulative number of AIDS diagnoses was 9,380 (since 1981) and there had been a total of 6,372 deaths attributable to AIDS (table 9.28).

The reduced numbers of new AIDS diagnoses in recent years has been due to the decline in HIV incidence that took place in the mid-1980s, and the use, since around 1996, of effective combination antiretroviral therapy for the treatment of HIV infection. In Australia, approximately 50% of all people living with HIV infection are receiving antiretroviral treatment. However, the long-term effectiveness of antiretroviral treatment remains unknown, and if treatments begin to fail for a substantial proportion of people, then AIDS incidence could increase again.

Transmission of HIV in Australia continues to be mainly through sexual contact between men (77%). This was followed by transmission through heterosexual contact (11%) and injecting drug use (4.3%) (table 9.29). Mother-to-child transmission of HIV infection and transmission in a health care setting remain rare in Australia.

## 9.27 NATIONAL NOTIFIABLE DISEASE SURVEILLANCE SYSTEM REPORTS

Disease(d)	Notifications			Rate(a)		
	2001(b) no.	2002(b) no.	2003(c) no.	2001(b) %	2002(b) %	2003(c) %
<b>Blood-borne diseases</b>						
Hepatitis B (incident)	397	393	329	2.0	2.0	1.7
Hepatitis B (unspecified)	8 111	6 808	5 805	41.8	34.7	29.2
Hepatitis C (incident)	631	425	444	3.3	2.2	2.2
Hepatitis C (unspecified)	18 816	15 910	14 106	96.9	81.0	71.0
Hepatitis D	20	20	26	0.1	0.1	0.1
Hepatitis n.e.c.	2	—	—	—	—	—
<b>Gastrointestinal diseases</b>						
Botulism	2	—	1	—	—	—
Campylobacteriosis	15 668	1 4274	14 951	80.7	72.7	75.2
Cryptosporidiosis	1 535	3 235	1 185	7.9	16.5	6.0
Haemolytic uraemic syndrome	3	13	15	—	0.1	0.1
Hepatitis A	504	370	394	2.6	1.9	2.0
Hepatitis E	10	11	8	0.1	0.1	—
Listeriosis	59	57	68	0.3	0.3	0.3
Salmonellosis	6 726	7 617	6 759	34.6	38.8	34.0
Shigellosis	548	487	431	2.8	2.5	2.2
SLTEC, VTEC(e)	43	51	47	0.2	0.3	0.2
Typhoid	71	66	50	0.4	0.3	0.3
<b>Quarantinable diseases</b>						
Cholera	4	5	1	—	—	—
<b>Sexually transmissible diseases</b>						
Chlamydial infection	19 775	23 736	29 493	101.9	120.8	148.4
Donovanosis	28	14	14	0.1	0.1	0.1
Gonococcal infection	6 066	6147	6 426	31.2	31.3	32.3
Syphilis	1 125	1 936	1 986	5.8	9.9	10.0
<b>Vaccine preventable diseases</b>						
Diphtheria	1	—	—	—	—	—
Haemophilus influenza type b	20	29	19	0.1	0.1	0.1
Influenza	1 279	3 653	3 577	6.6	18.6	18.0
Measles	134	30	91	0.7	0.2	0.5
Mumps	110	68	75	0.6	0.3	0.4
Pertussis	8 673	5 320	4 686	44.7	27.1	23.6
Pneumococcal disease	1 584	2 247	2 126	8.2	11.4	10.7
Rubella	258	248	54	1.3	1.3	0.3
Tetanus	3	3	3	—	—	—

For footnotes see end of table.

...continued

## 9.27 NATIONAL NOTIFIABLE DISEASE SURVEILLANCE SYSTEM REPORTS — *continued*

Disease(d)	Notifications			Rate(a)		
	2001(b) no.	2002(b) no.	2003(c) no.	2001(b) %	2002(b) %	2003(c) %
<b>Vector-borne diseases</b>						
Arbovirus infection n.e.c.	33	20	77	0.2	0.1	0.4
Barmah Forest virus infection	1 110	890	1 357	5.7	4.5	6.8
Dengue	171	216	852	0.9	1.1	4.3
Kunjin virus	5	—	19	—	—	0.1
Malaria	680	455	598	3.5	2.3	3.0
Murray Valley encephalitis	5	2	—	—	—	—
Ross River virus infection	3 182	1 434	3 548	16.4	7.3	17.8
<b>Zoonoses</b>						
Brucellosis	19	39	17	0.1	0.2	0.1
Leptospirosis	227	153	122	1.2	0.8	0.6
Ornithosis	127	191	191	0.7	1.0	1.0
Q fever	637	745	526	3.3	3.8	2.6
<b>Other diseases</b>						
Legionellosis	294	311	317	1.5	1.6	1.6
Leprosy	3	5	4	—	—	—
Meningococcal infection	670	679	544	3.5	3.5	2.7
Tuberculosis	829	881	861	4.3	4.5	4.3
<b>Total</b>	<b>100 196</b>	<b>99 195</b>	<b>102 203</b>	<b>516.1</b>	<b>505.0</b>	<b>514.1</b>

(a) Rate per 100,000 population is calculated using the estimated resident population at the midpoint (30 June) of the relevant calendar year. (b) NNDSS data for 2001 and 2002 revised after consultations with states and territories. (c) Notifications data for the year 2003 were provisional at the date of analysis (9 August 2004). (d) Diseases reported to NNDSS from all jurisdictions except hepatitis B (unspecified) not reported from NT; incident hepatitis C not reported from Qld; campylobacteriosis not reported from NSW; donovanosis not reported from SA. Diseases under surveillance for which no notifications were received in the period 2001–2003 were CJD, small pox, tularemia, plague, rabies, viral haemorrhagic fever, yellow fever, poliomyelitis, Japanese encephalitis, anthrax, Australian bat lyssavirus, other lussavirus n.e.c. (e) SLTEC/VTEC is shiga-like toxins and verotoxin producing *E. coli* infections.

Source: DoHA 2004a.

## 9.28 NEWLY DIAGNOSED HIV CASES(a), AIDS CASES AND DEATHS FOLLOWING AIDS(b)

	Year of diagnosis(c)										
	Prior to 1995	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
HIV cases(a)	15 991	928	899	820	752	713	748	761	839	848	23 306
AIDS cases(b)	6 011	811	671	385	320	197	255	208	232	290	9 380
AIDS deaths(b)	4 248	654	515	245	156	128	134	100	88	104	6 372

(a) Not adjusted for multiple reporting. Total includes 7 cases for which the date of HIV diagnosis was not reported. (b) AIDS cases diagnosed and deaths following AIDS in 2001, 2002 and 2003 were adjusted for reporting delays; AIDS cases diagnosed and deaths following AIDS in previous years were assumed to be completely reported. (c) The number of HIV/AIDS diagnoses for each year may be revised over time due to late reports, updated information on exposure and testing history for reported cases, and removal of previously unrecognised duplicate diagnoses.

Source: AIHW 2004; National Centre in HIV Epidemiology and Clinical Research, 'HIV/AIDS, viral hepatitis and sexually transmissible infections in Australia Annual Surveillance Report 2004', National Centre in HIV Epidemiology and Clinical Research, The University of New South Wales, Sydney, NSW.

## 9.29 CHARACTERISTICS OF CASES OF NEWLY DIAGNOSED HIV INFECTION(a), Number of cases and proportion of total cases

	Units	Year of diagnosis(b)										Total(c)
		Prior to 1995	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Total cases	no.	15 991	928	899	820	752	713	748	761	839	848	23 306
Males	%	93.4	91.9	91.2	89.4	87.0	89.5	89.2	87.8	88.7	89.0	92.1
State/territory												
New South Wales	%	59.9	58.0	50.5	52.7	53.0	52.3	48.5	44.7	47.5	49.3	57.0
Victoria	%	20.5	17.7	20.2	22.0	18.6	19.5	25.1	27.2	25.9	24.0	21.0
Queensland	%	9.1	11.9	16.1	13.8	13.8	17.3	15.2	13.8	15.6	14.9	10.9
South Australia	%	3.5	3.3	5.1	4.3	4.7	3.1	3.1	5.7	3.6	5.2	3.7
Western Australia	%	4.9	6.4	6.3	4.9	6.8	5.6	6.2	6.4	5.2	5.4	5.2
Tasmania	%	0.4	0.6	0.3	—	0.4	0.4	—	0.7	0.6	—	0.4
Northern Territory	%	0.5	0.2	0.6	1.3	1.6	0.7	0.4	0.5	1.0	0.6	0.6
Australian Capital Territory	%	1.2	1.9	0.8	1.0	1.1	1.1	1.5	1.0	0.6	0.6	1.2
Exposure category(d)												
Male homosexual contact	%	81.2	74.0	75.2	72.9	65.4	65.4	68.4	66.5	71.1	74.0	77.3
Male homosexual contact and injecting drug use	%	3.9	5.3	4.2	4.8	4.8	6.3	3.3	5.1	4.0	4.2	4.2
Injecting drug use(e)	%	4.7	4.4	2.7	3.1	3.6	5.4	4.4	5.7	2.5	3.5	4.3
Heterosexual contact	%	6.6	15.1	16.8	18.1	25.1	21.9	23.4	22.1	22.1	18.0	11.2
Haemophilia/coagulation disorder	%	2.4	0.1	—	—	0.1	0.5	—	0.1	—	—	1.4
Receipt of blood/tissue	%	1.8	0.3	0.2	0.1	0.6	0.3	—	—	—	—	1.2
Mother with/at risk of HIV infection	%	0.2	0.8	0.9	0.9	0.4	0.2	0.4	0.4	0.3	0.3	0.4
Health care setting	%	0.1	0.1	—	—	—	—	—	—	0.1	—	0.1
Other/undetermined	%	19.6	7.5	9.5	9.0	7.8	9.1	8.2	7.4	10.0	9.6	16.4

(a) Not adjusted for multiple reporting. (b) The number of HIV/AIDS diagnoses for each year may be revised over time due to late reports, updated information on exposure and testing history for reported cases, and removal of previously unrecognised duplicate diagnoses. (c) Total includes 7 cases for which the date of HIV diagnosis was not reported. (d) The 'Other/undetermined' category was excluded from the calculation of the percentage of cases attributed to each HIV exposure category. (e) Excludes males who also reported a history of homosexual/bisexual contact.

Source: AIHW 2004; National Centre in HIV Epidemiology and Clinical Research, 'HIV/AIDS, viral hepatitis and sexually transmissible infections in Australia Annual Surveillance Report 2004', National Centre in HIV Epidemiology and Clinical Research, The University of New South Wales, Sydney, NSW.

### Children's immunisation

Immunisation programs for children are recognised as an effective public health intervention, and have been responsible for eradicating or minimising infectious diseases such as diphtheria, whooping cough and polio as major causes of death and disability in Australia.

The Australian Childhood Immunisation Register (ACIR), which commenced operation on 1 January 1996, aims to provide accurate and comprehensive information about immunisation coverage for all children under the age of seven. The register is administered by the Health Insurance Commission (HIC) on behalf of DoHA and is a key component of initiatives to improve the immunisation status of Australian children.

Immunisation coverage goals for Australia for the year 2000, recommended by the National Health and Medical Research Council (NHMRC), called for 90% or more coverage of children at two years of age, and near universal coverage of children at school-entry age, against diphtheria, tetanus, pertussis (whooping cough), poliomyelitis, measles, mumps, rubella and hib (haemophilus influenza type b).

ACIR data indicated, at 30 June 2004, 91% of one year olds, 92% of two year olds and 84% of six year olds were fully immunised according to the NHMRC Recommended Australian Standard Vaccination Schedule. State summaries by age group based on ACIR data are contained in the quarterly *Communicable Diseases Intelligence* bulletin, published on the HIC web site, <<http://www.hic.gov.au>>.

## Health care delivery and financing

*This section draws extensively on material provided by the Australian Government Department of Health and Ageing (September 2004).*

### Government role

Australia's health policy is funded and delivered by several levels of government, and is supported by private health insurance arrangements. Medicare, the national health insurance scheme, is funded and administered by the Australian (Commonwealth) Government and provides cover for a range of primary care services, including visits to medical practitioners. This is supported by optional private health insurance for ancillary services and private hospital treatments. The public hospital system is jointly funded by the Australian, and state and territory governments, and administered at the state/territory level.

Most non-hospital medical services, pharmaceuticals and health research receive funding directly or indirectly from the Australian Government. Public hospital services, and home and community care for aged and disabled persons are jointly funded by the Australian, state and territory governments. Residential facilities for aged persons are funded by a number of sources, including the Australian Government. Public health insurance is provided through Medicare, which is discussed in more detail later in this chapter.

The states and territories are primarily responsible for the delivery and management of public health services and the regulation of health care providers and private health facilities. They deliver public hospital services and a wide range of community and public health services. For example, some state and territory government funded organisations provide school dental care and dental care for low income earners, with other dental care being delivered in the private sector without government funding. Local governments within states deliver most environmental health programs.

Public hospitals, which provide the majority of acute care beds, are funded by the Australian, state and territory governments, in addition to receiving revenue from services to private patients. Large urban public hospitals provide most of the more complex types of hospital care such as intensive care, major surgery, organ transplants and renal dialysis, as well as

non-admitted patient care. Many public hospitals have their own pharmacies which provide medicines to admitted patients free-of-charge and do not attract direct Australian Government subsidies under the Pharmaceutical Benefits Scheme (PBS). The Australian Health Care Agreements provide for reforms to the pharmaceutical arrangements. Where a state or territory enters into a reform agreement with the Australian Government, under some circumstances pharmaceuticals provided to non-admitted and same-day patients may be charged to the PBS. This is discussed in more detail later in this chapter.

A small number of doctors and paramedical professionals are salaried employees of the various tiers of government. Many salaried specialist doctors in public hospitals are able to treat some private patients in hospital and usually contribute to the hospital a portion of the income earned from fees charged. Other doctors may contract with public hospitals to provide medical services.

### Private sector role

The private sector, operating in the delivery of, and insurance for, health services, receives both direct and indirect government subsidies. Within this sector, organisations operating for profit and not-for-profit play a significant role in providing health services, public health and health insurance. For example, privately owned nursing homes provide the majority of long-term aged care beds.

Separate non-admitted and day hospital facilities for admitted patient surgical procedures are mostly located in the private sector. This sector includes a large number of doctors and paramedical professionals who are self-employed, generally providing services such as general practice and specialist services, diagnostic imaging, pathology and physiotherapy.

Most prescribed pharmaceuticals dispensed by private sector pharmacies are directly subsidised by the Australian Government through the PBS. A component of the Australian health care system is private health insurance, which can cover part or all of the hospital charges to private patients directly, a portion of medical fees for services provided to private admitted patients in hospitals, paramedical services, some dental services and some aids such as spectacles. The Australian Government subsidises private health insurance premiums through a 30% rebate.

## National health care system

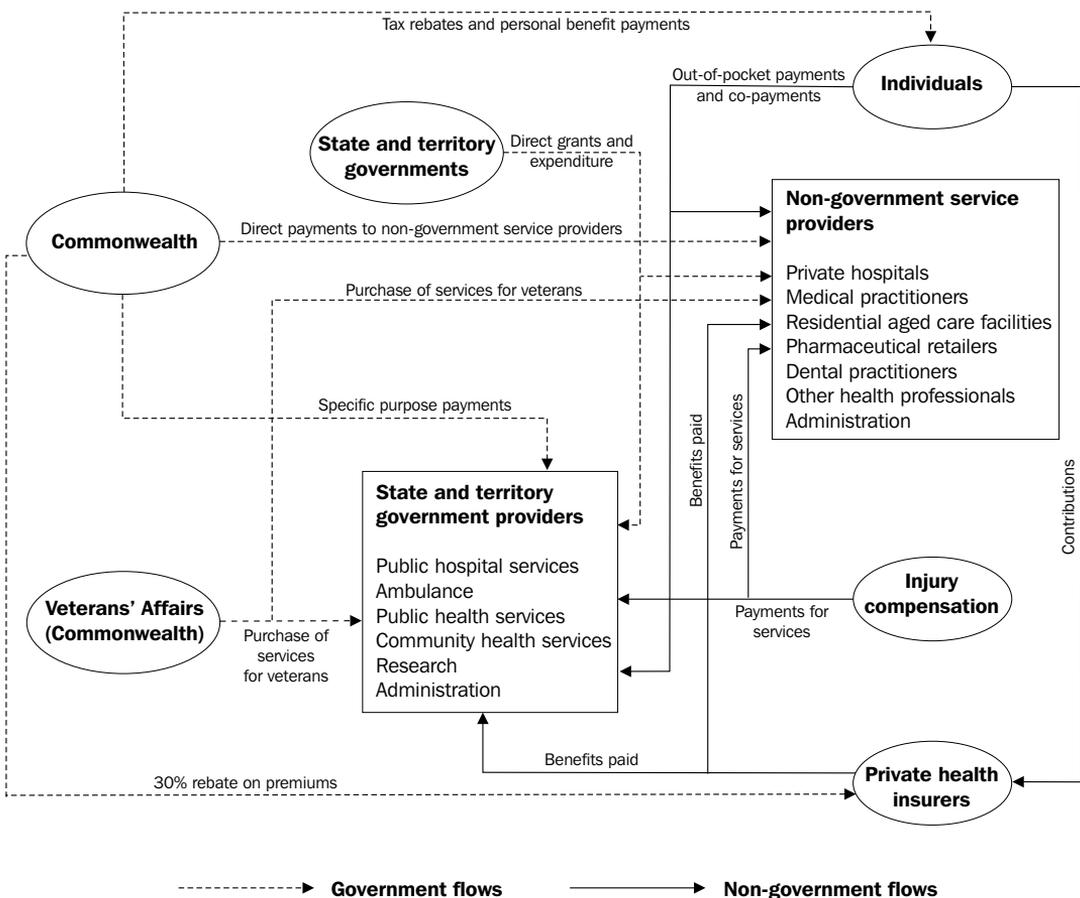
There are five major kinds of Australian Government health funding mechanisms:

- Grants to state and territory governments under the Australian Health Care Agreements to assist with the cost of providing public hospital services.
- Medical benefits, providing patients with rebates on fees paid to privately practising doctors, optometrists and other allied health practitioners.
- Pharmaceutical benefits, through the PBS, providing patients with access to a broad range of subsidised medicines.

- Health Program Grants to government and non-government service providers for a range of health services (e.g. radiation oncology (capital component), pathology and primary medical services). Health Program Grants are used to achieve health policy objectives such as improving access for specific population groups, influencing the growth and distribution of selected and potentially high cost services, or providing an alternative to fee-for-service arrangements, such as the Medicare and PBS.
- The 30% private health insurance rebate for private health insurance.

Diagram 9.30 shows the major flows of funding between the government and non-government sectors, and the providers of health goods and services.

**9.30 THE STRUCTURE OF THE AUSTRALIAN HEALTH CARE SYSTEM AND ITS MAJOR FLOW OF FUNDS**



Source: AIHW 2004f.

## Medicare levy

When Medicare began in 1984, the levy was introduced as a supplement to other taxation revenue to enable the Australian Government to meet the additional costs of the universal national health care system, which were greater than the costs of the more restricted systems that preceded it.

In 2003–04 revenue raised from the Medicare levy was 16.8% of total Australian Government health expenditure. The Australian Taxation Office estimated revenue from the Medicare levy to be \$5.45b in 2003–04.

## Pharmaceutical Benefits Scheme (PBS)

The Australian Government provides Medicare-eligible persons with affordable access to a wide range of necessary and cost effective prescription medicines through the PBS. The following details relate to charges and safety net levels applying at 1 January 2004.

Medicare-eligible patients who do not hold a Health Care Card, Pensioner Concession Card or Commonwealth Seniors Health Card, are required to pay up to the first \$23.70 for each prescription item for medicines listed on the PBS. Concessional patients who hold a concession card must pay \$3.80 per prescription item.

Individuals and families are protected from large overall expenses for PBS listed medicines by safety nets. For general patients (non-cardholders), once the eligible expenditure of a person and/or their immediate family exceeds \$726.80 within a calendar year, the additional payment the patient has to make per item (co-payment) decreases from \$23.70 to the concessional co-payment rate of \$3.80.

For concessional and pensioner patients (cardholders), once their total eligible expenditure exceeds \$197.60 within a calendar year, any further prescriptions are free for the remainder of that year. All pensioners continue to have their pensions supplemented by a pharmaceutical allowance of \$2.90 per week payable fortnightly, or \$150.80 per year, to help defray their out-of-pocket pharmaceutical expenses. The allowance is not paid to other concessional beneficiaries.

Patients may pay more than the relevant co-payment where there is more than one brand of the same drug or alternative product that

produces similar results. The Government subsidises on the basis of the lowest priced drug, and any difference in price due to brand or product premiums must be met by the patient. The premium cannot be counted towards the patient's safety net. There is always one brand of a drug available on the PBS that does not have a brand premium.

In 2003–04 the PBS had 165.4 million benefit prescriptions, representing a cost to the Australian Government of \$5,607.5m (table 9.31).

The number of PBS prescriptions per person in 2003–04 was 8.2, compared with 8.0 in 2002–03. The number of benefit prescriptions increased by 4.4% over the previous year, and the cost to Government of these prescriptions grew by 10.9% (in current dollars).

The rate of growth in prescription numbers and their cost reflects the ongoing trend towards newer and more costly medicines.

## Private health insurance

At 30 June 2004 private health insurance was offered by 41 registered health insurers, giving a voluntary option to all Australians for private funding of their hospital and ancillary health treatment. It supplements the Medicare system, which provides a tax-financed public system that is available to all Australians. Depending on the type of cover purchased, private health insurance provides cover against all or part of hospital theatre and accommodation costs in either a public or private hospital, medical costs in hospital, and costs associated with a range of services not covered under Medicare including private dental services, optical, chiropractic, home nursing, ambulance and natural therapies. Overall, the private health sector funds around a third of all health care in Australia.

## Health insurance coverage

The introduction of Medicare in 1984 resulted in Australians' participation in private health insurance steadily declining. The introduction of the Australian Government 30% rebate on private health insurance in 1999, and the Government's Lifetime Health Cover policy in 2000, saw participation in private hospital cover increase strongly, with participation rates rising from 31% in June 1999 to 46% in September 2000. Rates appear now to have stabilised with a participation rate of 43% as at June 2004 (graph 9.32).

### 9.31 PBS(a), Prescription volume and cost (current dollars)

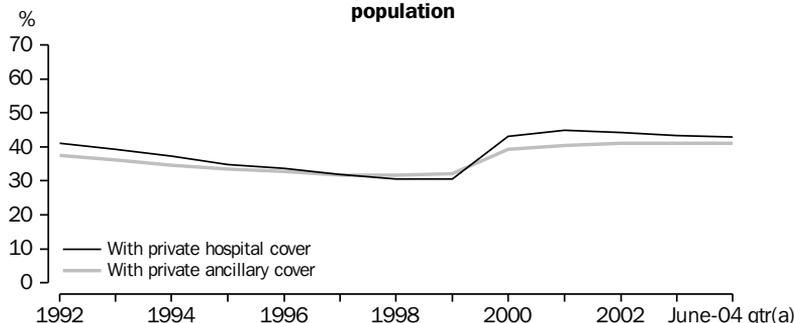
	Australian Government cost(a)	Script volume(b)	Average Government cost per script(b)	Average patient cost per script(b)(c)	Prescriptions per person(b)
	\$m	millions	\$	\$	no.
1999–2000	3 491.0	137.6	23.08	4.72	7.2
2000–01	4 257.5	147.6	25.81	5.02	7.7
2001–02	4 578.1	154.5	27.08	5.21	7.9
2002–03	5 054.7	158.5	28.84	5.40	8.0
2003–04	5 607.5	165.4	30.17	5.67	8.2

(a) PBS Government cost is reported on an accrual accounting basis. Categories included are expenditure for Section 85 drugs (Concessional and General), Emergency (Doctor's Bag), Highly Specialised Drugs, Section 100 drugs and issue costs of Safety Net cards. (b) All other information is sourced from the relevant Pharmaceutical Benefits Branch publications 'Expenditure and prescriptions twelve months to...' and is reported on a cash basis. The data only relates to Concessional and General categories. (c) Average Patient Cost per script is based on patient co-payments, however this does not include the cost of patient purchase of medicines that fall below the co-payment level.

Note: Totally excluded are payments for IVF Centre Hormones, Human Growth Hormones, Aboriginal Health Services, and prescription medicines subsidised by the Government under the Repatriation Pharmaceutical Benefits Scheme (RPBS) which is administered by the Department of Veterans' Affairs.

Source: DoHA 2004b; HIC.

### 9.32 PERSONS WITH PRIVATE HEALTH INSURANCE, Proportion of total population



(a) For the previous 3 months ending June 2004.

Source: Private Health Insurance Administration Council, 'Annual Statistics, 1992–03 and Quarterly Statistics, June 2004'.

## Funding of hospitals

Australian Government funding to the state and territory health systems is made through the Australian Health Care Agreements.

In 2003–04 total Australian Government funding under the Australian Health Care Agreements was around \$7.5b. Of this amount, over 99% was paid to the states and territories as Health Care Grants, while the residual was either allocated to national initiatives in areas of mental health, palliative care and casemix development, or paid to those states and territories which were eligible to receive financial assistance from the Pathways Home initiative.

## Public hospitals

In 2002–03 there were 748 public hospitals nationally, including 19 psychiatric hospitals, compared with 749 in 1998–99. There were an average of 52,200 beds in public hospitals during 2002–03 (table 9.33), representing 66% of all beds in the hospital sector (public and private hospitals combined). Public hospital beds have declined from 2.9 beds per 1,000 population in 1998–99 to 2.6 beds in 2002–03.

The number of patient separations (discharges, deaths, and transfers) from public hospitals during 2002–03 was just over 4 million compared with 3.9 million in 1998–99. Same-day separations accounted for 49% of total separations in 2002–03 compared with 45% in 1998–99.

Total days of hospitalisation for public health patients during 2002–03 amounted to 16.4 million, an increase of 0.9% since 1998–99. The average length of hospital stay per patient in 2002–03 was 4 days. For 1998–99 the corresponding figure was 4.2, reflecting the lower number of same-day patients compared with 2002–03. If same-day patients are excluded, the 2002–03 average length of stay was 6.9 days compared with 6.8 days in 1998–99.

### Private hospitals

There were 536 private hospitals in operation in 2002–03, comprising 271 acute hospitals, 25 psychiatric hospitals and 240 free-standing day hospital facilities. The number of acute and psychiatric hospitals has decreased from last year continuing the downward trend since 1998–99 when 312 of these hospitals were in operation. In contrast, day hospital facilities have shown strong growth for several years, with only 190 in operation in 1998–99.

For private acute and psychiatric hospitals during 2002–03, the average number of beds available was 24,454. Although this was a slight decrease on the previous year, between 1998–99 and 2002–03, the average number of beds available increased by 3%. There were 1.3 private hospital beds available per 1,000 population in 2002–03. The average number of beds or chairs available at free-standing

day hospital facilities (used mainly for short post-operative recovery periods) increased over the same five-year period by 31% to 1,910, reflecting the continued growth in the numbers of free-standing day hospitals.

Private hospital separations in 2002–03 totalled more than 2.6 million, of which 82% were from private acute and psychiatric hospitals and 18% from free-standing day hospital facilities. Same day separations accounted for 61% of all private hospital separations (compared with 49% of public hospital separations). This higher proportion of same day separations contributed to the lower average length of stay in private hospitals (2.8 days) compared with public hospitals (4.0 days) (table 9.33).

The average number of full-time equivalent staff employed at all private hospitals was 47,511, of whom 63% were nursing staff. Total operating expenditure for private acute and psychiatric hospitals during 2002–03 amounted to \$5,147m. Some 53% of this amount was spent on salaries and wages (including on-costs). Revenue received during the year was \$5,456m, of which 95.4% was received as payments from, or in respect of, patients. Total recurrent expenditure for free-standing day hospital facilities during 2002–03 amounted to \$254m, and revenue received during the year was \$301m.

### 9.33 PUBLIC AND PRIVATE HOSPITALS — 2002–03

	Units	Public(a)	Private(b)	Total
<b>Bed supply</b>				
Facilities	no.	748	536	1 284
Beds/chairs(c)	no.	52 200	(d)26 364	(d)78 564
<b>Activity</b>				
Total separations	'000	4 091	2 602	6 693
Same day separations	'000	2 000	1 576	3 576
Total patient days	'000	16 426	7 220	23 646
Average length of stay	days	4.0	2.8	3.5
Average length of stay excluding all same-day separations	days	6.9	5.5	6.4
Average occupancy rate	%	86.2	(e)75.6	(e)82.8
Non-admitted patient occasions of service	'000	40 786	(e)1 919	(e)42 705
Staff (full-time equivalent)(c)	'000	n.a.	48	n.a.
Revenue	\$m	n.a.	5 758	n.a.
Recurrent expenditure	\$m	(f)18 323	5 401	23 724

(a) Acute and psychiatric hospitals. (b) Acute and psychiatric hospitals and free-standing day hospital facilities. (c) Annual average.

(d) Including beds, chairs, recliners at free-standing day hospital facilities. (e) Excluding free-standing day hospital facilities.

(f) Excluding depreciation.

Source: *Private Hospitals, Australia, 2002–03* (4390.0); AIHW 2004e.

## Health work force

In 2003–04 approximately 384,000 people were employed in health occupations in Australia, comprising 4.0% of the total number of employed persons (table 9.34). The largest components of the health work force were registered nurses (168,500), generalist medical practitioners (35,100) and enrolled nurses (26,600).

Females comprised 74% of the health work force. The high proportion of females in the health work force is due to their predominance in registered midwifery (99.5%), enrolled nursing (91%), registered nursing (93%) and physiotherapy (65%). Conversely, males represented 81% of the ambulance officers and paramedics, 78% specialist medical practitioners and 66% generalist medical practitioners.

Over a third (38%) of the health work force were employed on a part-time basis, compared with 29% of the total number of employed persons in Australia. Of people employed part-time in the health workforce, 90% were female, a higher proportion than the total part-time work force (71%). Males constituted 10% of the part-time health work force compared with 29% for the total part-time work force. The higher proportion of part-time workers in the health sector is a reflection of the greater number of females in the health work force, who are more likely to work part-time.

## Household expenditure on health and medical care

Average household expenditure on health and medical care increased steadily between 1984 and 1998–99. As a proportion of total household expenditure on goods and services, health and medical care increased from 3.9% in 1984 to 4.7% in 1998–99.

The Household Expenditure Survey (HES) provides estimates of expenditure on medical care and health by households across Australia. Expenditure is net of any refunds and rebates received from Medicare, private health insurance companies and employers. The ABS has undertaken the HES at five-yearly intervals since 1984. Average expenditure in this survey is calculated across all households, not just those households that spent money on specific goods or services.

Expenditure on accident and health insurance accounted for the largest percentage of total expenditure on health and medical care in each of the survey periods. However, this percentage was lower in 1998–99 compared with 1993–94 (41% to 50%) possibly reflecting the decrease in hospital, medical and dental insurance from 44% of total health expenditure in 1993–94 to 35% in 1998–99.

**9.34 EMPLOYED PERSONS IN HEALTH OCCUPATIONS(a) — 2003–04**

	'000	% males	% part-time workers
<i>Health professionals(b)</i>	331.8	25.1	37.7
Generalist medical practitioners	35.1	66.2	18.5
Specialist medical practitioners	19.2	77.7	13.3
Registered nurses	168.5	7.3	47.4
Registered midwives	11.1	0.5	58.0
Physiotherapists	10.8	34.9	39.1
Other health professionals(b)	87.1	33.1	29.5
<i>Health associate professionals</i>	52.2	33.5	40.7
Enrolled nurses	26.6	8.8	49.0
Ambulance officers and paramedics	11.4	81.2	4.7
Aboriginal and Torres Strait Islander health workers	0.8	58.4	37.5
Other health associate professionals	13.4	40.5	55.0
<b>Total employed in health occupations(c)</b>	<b>384.0</b>	<b>26.2</b>	<b>38.1</b>
Total employed	9 528.0	55.5	28.6

(a) Annual average of quarterly data. (b) Includes health service managers; excludes veterinarians. (c) Includes health professionals, health service managers, health associate professionals.

Source: ABS data available on request, Labour Force Survey.

While the proportion of household health expenditure spent on health practitioners' fees has been similar in each survey since 1984, expenditures on individual items have varied. In particular, general practitioner doctors' fees were higher at 3.8% of total health expenditure in 1984 compared with 2.4% in 1998–99, while specialist doctors' fees were lower at 3.9% compared with 7.8% in 1998–99.

The proportion of total health expenditure spent on medicines, pharmaceutical products and therapeutic appliances increased from 20% in 1984 to 25% in 1998–99.

## Total health expenditure

Health expenditure in Australia includes expenditure funded by the Australian, state and territory governments, by private health insurance and by individuals and households. Total expenditure on health in 2002–03 was \$72.2b compared with expenditure of \$66.5b in the previous year (table 9.35). This represented an average rate of health expenditure in 2002–03 of \$3,652 per person. In 2002–03 governments combined provided almost two-thirds (68%) of the total funding for health expenditure. Health expenditure in volume terms, that is after adjustment for changes in prices, grew at an average annual rate of 4.5% between 1992–93 and 2002–03. In 2002–03 total health expenditure as a proportion of gross domestic product was 9.5% compared with 8.9% in 1992–93.

### 9.35 TOTAL HEALTH EXPENDITURE AND RATE OF GROWTH

	Expenditure		Rate of growth	
	Current prices(a)	Chain volume measures(b)	Current prices	Chain volume measures(b)
	\$m	\$m	%	%
1992–93	35 098	44 764	n.a.	n.a.
1993–94	36 990	46 080	5.4	2.9
1994–95	39 216	47 733	6.0	3.6
1995–96	42 082	49 688	7.3	4.1
1996–97	45 296	52 182	7.6	5.0
1997–98	48 274	54 131	6.6	3.7
1998–99	51 726	56 785	7.2	4.9
1999–2000	55 427	59 435	7.2	4.7
2000–01	61 660	63 812	11.2	7.4
2001–02	66 541	66 541	7.9	4.3
2002–03(c)	72 183	69 306	8.5	4.2

(a) Comprises allocated recurrent expenditure, unallocated recurrent expenditure, capital expenditure/outlays and capital consumption. (b) Reference year is 2001–02. (c) Preliminary estimates.

Source: AIHW 2004f.

## Web sites for further information

This section provides an alphabetic listing of web sites where additional information on health topics, and organisations involved in health-related activities can be obtained.

Arthritis Australia

<<http://www.arthritisfoundation.com.au>>

- different types of arthritis
- available treatments
- research grants
- programs and publications

Asthma Australia

<<http://www.asthmaaustralia.org.au>>

- links to state and territory branches
- information, resources, support and advice for asthma sufferers and their carers

Australian Childhood Immunisation Register (ACIR)

<[http://www.hic.gov.au/yourhealth/our\\_services/acir.htm](http://www.hic.gov.au/yourhealth/our_services/acir.htm)>

- general information for parents about immunisation
- information for parents on the (ACIR)

Australian Government Department of Health and Ageing <<http://www.health.gov.au>>

- government policies pertaining to health and ageing
- information on some current health issues or health warnings
- communicable diseases intelligence reports

Australian Indigenous HealthInfoNet

<<http://www.healthinfonet.ecu.edu.au>>

- Indigenous health, population and distribution, cultural, social and physical environments
- policies and programs
- HealthInfoNet peer reviewed electronic journal
- conferences and courses

Australian Institute of Health and Welfare

<<http://www.aihw.gov.au>>

- information and statistics on health and welfare issues
- interactive data such as hospital morbidity, cancer registry and other data which can be analysed online

Australian Kidney Foundation

<<http://www.kidney.org.au>>

- information packs, newsletters, guidelines for patients, potential donors, medical practitioners, school students and the general community
- information on scholarships and grants.

Australian Red Cross

<<http://www.redcross.org.au>>

- current humanitarian appeals
- donating blood
- disaster appeals
- first aid tips and courses
- financial donations

The Australasian Cochrane Centre

<<http://www.cochrane.org.au>>

- reviews on various treatments and health programs

Cancer Council Australia

<<http://www.cancer.org.au>>

- fund raising events, cancer prevention, publications and media releases
- volunteering and donating

Cardiac Society of Australia and New Zealand

<<http://www.csanz.edu.au>>

- information for cardiac specialists and other health professionals
- practice guidelines
- competence and training
- meetings and conferences

Consumers' Health Forum of Australia

<<http://www.chf.org.au>>

- information on consumer rights
- current and back issues of 'Health update'
- media releases and other information
- membership

Diabetes Australia

<<http://www.diabetesaustralia.com.au>>

- information on subsidised products, publications, fundraising and awareness raising events and campaigns
- information and facts sheets for people with diabetes, health professionals, and researchers

- also contains information in other languages

HealthInsite <<http://www.healthinsite.gov.au>>

- up-to-date and quality assessed information on important health topics such as diabetes, cancer, mental health and asthma

Heart Support — Australia  
<<http://www.heartnet.org.au>>

- information for patients and their families
- a discussion forum
- up and coming events
- virtual library
- membership

International Agency for Research on Cancer  
<<http://www.iarc.fr>>

- research information
- training courses
- fellowships
- cancer databases

Mental Health Council of Australia  
<<http://www.mhca.com.au>>

- information for the non-government sector
- submissions to various inquiries
- reports and publications
- events and helplines

National Asthma Council  
<<http://www.asthma.org.au>>

- information on national asthma strategies
- asthma information for health professionals and consumers
- information on donations and volunteering

National Breast Cancer Centre  
<<http://www.nbcc.org.au>>

- information on breast cancer, risk factors, early detection, support groups, consumer issues, ovarian cancer program

National Cancer Control Initiative  
<<http://www.ncci.org.au>>

- information on current and completed projects
- publications on medical practice, etc.

National Health and Medical Research Council  
<<http://www.nhmrc.gov.au>>

- Information on councils and committees

- health advice on priority areas
- applying for funding
- ethical issues
- embryo research
- research reports, publications and evaluations

National Heart Foundation of Australia  
<<http://www.heartfoundation.com.au>>

- information for health professionals, schools and the media as well as the general population
- health promotion activities
- research grants and local government awards
- statistics

- information on gifts and products
- information on donations

National Institute of Clinical Studies  
<<http://www.nicsl.com.au>>

- the goals of the National Institute of Clinical Studies
- International Collaborative Evaluation Forum

National Stroke Foundation  
<<http://www.strokefoundation.com.au>>

- statistical facts about stroke
- campaigns and awards
- information on donations

Osteoporosis Australia  
<<http://www.osteoporosis.org.au>>

- osteoporosis risk test
- prevention and treatment
- information for health professionals
- information on donations

Royal Flying Doctor Service of Australia  
<<http://www.flyingdoctor.net>>

- annual reports
- flying doctor stories
- information on donations

World Health Organization <<http://www.who.int>>

- information on current international health issues
- the 'Bulletin of the World Health Organisation'
- other journals and reports can also be downloaded

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*Causes of Death, Australia* (3303.0)

*Deaths, Australia* (3302.0)

*Deaths from External Causes, Australia, 2004* (3320.0)

*Household Expenditure Survey, Australia: Detailed Expenditure Items, 1998–99* (6535.0)

*National Aboriginal and Torres Strait Islander Survey, 2002* (4714.0)

*National Health Survey: Aboriginal and Torres Strait Islander Results, Australia, 2001* (4715.0)

*National Health Survey: Injuries, Australia, 2001* (4384.0)

*National Health Survey: Mental Health, Australia, 2003* (4811.0)

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### Other publications

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2000, *The mental health of young people in Australia*, DHAC, Canberra

2004a, National Notifiable Disease Surveillance System, last viewed October 2004, <<http://www.health.gov.au/cda/source/CDA-index.cfm>>

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## EDUCATION AND TRAINING

At the broadest level, education and training can be thought of as the lifetime process of obtaining knowledge, attitudes, skills, and socially valued qualities of character and behaviour. In this sense, education is initiated at birth, encouraged early by social interaction and specific learning aids, developed in schooling and other formal pathways of learning, and continued throughout adult life. Education can occur within a variety of environments, some more formal than others.

Formal learning has traditionally taken place within three major sectors: schools, vocational education and training, and higher education. Typically this is characterised by delivery that is systematic, planned and organised ahead of time, and which usually involves some evaluation of achievement. However, in recent years the boundaries between these sectors have become less distinct. Many other kinds of structured learning can take place outside formal institutions and can continue after a person has completed schooling or gained trade or higher qualifications. For instance, structured learning might be undertaken in the workplace, in order to acquire, develop or upgrade work-related skills.

At the other end of the spectrum is non-formal education, which is intentional, but is delivered in an informal and unstructured way, on an ad hoc basis. It does not necessarily involve any student-teacher relationship nor evaluation of achievement. Non-formal education includes on-the-job training and self-directed learning.

Core measures of educational activity in Australia currently focus on participation (the process of education), attainment and other outcomes (the outputs) and educational resources (the inputs). The structure of this chapter reflects these core measures. After a brief discussion of government responsibilities in education, the chapter describes the hierarchy of participation from preschool through to higher education. It then examines educational demand and attainment, and concludes with information on sources of educational funding.

The chapter concludes with an article, *Paying for university education*, which examines the three main sources of funding for higher education and, in particular, the role of the Higher Education Contribution Scheme (HECS) and its impact on students.

## Government responsibilities in education

State and territory governments have the responsibility for most education and training, including the administration and substantial funding of primary and secondary education, as well as the administration and major funding of vocational education and training (VET).

The Australian (Commonwealth) Government has special responsibilities in education and training for Aboriginal and Torres Strait Islander peoples, migrants, international partnerships in education, and assistance for students. It is also principally responsible for the funding of higher education institutions and provides supplementary funding for schools and for VET.

The Australian Government provides special grants to the states and territories for areas of particular need. The Government is also involved in promoting national consistency and coherence in the provision of education and training across Australia.

Government responsibilities in education and training extend beyond funding. Among these responsibilities are the requirement to monitor the distribution of the funding, gather information on outcomes, make projections of future usage of education services, assess sector performance against international criteria, assist in managing the availability of skills for the Australian workforce and report on such activities.

## Early childhood education

The majority of formal early childhood education programs are currently focused on preschool education, but a growing amount of effort and resources is being directed towards programs that target children aged from 6 months to 3–4 years. A number of studies at the domestic and international level have noted the lower educational assets of older children who did not participate in some formal early childhood program. Coupled with other research that indicates that all children are at the peak of their learning potential from ages 1–3, this has prompted various educational providers to introduce formal programs to maximise the uptake of basic skills in their 1–3 year-old age cohorts. Such programs are generally available in child care or family day care centres. Currently, statistical information on such schemes is either irregular or not comparable.

## Preschool students

Preschool generally refers to education that is provided for children in the year prior to the first year of full-time primary school. It is largely sessional and operates only during school terms for children three years of age to school starting age. Preschools may be operated by government, community organisations or the private sector. Preschool programs may also be provided in long-day child care centres.

Data about preschool participation are obtained from the triennial Australian Bureau of Statistics (ABS) Child Care Survey. Prior to the 2002 survey there was some undercounting of the number of children attending preschool in this survey. Reasons for this included differences in terminology and starting ages of preschool between states and territories. Some changes in the 2002 survey resulted in improved estimates of preschool attendance.

Data on Indigenous preschool students are from the National Indigenous Preschool Census (NIPC) which is conducted annually by the Australian Government Department of Education, Science and Training. The scope of the NIPC is 3–5 year olds attending preschools which have been identified as registered providers and have a preschool educational program. The purpose of the NIPC is to allocate Australian Government funding to preschools for Indigenous students.

The two data sources (ABS Child Care Survey and NIPC) are not directly comparable due to differences in scope and collection methodology. The most obvious difference is in the scope, where the Child Care Survey includes preschool programs in child care centres, while the NIPC is restricted to enrolments at registered preschools.

## Attendance

There is no national policy on the provision of preschool education, the responsibility for this resting with individual states and territories. The age at which children may attend preschool varies, reflecting the different school commencement ages in each jurisdiction.

In 2002, 239,100 children were attending preschool, with 4 year olds (148,000) representing 62% of the total. The four year olds attending preschool amounted to almost 59% of all four year olds. At the same time only 17% of five year olds attended preschool (reflecting the entry of the majority of 5 year olds into primary school).

Table 10.1 shows that the proportion of four year olds attending preschool has fluctuated somewhat between 1993 and 2002, while the proportion attending long-day child care centres has increased steadily (from 12% in 1993 to 25% in 2002).

### 10.1 PARTICIPATION OF FOUR YEAR OLDS

	Units	June 1993	March 1996	June 1999	June 2002
Attended preschool(a)	%	56.6	45.9	49.2	59.0
Utilised long-day care(a)	%	11.8	14.0	21.7	25.1
<b>All four year olds</b>	<b>'000</b>	<b>255.3</b>	<b>257.9</b>	<b>262.4</b>	<b>250.9</b>

(a) Some children will be included in both preschool and long-day care estimates.

Source: *Child Care, Australia (4402.0)*.

### Indigenous preschool students

In 2003, 9,051 Indigenous children were enrolled in government and non-government preschools, representing 4.3% of total preschool enrolments, as counted by the NIPC. Of these enrolments 30% were in New South Wales. Table 10.2 contains data for Indigenous preschool enrolments from 2001 to 2003. Between 2002 and 2003, the number of Indigenous children enrolled in preschools increased across all states and territories except Western Australia and the Australian Capital Territory.

### 10.2 INDIGENOUS PRESCHOOL ENROLMENTS

	2001	2002	2003
New South Wales	2 437	2 676	2 709
Victoria	519	530	559
Queensland	793	863	896
South Australia	952	1 035	1 114
Western Australia	1 149	1 875	1 834
Tasmania	271	249	331
Northern Territory	1 235	1 420	1 535
Australian Capital Territory	78	83	73
<b>Total Indigenous enrolments</b>	<b>7 434</b>	<b>8 731</b>	<b>9 051</b>
Total non-Indigenous enrolments	200 227	216 793	211 627

Source: *Department of Education, Science and Training, 'National Indigenous Preschool Census'*.

## Primary and secondary education

### School attendance

School attendance is compulsory throughout Australia between the ages of 6–15 years (16 years in South Australia and Tasmania). Most children start primary school at around five years of age. The final two years of secondary schooling generally fall outside the compulsory stage of education. Despite this, just under 88% of the cohort of students who entered secondary school in 1998 or 1999 (depending on the state or territory of schooling) continued on to Year 11 in 2002, and 75% continued to Year 12 in 2003.

Although each state and territory has developed its own approach to schooling, moves are underway across Australia to standardise core education curriculum modules (such as Mathematics, Science and English) and age of commencement of students. Queensland, which is currently trialling the provision of Pre-year 1 school education, is expected to extend this across the whole state within the next 3–4 years. The expectation is that these changes will then ensure all Australian children have access to 13 years of schooling, on a comparable basis, transferable anywhere in Australia.

Primary schooling in most states and territories begins with a preparatory or kindergarten year, followed by six or seven primary grades. Secondary schooling then involves a further six or five years to complete a full course of school study.

Changes in school commencement ages in Western Australia in 2001 resulted in a smaller than usual cohort in Pre-year 1 (called Pre-primary in Western Australia) in 2002 and Year 1 in 2003. This smaller group is expected to continue on to Year 2 in 2004 and finally leave the school system in Year 12 in 2014.

### School organisation and operation

Primary schooling provides a general elementary program lasting for seven or eight years until Year 6 or Year 7. Students enter secondary schools at Year 7 in some state (or territory) systems and at Year 8 in others. Primary and secondary schools are usually separate institutions, but in some areas there are central, combined or area schools which provide both levels of schooling. In Tasmania and

the Australian Capital Territory, the final two years of government schooling are undertaken at separate secondary colleges.

Generally, schools in Australia have a considerable degree of autonomy. Most states and territories have established regional administrations which are responsible for matters such as planning school buildings and deploying staff, while a central curriculum unit provides general guidelines on course planning. Typically, individual schools determine teaching and learning approaches within the given guidelines and offer various course options. The assessment of students varies across states and territories, some having a completely school-based assessment system, while others combine school-based assessment with external examinations.

### **Primary schooling**

In early primary education, the main emphasis is on the development of basic language and literacy skills, simple arithmetic, moral and social education, health training and some creative activities.

In the upper primary years the focus is on development of the skills learned in earlier years. English, mathematics, social studies, science, music appreciation, art and craft, physical education and health are studied. There are also optional subjects such as religious instruction, foreign and community languages, and specific music courses.

### **Secondary schooling**

In some systems the first one or two years of secondary school consist of a general program which is undertaken by all students, although there may be some electives. In later years, a basic core of subjects is retained, with students able to select additional optional subjects. In other systems, students select options from the beginning of secondary school.

In senior secondary years, a wider range of options is available in the larger schools and there is an increasing trend towards encouraging individual schools to develop courses suited to the needs and interests of their students, subject to accreditation and moderation procedures. There is also an increasing emphasis on the incorporation of vocational programs into the senior secondary curriculum. School students may obtain certificates and undertake New

Apprenticeships in the VET sector as part of their senior school study and undertake some parts of their programs in the workplace.

Students reaching the minimum school leaving age may leave school and seek employment, or enrol in a vocational course with a VET institution, such as a technical and further education (TAFE) institution or a private business college. For many VET courses, completion of Year 10 of secondary school is a minimum entry requirement. For those continuing to the end of secondary school (Year 12), opportunities for further study are available at higher education institutions, VET institutions and other educational institutions. For students continuing to higher education, eligibility to undertake university courses is almost always based on completion (at a satisfactory level) of a senior secondary school certificate.

### **Other schooling arrangements**

Children may be exempted from the requirement of compulsory attendance at a school if they live too far from a school or have a disability. These children receive tuition through a variety of educational delivery mechanisms, including distance education, School of the Air, and use of computer and facsimile technologies.

Children of some Indigenous groups in remote areas of the Northern Territory, who live in small decentralised communities, receive schooling mainly in Homeland Learning Centres or Catholic Indigenous schools. They are taught by Indigenous teaching assistants supported by visiting teachers from established schools.

Boarding facilities are available at some non-government schools, mainly in the larger towns and cities. A small number of government schools, in particular those catering for groups such as Indigenous people, have residential hostels located close by.

Children may receive tuition at home, but they must have applied to their state or territory Department of Education for permission. They must be enrolled as a student at a day school and be available when required for assessment against the regular school year curriculum.

Special education is provided by government and non-government authorities in special classes or units in regular schools, by withdrawal from regular classes for periods of intensive assistance by special staff, or in specialist schools. In all states and territories, and particularly in New South Wales, Queensland and Victoria, parents have

formed voluntary organisations to establish additional schools catering for their children's special needs. The Australian Government provides funds to states and territories, non-government authorities and community groups to assist in the provision of services and upgrading of special education facilities.

### Schools, students, and teaching staff

There were 9,607 schools operating in Australia at the time of the 2003 schools census (August 2003) of which 72% were government schools. There were 154,872 full-time, plus full-time equivalent

(FTE) of part-time, teaching staff employed in government schools (67% of all teachers) and a further 74,704 employed in non-government schools (table 10.3).

In August 2003, 3.3 million students (FTE) were attending primary and secondary schools, comprising 2.3 million (68%) in government schools and 1.1 million (32%) in non-government schools. Between 1998 and 2003 the number of students (FTE) attending government schools increased by 15,300 (0.7%), while the number of students attending non-government schools increased by 105,400 (11.0%) (table 10.4).

#### 10.3 SCHOOLS, STUDENTS AND TEACHING STAFF — August 2003

	Government schools %	Non-government schools			All schools '000
		Catholic %	Independent %	Total %	
Schools	72.1	17.7	10.2	27.9	9.6
Students (FTE)(a)					
Males	68.5	19.5	12.0	31.5	1 696.0
Females	67.5	20.2	12.3	32.5	1 634.3
Persons	68.0	19.8	12.1	32.0	3 330.3
Teaching staff (FTE)(b)					
Males	65.7	17.9	16.4	34.3	74.9
Females	68.3	18.8	12.9	31.7	154.7
Persons	67.5	18.5	14.0	32.5	229.6

(a) Full-time students plus full-time equivalent of part-time students. (b) Full-time teaching staff plus full-time equivalent of part-time teaching staff.

Source: ABS data available on request, National Schools Statistics Collection, 2003.

#### 10.4 STUDENTS(a), By category of school — August

	1998 '000	1999 '000	2000 '000	2001 '000	2002 '000	2003 '000
Government schools						
Males	1 149.2	1 153.1	1 154.8	1 156.9	1 163.4	1 161.9
Females	1 100.5	1 105.9	1 105.6	1 103.0	1 105.4	1 103.1
Persons	2 249.7	2 259.0	2 260.3	2 259.9	2 268.8	2 265.0
Non-government schools						
Males	482.8	492.2	501.7	512.2	524.7	534.1
Females	477.2	487.8	498.4	508.9	521.4	531.3
Persons	960.0	979.9	1 000.1	1 021.1	1 046.2	1 065.4
All schools						
Males	1 632.0	1 645.3	1 656.5	1 669.0	1 688.1	1 696.0
Females	1 577.7	1 593.7	1 604.0	1 611.9	1 626.8	1 634.3
Persons	<b>3 209.7</b>	<b>3 238.9</b>	<b>3 260.5</b>	<b>3 280.9</b>	<b>3 314.9</b>	<b>3 330.3</b>

(a) Full-time equivalent students.

Source: ABS data available on request, National Schools Statistics Collection, 2003.

Table 10.5 shows the percentage of school students (FTE) in 2003 by level of education. Among primary school students, 71.7% attended government schools and 28.3% attended non-government schools. For the secondary school students, 62.9% attended government schools and 37.1% attended non-government schools. Approximately a fifth of all school students attended Catholic schools (18.9% of primary school students and 21.1% of secondary school students).

Graph 10.6 shows student/teacher ratios by category of school by level, in 1993 and 2003. These ratios represent the number of (FTE) students divided by (FTE) teaching staff. The most significant reduction in these ratios between 1993

and 2003 was an almost 2 percentage point decrease for primary schools – down from 18.5 students per teacher in 1993 to 16.6 in 2003. Among secondary schools, both the Catholic and Independent schools showed decreases (from 13.8 to 13.1, and 12.3 to 11.1 respectively). Government secondary schools reported a small increase from 12.3 to 12.5 students per teacher over the same period. Non-government schools had a higher student/teacher ratio than government schools in 1993 (16.0 and 15.3 respectively). In 2003 the student/teacher ratio for non-government schools was lower than for government schools (14.3 and 14.6 respectively). Both school systems showed decreases in their student/teacher ratios between 1993 and 2003.

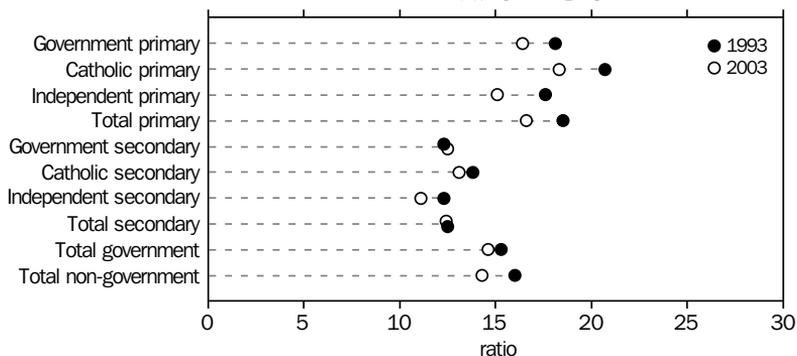
### 10.5 STUDENTS(a), By level/year of education — August 2003

	Government schools %	Non-government schools			All schools		
		Catholic %	Independent %	Total %	Males %	Females %	Persons '000
<b>Primary</b>							
Pre-year 1(b)	71.1	20.0	8.9	28.9	51.6	48.4	214.7
Year 1	71.3	19.6	9.2	28.7	51.3	48.7	253.5
Year 2	71.9	19.4	8.7	28.1	51.2	48.8	264.2
Year 3	71.9	19.1	8.9	28.1	51.2	48.8	268.9
Year 4	71.9	19.1	9.0	28.1	51.2	48.8	268.5
Year 5	71.4	19.0	9.6	28.6	51.1	48.9	270.7
Year 6	71.1	18.8	10.2	28.9	51.2	48.8	269.0
Year 7 (Qld, SA, WA, NT)	72.4	15.8	11.9	27.6	51.0	49.0	103.9
Ungraded	87.7	1.5	10.8	12.3	66.5	33.5	17.2
<b>Total</b>	<b>71.7</b>	<b>18.9</b>	<b>9.4</b>	<b>28.3</b>	<b>51.4</b>	<b>48.6</b>	<b>1 930.6</b>
<b>Secondary</b>							
Year 7 (NSW, Vic., Tas., ACT)	61.7	23.3	14.9	38.3	51.1	48.9	166.2
Year 8	62.9	21.5	15.6	37.1	51.1	48.9	266.9
Year 9	63.2	21.2	15.6	36.8	50.9	49.1	262.7
Year 10	63.0	21.0	16.0	37.0	50.6	49.4	254.3
Year 11	62.6	20.5	16.9	37.4	49.2	50.8	229.2
Year 12	61.1	21.5	17.4	38.9	47.5	52.5	199.3
Ungraded	88.7	3.1	8.2	11.3	61.3	38.7	21.2
<b>Total</b>	<b>62.9</b>	<b>21.1</b>	<b>16.0</b>	<b>37.1</b>	<b>50.3</b>	<b>49.7</b>	<b>1 399.7</b>
<b>All students</b>	<b>68.0</b>	<b>19.8</b>	<b>12.1</b>	<b>32.0</b>	<b>50.9</b>	<b>49.1</b>	<b>3 330.3</b>

(a) Full-time equivalent students. (b) Pre-year 1 now includes a small number of Qld students engaged in a trial of Pre-year 1 education.

Source: ABS data available on request, National Schools Statistics Collection, 2003.

### 10.6 STUDENTS TO TEACHING STAFF(a), By category of school



(a) Number of students (FTE) divided by the number of teaching (FTE) staff.

Note: This graph should not be used as a measure of class size.

Source: ABS data available on request, National Schools Statistics Collection.

### Apparent retention rates

Apparent retention rates are important measures of the performance of education systems and related government policies. The apparent retention rate is an estimate of the percentage of students of a given cohort who continued to a particular level or year of education. For instance, in 2003 the apparent retention rate of full-time secondary school students from Year 7/8 to Year 12 was 75.4%. As in previous years, the 2003 apparent retention rate for female students (80.7%) was higher than the corresponding rate for male students (70.3%).

Table 10.7 shows apparent retention rates from Year 10 to Year 12 rather than from the commencement of secondary schooling, where

attendance due to age requirements is generally compulsory. Retention rates have been calculated for full-time students, and for all students.

The apparent retention rate in 2003 of all students from Year 10 to Year 12 was 3.1 percentage points higher than the 1998 rate.

Care should be taken in interpreting apparent retention rates as the method of calculation does not take into account a range of factors. These include students who repeat a year of education, migration and other net changes to the school population.

### 10.7 APPARENT RETENTION RATES, From Year 10 to Year 12

	1998	1999	2000	2001	2002	2003
	%	%	%	%	%	%
Full-time students						
Males	68.9	68.9	69.0	70.8	72.4	72.3
Females	79.4	79.9	80.0	80.1	81.7	81.6
Persons	74.1	74.4	74.4	75.4	77.0	76.9
Total students(a)						
Males	71.8	71.9	72.1	73.9	75.7	75.1
Females	83.6	84.5	84.7	84.9	86.9	86.4
Persons	77.6	78.1	78.3	79.4	81.3	80.7

(a) Includes part-time students.

Source: ABS data available on request, National Schools Statistics Collection, 2003.

## Indigenous school students

In August 2003 there were 84,149 full-time equivalent (FTE) Indigenous students attending primary schools and a further 42,247 (FTE) Indigenous students attending secondary schools (table 10.8).

Most Indigenous students (88%) attended government schools in 2003. Of the remainder attending non-government schools, most were attending Catholic schools (65%). The increase in ungraded students between primary and secondary education is mostly attributable to the classification of secondary-age students in Northern Territory remote Homeland Learning Centres as ungraded. This is due to the difficulty of classifying such students in terms of the normal secondary grade structure.

Graph 10.9 shows a decline in numbers of Indigenous school students at secondary school level, after Year 7. This decline is most marked in government schools and is due to a number of factors, such as declining retention, movement of students to non-government schools and to the difficulty in allocating a specific grade for some students. The number of Indigenous students attending non-government schools remained

relatively stable across the early grades, followed by a slight increase in Year 8 students, then a moderate drop-off until Year 12.

Table 10.10 shows an increase in (FTE) Indigenous students attending school between 1998 and 2003, from 102,488 to 126,396 students. New South Wales and Queensland experienced the largest increases in (FTE) Indigenous school student numbers, by 8,041 and 7,360 respectively. The number of (FTE) Indigenous students attending primary and secondary schools increased in every state and territory over the period.

Between 1998 and 2003 overall growth of (FTE) Indigenous students attending school was 23%. With the exception of the Northern Territory, all states had growth of between 20% and 30%. The Northern Territory grew by 6.5%. Secondary school (FTE) Indigenous students grew by 32% between 1998 and 2003, compared with 19% for primary students.

The retention of Indigenous students in senior secondary schools has increased over the five-year period ending 2003. The growth in retention generally has been more notable than is the case for non-Indigenous students (table 10.11).

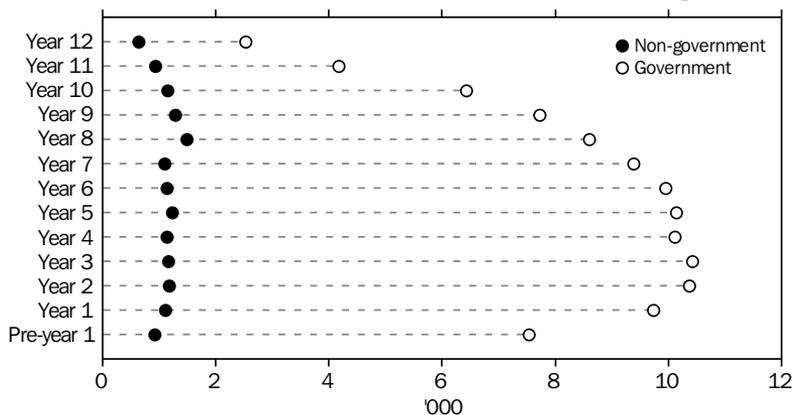
### 10.8 FULL-TIME EQUIVALENT OF INDIGENOUS SCHOOL STUDENTS — August 2003

	Government schools	Non-government schools			All schools
		Catholic	Independent	Total	
<b>Primary</b>					
Pre-year 1(a)	7 533	718	209	927	8 460
Year 1	9 735	861	262	1 123	10 858
Year 2	10 363	886	298	1 184	11 547
Year 3	10 416	842	334	1 176	11 592
Year 4	10 113	857	289	1 146	11 259
Year 5	10 134	901	340	1 241	11 375
Year 6	9 946	856	292	1 148	11 094
Year 7 (Qld, SA, WA, NT)	5 731	442	255	697	6 428
Ungraded	1 277	36	223	259	1 536
<b>Total</b>	<b>75 249</b>	<b>6 399</b>	<b>2 502</b>	<b>8 900</b>	<b>84 149</b>
<b>Secondary</b>					
Year 7 (NSW, Vic., Tas., ACT)	3 650	331	77	408	4 058
Year 8	8 600	883	607	1 490	10 090
Year 9	7 725	762	535	1 297	9 022
Year 10	6 433	710	450	1 160	7 593
Year 11	4 178	579	364	943	5 121
Year 12	2 530	417	228	645	3 176
Ungraded	2 250	209	729	938	3 187
<b>Total</b>	<b>35 366</b>	<b>3 891</b>	<b>2 990</b>	<b>6 881</b>	<b>42 247</b>
<b>Total</b>	<b>110 614</b>	<b>10 290</b>	<b>5 491</b>	<b>15 781</b>	<b>126 396</b>

(a) Pre-year 1 now includes a small number of Qld students engaged in a trial of Pre-year 1 education.

Source: ABS data available on request, National Schools Statistics Collection, 2003.

### 10.9 FULL-TIME EQUIVALENT INDIGENOUS SCHOOL STUDENTS — August 2003



Source: ABS data available on request, National Schools Statistics Collection, 2003.

### 10.10 FULL-TIME EQUIVALENT INDIGENOUS SCHOOL STUDENTS, By level of education — August

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT(a)	Aust.
<b>PRIMARY</b>									
Students									
1998	19 185	3 412	19 242	4 511	11 697	2 422	9 629	475	70 572
2003	23 835	4 377	23 541	5 230	13 871	2 837	9 808	651	84 149
<b>SECONDARY</b>									
Students									
1998	9 941	1 750	8 712	1 543	4 470	1 709	3 440	350	31 915
2003	13 332	2 321	11 774	2 075	6 073	2 159	4 110	403	42 247
<b>TOTAL</b>									
Students									
1998	29 126	5 162	27 954	6 054	16 167	4 131	13 068	825	102 488
2003	37 167	6 699	35 314	7 304	19 944	4 996	13 918	1 054	126 396

(a) Includes Indigenous students from one government primary school in Jervis Bay Territory.

Source: ABS data available on request, National Schools Statistics Collection, 2003.

### 10.11 APPARENT RETENTION RATES(a), Indigenous and non-Indigenous students

	1998	1999	2000	2001	2002	2003
Apparent retention of students from Year 7/8(a)	%	%	%	%	%	%
<b>To Year 9</b>						
Indigenous	95.0	93.9	95.5	96.5	97.8	96.8
Non-Indigenous	99.7	99.9	99.8	99.9	99.8	99.9
<b>To Year 10</b>						
Indigenous	83.3	82.0	83.0	85.7	86.4	87.2
Non-Indigenous	97.4	97.9	98.0	98.4	98.5	98.9
<b>To Year 11</b>						
Indigenous	52.3	56.0	53.6	56.1	58.9	61.4
Non-Indigenous	85.4	86.4	86.2	87.6	88.7	89.5
<b>To Year 12</b>						
Indigenous	32.1	34.7	36.4	35.7	38.0	39.1
Non-Indigenous	72.7	73.2	73.3	74.5	76.3	76.5

(a) Refers to retention from the first year of secondary school in each state. See 'Schools, Australia, 2003' (4221.0) for further detail.

Source: ABS data available on request, National Schools Statistics Collection, 2003.

The apparent retention rate for Indigenous students to Year 12 rose 7.0 percentage points from 1998 to 2003 compared with a rise of 3.8 percentage points for non-Indigenous students over the same period. Nonetheless, retention of Indigenous students in secondary schools remains below that for non-Indigenous students. The apparent retention rate to Year 12 was 39.1% in 2003 for Indigenous and 76.5% for non-Indigenous students.

## Vocational education and training (VET)

### Institutions

Most vocational education and training (VET) in Australia is provided in government-administered colleges. In some states and territories these are referred to as TAFE colleges or institutes. To a lesser extent, VET may also be provided by Institutes of Technology, some higher education institutions, schools and agricultural colleges, adult and community education authorities, private providers of education (such as business colleges) and employers. VET institutions offer programs for a wide range of purposes, ranging from recreation and leisure, through basic employment and educational preparation, to trades training, and para-professional and professional levels.

In 2003 there were 79 TAFE and other publicly funded institutions delivering VET training. A further 531 community education providers and 1,339 other providers (mainly private providers) delivering VET were at least partly publicly funded.

### Students and courses

During 2003 more than 1.7 million clients enrolled in a publicly funded VET course, comprising 875,900 male clients and 834,400 female clients (table 10.12). Just under 55% of VET clients aged under 30 years were male. Females, however, were in the majority (52%) for VET clients aged 30 years or more.

VET programs are classified to specific fields of education on the basis of similar emphasis or subject matter orientation. Table 10.13 shows the number of course enrolments in 2003 in each of the 12 fields of education. Since clients may be enrolled in more than one VET course the number of course enrolments is greater than the total number of clients – there were 2.1 million course enrolments in 2003 compared with 1.7 million clients.

### 10.12 VET CLIENTS(a), Vocational and preparatory courses(b) — 2003

	Males	Females	Persons(c)
Age group (years)	'000	'000	'000
Under 16	20.2	17.5	37.8
16	31.5	26.3	57.9
17	41.1	32.5	73.6
18	55.8	46.0	101.9
19	52.9	41.6	94.6
20–24	154.2	122.0	276.5
25–29	94.1	83.3	177.7
30–39	165.4	159.9	325.8
40–49	131.1	154.3	286.0
50–59	76.9	86.6	163.8
60–64	15.1	16.1	31.3
65 and over	13.9	19.1	33.1
Not stated	23.7	29.2	57.8
<b>Total clients</b>	<b>875.9</b>	<b>834.4</b>	<b>1 717.8</b>

(a) Includes all VET delivery by TAFE and other government providers, registered community providers and publicly funded delivery by private providers. Fee-for-service VET delivery by private providers has been excluded. School students undertaking VET in schools have also been excluded. A client is any individual participating in a specific enrolment or training contract with a specific organisation at any time in 2003. (b) Courses leading to a vocational award. (c) Includes 'sex not stated'.

Source: National Centre for Vocational Education Research, data available on request, Australian Vocational Education and Training Statistics: Students and Courses.

Some 22% of enrolments in vocational and preparatory courses in 2003 were in the management and commerce field, while 15% were in the engineering and related technologies field, and 11% in the society and culture field (table 10.13). A further 13% of total enrolments were in mixed field programmes.

Males made up a clear majority of enrolments in the education fields of architecture and building (89%), engineering and related technologies (87%), agriculture, environmental and related studies (75%), information technology (64%) and health (56%). Females were in the majority in the fields of society and culture (72%), creative arts (59%), management and commerce (64%), education (58%), food, hospitality and personal services (59%), and natural and physical sciences (56%) (table 10.13)

### Apprenticeships and traineeships

Some 35% of all apprentices and trainees at 31 December 2003 were in the broad occupational group tradespersons and related workers. In this group, construction and automotive trades accounted for 25% and 16%, respectively, of the group total (table 10.14).

### 10.13 VET(a) COURSE ENROLMENTS, Vocational and preparatory courses(b) — 2003

Field of education	Males '000	Females '000	Persons(c) '000
Natural and physical sciences	3.5	4.6	8.2
Information technology	62.0	34.3	96.5
Engineering and related technologies	276.6	41.1	318.6
Architecture and building	103.9	13.5	117.4
Agriculture, environmental and related studies	75.4	25.2	100.8
Health	77.0	59.1	137.8
Education	27.5	38.9	66.8
Management and commerce	162.4	294.3	458.7
Society and culture	62.8	165.0	228.5
Creative arts	28.2	40.9	69.2
Food, hospitality and personal services	79.8	114.1	194.8
Mixed field programmes	114.1	144.7	259.8
<b>Total enrolments(a)</b>	<b>1 073.2</b>	<b>975.8</b>	<b>2 057.2</b>

(a) Includes all VET delivery by TAFE and other government providers, registered community providers, and publicly funded delivery by private providers. Fee-for-service VET delivery by private providers has been excluded. School students undertaking VET in schools have also been excluded. (b) Courses leading to a vocational award. (c) Includes 'sex not stated'.

Source: National Centre for Vocational Education Research, data available on request, Australian Vocational Education and Training Statistics: Students and Courses.

### 10.14 APPRENTICES AND TRAINEES, In training — 31 December 2003

Major occupation group(a)	Males '000	Females '000	Persons '000	Total %
Managers and administrators	1.8	1.1	2.9	0.7
Professionals	1.2	1.5	2.6	0.7
Associate professionals	13.4	15.9	29.3	7.4
Tradespersons and related workers				
Mechanical and fabrication engineering	16.3	0.4	16.7	4.2
Automotive	22.2	0.3	22.5	5.7
Electrical and electronic	17.9	0.3	18.2	4.6
Construction	33.7	0.4	34.0	8.6
Food	13.8	4.3	18.1	4.6
Skilled agricultural and horticultural workers	5.3	0.8	6.1	1.5
Hairdressers	0.8	9.9	10.8	2.7
Tradespersons and related workers n.e.c.	0.5	0.1	0.6	0.2
Other	8.9	1.1	10.0	2.5
Total	119.4	17.6	137.0	34.5
Advanced clerical and service workers	2.0	5.8	7.8	2.0
Intermediate clerical, sales and service workers	33.9	78.0	111.9	28.2
Intermediate production and transport workers	43.8	6.0	49.8	12.5
Elementary clerical, sales and service workers	10.6	10.5	21.1	5.3
Labourers and related workers	24.6	9.9	34.5	8.7
<b>Total</b>	<b>250.7</b>	<b>146.4</b>	<b>397.1</b>	<b>100.0</b>

(a) Major groups are classified according to the Australian Standard Classification of Occupations.

Source: National Centre for Vocational Education Research, data available on request, Australian Vocational Education and Training Statistics: Students and Courses.

Most (87%) of the apprentices and trainees in the broad occupational group tradespersons and related workers were male. The only field of trade in this occupational group with a female majority was hairdressers where 92% were females.

## Staff

Table 10.15 shows the number of teachers working in VET institutions in 2002–03. Of all VET teachers 54% were employed full time. The majority of full time VET teachers (67%) were male. In contrast, 59% of part-time VET teachers were female.

**10.15 VET TEACHING STAFF(a) — 2002–03**

	Full-time staff(b)	Part-time staff	All teaching staff
	'000	'000	'000
Males	11.6	6.1	17.7
Females	5.8	8.8	14.7
<b>Persons</b>	<b>17.4</b>	<b>15.0</b>	<b>32.3</b>

(a) Annual average of quarterly data. (b) Full-time refers to persons working 35 hours or more in the survey week.

Source: Labour Force, Australia, Detailed - Electronic Delivery, April 2004 (6291.0.55.001).

## Higher education

### Institutions

There were 40 higher education institutions which received operating grants from the Australian Government Department of Education, Science and Training (DEST) in 2003, as well as the Australian Film, Television and Radio School, Avondale College, the National Institute of Dramatic Art and the Australian Defence Force Academy. The private Melbourne College of Divinity reported data for postgraduate students only, while Bond University in Queensland reported data for research students only.

Apart from the Australian National University and the Australian Maritime College, which are established under Commonwealth legislation, Australian universities operate under state or territory legislation. However, they are autonomous bodies responsible for their own governance and make their own decisions on allocation of funding, staffing and academic courses.

Most higher education institutions provide both full-time and part-time courses, and external or distance education courses. In addition, some institutions offer courses which associate full-time study with periods of employment.

## Students and courses

Table 10.16 shows the numbers of higher education students and their mode of participation at higher education institutions. The number of such students enrolled during the 12-month period 1 September 2002 to 31 August 2003 was 929,952, an increase of more than 33,300 (or 3.7%) on that for the 12-month period ended 31 August 2002. The greatest increase in numbers of students occurred among those choosing internal mode (face-to-face) tuition (up by 22,507). Students choosing multi-modal tuition (a mixture of face-to-face and external tuition) increased by 10,024 (31%). Almost 65% of multi-modal higher education students in 2003 were female, compared with 54% of all higher education students.

The basic undergraduate course at most institutions is a bachelor degree of three or four years duration. At some institutions, courses may also be offered at the diploma or advanced diploma level. Most institutions also offer postgraduate level study. One to two years of full-time postgraduate study are required for a master's degree and three to five years for a doctoral degree. Postgraduate diplomas and certificates are offered in some disciplines. In 2003, 68% of higher education students were enrolled in bachelor degree courses, with a further 27% enrolled in higher degree and other postgraduate courses (table 10.17).

Higher education institutions offer a wide variety of courses including: natural and physical sciences; information technology; engineering and related technologies; architecture and building; agriculture, environment and related studies; health; education; management and commerce; society and culture; creative arts; and food, hospitality and personal services. The most commonly chosen fields of education for award course students in 2003 were management and commerce, society and culture, health, and education.

### 10.16 HIGHER EDUCATION STUDENTS(a), By mode(b) and type of enrolment

	2002			2003		
	Males	Females	Persons	Males	Females	Persons
<b>Internal</b>						
Full-time	242 537	282 695	525 232	254 331	293 852	548 183
Part-time	92 685	106 997	199 682	93 243	105 995	199 238
<b>Total</b>	<b>335 222</b>	<b>389 692</b>	<b>724 914</b>	<b>347 574</b>	<b>399 847</b>	<b>747 421</b>
<b>External</b>						
Full-time	10 833	13 608	24 441	10 819	14 442	25 261
Part-time	50 970	63 817	114 787	50 796	63 971	114 767
<b>Total</b>	<b>61 803</b>	<b>77 425</b>	<b>139 228</b>	<b>61 615</b>	<b>78 413</b>	<b>140 028</b>
<b>Multi-modal</b>						
Full-time	8 938	15 969	24 907	11 205	20 581	31 786
Part-time	2 670	4 902	7 572	3 734	6 983	10 717
<b>Total</b>	<b>11 608</b>	<b>20 871</b>	<b>32 479</b>	<b>14 939</b>	<b>27 564</b>	<b>42 503</b>
<b>Total</b>						
Full-time	262 308	312 272	574 580	276 355	328 875	605 230
Part-time	146 325	175 716	322 041	147 773	176 949	324 722
<b>Total</b>	<b>408 633</b>	<b>487 988</b>	<b>896 621</b>	<b>424 128</b>	<b>505 824</b>	<b>929 952</b>

(a) The scope of the data in this table is students enrolled at anytime within the 12-month period 1 September to 31 August.

(b) This relates to the delivery of education to the student. 'Internal' is where the delivery of education is done entirely within the institution, 'external' refers to delivery of course material to students off-campus, and 'multi-modal' is where at least one, but not all units, are provided at the institution.

Source: Department of Education, Science and Training, 'Students: Selected Higher Education Statistics'.

### 10.17 HIGHER EDUCATION STUDENTS, By level and field of education — 2003

Field of education	Level of education of study					Total courses
	Post-graduate degree	Graduate diploma/Graduate certificate	Bachelor degree	Advanced diploma/Diploma	Other education	
	'000	'000	'000	'000	'000	'000
Natural and physical sciences	9.8	1.7	58.4	0.2	0.4	70.6
Information technology	15.4	4.7	56.6	0.1	0.2	77.0
Engineering and related technologies	11.5	2.3	49.4	0.3	1.2	64.7
Architecture and building	2.2	1.1	15.2	0.1	0.1	18.7
Agriculture, environment and related studies	3.5	1.1	11.9	1.4	0.5	18.5
Health	14.5	10.1	74.8	0.6	0.4	100.3
Education	15.8	13.0	60.3	0.6	0.7	90.3
Management and commerce	67.4	21.2	165.2	0.7	1.3	255.8
Society and culture	30.7	12.8	149.8	5.2	4.2	202.7
Creative arts	6.1	2.5	47.9	0.3	1.0	57.9
Food, hospitality and personal services	—	—	0.1	—	—	0.1
Mixed field programmes	—	—	—	—	2.0	2.0
Non-award	—	—	—	—	24.9	24.9
<b>All students(a)</b>	<b>176.8</b>	<b>70.5</b>	<b>636.1</b>	<b>9.5</b>	<b>37.0</b>	<b>930.0</b>

(a) Students undertaking combined courses are counted in each field they are studying. Because of this, the field of education component will not necessarily add to All students.

Source: Department of Education, Science and Training, 'Students 2003: Selected Higher Education Statistics'.

Table 10.18 shows the number of higher education students by age group and sex. Between 2002 and 2003 the growth in higher education student numbers (3.7%) has been strongest among 20–24 year olds (8.0%).

**10.18 HIGHER EDUCATION STUDENTS(a),  
By age group**

	2001	2002	2003
Age group (years)	'000	'000	'000
<b>19 and under</b>			
Males	86.4	88.8	88.3
Females	120.0	123.3	122.2
Persons	206.4	212.1	210.5
<b>20–24</b>			
Males	129.7	141.2	152.9
Females	150.3	164.3	176.9
Persons	280.0	305.5	329.8
<b>25–29</b>			
Males	59.7	63.7	65.4
Females	63.1	67.3	70.0
Persons	122.8	131.0	135.4
<b>30 and over</b>			
Males	108.3	115.0	117.5
Females	124.6	133.0	136.8
Persons	232.9	248.0	254.3
<b>Total</b>			
Males	384.1	408.6	424.1
Females	458.1	488.0	505.9
<b>Persons</b>	<b>842.2</b>	<b>896.6</b>	<b>930.0</b>

(a) The scope of the data in this table is students enrolled at anytime within the 12-month period 1 September to 31 August. Includes students in enabling and non-award courses.

Source: Department of Education, Science and Training, 'Students: Selected Higher Education Student Statistics'.

## Graduate starting salaries

The average annual starting salary of male bachelor degree graduates has risen by 34% between 1993 and 2003 to \$43,325. For females the rise was 31% to \$38,299 (table 10.19).

Graduate starting salaries as a percentage of average annual full-time adult ordinary time earnings have declined in the years 1993 to 2003. For males they fell from 97.6% to 85.3%. For females the respective percentages fell from 105.4% to 89.3%.

The male postgraduate average annual starting salary rose by 44% between 1993 and 2003 to \$68,161. For females the rise was 41% to \$53,758. Male postgraduate starting salaries as a percentage of average annual full-time adult ordinary time earnings show a decline between 1993 and 2003, decreasing from 143.5% to 134.2%. For females they declined from 137.3% to 125.3%.

Female starting salaries for bachelor degree graduates were 88.4% of the equivalent male starting salaries in 2003. The ratio for female to male postgraduate starting salaries was 78.9% in 2003.

## Staff

Higher education staff may be classified as academic or non-academic. In 2003, as in previous years, there were more non-academic than academic staff. The largest numbers of academics were at the lecturer and senior lecturer levels.

Table 10.20 shows the ratio of male to female staff has turned around over the past decade. In 1993, 55% of all staff were male. The proportions were about equal in 1998, but by 2003, 52% of higher education staff were female.

Growth in female representation occurred at all levels of academic staff, but was most notable at senior lecturer (from 20.4% in 1993 to 33.7% in 2003) and above senior lecturer (from 10.8% to 19.1%) levels. Despite this, men still outnumbered women at all levels of academic staff except at below lecturer level. In 2003, 61% of all academic staff were male, compared with 65% in 1998 and 69% in 1993.

## 10.19 STARTING SALARIES FOR EMPLOYED HIGHER EDUCATION GRADUATES

	Bachelor graduates(a)		Postgraduates(a)		Average annual full-time adult ordinary time earnings(b)	
	Males	Females	Males	Females	Males	Females
	\$	\$	\$	\$	\$	\$
1993	32 264	29 271	47 422	38 113	33 054	27 767
1998	37 228	32 727	55 676	44 311	40 505	33 844
2003	43 325	38 299	68 161	53 758	50 792	42 896

(a) Self-employed graduates are included in 1993 and 1998 but excluded in 2003. (b) Of employees.

Source: Average Weekly Earnings, Australia (6302.0); Graduate Careers Council of Australia, Graduate Destinations Survey.

## 10.20 HIGHER EDUCATION STAFF

Staff classification	1993			1998			2003		
	Males %	Females %	Persons no.	Males %	Females %	Persons no.	Males %	Females %	Persons no.
<b>Academic staff</b>									
Above senior lecturer	89.2	10.8	5 535	85.5	14.5	6 489	80.9	19.1	7 795
Senior lecturer	79.6	20.4	7 707	73.3	26.7	8 047	66.3	33.7	8 820
Lecturer	60.7	39.3	11 575	57.2	42.8	11 464	53.6	46.4	12 266
Below lecturer	48.5	51.5	5 347	47.9	52.1	6 663	46.8	53.2	6 986
<b>Total</b>	<b>68.6</b>	<b>31.4</b>	<b>30 164</b>	<b>64.9</b>	<b>35.1</b>	<b>32 663</b>	<b>61.3</b>	<b>38.7</b>	<b>35 867</b>
<b>Non-academic staff</b>	<b>43.8</b>	<b>56.2</b>	<b>39 704</b>	<b>39.5</b>	<b>60.5</b>	<b>43 609</b>	<b>37.8</b>	<b>62.2</b>	<b>48 568</b>
<b>All staff</b>	<b>54.5</b>	<b>45.5</b>	<b>69 868</b>	<b>50.4</b>	<b>49.6</b>	<b>76 272</b>	<b>47.8</b>	<b>52.2</b>	<b>84 435</b>

Source: Department of Education, Science and Training, 'Staff: Selected Higher Education Statistics'.

## Adult and community education (ACE)

Adult and community education (ACE) is the most decentralised of the education sectors. As used here, ACE refers to the provision of those general adult education programs and activities (personal enrichment programs) which fall outside, but complement, the formal programs and qualification pathways provided by the school, VET and higher education sectors. ACE focuses on the provision of learning opportunities at a community level, rather than work-related training.

Courses range from general interest, recreational and leisure activities, personal development, social awareness and craft, through to vocational, remedial and basic education. Community-based adult education is open to all, and its non-formal characteristic demonstrates the capacity of the community to develop alternatives to institution-based education.

During 2003 there were 209,500 enrolments in personal enrichment programs, of which 72% were by females. These enrolments were mainly with community-based providers (79% of total enrolments in 2003), the balance being largely with TAFE and other publicly funded providers. It should be noted, however, there is no national data standard for ACE and no obligation for some course providers to provide data on ACE activity to a national data collection. Consequently, enrolments in personal enrichment programs are understated.

Some 29% of enrolments in personal enrichment programs in 2003 were in creative arts courses, while 15% were in society and culture courses,

and 11% in health courses (table 10.21). A further 22% of total enrolments were in mixed field programmes.

## 10.21 COURSE ENROLMENTS IN PERSONAL ENRICHMENT PROGRAMS — 2003

Field of education	Males '000	Females '000	Total enrolments(a) '000
Natural and physical sciences	0.5	0.6	1.1
Information technology	0.7	0.5	1.2
Engineering and related technologies	4.4	4.2	8.7
Architecture and building	2.0	3.5	5.6
Agriculture, environmental and related studies	1.8	2.8	4.6
Health	4.1	17.6	22.0
Education	5.8	11.4	17.2
Management and commerce	2.9	4.4	7.4
Society and culture	7.1	23.7	31.4
Creative arts	12.5	47.1	60.4
Food, hospitality and personal services	0.7	2.2	3.0
Mixed field programmes	13.9	33.0	47.0
<b>Total</b>	<b>56.1</b>	<b>151.1</b>	<b>209.5</b>

(a) Includes 'sex not stated'.

Source: National Centre for Vocational Education Research, data available on request, Australian Vocational Education and Training Statistics: Students and Courses.

## Demand for education

In May 2003, 2.7 million people aged 15–64 years had applied to enrol in a course of study. Of these, 91% had gained a place and were studying (table 10.22).

**10.22 PARTICIPATION IN EDUCATION(a) —  
May 2003**

	Males '000	Females '000	Persons '000
<b>Applied to enrol</b>	<b>1 254.4</b>	<b>1 419.7</b>	<b>2 674.1</b>
Studying	1 155.7	1 280.1	2 435.8
Gained placement but deferred study	62.0	94.6	156.6
Unable to gain placement	36.6	45.0	81.6

(a) Persons aged 15–64 years.

Source: ABS data available on request, Survey of Education and Work, 2003.

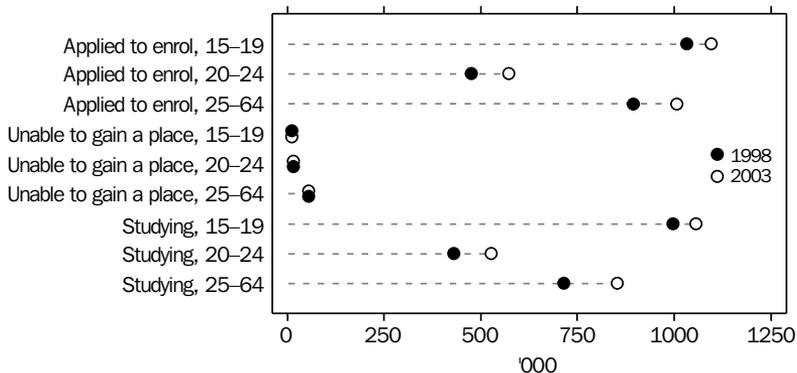
Between 1998 and 2003 the demand for placements in education increased, as did the number of people being accepted into educational

institutions. Although there was a rise in the number of enrolment applications across all age groups, the number of people unable to gain placement in courses was stable (graph 10.23).

Many young people continue in full-time education immediately after completing compulsory schooling, either in post-compulsory schooling or in other forms of education such as VET. In May 2003, 70% of 15–19 year olds were in full-time education (including 51% still at school). Some young people return to full-time study after a period of absence after completing compulsory schooling. At age 20–24 years, 26% were undertaking full-time study (including a small proportion still at school) and 11% were participating in part-time tertiary study (table 10.24).

Many people aged 25 years and over return to study, to upgrade their skills or to gain new skills, and often in conjunction with employment. The education participation rate in May 2003 for people in this age group was higher for those in part-time study (6.2%) than for those in full-time study (2.0%).

**10.23 PARTICIPATION IN EDUCATION, By age group**



Source: ABS data available on request, Survey of Education and Work, 1998 and 2003.

**10.24 EDUCATION PARTICIPATION RATES(a) —  
May 2003**

	Age group (years)		
	15–19	20–24	25–64
	%	%	%
Attending school	51.1	**—	**—
Attending tertiary(b)			
Full-time	18.5	26.3	2.0
Part-time	7.9	11.1	6.2
Total	26.4	37.4	8.2
Total attending	77.5	37.5	8.3
Not attending	22.5	62.5	91.7
Total	100.0	100.0	100.0

(a) Persons aged 15–64 years. (b) Educational institutions offering post-school courses.

Source: ABS data available on request, Survey of Education and Work, 2003.

Between 1998 and 2003 there was a notable shift in the attendance patterns of tertiary students aged 20–24 years, away from part-time study to full-time study. The number of full-time students in this age group increased by 115,000 compared with a decline in part-time student numbers of

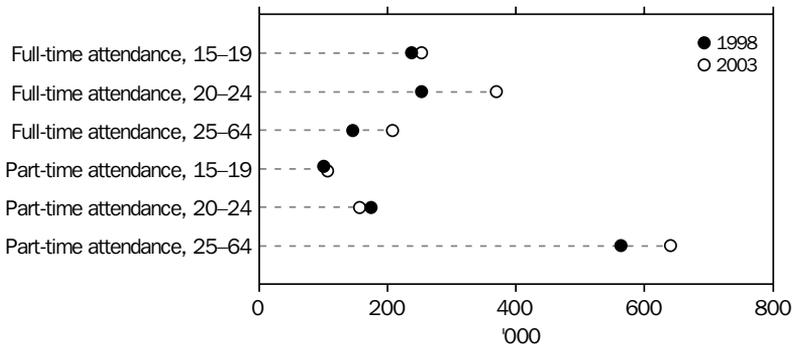
18,000. The number of both full-time and part-time students aged 25–64 years increased noticeably during the five-year period (62,000 and 77,000 respectively). Small increases were also recorded for full-time and part-time students aged 15–19 years (graph 10.25).

**Education and work**

Graph 10.26 indicates the labour force status of all students aged 15–64 years in May 2003. Some 33% of those studying Year 12 or below were employed and 61% were not in the labour force. In contrast, 65% of those studying for a degree or higher were employed and 30% were not in the labour force.

In May 2003 full-time employment was much higher among students aged 20–24 years who were enrolled in a course of study, than among those aged 15–19 years (24% compared with 7%). In both age groups, students who undertook part-time study were more frequently employed full time than part time (table 10.27).

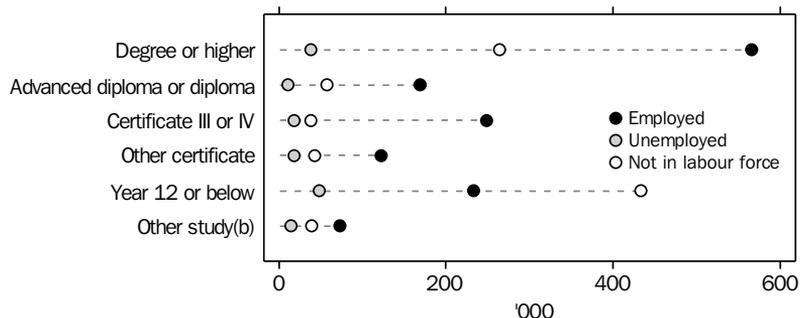
**10.25 PARTICIPATION IN TERTIARY EDUCATION(a), By age group**



(a) Persons aged 15–64 years.

Source: ABS data available on request, Survey of Education and Work, 1998 and 2003.

### 10.26 PARTICIPATION IN EDUCATION(a), By labour force status — May 2003



(a) Persons aged 15–64 years. (b) Comprises persons in bridging courses, studying for statements of attainment, other study not leading to a qualification or unable to be determined.

Source: ABS data available on request, Survey of Education and Work, 2003.

### Full-time participation

The 'full-time participation rate' describes the proportion of the population who are either in full-time education, or in full-time work, or in both part-time work and part-time education or training. This helps to identify those young people

not currently engaged in full-time educational activity who may have difficulty in fully participating in the labour market. Table 10.27 implies in May 2003, 13% of people aged 15–19 years and 23% of 20–24 year olds faced that difficulty.

### 10.27 PARTICIPATION IN EDUCATION, By labour force status — May 2003

	Enrolled in study(a)			Not enrolled '000	Total '000
	Full-time '000	Part-time '000	Total '000		
<b>15–19 YEARS</b>					
In the labour force					
Employed					
Full-time	*5.4	71.8	77.2	141.2	218.4
Part-time	361.5	22.1	383.6	72.8	456.4
Total	366.9	93.9	460.9	214.0	674.8
Unemployed					
Not in the labour force	66.0	8.5	74.5	50.1	124.6
	515.5	5.9	521.3	42.3	563.6
<b>Total</b>	<b>948.4</b>	<b>108.3</b>	<b>1 056.7</b>	<b>306.3</b>	<b>1 363.0</b>
<b>20–24 YEARS</b>					
In the labour force					
Employed					
Full-time	14.4	111.5	125.9	571.5	697.5
Part-time	185.9	29.2	215.1	121.7	336.8
Total	200.3	140.7	341.0	693.2	1 034.2
Unemployed					
Not in the labour force	21.2	6.2	27.4	87.3	114.8
	149.4	9.6	158.9	100.1	259.0
<b>Total</b>	<b>370.9</b>	<b>156.5</b>	<b>527.4</b>	<b>880.6</b>	<b>1 408.0</b>

(a) All persons participating in education, including those whose study will not lead to a qualification.

Source: ABS data available on request, Survey of Education and Work, 2003.

## Educational attainment

Formal educational qualifications are the desired outcome of most study at educational institutions. When issued by an accredited authority they denote a particular level of knowledge, skills and perhaps competencies. This assists the graduates themselves when entering the labour market, employers in selecting appropriate personnel, and clients in assessing the quality of professional services. The classification of educational attainment to level assists in measuring the stocks of available skills in a community, enabling policy makers to monitor the volume of skill levels compared to skill shortages, and to influence the direction of future educational focus.

In May 2003, of the 13.1 million persons aged 15–64 years, 6.4 million (49%) had at least one non-school qualification. These comprised

2.4 million whose level of highest non-school qualification was a bachelor degree or higher, 1.0 million whose highest was an advanced diploma or diploma, 2.0 million whose highest was a certificate III or IV and 0.8 million whose highest was a certificate I or II. Among those without a non-school qualification, 34% had completed Year 12, while for 31%, their highest year of school completed was Year 10 (table 10.28).

Graph 10.29 shows the proportion of males and females aged 15–64 years and their level of highest non-school qualification in 1993, 1998, and 2003. During this period the proportion of people aged 15–64 years with a bachelor degree or higher increased by 6.5 percentage points for males and by 9.3 percentage points for females. In 1993 there was a greater percentage of males (11%) with a

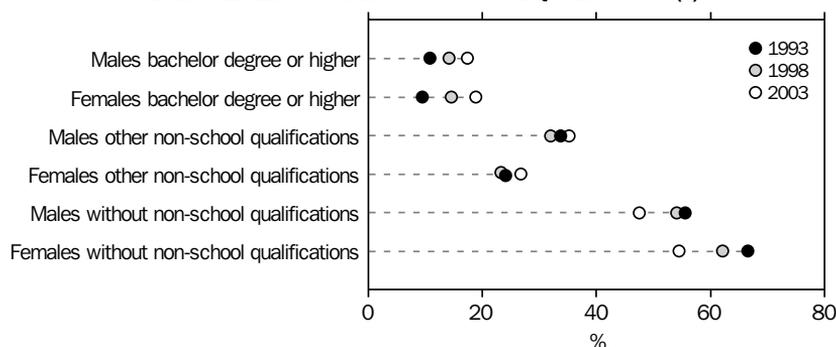
**10.28 LEVEL OF HIGHEST NON-SCHOOL QUALIFICATION(a) — May 2003**

	Highest year of school completed				Total(b) '000
	Year 12 '000	Year 11 '000	Year 10 '000	Year 9 or below '000	
Postgraduate degree	317.0	*4.2	9.4	**1.2	331.7
Graduate diploma/Graduate certificate	296.0	18.0	14.7	*2.6	331.2
Bachelor degree	1 574.0	47.6	62.8	13.2	1 697.6
Advanced diploma/Diploma	671.3	105.7	162.9	25.2	965.1
Certificate III/IV	611.1	325.0	850.5	206.5	1 993.0
Certificate I/II	290.8	117.4	287.4	86.3	781.8
Certificate not further defined	99.8	36.5	54.6	11.7	202.6
Level not determined	56.8	11.0	30.1	13.6	111.4
Without a non-school qualification	2 236.5	911.7	2 077.9	1 408.0	6 660.6
<b>Total</b>	<b>6 153.2</b>	<b>1 577.0</b>	<b>3 550.2</b>	<b>1 768.2</b>	<b>13 075.1</b>

(a) Persons aged 15–64 years. (b) Includes persons who never attended school. Boarding school pupils at May 2003 have not been allocated a highest year of school completed but are included in the total.

Source: ABS data available on request, Survey of Education and Work, Australia, 2003.

**10.29 LEVEL OF HIGHEST NON-SCHOOL QUALIFICATION(a)**



(a) Persons aged 15–64 years.

Source: ABS data available on request, Survey of Education and Work, 1993, 1998 and 2003.

bachelor degree or higher than females (9.4%). Females had moved ahead by 1998 (14% of males, 15% of females). In 2003, 19% of females had a bachelor degree or higher, compared with 17% of males.

Tables 10.30 and 10.31 examine the highest non-school qualification held by persons aged 15–64 years. The most qualified age group was those aged 25–44 years, 59% of whom held non-school qualifications, as did 51% of those aged 45–64 years. While the younger age groups held fewer non-school qualifications, their participation in education was relatively high (graph 10.23 and table 10.24).

In the 25–44 years age group, 23% had a highest non-school qualification of bachelor degree or above, compared with 18% in the 45–64 years age group (table 10.30). In the 25–44 years age group, 18% had a highest non-school qualification of certificate III or IV, compared with 16% in the 45–64 years age group.

The most common main fields of education for the highest non-school qualification held were management and commerce (23% of those with qualifications), and engineering and related technologies (21%) (table 10.31).

### 10.30 LEVEL OF HIGHEST NON-SCHOOL QUALIFICATION(a), By age group — May 2003

	Age group (years)				Total '000
	15–19 '000	20–24 '000	25–44 '000	45–64 '000	
Postgraduate degree	—	*3.8	179.6	148.3	331.7
Graduate diploma/Graduate certificate	—	10.6	174.8	145.8	331.2
Bachelor degree	**0.8	193.4	982.2	521.2	1 697.6
Advanced diploma/Diploma	6.7	87.0	496.8	374.6	965.1
Certificate III/IV	30.4	192.8	1 045.7	724.1	1 993.0
Certificate I/II	33.2	67.1	384.8	296.7	781.8
Certificate not further defined	19.9	60.2	85.5	36.9	202.6
Level not determined	*2.5	*4.5	53.6	50.8	111.4
Total with non-school qualifications	93.6	619.4	3 402.9	2 298.6	6 414.5
Total without non-school qualifications	1 269.4	788.6	2 371.5	2 231.1	6 660.6
<b>Total</b>	<b>1 363.0</b>	<b>1 408.0</b>	<b>5 774.4</b>	<b>4 529.7</b>	<b>13 075.1</b>

(a) Persons aged 15–64 years.

Source: *Education and Work, Australia, May 2003 (6227.0)*.

### 10.31 MAIN FIELD OF HIGHEST NON-SCHOOL QUALIFICATION(a), By age group — May 2003

Field of education	Age group (years)				Total '000
	15–19 '000	20–24 '000	25–44 '000	45–64 '000	
Natural and physical sciences	**0.4	15.3	122.3	73.7	211.7
Information technology	7.4	44.3	141.5	39.0	232.2
Engineering and related technologies	13.2	91.8	701.3	541.7	1 348.0
Architecture and building	*4.7	29.4	211.4	156.6	402.2
Agriculture, environment and related studies	*5.5	19.5	98.0	49.6	172.6
Health	*3.2	33.2	307.6	257.2	601.1
Education	**0.5	22.7	215.2	236.3	474.7
Management and commerce	27.8	177.6	790.7	485.3	1 481.4
Society and culture	9.7	68.1	398.5	283.4	759.7
Creative arts	*5.5	42.1	149.8	63.0	260.4
Food, hospitality and personal services	13.9	67.3	233.8	95.2	410.2
Mixed field programmes	**0.3	*3.0	*1.2	*3.2	7.7
Field not determined	*1.4	*5.0	31.7	14.6	52.7
<b>Total</b>	<b>93.6</b>	<b>619.4</b>	<b>3 402.9</b>	<b>2 298.6</b>	<b>6 414.5</b>

(a) Persons aged 15–64 years.

Source: *Education and Work, Australia, May 2003 (6227.0)*.

## Expenditure on education

### National funding

Total expenditure on education has two components: public and private. In this chapter, the data for the public component is compiled in accordance with the International Monetary Fund's Government Finance Statistics (GFS) framework, while the private component is sourced from the Australian System of National Accounts.

It is not possible to simply add the public expenditure on education aggregate to the private expenditure on education aggregate to get a figure for total expenditure on education for two main reasons. First, the data presented here are for the general government sector only and do not cover expenditure on education by other sectors of the government. Secondly, double counting may also occur because the Australian (Commonwealth) Government records expenses when supplying grants to private schools which in turn spend these grant amounts, thus producing two expenditure transactions.

Data for individual time periods are expressed 'in current prices', or in terms of prices prevailing at the time. Consequently, changes from period to period in, for example, the value of operating expenses may be affected by price changes.

### Public expenditure

The GFS provides a framework for measuring and analysing the financial activities of government. The GFS data presented in this chapter is recorded on an accrual accounting basis. This means that transactions are recorded in the period in which income is earned or expenses incurred, regardless of when a cash payment is made. Further information on the GFS framework may

be obtained from *Australian System of Government Finance Statistics: Concepts, Sources and Methods* (5514.0.55.001).

Operating expenses on education include employee expenses, non-employee expenses, depreciation of fixed assets, and current and capital transfer expenses. Operating expenses for all levels of government classified by purpose are shown in table 10.32. Operating expenditure in 2002–03 was \$41,004m, an increase of \$3,195m from the previous year. This largely reflects increases in expenditure on primary and secondary education of \$2,017m, and tertiary education of \$1,212m.

Table 10.33 shows the operating expenses on education for each level of government for the period 1998–99 to 2002–03. Total operating expenses of state and local government increased by \$2,047m from 2001–02 to 2002–03, while operating expenses for the Commonwealth government increased by \$408m. Intra-sector transfers are transfers or transactions that occur between different levels of government for the purposes of education.

Sales of goods and services (table 10.34), from a GFS perspective, is defined as the revenue from the direct provision of goods and services by general government. In the context of education, this would include fees paid by students for the provision of education services. Tertiary education has by far the highest value for sales of goods and services of any level of education with a total of \$6,481m in 2002–03. Sales of goods and services from tertiary education institutions increased by \$629m (11%) from 2001–02 to 2002–03. Primary and secondary education institutions had sales of good and services of \$564m in 2002–03.

**10.32 GOVERNMENT OPERATING EXPENSES ON EDUCATION(a), By purpose**

	1998–99	1999–2000	2000–01	2001–02	2002–03
	\$m	\$m	\$m	\$m	\$m
Primary and secondary education	17 242	18 089	19 588	21 247	23 264
Tertiary education	11 495	11 832	12 932	13 890	15 102
Preschool and education not definable by level	1 123	1 100	1 140	1 191	1 120
Transportation of students	769	817	826	900	853
Education n.e.c.	384	408	590	581	665
<b>Total</b>	<b>31 013</b>	<b>32 246</b>	<b>35 075</b>	<b>37 809</b>	<b>41 004</b>

(a) All levels of government.

Source: *Government Finance Statistics, Education, Australia - Electronic Delivery, 2002–03* (5518.0.55.001).

Table 10.35 shows the amount of Australian (Commonwealth) Government grants to different levels of government by level of education. Primary and secondary education was the major recipient of

grants from the Commonwealth in 2002–03 with \$5,818m, while the universities sector received a total of \$3,940m for the same period.

### 10.33 GOVERNMENT OPERATING EXPENSES ON EDUCATION, By level of government

	1998–99	1999–2000	2000–01	2001–02	2002–03
	\$m	\$m	\$m	\$m	\$m
Commonwealth Government	9 739	9 988	10 881	11 701	12 109
State and local government	22 393	23 241	25 099	27 048	29 095
Multi-jurisdictional(a)	8 288	8 651	9 323	10 073	11 194
less Intra-sector transfers	9 406	9 634	10 228	11 013	11 393
<b>Total</b>	<b>31 013</b>	<b>32 246</b>	<b>35 075</b>	<b>37 809</b>	<b>41 004</b>

(a) The multi-jurisdictional sector currently contains units where jurisdiction is shared between two or more governments, or the classification of a unit to a jurisdiction is otherwise unclear. The main type of units falling into this category are public universities.

Source: Government Finance Statistics, Education, Australia - Electronic Delivery, 2002–03 (5518.0.55.001).

### 10.34 SALES OF GOODS AND SERVICES, By level of education

	1998–99	1999–2000	2000–01	2001–02	2002–03
	\$m	\$m	\$m	\$m	\$m
Primary and secondary education	390	416	453	549	564
Tertiary education	4 171	4 691	5 109	5 852	6 481
Preschool and education not definable by level	42	50	53	44	5
Transportation of students	—	—	1	1	2
Education n.e.c.	37	28	4	8	21
<b>Total</b>	<b>4 640</b>	<b>5 186</b>	<b>5 619</b>	<b>6 454</b>	<b>7 073</b>

Source: Government Finance Statistics, Education, Australia - Electronic Delivery, 2002–03 (5518.0.55.001).

### 10.35 COMMONWEALTH GRANTS TO OTHER LEVELS OF GOVERNMENT, By level of education — 2002–03

	Primary and secondary education	Technical and further education	Universities	Other	Total
	\$m	\$m	\$m	\$m	\$m
State and local government					
New South Wales	1 934	359	—	40	2 334
Victoria	1 488	262	—	9	1 759
Queensland	1 088	184	—	34	1 306
South Australia	446	86	—	11	543
Western Australia	558	99	—	32	689
Tasmania	130	31	—	4	165
Northern Territory	62	16	—	40	118
Australian Capital Territory	113	21	—	2	135
Total	5 818	1 058	—	172	7 049
Multi-jurisdictional(a)	0	0	3 940	0	3 940
<b>Total</b>	<b>5 818</b>	<b>1 058</b>	<b>3 940</b>	<b>172</b>	<b>10 989</b>

(a) The multi-jurisdictional sector currently contains units where jurisdiction is shared between two or more governments, or the classification of a unit to a jurisdiction is otherwise unclear. The main type of units falling into this category are public universities.

Source: Government Finance Statistics, Education, Australia - Electronic Delivery, 2002–03 (5518.0.55.001).

## Private expenditure

Private sector expenditure on education (sourced from the Australian national accounts) consists of gross fixed capital formation by private non-profit organisations (private schools) and household final consumption expenditure on education services. Gross fixed capital formation is expenditure on new fixed assets plus net expenditure on second-hand fixed assets, including both additions and replacements. For education, gross fixed capital formation covers expenditure on items such as the construction of new buildings and facilities. Household final consumption expenditure encompasses transactions such as spending by households on fees charged by educational institutions, and the purchase of school uniforms and textbooks.

Table 10.36 provides data for private sector expenditure on education. Both gross fixed capital formation and household final consumption expenditure have increased in every year since 1998–99. For 2002–03, household final consumption expenditure comprised 86% of the \$12,443m total for private expenditure on education.

## Funding by sector

### Schools

The primary and secondary education operating expenses of all levels of government totalled \$23,264m in 2002–03 (table 10.32). Operating expenses associated with preschool, special, and other education were \$1,120m. Preschool, primary, secondary, special school and other education expenses were largely met by state and territory governments. State and territory governments also contributed funds to the transportation of students, totalling \$853m in 2002–03.

While primary and secondary education is free in government schools in all states and territories, fees may be charged for the hire of text books and other school equipment (particularly in secondary schools). Voluntary contributions may also be sought from parents.

In addition to funding schools directly, most state and territory governments provide financial assistance to parents (under specified conditions) for educational expenses of school children. Assistance includes scholarships, bursaries, and transport and boarding allowances, many of which are intended to assist low-income families. The Australian Government also provides a number of assistance schemes to facilitate access to education.

### Vocational education and training (VET)

Information supplied by the National Centre for Vocational Education Research shows VET providers in receipt of public funds primarily receive recurrent revenue from the state and territory governments (56% or \$2,580m in 2003), with additional funds being provided by the Australian Government (23% or \$1,041m). The remaining 21% (\$1,001m) is made up of on-going (recurrent) revenue.

Recurrent revenue comprises revenues appropriated by the Australian Government and state and territory governments to fund the normally occurring business activities of the sector and specifically excludes funds for capital asset construction, improvement or replacement. It also includes revenues earned by the sector from fees and charges arising from 'fee-for-service' activities (11% in 2003), student fees and charges (4%) and other ordinary operating activities (6%).

Most providers charge students fees for the administration of VET courses, for tuition, for materials or for student amenities. These fees vary according to the type of course and its duration.

**10.36 PRIVATE EXPENDITURE ON EDUCATION**

	1998–99	1999–2000	2000–01	2001–02	2002–03
	\$m	\$m	\$m	\$m	\$m
Gross fixed capital formation	960	1 155	1 296	1 491	1 685
Household final consumption expenditure	8 484	8 798	9 415	10 068	10 758
<b>Total</b>	<b>9 444</b>	<b>9 953</b>	<b>10 711</b>	<b>11 559</b>	<b>12 443</b>

Source: ABS data available on request, Australian System of National Accounts, 2002–03.

## Higher education

Most higher education institutions are funded by the Australian Government under the *Higher Education Funding Act 1988* (Cwlth). In 2002–03 the operating revenue (before extraordinary items) of these institutions amounted to \$11,224b, 42% of which came from Government grants. Government funding is also provided to higher education institutions through various research programs by the Australian Research Council and the National Health and Medical Research Council.

In addition to government funding, institutions receive revenue from students who are required to contribute to the cost of their education through the Higher Education Contribution Scheme (HECS), and from other fee-paying students. Higher education fees and charges have increased in importance in recent years. In 2002–03, 16.3% of operating revenue was raised from HECS, while other fees and charges accounted for a further 21.1% of operating revenue. These fees and charges included

\$1,449.8m from fee-paying overseas students, representing 59% of other fees and charges – a rise of 20% since 2001–02.

Some institutions rely more heavily than others on fees paid by overseas students. For example, the Central Queensland University, Curtin University of Technology in Western Australia and the Royal Melbourne Institute of Technology received 37.7%, 23.3% and 21.5% respectively of their revenue from fee-paying overseas students. This is well above the overall national average of 12.5%.

## Adult and community education (ACE)

ACE programs are typically provided by adult migrant education centres, evening colleges, language centres, welfare organisations and other community-based organisations. Educational institutions including universities and TAFE may also offer ACE programs. ACE complements the formal programs and qualification pathways provided by the schools, VET and higher education sectors. However, separate funding information for ACE is not available.

## Paying for university education

This article briefly examines the three main sources of funding for higher education – Australian Government funding; student fees and charges; and the Higher Education Contribution Scheme (HECS). While the proportion of total revenue raised through HECS is relatively small, HECS payments are a significant component of students' university costs, with many students carrying a HECS debt for several years after leaving university. This article also focuses on characteristics of university students based on their HECS liability status, and the level of accumulated HECS debt.

In 2002 the total operating revenue for Australian higher education institutions was \$11.6b, an increase from \$8.2b in 1997 (table 10.37). In 2002 the three largest sources of higher education funding were Australian Government contributions (\$4.7b), fees and charges (\$2.5b), and HECS (\$1.8b). Funding provided by the Australian Government to higher education increased from \$4.4b in 1997 to \$4.7b in 2002. As a proportion of overall funding, this represented a decrease from 54% in 1997 to 40% in 2002.

### 10.37 SOURCES OF HIGHER EDUCATION FUNDING

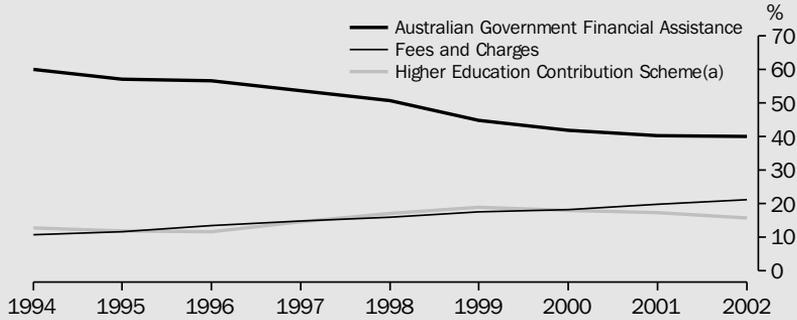
	Units	1997	2002
Australian Government	%	53.8	40.1
State and territory governments	%	1.1	4.0
HECS(a)	%	14.7	15.8
Fees and charges	%	14.9	21.2
Fee paying domestic students	%	1.5	2.8
Fee paying overseas students	%	7.6	12.5
Other fees and charges	%	5.8	5.9
Other income(b)	%	15.4	18.9
Total	%	100.0	100.0
Total revenue	\$b	8.2	11.6

(a) Includes student contributions and Australian Government payments. (b) Includes Postgraduate Education Loan Scheme, introduced in 2002; superannuation; investment income; royalties, trademarks and licenses; and consultancy and contract research.

Source: Department of Education, Science and Training, 'Selected Higher Education Finance Statistics, 1997'; 'Finance 2002: Selected Higher Education Statistics'.

Graph 10.38 shows the changing relative contributions of each of the three main sources of funding for higher education during the period 1994 to 2002.

### 10.38 MAIN SOURCES SHARE OF HIGHER EDUCATION FUNDING



(a) Includes student contributions and Australian Government payments.

Source: Department of Education, Science and Training, 'Selected Higher Education Finance Statistics 1994–1998'; 'Finance 1999–2002: Selected Higher Education Statistics'.

### Higher Education Contribution Scheme (HECS)

HECS was introduced in 1989. Under HECS, students choose to pay their contribution up-front or defer their payment, with the Australian Government providing a 25% discount to eligible students who pay up-front. Students who choose to defer their payment take out a loan with the government and agree to repay that loan when their income reaches the minimum threshold for compulsory repayment.<sup>1</sup>

Higher education students are either HECS-liable and required to contribute towards HECS through up-front or deferred payments, or HECS-exempt and not required to contribute to HECS. In general, undergraduate students are HECS-liable while postgraduate students are HECS-exempt and are therefore required to pay up-front fees unless they have a scholarship.

A feature of HECS is that payment arrangements are based on the individual's capacity to pay. This arrangement means that students are not prevented from participating in higher education by an inability to pay up-front. Students are not required to make payments until their personal income in a financial year exceeds the minimum threshold, which was \$24,365 for 2002–03. The level of payment required above this threshold depends on the person's income.<sup>2</sup>

The contribution of student fees and charges (other than HECS) to higher education funding more than doubled between 1997 and 2002, from \$1.2b to \$2.5b. This represented an increase in the proportion of overall funding from 15% in 1997 to 21% in 2002. This increase coincided with a large increase in the total number of overseas students (from 63,000 in 1997 to 185,000 in 2002) as well as the introduction of full-fee-paying places for domestic undergraduate students in 1998.

In 2002, \$1.8b was raised through HECS, representing 16% of all higher education funding. This compares with 15% raised through HECS in 1997.

### Students and HECS

Since the introduction of HECS the majority of higher education students have entered university with a commitment to make a substantial contribution to the cost of their education via HECS. In 1989 around 372,000 students were HECS-liable, increasing to 420,000 in 2002. There was a decrease over this period in the proportion of students who were HECS-liable, from 86% to 67%. The decrease in the proportion of HECS-liable students reflects increasing numbers of overseas students and domestic fee-paying students since the late-1990s – both of these groups are largely HECS-exempt (table 10.39).

### 10.39 HECS LIABILITY STATUS OF HIGHER EDUCATION STUDENTS

	1992	1997	2002
	%	%	%
HECS-liable	81.7	78.7	67.1
HECS-exempt	18.3	21.3	32.9
Overseas fee-paying	4.8	10.9	20.0
Domestic fee-paying	2.2	3.2	4.8
PELS-liability deferred(a)	..	..	1.8
Other HECS-exempt(b)	11.3	7.2	6.4
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

(a) Postgraduate's Education Loan Scheme (PELS) introduced in 2002. (b) Includes overseas foreign-aid sponsored students; Australian Postgraduate Awards; enabling courses; and non-award courses.

Source: Department of Education, Science and Training, 'Selected Higher Education Student Statistics', 1992 and 1997; 'Students 2002: Selected Higher Education Statistics'.

Most undergraduate students use the HECS system, either by paying up-front or deferring their payments. In 2002, 81% of students undertaking bachelor degrees and 79% of those undertaking advanced diplomas or diplomas were HECS-liable (table 10.40).

### 10.40 STUDENTS' LIABILITY STATUS, By level of education — 2002

	HECS-liable	HECS-exempt
	%	%
Postgraduate degree	8.0	92.0
Graduate diploma and Graduate certificate	27.6	72.4
Bachelor degree	81.3	18.7
Advanced diploma and Diploma	79.0	21.0
Other	10.8	89.2
<b>Total</b>	<b>67.1</b>	<b>32.9</b>

Source: Department of Education, Science and Training, 'Students 2002: Selected Higher Education Statistics'.

Since the introduction of HECS, the amount charged and the rate of repayment through the tax system have varied. In 1989, all students were charged a flat rate irrespective of their course of study. In 1997, a three-tiered system of

charges was introduced to reflect the differing cost structure of various courses and the differing potential earning capacity of graduates.<sup>2</sup>

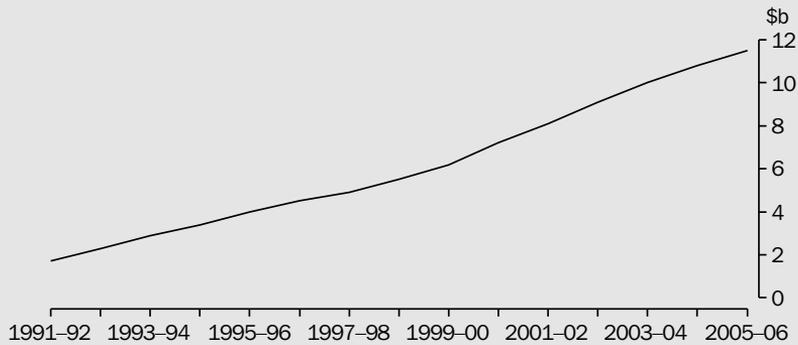
HECS-liable students have the option of paying their HECS fees up-front to obtain a discount (25% in 2004) or delaying payments until they have attained a certain level of income. At this time, a proportion of an individual's salary is paid towards their HECS debt through the income tax system. Of the 420,000 HECS-liable students in 2002, 79% deferred their payment while 21% paid up-front with a discount. Each year, the Australian Government contributes the difference between repayments received and the total HECS payments required to be made to the sector. In 2002, 17% of funding provided by HECS came from students' HECS contributions. The remaining 83% was paid by the Government through loans to students deferring their payments, ultimately paid back through the tax system.

From the introduction of the scheme in 1989, through to June 2003, over 1.7 million students have taken out HECS loans totalling around \$13b. Of these, more than 600,000 have repaid their loans in full.<sup>3</sup> During this period, the accumulated HECS debt has increased steadily to more than \$9b in 2003, and is estimated to reach \$12b by 2006 (graph 10.41).

In 2003 the average amount owing on individual HECS loans was \$8,500 overall. However, there was some variation across the states and territories with the average HECS debt ranging from \$6,900 in the Northern Territory to \$9,000 in the Australian Capital Territory.<sup>3</sup> Of the 1.2 million people with a HECS loan in 2003, around two-thirds owed \$10,000 or less, while 6% owed more than \$20,000.<sup>3</sup>

Over the decade to 2002 the number of HECS-exempt students almost doubled from 104,000 in 1992 to 206,000 in 2002. The increase in the number of HECS-exempt students over the

### 10.41 ACCUMULATED HECS DEBT(a)



(a) At 30 June. Figures for 2002-03 to 2004-06 are estimates.

Source: Australian Taxation Office, 2003; Department of Education, Science and Training.

decade to 2002 may be largely due to the increase in the number of overseas fee-paying students (5% of all students in 1992 compared with 20% in 2002). The majority of overseas students are full-fee-paying or are recipients of aid scholarships. In 2002 the majority (61%) of HECS-exempt students were overseas fee-paying students, more than twice the proportion of overseas fee-paying students in the HECS-exempt category in 1992 (26%).

As well as the increase in the number of overseas students over the decade to 2002, there was also an increase in the number of domestic fee-paying students. In 1992 only 2% of all students were domestic fee-paying students. This increased to 5% (or 30,000 students) in 2002. Full-fee-paying places for undergraduate courses were introduced in 1998. In 2002, 22% of domestic fee-paying students were undergraduates, increasing from 4% in 1998.

### Endnotes

- 1 Department of Education, Science and Training 2002, *DEST Annual Report 2001-2002*, DEST, Canberra.
- 2 Department of Education, Science and Training 2003, *Higher Education Report for the 2003 to 2005 Triennium*, DEST, Canberra.
- 3 Unpublished data provided by the Australian Taxation Office.

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Australian National Training Authority, last viewed October 2004 <<http://www.anta.gov.au>>

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National Centre for Vocational Education Research, last viewed October 2004 <<http://www.ncver.edu.au>>

## CRIME AND JUSTICE

The effects of criminal activity, as well as people's perceptions about the extent of such activity, are issues that impact directly or indirectly on the quality of people's lives. This chapter provides an overview of the Australian criminal justice system, including people's involvement with the system either as offenders or as victims of crime. As well as presenting data on the characteristics of crime victims and offenders and on outcomes from the justice process, the chapter also looks at levels of non-reporting of crime. The data presented are based on national crime and justice statistics produced by the Australian Bureau of Statistics (ABS). These are sourced from surveys such as the ABS Crime and Safety Survey and from administrative data that provide information about crimes recorded by police, about the volume and flow of work through the Criminal Courts, and about persons handled by correctional services agencies. Justice is primarily administered through state and territory governments, with local variation in legislation, processes and operational structures. However, by taking account of these differences, nationally comparable crime and justice statistics provide indicators of the level and nature of crime across Australia and the associated outcomes of the criminal justice system.

The chapter includes an article *Women in prison*.



## The criminal justice system

The criminal justice system consists of the state/territory and Australian Government institutions, agencies, departments and personnel responsible for dealing with the justice aspects of crime, victims of crime, persons accused or convicted of committing a crime, and related issues and processes.

The states and territories have independent legislative powers in relation to all matters that are not otherwise specifically vested in the Commonwealth of Australia. It is the statute law and the common law of the states and territories that primarily govern the day-to-day lives of most Australians.

The eight states and territories have powers to enact their own criminal laws, while the Commonwealth has powers to enact laws, including sanctions for criminal offences, in relation to its responsibilities under the Constitution. Thus there are nine different systems of criminal law in Australia. The existence of cooperative arrangements between the various states and territories and the Commonwealth, such as those relating to extradition or to the creation of joint police services, helps address issues that have arisen out of the separate development of these various systems of criminal law.

Each state and territory has its own police, courts and corrections systems that deal with offences against local laws and also federal laws in some cases. The federal criminal justice system deals with offences against Commonwealth laws. Criminal law is administered principally through the federal, state and territory police, the courts, and state and territory corrective services. As there is no independent federal corrective service, the relevant state or territory agencies provide corrective services for federal offenders.

The various agencies that comprise the criminal justice system act within a broader process in which criminal offenders interact with police, courts and corrective services. Diagram 11.1 illustrates the various stages involved in the

processing of criminal cases and shows some of the links between these three elements of the criminal justice system.

The police, as well as other agencies such as Australian Customs Service, are responsible for the prevention, detection and investigation of crimes. When alleged offenders are detected by police, they can be proceeded against either through the use of a non-court process (such as a caution, fine or diversionary conference) or charges may be laid before a criminal court. The court, including judicial officers and a jury (in the higher courts), with the assistance of the prosecution and the defence, determines the guilt or innocence of the defendant.

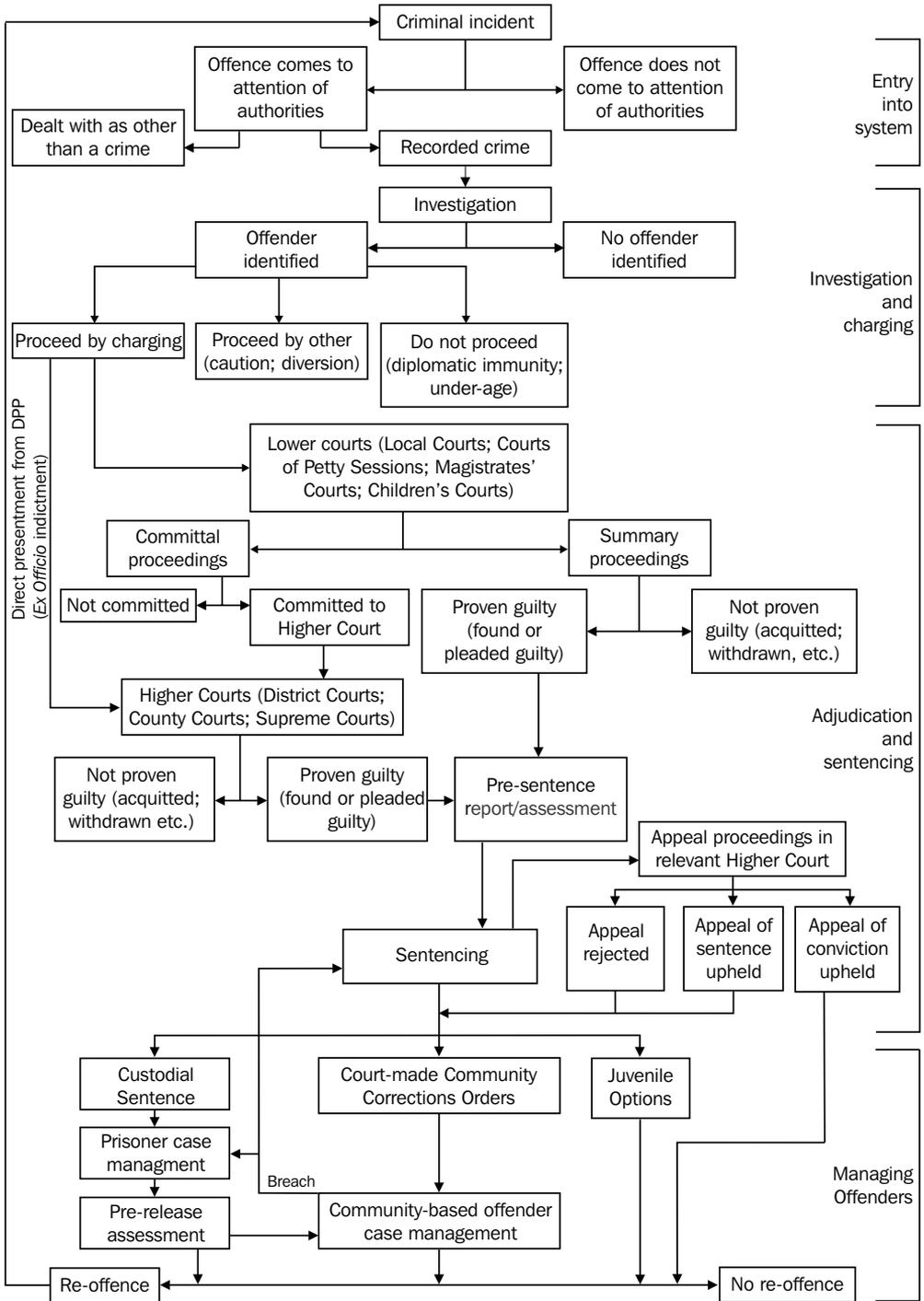
Following the hearing of the charges, in cases where a finding of guilt is made by the court, sentences may be imposed. These may include imprisonment, community service orders of various kinds, fines or bonds. A number of jurisdictions have also introduced penalties such as home detention or work outreach camps that are administered by correctional agencies.

## Expenditure on public order and safety

The Steering Committee for the Review of Commonwealth/State Service Provision, in its *Report on Government Services 2004*, estimated recurrent expenditure on justice in 2002–03 was approximately \$364 per person. This excluded spending by governments on items such as justice-related capital works (i.e. new police stations, prisons or court facilities). Of the total recurrent expenditure of \$7.2b in 2002–03, \$4.9b was spent on police services, and \$1.5b on corrective services (table 11.2).

Between 1999–2000 and 2002–03 and after adjustment for changes in prices, expenditure on corrective services grew at an annual average of 5.7%, and decreased for civil courts administration at an annual average of 7.2%.

### 11.1 FLOWS THROUGH THE CRIMINAL JUSTICE SYSTEM



Source: Adapted from ABS unpublished paper, 'National Criminal Justice Statistical Framework, July 2001'.

## 11.2 GOVERNMENT EXPENDITURE ON JUSTICE(a)(b)

Justice sector	1999–2000(c)	2000–01	2001–02(d)	2002–03(d)	Growth(c)(d)
	\$m	\$m	\$m	\$m	%
Police services	4 461.6	4 440.3	4 573.5	4 875.7	3.0
Court administration – criminal(e)	452.4	413.7	410.4	413.7	-2.9
Court administration – civil(f)	505.0	357.1	381.6	403.9	-7.2
Corrective services	1 266.7	1 298.0	1 402.3	1 494.5	5.7
<b>Total justice system</b>	<b>6 685.8</b>	<b>6 509.1</b>	<b>6 767.8</b>	<b>7 187.9</b>	<b>2.4</b>

(a) In 2002–03 dollars. (b) Excludes payroll tax. (c) In 1999–2000, court administration net recurrent expenditure included only a small portion of total revenue collected by courts. This has been rectified from 2000–01 and accounts for the large drop experienced in net recurrent expenditure in the following years (particularly in the civil courts). Care needs to be taken in comparing court expenditure in 1999–2000 with future years. (d) The data for court administration (criminal) include a large amount of income from electronic courts not previously reported. (e) Includes the cost of Magistrates' (including electronic and Children's), District/County, Supreme and Coroners' courts. (f) Includes Magistrates' (including Children's), District/County, and Supreme courts, Family Court, Federal Court of Australia and Family Court of WA. The Federal Magistrates Court was included for the first time in 2001–02. The data exclude the cost of probate hearings for all years.

Source: Steering Committee for the Review of Commonwealth/State Service Provision, 'Report on Government Services 2004'.

## The police

Australia is served by police agencies in each state and the Northern Territory, with the Australian Federal Police (AFP) being responsible for policing the Australian Capital Territory. The Australian Crime Commission (ACC) and the Australian Customs Service (ACS) also have responsibility for the maintenance of law, order and safety.

While the principal duties of the police are the prevention, detection and investigation of crime, the protection of life and property, and the enforcement of law to maintain peace and good order, they may perform a variety of additional duties in the service of the state. These duties include the prosecution of summary offences, regulation of street traffic, and performing duties as clerks of petty sessions, Crown land bailiffs, mining wardens and inspectors under fisheries and other relevant legislation.

With the exception of the AFP and the ACC, police in Australia are under the control of the relevant state and territory government. However their members also perform certain functions on behalf of the Australian Government such as the registration of aliens, and the enforcement of

various Commonwealth Acts and Regulations in conjunction with the AFP and other Commonwealth officers.

## Commonwealth policing agencies

### Australian Federal Police (AFP)

The AFP is a statutory authority established by the *Australian Federal Police Act 1979* (Cwlth). The AFP has its headquarters in Canberra. Its Criminal Investigations Program is conducted through six Regional Commands, its Headquarters Investigations Department and its numerous liaison officers in many countries.

The AFP is responsible for the prevention, detection and investigation of criminal offences such as drug offences, money laundering and organised crime, identifying the proceeds of crime, and investigation of fraud against Commonwealth revenue and expenditure such as social security and taxation fraud. In the Australian Capital Territory, the AFP provides a full range of general community policing services, including traffic control, special operations, search and rescue services and conventional crime investigations.

## Australian Crime Commission (ACC)

The ACC brings together the skills and functions of the former National Crime Authority, the Australian Bureau of Criminal Intelligence, and the Office of Strategic Crime Assessments. The merging of these agencies provides a coordinated national criminal intelligence framework. It allows the setting of national intelligence priorities to avoid duplication; allows areas of new and emerging criminality to be identified and investigated; and provides for investigations to be intelligence driven.

The ACC has in-house and taskforce access to all coercive and investigatory powers that had been available to the NCA. Special investigations are undertaken by the ACC and these include firearms trafficking, South-East Asian organised crime, established criminal networks, money laundering and tax fraud on the Commonwealth. There are also two ACC intelligence operations on amphetamines and other synthetic drugs, and vehicle rebirthing.

## Australian High Tech Crime Centre (AHTCC)

The concept of a national centre to coordinate the efforts of Australian law enforcement in combating serious crime involving complex technology was a priority identified by the Australasian Police Commissioners' Conference in its *Electronic Crime Strategy, March 2001* and was endorsed by the Australasian Police Ministers Council in November 2002. The Australian Police Commissioners recommended the creation of a single centre to

deliver this capability. The AHTCC, hosted by the AFP, includes representation from all state and territory police forces both in its staff and its Board of Management.

The main strength of the AHTCC lies in leveraging the capabilities of each member agency and in coordinating effort to combat high tech crime. In addition, the AHTCC brings national consistency to the management of referrals, training, education, intelligence, policy advice and investigations.

## Number of sworn police officers

The number of sworn police officers in the various police services is shown in table 11.3. The figures in the table are not directly comparable across the various jurisdictions, as those for ACC and AFP do not differentiate between full-time and part-time officers, whereas those for the states and territories are on a full-time equivalent basis.

Between 2001–02 and 2002–03 all states and territories (except Tasmania and the Northern Territory) experienced increases in the number of sworn police officers, with the largest increases occurring in New South Wales and Victoria both (3%). The number of sworn police officers per 100,000 persons decreased by 22% in the Northern Territory and marginally in Western Australia and Tasmania (both approximately 1%). However, the Northern Territory still had a noticeably higher rate of sworn police officers, at 396 per 100,000.

**11.3 SWORN POLICE OFFICERS(a)**

Police officers	2001–02		2002–03	
	no.	rate per 100,000	no.	rate per 100,000
Australian Crime Commission(b)	116	n.a.	133	n.a.
Australian Federal Police(c)	1 459	n.a.	1 703	n.a.
New South Wales	13 716	208	14 091	212
Victoria	9 926	206	10 256	210
Queensland	7 994	220	8 180	220
South Australia	3 702	245	3 766	248
Western Australia(d)	4 778	251	4 786	248
Tasmania	1 094	232	1 094	231
Northern Territory(e)	954	483	783	396
Australian Capital Territory	584	183	594	184

(a) Where possible, based on full-time equivalents (FTE), except for the ACC, AFP and ACT figures which are based on actual number of sworn officers. NSW data for both years are based on a headcount at 30 June, and are not FTE data. (b) Seconded officers from home force. Figures are based on actual number of sworn officers at 30 June for each year. (c) Excludes the AFP officers who were responsible for ACT policing and who were separately counted against the ACT. (d) For 2001–02, WA data excluded 130 recruits in training. (e) For the NT, sworn police officers include Police auxiliaries and Aboriginal Community Police Officers.

Source: Australian Federal Police 'Annual Report, 2002–03'; National Crime Authority, 'Annual Report, 2002–03'; Steering Committee for the Review of Commonwealth/State Service Provision, 'Report on Government Services 2004', Attachment 5A for state and territory figures; Australian Crime Commission 'Annual Report 2002–03', Appendix B.

## National crime statistics

National crime statistics aim to provide comparable data across the states and territories for selected crimes in Australia.

There are two sources of national crime statistics: crimes recorded by police, and crime victimisation surveys. Crimes recorded by police relate to victims of criminal incidents who have become known to police and whose experiences have been recorded by police. These offences may have been reported by a victim, witness or other person, or they may have been detected by police. These statistics do not provide a total picture of crime, as not all crimes come to the attention of police. In addition, care should be taken in interpreting police statistics, as fluctuations in recorded crime may be a reflection of changes in community attitudes to reporting crime, changes and differences in police procedures or resources, or changes and differences in crime recording systems, rather than a change in the incidence of criminal behaviour. Significant events occurring in particular years may also contribute to fluctuations in recorded crime.

A complementary picture of the nature and extent of crime comes from crime victimisation surveys. One of the primary reasons for conducting victimisation surveys is that many victims of crime do not report their experiences to the police, and so are not counted in police data. Victimisation surveys provide more information about the broader community experience of crime, including the volume of crime that is not officially recorded. Crime victimisation surveys are suitable for measuring crimes against individuals (or households) who are aware of and recall the incident and how it happened, and who are willing to relate what they know. These surveys allow crime information to be related to personal and household characteristics, and facilitate the study of patterns of victimisation over time and across crime categories.

Reliable and comprehensive information about certain types of crime such as sexual offences and assaults are difficult to obtain. Problems arise from issues of perception (e.g. whether an incident was one of sexual assault and whether it was a crime) and therefore of self-classification by both the victim and the perpetrator. Under-reporting, hidden reporting, under-recording and hidden recording are also issues that limit attempts to

measure particular crimes. In some instances, there may also be reporting of incidents which were not in fact crimes.

Not all types of crime are suitable for measurement by household surveys. No reliable victim-based information can be obtained about crimes where there is no specific victim (e.g. trafficking in narcotics) or where the victim is deceased (e.g. murder). Crimes of which the victim may not be aware cannot be measured effectively; some instances of fraud and many types of attempted crimes fall into this category.

## Households and individuals experiences of crime

### Crimes affecting households and persons

Households and individuals in Australia report experiencing a diverse range of crimes. The ABS Crime and Safety Survey focuses on those categories of more serious crime that affect the largest number of people: household break-in, motor vehicle theft, assault (including sexual assault) and robbery.

In the 12 months ended April 2002, 4.7% of households had at least one break-in to their home, garage or shed and 3.4% found signs of at least one attempted break-in (table 11.4). Less than 2% of households experienced at least one motor vehicle theft.

An estimated 0.6% of persons aged 15 years and over reported that they were victims of robbery and 4.7% of persons aged 15 years and over were victims of assault in the 12 months prior to April 2002. Over the same period, an estimated 0.4% of females and 0.1% of males aged 18 years and over reported that they were victims of sexual assault.

Compared with the preceding survey (1998), small increases were observed in the victimisation prevalence rate for assault (increasing from 4.3% in 1998 to 4.7% in 2002) and for total personal crimes (increasing from 4.8% in 1998 to 5.3% in 2002). There were no significant differences in victimisation prevalence rates for household crimes across 1998 and 2002.

#### 11.4 VICTIMS OF CRIME — 12 months prior to April 2002

Type of crime	Victims '000	Victimisation prevalence rate(a)	
		1998 %	2002 %
<b>Households</b>			
Break-in	(b)354.0	5.0	4.7
Attempted break-in	(b)254.6	3.2	3.4
Break-in/attempted break-in(c)	(b)553.5	7.6	7.4
Motor vehicle theft	(b)134.3	1.7	1.8
<b>Total(d)</b>	<b>(b)665.4</b>	<b>9.0</b>	<b>8.9</b>
<b>Persons</b>			
Robbery	(e)95.8	0.5	0.6
Assault	(e)717.9	4.3	4.7
Sexual assault	(f)33.0	(g)0.4	(h)0.2
<b>Total(i)</b>	<b>811.7</b>	<b>4.8</b>	<b>5.3</b>

(a) The number of victims of an offence in a given population as a percentage of that population. (b) Households. (c) Break-in/attempted break-in includes households that were victims of either a break-in or an attempted break-in, or both. Therefore the figures for break-in/attempted break-in are less than the sum of the break-in and attempted break-in figures. (d) Total household crimes is less than the sum of the components as households may be victims of more than one type of offence. (e) Persons aged 15 years and over. (f) Persons aged 18 years and over. (g) Females aged 18 years and over. (h) Persons aged 18 years and over. The victimisation prevalence rate for females was 0.4% and 0.1% for males. (i) Total personal crimes is less than the sum of the components as persons may be victims of more than one type of offence.

Source: *Crime and Safety, Australia, April 2002 (4509.0)*.

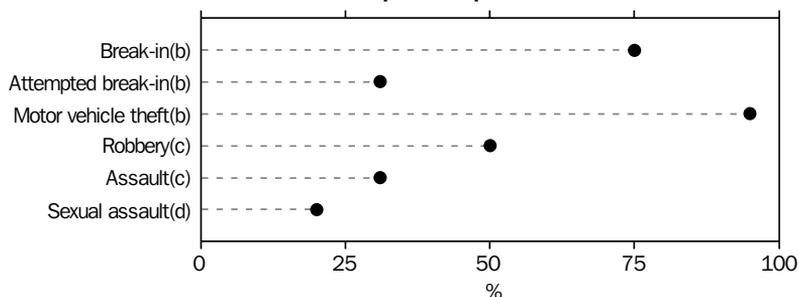
#### Reporting to police

Crime is not always reported to the police, with many factors influencing whether or not a crime is reported. In particular, rates of reporting to the police vary depending on the type of offence, as shown in graph 11.5. People are much more likely to report crimes against property to the police (a requirement for any associated insurance claim) than crimes against the person (i.e. assault or sexual assault). In 2002, rates of reporting to police varied from 20% for female victims of sexual assault to 95% for household victims of motor vehicle theft.

#### Neighbourhood safety

Overall around three quarters of persons aged 15 years and over perceived that there were problems with crime and/or public nuisance issues in their neighbourhoods. The most commonly perceived problem was housebreaking/burglaries/theft from homes (44% perceived this as a problem). Other commonly perceived problems were dangerous/noisy driving (39%), vandalism/graffiti/damage to property (27%) and car theft (25%) (graph 11.6).

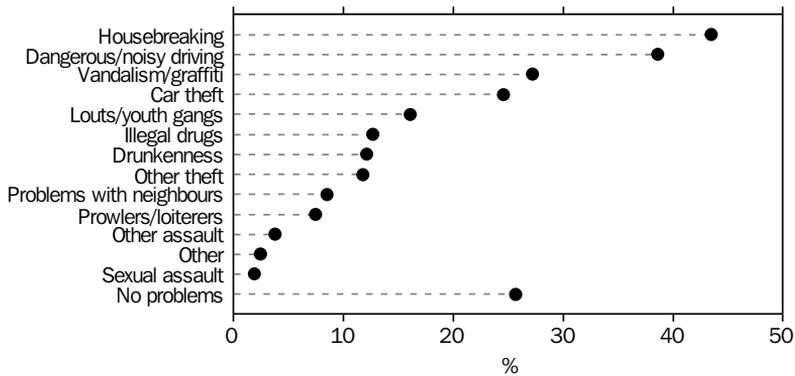
11.5 REPORTING RATE(a) TO POLICE OF MOST RECENT INCIDENT — 12 months prior to April 2002



(a) Of household/person victims. (b) Households. (c) Persons aged 15 years and over. (d) Females aged 18 years and over.

Source: *Crime and Safety, Australia, April 2002 (4509.0)*.

### 11.6 NEIGHBOURHOOD PROBLEMS — April 2002



Source: *Crime and Safety, Australia, April 2002 (4509.0)*.

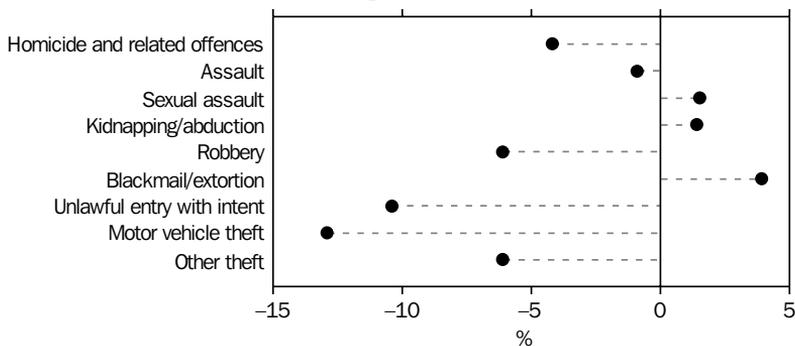
### Crimes recorded by police

Overall the number of victims recorded by police declined in most offence categories in 2003 when compared with the number reported 2002. This was particularly the case for offences involving the taking of property. Motor vehicle theft decreased by 13% and unlawful entry with intent decreased by 10%. Victims of robbery fell by 6% with armed robbery falling by 9% and unarmed robbery by 5%. Other offence categories to record a decrease included other theft (6%), homicide and related offences (4%) and assault (1%).

Graph 11.7 shows the change in the number of victims of crime for selected offence categories.

Other theft (which includes theft from persons, retail premises and motor vehicles) continues to be the offence category with the highest number of offences recorded. In 2003 there were 638,968 recorded victims of other theft, a decline of just over 40,000 since 2002 (table 11.8).

### 11.7 VICTIMS(a), Change in number — 2002 to 2003



(a) The definition of a victim varies according to the category of the offence.

Source: *Recorded Crime - Victims, Australia, 2003 (4510.0)*.

### 11.8 VICTIMS AND VICTIMISATION RATES, By selected offences recorded by police

	1998	1999	2000	2001	2002	2003
NUMBER						
<i>Homicide and related offences</i>	995	970	1 020	1 064	979	938
Murder	285	343	315	311	317	302
Attempted murder	387	359	393	460	400	352
Manslaughter	47	43	48	35	48	39
Driving causing death	276	225	264	258	214	245
Assault	130 903	134 271	138 708	152 283	160 118	158 629
Sexual assault	14 336	14 104	15 759	16 897	17 977	18 237
Kidnapping/abduction	705	766	693	767	706	716
<i>Robbery</i>	23 801	22 606	23 336	26 591	20 989	19 719
Armed robbery	10 850	9 452	9 483	11 233	7 840	7 162
Unarmed robbery	12 951	13 154	13 853	15 358	13 149	12 557
Blackmail/extortion	272	255	257	355	356	370
<i>Unlawful entry with intent</i>	434 376	415 735	436 968	435 754	394 323	353 419
Property theft	339 512	322 983	(a)n.a.	325 220	292 748	261 030
Other	94 864	92 752	(a)n.a.	110 534	101 575	92 389
Motor vehicle theft	131 587	129 552	138 912	139 894	113 460	98 813
Other theft	563 482	612 559	681 268	700 137	680 799	638 968
RATE PER 100,000 PERSONS						
<i>Homicide and related offences</i>	5.3	5.1	5.3	5.5	5.0	4.7
Murder	1.5	1.8	1.6	1.6	1.6	1.5
Attempted murder	2.1	1.9	2.1	2.4	2.0	1.8
Manslaughter	0.3	0.2	0.3	0.2	0.2	0.2
Driving causing death	1.5	1.2	1.4	1.3	1.1	1.2
Assault	699.0	709.2	724.2	784.5	815.3	798.0
Sexual assault	76.6	74.5	82.3	87.1	91.5	91.7
Kidnapping/abduction	3.8	4.0	3.6	4.0	3.6	3.6
<i>Robbery</i>	127.1	119.4	121.8	137.0	106.9	99.2
Armed robbery	57.9	49.9	49.5	57.9	39.9	36.0
Unarmed robbery	69.2	69.5	72.3	79.1	67.0	63.2
Blackmail/extortion	1.5	1.3	1.3	1.8	1.8	1.9
<i>Unlawful entry with intent</i>	2 319.5	2 195.7	2 281.4	2 244.9	2 007.9	1 777.9
Property theft	1 812.9	1 705.8	(a)n.a.	1 675.5	1 490.7	1 313.1
Other	506.6	489.9	(a)n.a.	569.5	517.2	464.8
Motor vehicle theft	702.7	684.2	725.2	720.7	577.8	497.1
Other theft	3 008.9	3 235.2	3 556.8	3 607.0	3 466.7	3 214.3

(a) A change in the legislation related to unlawful entry with intent (UEWI) offences in SA resulted in an inability to provide UEWI disaggregated into property theft and other for 2000.

Source: Recorded Crime - Victims, Australia, 2003 (4510.0).

## Personal crime

Based on reports to police, males were more likely than females to be victims of personal crime, with the exception of sexual assault and kidnapping/abduction (graph 11.9).

Assault was the most common category of offence recorded against the person during 2003 (table 11.8). Police recorded 158,629 victims of assault in 2003, a 1% decrease over the previous year and 21% higher than in 1998. The assault victimisation rate for 2003 was 798 per 100,000 persons, a 2% decrease from 2002 (815 per 100,000). This was the first decrease in the victimisation rate for this offence category since 1995.

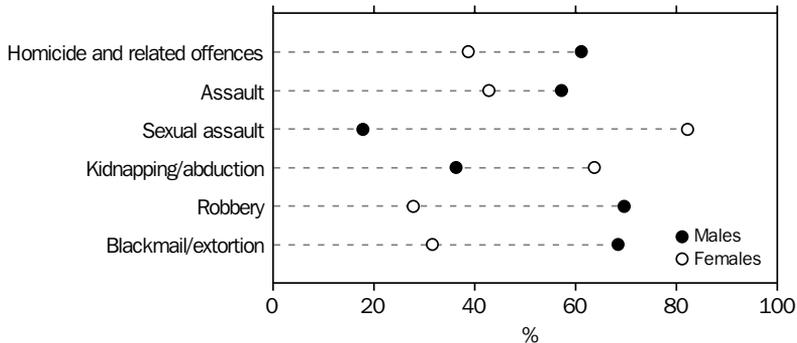
In 2003 the recorded sexual assault victimisation rate reached its highest level since national sexual assault records began in 1993. The 2003 sexual assault victimisation rate (92 victims per 100,000 persons) is 23% higher than the rate in 1999 (75 victims per 100,000 persons). In addition, the recorded sexual assault victimisation rate in 2003 for females (149 female victims per 100,000 females) was more than four times the male victimisation rate (33 male victims per 100,000 males). The total number of cases of sexual assault recorded in 2003 (18,237) represents an increase of 29% over the number recorded in 1999 (14,104).

There were 302 victims of murder in 2003, representing a rate of approximately 2 victims per 100,000 persons. The annual recorded counts for murder victims have fluctuated over the period 1998 to 2003, partly due to some specific incidents: in South Australia in 1999, where 12 bodies were discovered at Snowtown; in Western Australia in 1999, where 9 victims resulted from 2 family murder/suicide incidents; and in Queensland in 2000, where 15 victims of the fire at Childers were recorded. Despite this fluctuation in the number of murder victims, the rate has remained relatively stable over the last six years, at approximately 2 murder victims per 100,000 persons.

## Property crime

Unlawful entry with intent (UEWI) and other theft are the most frequently occurring property offences. The UEWI victimisation rate decreased by 23% between 1998 and 2003 to 1,778 victims per 100,000 persons in 2003, and is the lowest rate since national records began in 1993. The 2003 rate for other theft was 3,214 victims per 100,000 persons, 7% lower than in 2002, but representing a 7% increase since 1998. The victimisation rate for motor vehicle theft is at its lowest rate since 1993. The 2003 motor vehicle theft rate of 497 victims per 100,000 persons was 14% lower than in the previous year and 29% lower than in 1998.

11.9 VICTIMS(a), Offence categories — 2003



(a) Refers to individual persons and does not include victims for whom sex was not specified.

Source: Recorded Crime - Victims, Australia, 2003 (4510.0).

## Characteristics of victims

The victimisation rate varied across certain offence categories, and across different age groups and sex. Persons in the 15–19 year and 20–24 year age groups experienced the highest assault rates (over 1,600 per 100,000 population) – more than twice the total assault victimisation rate (table 11.10). Persons aged 15–19 years were three and a half times more likely to be victims of robbery than the general population. The victimisation rate for robbery was the highest in the 20–24 year age

group for females (117 per 100,000 population) but highest in the 15–19 year age group for males (468 per 100,000 population).

For sexual assault, males aged 14 years and under had the highest victimisation rate (89 per 100,000 population) of any male age group and their rate was nearly three times that of the general male population. For females, the highest sexual assault victimisation rate was for the 10–19 year age group (497 per 100,000 population) – over three times the rate for the general female population.

### 11.10 VICTIMISATION RATES(a) OF SELECTED CRIMES(b) — 2003

Age group (years)	Offence category							
	Murder	Attempted murder	Driving causing death	Assault	Sexual assault	Kidnapping/abduction	Robbery(c)	Blackmail/extortion(c)
<b>MALES</b>								
0–9	0.7	0.8	n.p.	162.0	89.9	3.7	4.5	n.p.
10–14	n.p.	n.p.	n.p.	760.1	87.9	6.7	114.1	n.p.
15–19	2.4	2.1	3.3	1 825.6	64.9	5.7	467.9	4.4
20–24	2.1	6.0	1.6	1 852.8	24.7	5.7	310.9	3.0
25–34	3.6	3.9	1.6	1 594.5	18.6	2.5	144.7	3.3
35–44	2.8	3.5	1.2	1 026.5	13.3	1.2	77.0	3.2
45–54	1.8	1.4	1.0	644.1	7.8	0.7	61.2	2.4
55–64	1.9	1.1	n.p.	357.9	2.2	n.p.	38.4	2.3
65 and over	0.9	n.p.	n.p.	126.2	n.p.	n.p.	18.2	n.p.
All ages(d)	2.0	2.4	1.1	918.8	33.0	2.6	115.8	2.3
<b>FEMALES</b>								
0–9	1.0	1.0	n.p.	104.7	195.8	6.2	1.7	n.p.
10–14	n.p.	n.p.	n.p.	510.7	474.7	11.6	18.3	—
15–19	n.p.	n.p.	1.9	1 425.6	519.6	16.5	111.3	1.6
20–24	2.1	1.8	n.p.	1 415.5	213.6	8.6	117.0	2.2
25–34	1.2	1.9	0.8	1 159.4	122.7	3.5	71.9	1.4
35–44	1.1	1.1	n.p.	794.4	73.9	1.7	44.6	1.3
45–54	n.p.	1.1	n.p.	413.1	30.9	n.p.	45.4	1.1
55–64	n.p.	n.p.	n.p.	183.8	10.8	n.p.	35.5	1.0
65 and over	n.p.	n.p.	n.p.	60.4	5.2	n.p.	29.3	n.p.
All ages(d)	0.9	1.1	0.6	663.9	148.8	4.5	49.8	1.0
<b>PERSONS</b>								
0–9	1.0	1.0	n.p.	137.6	141.7	5.0	12.0	n.p.
10–14	n.p.	n.p.	n.p.	639.7	276.9	9.1	67.7	n.p.
15–19	1.7	1.7	2.6	1 635.5	287.7	11.0	294.6	3.1
20–24	2.1	3.9	1.2	1 642.7	117.8	7.2	216.4	2.6
25–34	2.4	2.9	1.3	1 380.9	71.2	3.0	108.4	2.3
35–44	1.9	2.3	0.7	913.7	43.9	1.5	61.1	2.2
45–54	1.2	1.3	0.7	530.0	19.4	0.6	53.4	1.7
55–64	1.0	0.7	0.5	272.9	6.5	n.p.	37.1	1.7
65 and over	0.7	0.5	0.6	90.1	3.1	n.p.	24.5	0.4
All ages(d)	1.5	1.8	1.2	798.0	91.7	3.6	84.2	1.7

(a) Rate per 100,000 persons. (b) As recorded by police forces in all jurisdictions. (c) Refers to individual person victims only and therefore does not include organisations as victims. (d) Includes victims for whom age and/or sex was not specified.

Source: Recorded Crime - Victims, Australia, 2003 (4510.0).

## Weapons used against victims of crime

A weapon was most likely to have been used in attempted murder (76%) and murder (58%), and least likely in sexual assault (1%) in 2003. The proportion of murders involving a weapon peaked in 1996 at 78% and has since declined to 58% in 2003; similarly for attempted murders weapon use peaked in 1997 at 87% and decreased to 76% in 2003 (graph 11.11). The proportion of assault offences involving a weapon increased from 10% in 1995 to 13% in 2003. The proportion of robberies in which a weapon was used increased each year from 36% in 1994 to 46% in 1998, and has since gradually declined to 36% in 2003 (table 11.12).

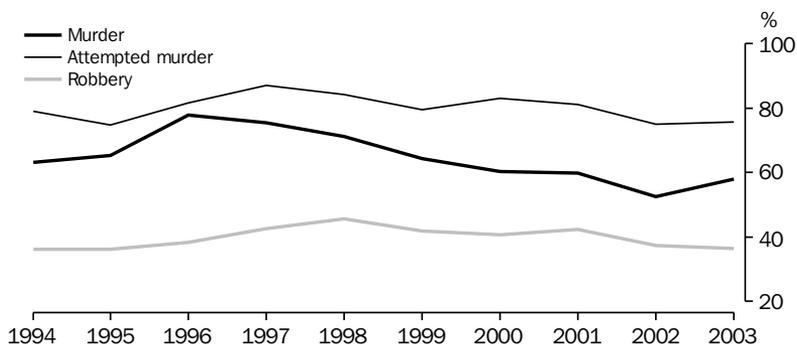
For assaults involving a weapon, 'other weapon' (which includes sharp or blunt instruments, hammers, axes, clubs, ropes and chemicals)

accounted for 64% of weapon use in assault, whereas a knife accounted for 28% and a firearm for only 3%.

For robberies that involved a weapon, the proportion involving a firearm decreased from 36% in 1994 to 15% in 2003. A firearm was involved in 20% of attempted murders, 13% of murders and 6% of robberies. Firearm use in murders peaked at 32% in 1996, but has since declined steadily to 13% in 2003 which is the lowest level on record. For attempted murders in 2003, a firearm was used in 20% of offences, marginally above its low of 19% in 1998 and well below its high of 32% in 1999 (graph 11.13).

A knife was the most common type of weapon used for attempted murders (33%), murders (28%) and robberies (19%).

**11.11 VICTIMS(a), Weapon used in commission of offence**



(a) Refers to individual persons.

Source: Recorded Crime - Victims, Australia, 2003 (4510.0).

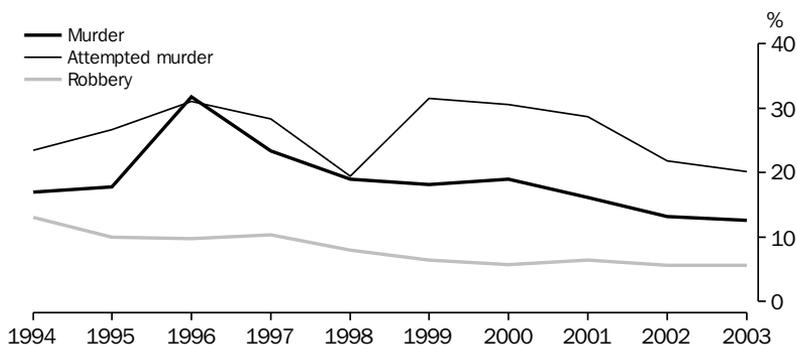
### 11.12 VICTIMS(a), By use of weapon in commission of offence — 2003

Weapon use	Offence category					
	Murder	Attempted murder	Assault	Sexual assault	Kidnapping/abduction	Robbery
NUMBER						
Weapon used						
Firearm	38	71	657	9	22	1 108
Knife	86	115	5 568	121	61	3 759
Syringe	1	—	154	6	1	361
Other weapon	41	59	12 964	104	18	1 217
Total(b)	175	266	20 203	247	117	7 162
No weapon used(c)	127	86	138 426	17 990	599	12 557
Total	302	352	158 629	18 237	716	19 719
PROPORTION (%)						
Weapon used						
Firearm	12.6	20.2	0.4	(d)n.p.	3.1	5.6
Knife	28.5	32.7	3.5	0.7	8.5	19.1
Syringe	(d)n.p.	—	(d)n.p.	(d)n.p.	(d)n.p.	1.8
Other weapon	13.6	16.8	8.2	0.6	2.5	6.2
Total(b)	57.9	75.6	12.7	1.4	16.3	36.3
No weapon used(c)	42.1	24.4	87.3	98.6	83.7	63.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

(a) The definition of a victim varies according to the category of the offence. (b) Includes offences where a weapon was used but was not further defined. (c) Includes offences where weapon use was not known or not stated. (d) Not separately published, included in Total.

Source: Recorded Crime - Victims, Australia, 2003 (4510.0).

### 11.13 VICTIMS(a), Firearm used in commission of offence



(a) Refers to individual persons.

Source: Recorded Crime - Victims, Australia, 2003 (4510.0).

## Drug offences

The traffic in, and abuse of, illicit drugs results in significant social and financial costs to both individuals and the community. To minimise the harm associated with illicit drug activity, there is close cooperation between the Australian Government, the state and territory governments, the various police services and other law enforcement agencies. Included in these agencies is the ACS which has, among other things, responsibility for the enforcement of laws controlling the import and export of illicit drugs. These agencies direct particular attention to monitoring the various types and forms of illicit drugs and identifying emerging patterns of use through the analysis of law enforcement data on illicit drug seizures and arrests.

In 2002–03 by far the largest category of drug arrests involved cannabis offences, with 55,689 arrests, or 74% of the national total (table 11.14).

Queensland recorded over a third of these arrests (19,879). The next largest category of arrests involved amphetamine offences, with 8,313 arrests, or 11% of the national total.

Arrests for most types of drugs increased between 2001–02 and 2002–03 (graph 11.15). Heroin arrests rose by 17% to 3,824 after declining markedly between 1998–99 and 2001–02. Amphetamines arrests increased by 5%, continuing the increase that occurred between 1997–98 and 2000–01. Arrests and infringement notices for cannabis rose slightly to 55,689, after declining steadily between 1997–98 and 2000–01. The only drug type to show a clear decrease in arrests in 2002–03 was cocaine, which declined by 59% to 250.

Information on the widespread problems arising from drug abuse in Australia, and on how these problems are being approached, is presented in the *Australian Illicit Drug Report* produced by the ACC.

**11.14 DRUG ARRESTS(a) — 2002–03**

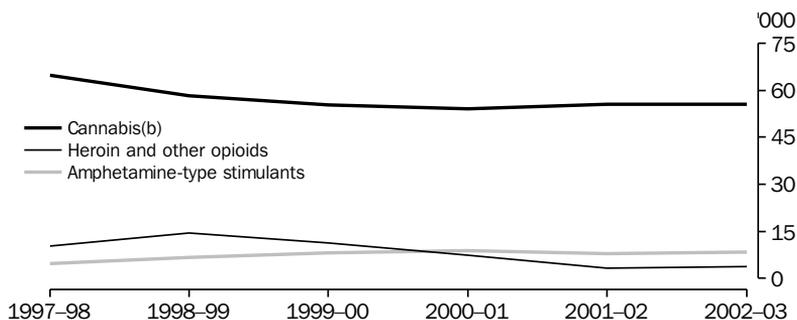
Drug type	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
NUMBER									
Cannabis(b)	12 368	7 022	19 879	7 877	6 028	1 830	405	280	55 689
Cocaine	148	51	36	5	8	—	—	2	250
Heroin and other opioids	1 287	1 951	298	52	186	9	1	40	3 824
Amphetamine-type stimulants	2 070	1 842	2 533	388	1 300	66	50	64	8 313
Hallucinogens	29	39	22	16	17	1	—	—	124
Steroids	33	3	54	—	15	2	3	3	113
Other drugs(c)	1 132	931	3 986	139	304	86	—	82	6 660
<b>Total</b>	<b>17 067</b>	<b>11 839</b>	<b>26 808</b>	<b>8 477</b>	<b>7 858</b>	<b>1 994</b>	<b>459</b>	<b>471</b>	<b>74 973</b>
RATE PER 100,000 ADULT(d) POPULATION									
Cannabis(b)	185.6	143.7	529.5	517.4	311.2	385.8	204.5	86.9	281.9
Cocaine	2.2	1.0	1.0	0.3	0.4	—	—	0.6	1.3
Heroin and other opioids	19.3	39.9	7.9	3.4	9.6	1.9	0.5	12.4	19.4
Amphetamine-type stimulants	31.1	37.7	67.5	25.5	67.1	13.9	25.2	19.9	42.1
Hallucinogens	0.4	0.8	0.6	1.1	0.9	0.2	—	—	0.6
Steroids	0.5	0.1	1.4	—	0.8	0.4	1.5	0.9	0.6
Other drugs(c)	17.0	19.1	106.2	9.1	15.7	18.1	—	25.5	33.7
<b>Total</b>	<b>256.2</b>	<b>242.4</b>	<b>714.1</b>	<b>556.8</b>	<b>405.7</b>	<b>420.4</b>	<b>231.7</b>	<b>146.2</b>	<b>379.5</b>

(a) The arrest data for each state and territory include AFP data. (b) The SA, NT and ACT figures include infringement notices.

(c) 'Other drugs' includes phencyclidine (PCP or 'angel dust'), diazepam, lignocaine, benzocaine, dothiepin, flunitrazepam, other prescription drugs, and any drug not included in the other categories. (d) Persons aged 18 years and over in all states and territories except Vic. and Qld, where 'adult' refers to persons aged 17 years and over.

Source: Australian Crime Commission, 'Illicit Drug Data Report, 2002–03'.

### 11.15 SELECTED DRUG ARRESTS(a)



(a) The arrest data for each state and territory include AFP. (b) The SA, NT and ACT figures include infringement notices.

Source: Australian Crime Commission, 'Illicit Drug Data Report, 2002-03'.

## Outcomes of police investigations

Statistics about the outcomes of police investigations describe the status of the processes of police investigations that are initiated following the reporting or detection of an offence. At any point in time, the status of investigations can include:

- not finalised (i.e. were still continuing, were pending or were suspended)
- finalised without an offender being proceeded against because the reported offence was not verified, the complaint was withdrawn, or the alleged offender could not be proceeded against because of some statutory or procedural bar

- finalised and an offender was proceeded against by initiating court action or some other form of formal proceeding (e.g. a diversionary conference or a formal caution).

In 2003 a higher proportion of offences against the person (murder, attempted murder, assault, sexual assault, kidnapping/abduction and robbery) reached a finalised status within 30 days of initiation of the investigation than was the case for offences against property (UEWI and motor vehicle theft offences). Similarly, the proportion of offenders proceeded against was higher for offences against the person than for property offences (table 11.16). Over half of all finalised sexual assault investigations resulted in no offender being proceeded against.

### 11.16 VICTIMS OF RECORDED CRIME(a), By outcome of investigations at 30 days — 2003

Investigation status	Murder %	Attempted murder %	Assault %	Sexual assault %	Kidnapping/ abduction %	Robbery(b) %	UEWI(c) %	Motor vehicle theft %
Investigation not finalised	36.4	32.1	40.9	62.0	62.3	79.2	92.1	88.8
Investigation finalised								
No offender proceeded against	8.3	5.7	13.2	20.1	15.6	5.5	1.7	3.3
Offender proceeded against	55.3	62.2	45.9	17.7	22.1	15.3	6.2	7.9
Total	63.6	67.9	59.0	37.8	37.7	20.7	7.9	11.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) For selected offences recorded by police during 1 January–31 December 2003. (b) Robbery includes both armed and unarmed robbery. (c) Unlawful entry with intent.

Source: Recorded Crime - Victims, Australia, 2003 (4510.0).

## Courts

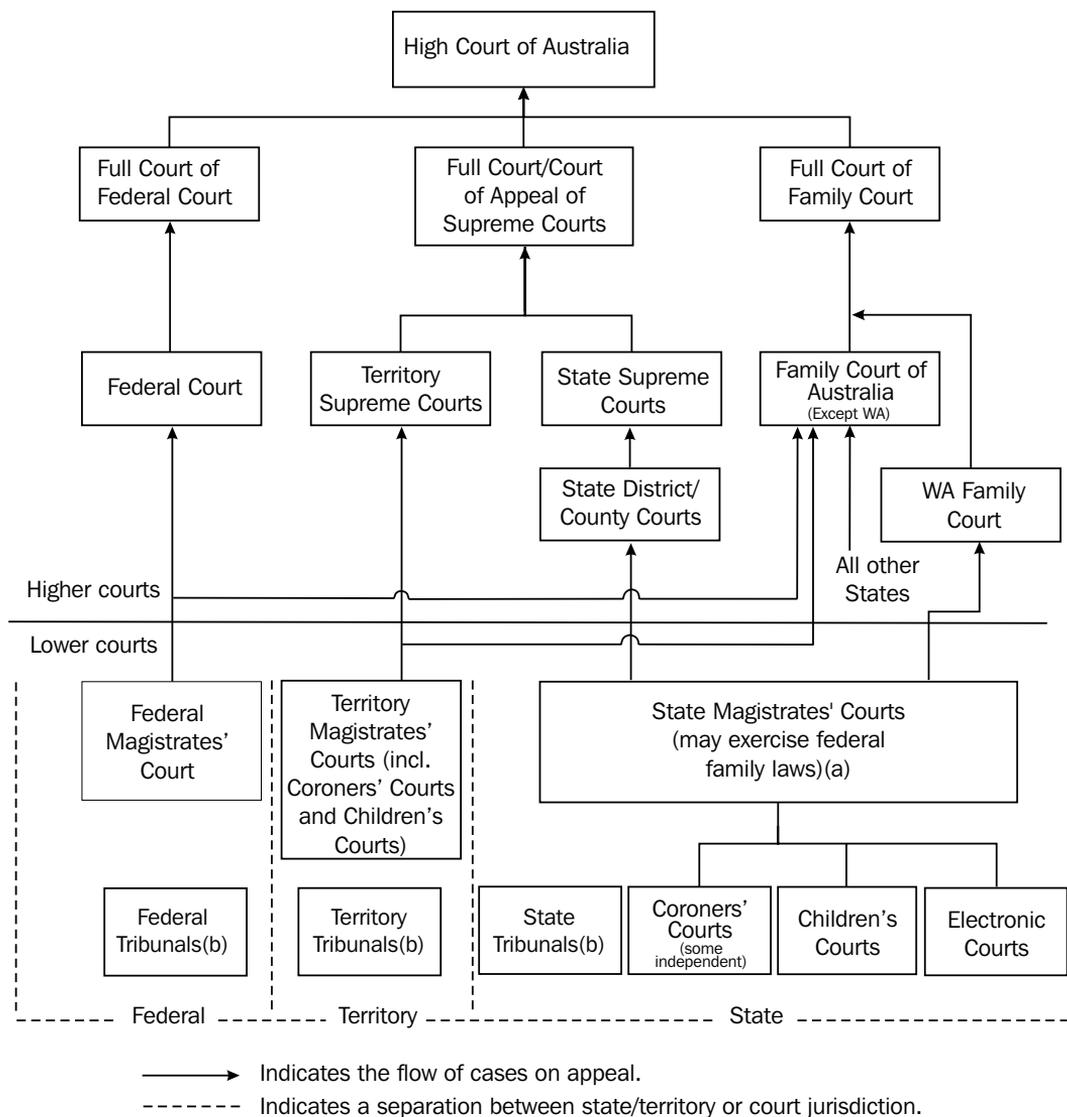
Many courts and court-related tribunals operate throughout Australia. The majority of courts handle matters that are criminal or civil in nature, while tribunals provide a less costly alternative for progressing some civil and administrative matters outside the formality of a court. A criminal matter generally arises where a charge has been laid either by police or some other prosecuting authority on the basis of a breach of criminal law. A civil matter occurs where there is a dispute between two or more individuals or organisations, where one party seeks legal remedy for an injury or loss from the other party who is alleged to be liable.

There are many other types of courts and tribunals in operation, commonly referred to as specialist courts and tribunals. These have been established because the standard courts were not the best way to address certain types of matters. Examples of these include the Coroners' Courts, Family Court, Federal Magistrates' Court, Drug Courts, Workers' Compensation Commissions/Tribunals, Industrial Relations Commission, Small Claims Tribunals, Administrative Appeals Tribunal and Residential Tenancy Tribunal.

Courts and tribunals tend to be arranged in a hierarchy (diagram 11.17), with the majority of less serious matters being heard before magistrates and more serious matters being heard before judges. For criminal matters the seriousness is often determined by the nature of the alleged offence. In a civil context, seriousness is generally determined according to the amount being sought in compensation. A court's or tribunal's ability to deal with either a civil, criminal or other matter will depend on the state or territory's legislation or jurisdiction applicable to that particular level of court.

The hierarchy of courts also applies to appeal matters. Where grounds for appeal exist, the appeal process is available in both criminal and civil matters. Appeals resulting from civil tribunal decisions may be referred to the Magistrates', District/County, Supreme or Commonwealth Courts, depending on the jurisdiction and the right of appeals. Criminal appeals resulting from the Magistrates' Court can be appealed at either the District/County, Supreme or Commonwealth Court level in the first instance. The High Court of Australia is the highest court of appeal for both criminal and civil cases.

### 11.17 HIERARCHY OF COURTS



(a) In some jurisdictions, appeals from lower courts may go directly to the court of appeal in the Supreme Court. In the ACT, the court of appeal of the Supreme Court commenced exercising limited jurisdiction on 31 October 2001; full jurisdiction did not commence until 14 October 2002. (b) Appeals from federal, state and territory tribunals may go to any higher court in their jurisdiction.

Source: Steering Committee for the Review of Commonwealth/State Service Provision, 'Report on Government Services 2004'.

## **Criminal courts**

A system of courts for the hearing of criminal matters exists in all Australian states and territories. Once charges are laid by police, the court will hear evidence by both prosecution and defence, and will make a decision as to whether or not the defendant is guilty. In cases where the defendant is found guilty, the court may also record a conviction and impose a penalty.

The lowest level of criminal court is the Magistrates' Court or Court of Summary Jurisdiction. The majority of all criminal cases are heard in these courts. Cases heard in Magistrates' Courts do not involve a jury and a magistrate determines the guilt or innocence of the defendant. This is known as a summary proceeding. Relatively minor offences such as property damage or minor road traffic offences can be dealt with in this way. More serious offences are dealt with by the higher court levels.

All states and territories have a Supreme Court that can deal with all criminal matters. The larger jurisdictions also have an intermediate level of court, known as the District or County Court, that deals with the majority of serious offences. The Supreme Courts and Intermediate Courts are collectively referred to as the Higher Courts.

All offences that are dealt with by the Higher Courts have an automatic entitlement to a trial before a judge and jury. In some jurisdictions, the defendant may elect to have the matter heard before a judge alone. Offences that must be heard before a judge and jury are known as indictable offences. These include offences such as murder, manslaughter and drug importation as well as serious sexual offences, robberies and assaults.

A defendant proven guilty in a criminal matter is entitled to appeal against the conviction or against the severity of penalty imposed. Under some

circumstances, the prosecution is also entitled to appeal against the leniency of the penalty. The states and territories differ in the ways in which they deal with appeals. Some appeals from Magistrates' Courts may be heard before the Intermediate Courts. In other jurisdictions, the Supreme Court may hear these appeals. In most jurisdictions, an appeal court or Court of Criminal Appeal may be constituted to hear appeals from the Supreme or Intermediate Courts. In Australia, the highest court of appeal for all jurisdictions is the High Court of Australia.

## **National criminal courts statistics**

As well as differences across the states and territories in terms of legislation, court procedures and the type of matters dealt with, there are also variations in data management practices and differences in the information that is collected as part of court processes. The net result of such differences is a lack of readily available nationally comparable data on court activities and the characteristics of people whose matters are dealt with by the various courts. The aim of the national criminal courts statistics collection undertaken by the ABS is to redress this situation progressively through the application of national data standards and counting rules.

## **Higher Criminal Courts finalisations**

The number of finalisations in the Higher Criminal Courts decreased by 8% to 16,643 between 2001–02 and 2002–03 (table 11.18). The exclusion of bench warrants as a method of finalisation has partly contributed to this decrease. Taking this change into account, the number of finalisations between 2001–02 and 2002–03 (excluding bench warrants) fell by 5%.

### 11.18 TOTAL HIGHER CRIMINAL COURTS FINALISATIONS

	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03(a)
SUPREME COURT							
New South Wales	90	85	123	127	146	136	102
Victoria	72	75	100	115	92	91	93
Queensland	743	813	776	856	785	754	693
South Australia	121	114	69	74	70	51	60
Western Australia	298	263	238	213	226	192	236
Tasmania	322	337	611	749	441	486	605
Northern Territory	206	311	288	268	404	262	256
Australian Capital Territory	150	138	161	190	205	171	164
<b>Australia</b>	<b>2 002</b>	<b>2 136</b>	<b>2 366</b>	<b>2 592</b>	<b>2 369</b>	<b>2 143</b>	<b>2 209</b>
INTERMEDIATE COURT(b)							
New South Wales	3 494	3 876	4 063	4 173	3 771	3 518	3 102
Victoria	1 559	1 662	1 877	2 162	2 055	1 902	1 985
Queensland	5 521	5 664	6 819	6 523	6 147	6 476	5 937
South Australia	1 178	890	874	862	858	1 080	761
Western Australia	1 930	2 455	2 655	2 900	2 829	2 878	2 649
<b>Australia</b>	<b>13 682</b>	<b>14 547</b>	<b>16 288</b>	<b>16 620</b>	<b>15 660</b>	<b>15 854</b>	<b>14 434</b>
TOTAL HIGHER COURTS							
New South Wales	3 584	3 961	4 186	4 300	3 917	3 654	3 204
Victoria	1 631	1 737	1 977	2 277	2 147	1 993	2 078
Queensland	6 264	6 477	7 595	7 379	6 932	7 230	6 630
South Australia	1 299	1 004	943	936	928	1 131	821
Western Australia	2 228	2 718	2 893	3 113	3 055	3 070	2 885
Tasmania	322	337	611	749	441	486	605
Northern Territory	206	311	288	268	404	262	256
Australian Capital Territory	150	138	161	190	205	171	164
<b>Australia</b>	<b>15 684</b>	<b>16 683</b>	<b>18 654</b>	<b>19 212</b>	<b>18 029</b>	<b>17 997</b>	<b>16 643</b>

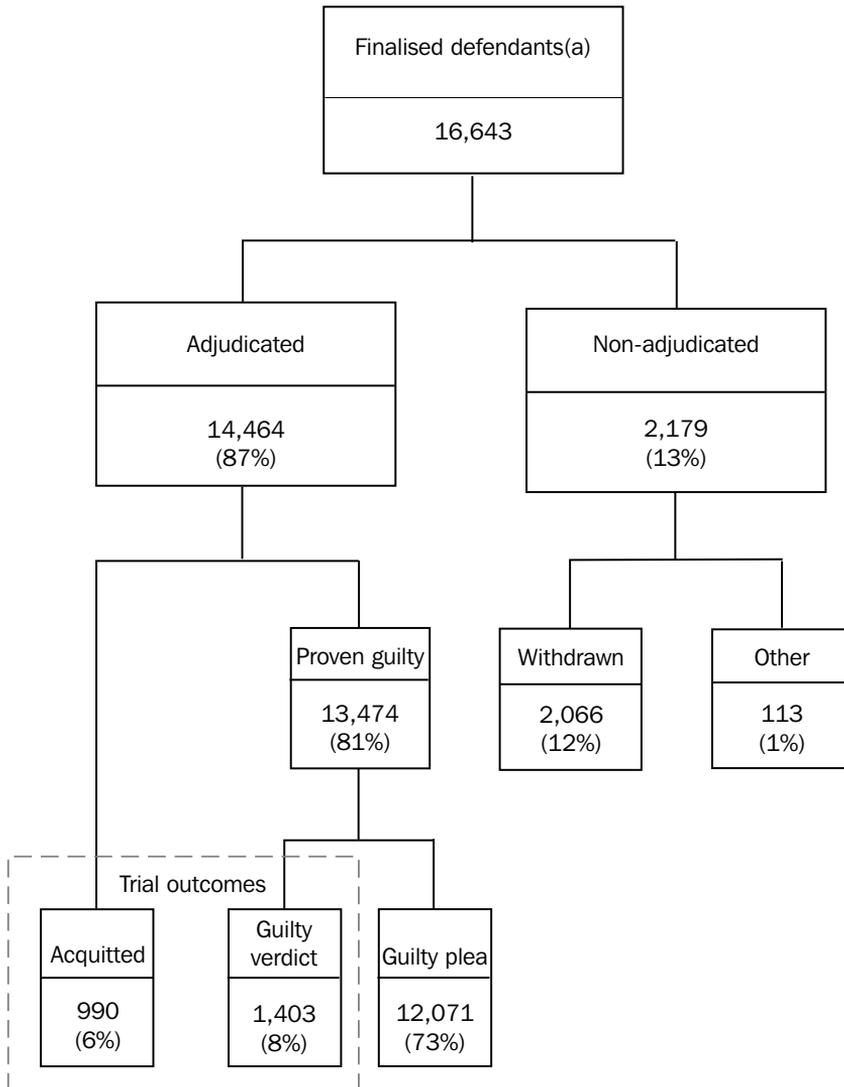
(a) Excludes defendants finalised by a bench warrant being issued. (b) There is no Intermediate Court in Tas., NT or ACT.

Source: *Criminal Courts, Australia, 2002-03 (4513.0)*.

Of the 16,643 defendants finalised in the Higher Criminal Courts during 2002-03, 81% (13,474) were proven guilty (i.e. pleaded guilty or were found guilty at trial) and 6% (990) were acquitted (diagram 11.19). Combined, these two finalisation outcomes represent defendants who had their

cases adjudicated by the courts (87% or 14,464). The remaining 13% (2,179) of defendants were finalised by a non-adjudicated method such as all charges withdrawn by the prosecution.

**11.19 HIGHER CRIMINAL COURTS FINALISATIONS — 2002–03**



(a) All percentages are calculated as a proportion of finalised defendants and are subject to rounding.

Source: *Criminal Courts, Australia, 2002–03* (4513.0).

## Adjudicated defendants

Of adjudicated defendants, guilty pleas accounted for 83%. The remaining 17% were subject to a trial outcome, of which over half (59%) were found guilty.

More than 40% of both male and female adjudicated defendants in the Higher Criminal Courts were aged 20–29 years (graph 11.20). The majority (57%) of adjudicated defendants were aged 20–34 years. The median age of defendants finalised by adjudication in the Higher Criminal Courts was 29 years (table 11.21).

## Principal offence

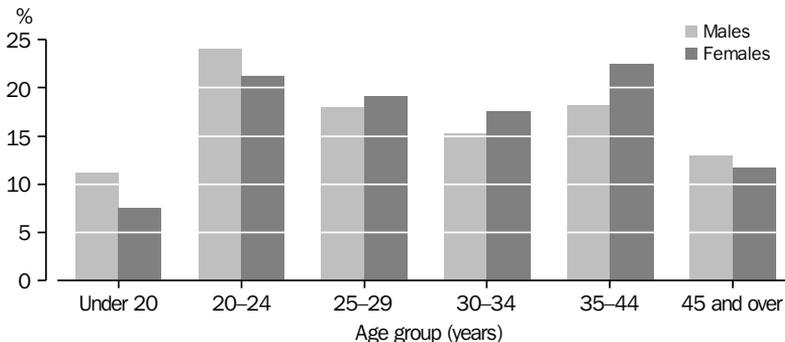
The majority of the adjudicated defendants in Higher Criminal Courts during 2002–03 (table 11.21) had a principal offence in one of five principal offence categories (Australian Standard Offence Classification Division). These were: acts intended to cause injury (including assault) (21%); unlawful entry with intent (including burglary and break and enter) (15%); illicit drug offences (13%); robbery, extortion and related offences (12%); and sexual assault and related offences (11%). There

were 10,274 defendants adjudicated by the Higher Criminal Courts with a principal offence in one of these five offence categories.

For male defendants, the most prevalent principal offence category for which they were adjudicated was acts intended to cause injury (21%). For females it was deception and related offences and acts intended to cause injury (both 19%). By comparison with the relatively high proportion of females with a principal offence of deception and related offences, 6% of males had this as their principal offence. There were proportionally more males than females with a principal offence of sexual assault and related offences (12% and 1% respectively). Males and females were equally likely to have been adjudicated for homicide and related offences (3%) (graph 11.22).

The median age of adjudicated defendants displayed considerable variation across the principal offence categories. Defendants with a principal offence of manufacture or cultivate illicit drugs had a median age of 39 years, while defendants with a principal offence of robbery, extortion and related offences, and unlawful entry with intent (including break and enter) had a median age of 24 years.

**11.20 PROPORTION OF ADJUDICATED DEFENDANTS(a), By age group — 2002–03**



(a) Excludes defendants who are organisations and defendants whose sex is unknown.

Source: *Criminal Courts, Australia, 2002–03 (4513.0)*.

### 11.21 TOTAL HIGHER CRIMINAL COURTS ADJUDICATED DEFENDANTS, Principal offence — 2002–03

ASOC Division/subdivision(a)	Age group (years)						Unknown	Total	Median age (years)
	Under 20	20–24	25–29	30–34	35–44	45 and over			
NUMBER									
<b>Defendants(b)</b>									
Homicide and related offences									
Murder	9	26	44	30	36	33	1	179	32.0
Other homicide and related offences	20	61	57	32	64	36	2	272	29.0
Total	29	87	101	62	100	69	3	451	30.0
Acts intended to cause injury									
Sexual assault and related offences	82	164	174	228	381	532	6	1 567	38.0
Dangerous or negligent acts endangering persons									
Abduction and related offences	8	18	19	20	27	5	—	97	30.0
Robbery, extortion and related offences									
Unlawful entry with intent/burglary, break and enter	404	747	437	286	233	56	8	2 171	24.0
Theft and related offences									
Deception and related offences	99	183	160	108	124	77	—	751	27.0
Fraud, forgery or false financial instruments									
Dishonest conversion	15	51	80	72	132	171	9	530	38.0
Other deception and related offences	17	94	76	78	98	68	5	436	31.0
Total	2	13	19	18	34	25	—	111	36.0
Total	34	158	175	168	264	264	14	1 077	34.0
Illicit drug offences									
Import or export illicit drugs	1	3	10	8	19	18	—	59	38.0
Deal or traffic in illicit drugs	42	234	259	284	366	220	5	1 410	32.0
Manufacture or cultivate illicit drugs	3	12	39	41	94	69	1	259	38.5
Other illicit drugs(c)	1	13	25	13	20	9	—	81	30.0
Total	47	262	333	346	499	316	6	1 809	33.0
Weapons and explosives offences									
Property damage and environmental pollution	2	15	11	12	8	10	1	59	30.0
Public order offences	84	102	56	44	57	40	2	385	25.0
Road traffic and motor vehicle regulatory offences	21	48	26	25	45	38	2	205	30.0
Offences against justice procedures, government security and government operations	—	1	—	1	—	—	—	2	n.p.
Miscellaneous offences	14	61	51	43	53	35	—	257	30.0
Total	21	56	38	36	74	49	15	289	33.0
<b>All offence categories(d)</b>	<b>1 555</b>	<b>3 420</b>	<b>2 619</b>	<b>2 237</b>	<b>2 715</b>	<b>1 843</b>	<b>75</b>	<b>14 464</b>	<b>29.0</b>

For footnotes see end of table.

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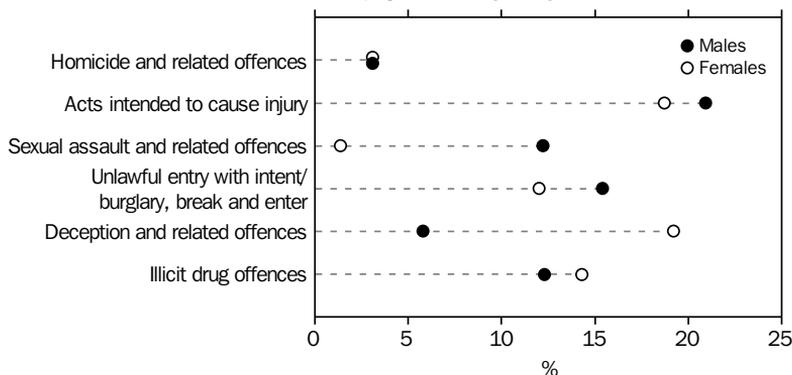
**11.21 TOTAL HIGHER CRIMINAL COURTS ADJUDICATED DEFENDANTS, Principal offence — 2002–03**  
— continued

ASOC Division/subdivision(a)	Age group (years)							Total	Median age (years)
	Under 20	20–24	25–29	30–34	35–44	45 and over	Unknown		
	PROPORTION (%)								
Defendants(b)									
Homicide and related offences									
Murder	0.6	0.8	1.7	1.3	1.3	1.8	1.3	1.2	..
Other homicide and related offences	1.3	1.8	2.2	1.4	2.4	2.0	2.7	1.9	..
Total	1.9	2.5	3.9	2.8	3.7	3.7	4.0	3.1	..
Acts intended to cause injury	18.6	22.6	21.9	23.9	20.4	13.0	13.3	20.6	..
Sexual assault and related offences	5.3	4.8	6.6	10.2	14.0	28.9	8.0	10.8	..
Dangerous or negligent acts endangering persons	4.3	4.0	3.7	3.8	2.5	1.7	1.3	3.3	..
Abduction and related offences	0.5	0.5	0.7	0.9	1.0	0.3	—	0.7	..
Robbery, extortion and related offences	22.4	17.0	13.3	10.0	7.2	2.7	5.3	12.1	..
Unlawful entry with intent/burglary, break and enter	26.0	21.8	16.7	12.8	8.6	3.0	10.7	15.0	..
Theft and related offences	6.4	5.4	6.1	4.8	4.6	4.2	—	5.2	..
Deception and related offences									
Fraud, forgery or false financial instruments	1.0	1.5	3.1	3.2	4.9	9.3	12.0	3.7	..
Dishonest conversion	1.1	2.7	2.9	3.5	3.6	3.7	6.7	3.0	..
Other deception and related offences	0.1	0.4	0.7	0.8	1.3	1.4	—	0.8	..
Total	2.2	4.6	6.7	7.5	9.7	14.3	18.7	7.4	..
Illicit drug offences									
Import or export illicit drugs	0.1	0.1	0.4	0.4	0.7	1.0	—	0.4	..
Deal or traffic in illicit drugs	2.7	6.8	9.9	12.7	13.5	11.9	6.7	9.7	..
Manufacture or cultivate illicit drugs	0.2	0.4	1.5	1.8	3.5	3.7	1.3	1.8	..
Other illicit drugs(c)	0.1	0.4	1.0	0.6	0.7	0.5	—	0.6	..
Total	3.0	7.7	12.7	15.5	18.4	17.1	8.0	12.5	..
Weapons and explosives offences	0.1	0.4	0.4	0.5	0.3	0.5	1.3	0.4	..
Property damage and environmental pollution	5.4	3.0	2.1	2.0	2.1	2.2	2.7	2.7	..
Public order offences	1.4	1.4	1.0	1.1	1.7	2.1	2.7	1.4	..
Road traffic and motor vehicle regulatory offences	—	—	—	—	—	—	—	—	..
Offences against justice procedures, government security and government operations	0.9	1.8	1.9	1.9	2.0	1.9	—	1.8	..
Miscellaneous offences	1.4	1.6	1.5	1.6	2.7	2.7	20.0	2.0	..
All offence categories(d)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	..

(a) Australian Standard Offence Classification. (b) Includes organisations and persons with unknown sex. (c) Includes Subdivision 104 (Posses and/or use illicit drugs). (d) Includes defendants for whom offence data were missing or a principal offence could not be determined.

Source: *Criminal Courts, Australia, 2002–03 (4513.0)*.

### 11.22 ADJUDICATED DEFENDANTS, By selected principal offence — 2002–03



Source: *Criminal Courts, Australia, 2002–03 (4513.0)*.

### Principal offence duration

Of all adjudicated defendants, those who received a guilty verdict had a median duration (from initiation to finalisation in the Higher Criminal

Courts) of 48 weeks, and those who were acquitted at trial had a median duration of 40 weeks (table 11.23). For those who pleaded guilty the median duration was 19 weeks.

### 11.23 TOTAL HIGHER CRIMINAL COURTS ADJUDICATED DEFENDANTS, Principal offence median duration(a) — 2002–03

Principal offence	Adjudication type			
	Acquitted weeks	Guilty verdict weeks	Guilty plea weeks	Total weeks
Homicide and related offences	34.3	52.4	30.0	37.1
Acts intended to cause injury	37.3	43.6	21.8	24.1
Sexual assault and related offences	38.7	51.9	21.3	29.0
Dangerous or negligent acts endangering persons	50.3	32.0	15.3	16.3
Abduction and related offences	56.6	48.4	19.6	27.6
Robbery, extortion and related offences	33.0	44.0	16.9	18.9
Unlawful entry with intent/burglary, break and enter	49.0	47.4	13.1	13.9
Theft and related offences	51.4	48.1	19.1	21.4
Deception and related offences	71.3	57.1	19.2	21.4
Illicit drug offences	43.9	57.6	22.3	25.1
Weapons and explosives offences	(b)n.p.	(b)n.p.	25.4	28.1
Property damage and environmental pollution	37.4	34.6	14.0	16.0
Public order offences	(b)n.p.	44.1	22.7	25.4
Road traffic and motor vehicle regulatory offences	—	(b)n.p.	(b)n.p.	(b)n.p.
Offences against justice procedures, government security and government operations	58.1	61.6	12.1	18.3
Miscellaneous offences	32.4	51.6	19.1	23.9
<b>All offence categories(c)</b>	<b>39.7</b>	<b>48.4</b>	<b>18.6</b>	<b>21.9</b>

(a) Duration from date of initiation to finalisation. (b) Not available for publication but included in totals, where applicable. (c) Includes defendants for whom offence data were missing or a principal offence could not be determined.

Source: *Criminal Courts, Australia, 2002–03 (4513.0)*.

## Change in plea

The initial plea entered by the defendant has implications for the workload of the Higher Criminal Courts and the length of time a defendant remains active within the court system. An initial plea of 'not guilty' may lead to a trial while an initial plea of 'guilty' will negate the need for a trial and result in a sentencing hearing.

Of the defendants finalised by adjudication (excluding Queensland), 57% (5,071) entered the Higher Criminal Courts with a not guilty plea and

were therefore expected to be tried (table 11.24). Of the defendants who initially pleaded not guilty, 63% (3,179) changed their plea to guilty during proceedings in the Higher Criminal Courts.

In general, defendants with an initial plea of guilty had a shorter median duration than defendants with an initial plea of not guilty and a final plea of guilty. Defendants entering an initial plea of not guilty and a final plea of guilty in turn had a shorter median duration than defendants with an initial and final plea of not guilty.

### 11.24 TOTAL HIGHER CRIMINAL COURTS ADJUDICATED DEFENDANTS, Initial and final plea status — 2002–03

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
NUMBER									
No change in plea									
Not guilty	630	311	n.a.	177	574	133	31	36	n.a.
Guilty	1 152	942	n.a.	127	1 449	98	26	46	n.a.
<i>Total</i>	<i>1 782</i>	<i>1 253</i>	<i>n.a.</i>	<i>304</i>	<i>2 023</i>	<i>231</i>	<i>57</i>	<i>82</i>	<i>n.a.</i>
Change in plea									
Not guilty to guilty	1 125	730	n.a.	302	571	252	169	30	n.a.
Guilty to not guilty	1	7	n.a.	6	22	2	—	—	n.a.
<i>Total</i>	<i>1 126</i>	<i>737</i>	<i>n.a.</i>	<i>308</i>	<i>593</i>	<i>254</i>	<i>169</i>	<i>30</i>	<i>n.a.</i>
<b>Total</b>	<b>2 908</b>	<b>1 990</b>	<b>5 515</b>	<b>612</b>	<b>2 616</b>	<b>485</b>	<b>226</b>	<b>112</b>	<b>14 464</b>
PROPORTION (%)									
No change in plea									
Not guilty	21.7	15.6	n.a.	28.9	21.9	27.4	13.7	32.1	n.a.
Guilty	39.6	47.3	n.a.	20.8	55.4	20.2	11.5	41.1	n.a.
<i>Total</i>	<i>61.3</i>	<i>63.0</i>	<i>n.a.</i>	<i>49.7</i>	<i>77.3</i>	<i>47.6</i>	<i>25.2</i>	<i>73.2</i>	<i>n.a.</i>
Change in plea									
Not guilty to guilty	38.7	36.7	n.a.	49.3	21.8	52.0	74.8	26.8	n.a.
Guilty to not guilty	—	0.4	n.a.	1.0	0.8	0.4	—	—	n.a.
<i>Total</i>	<i>38.7</i>	<i>37.0</i>	<i>n.a.</i>	<i>50.3</i>	<i>22.7</i>	<i>52.4</i>	<i>74.8</i>	<i>26.8</i>	<i>n.a.</i>
<b>Total</b>	<b>100.0</b>								
MEDIAN DURATION (weeks)(a)									
No change in plea									
Not guilty	36.1	48.9	n.a.	48.1	64.1	33.3	56.3	45.4	n.a.
Guilty	15.4	13.3	n.a.	13.1	9.7	7.1	4.9	13.4	n.a.
<i>Total</i>	<i>19.9</i>	<i>16.6</i>	<i>n.a.</i>	<i>30.0</i>	<i>12.4</i>	<i>19.3</i>	<i>34.7</i>	<i>25.7</i>	<i>n.a.</i>
Change in plea									
Not guilty to guilty	30.1	37.1	n.a.	27.0	30.1	22.4	24.1	54.4	n.a.
Guilty to not guilty	n.p.	n.p.	n.a.	n.p.	68.1	n.p.	—	—	n.a.
<i>Total</i>	<i>30.1</i>	<i>37.6</i>	<i>n.a.</i>	<i>27.3</i>	<i>31.7</i>	<i>22.4</i>	<i>24.1</i>	<i>54.4</i>	<i>n.a.</i>
<b>Total</b>	<b>24.3</b>	<b>25.1</b>	<b>21.0</b>	<b>28.2</b>	<b>14.3</b>	<b>21.4</b>	<b>25.2</b>	<b>32.4</b>	<b>21.9</b>

(a) Duration from date of initiation to finalisation.

Source: *Criminal Courts, Australia, 2002–03 (4513.0)*.

## Custodial orders

Just over half (55%) of defendants proven guilty received custodial orders to be served in a correctional facility (i.e. custodial orders excluding fully suspended sentences) (table 11.25).

## Non-custodial orders

Nationally, 26% of defendants proven guilty received a non-custodial order (includes community supervision/work orders, monetary orders and other non-custodial orders) as their principal sentence type (table 11.25). The most common non-custodial sentence type was a community supervision/work order (68% of non-custodial sentences).

### 11.25 TOTAL HIGHER CRIMINAL COURTS DEFENDANTS PROVEN GUILTY, Principal sentence type — 2002–03

	Age group (years)						Unknown	Total	Median age (years)
	Under 20	20–24	25–29	30–34	35–44	45 and over			
NUMBER									
Defendants(a)									
Custodial orders									
Custody in corrections	524	1 577	1 441	1 198	1 413	908	26	7 087	29.0
Custody in the community	60	121	56	41	49	17	2	346	24.0
Fully suspended sentences	163	572	425	414	495	364	9	2 442	30.0
<i>Total(b)</i>	747	2 273	1 926	1 659	1 970	1 313	39	9 927	29.0
Non-custodial orders									
Community supervision/work orders	626	730	343	243	279	110	16	2 347	23.0
Monetary orders	54	136	110	93	124	102	7	626	30.0
Other non-custodial orders	86	104	76	60	85	78	2	491	28.0
<i>Total(c)</i>	766	971	529	396	488	290	25	3 465	24.0
Unknown sentence type	9	16	12	8	19	16	2	82	31.0
<b>Total</b>	<b>1 522</b>	<b>3 260</b>	<b>2 467</b>	<b>2 063</b>	<b>2 477</b>	<b>1 619</b>	<b>66</b>	<b>13 474</b>	<b>28.0</b>
PROPORTION (%)									
Defendants(a)									
Custodial orders									
Custody in corrections	34.4	48.4	58.4	58.1	57.0	56.1	39.4	52.6	..
Custody in the community	3.9	3.7	2.3	2.0	2.0	1.1	3.0	2.6	..
Fully suspended sentences	10.7	17.5	17.2	20.1	20.0	22.5	13.6	18.1	..
<i>Total(b)</i>	49.1	69.7	78.1	80.4	79.5	81.1	59.1	73.7	..
Non-custodial orders									
Community supervision/work orders	41.1	22.4	13.9	11.8	11.3	6.8	24.2	17.4	..
Monetary orders	3.5	4.2	4.5	4.5	5.0	6.3	10.6	4.6	..
Other non-custodial orders	5.7	3.2	3.1	2.9	3.4	4.8	3.0	3.6	..
<i>Total(c)</i>	50.3	29.8	21.4	19.2	19.7	17.9	37.9	25.7	..
Unknown sentence type	0.6	0.5	0.5	0.4	0.8	1.0	3.0	0.6	..
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>..</b>

(a) Includes organisations and persons with unknown sex. (b) Includes defendants with custodial orders not further defined. (c) Includes defendants with non-custodial orders not further defined.

Source: *Criminal Courts, Australia, 2002–03 (4513.0)*.

In contrast to fully suspended sentences, the proportion of defendants proven guilty receiving a non-custodial order decreased with age, ranging from 50% for persons aged less than 20 years to 21% for persons aged 25–29 years to 18% for persons aged 45 years and over (graph 11.26).

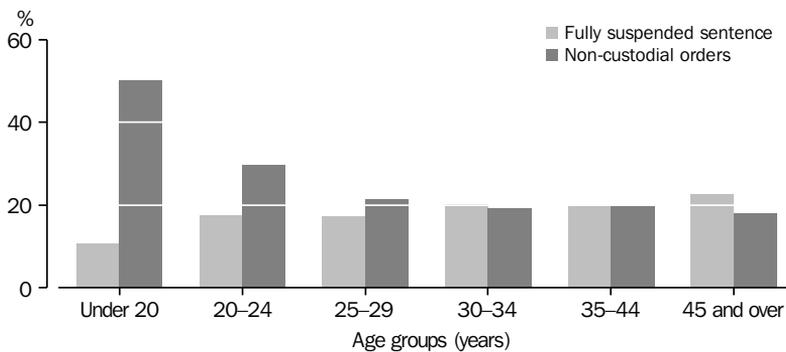
### Total criminal cases

Table 11.27 shows the total number of criminal cases dealt with by the courts of Australia, including appeal and non-appeal cases. Of all the criminal cases filed in Australia during 2002–03, 96% were filed in the Magistrates’ Courts, with New South Wales and Queensland being the largest contributors to the national total. A large proportion of cases heard in the Magistrates’ Courts were minor traffic matters in most states and territories.

### Corrective services

Corrective services agencies are responsible for administering those penalties handed down by the criminal courts that require some form of supervision or custody of the offender. This may include imprisonment on either a full-time or part-time basis, community service and other forms of supervised work, home detention, or good behaviour bonds under supervision. Most persons for whom corrective services have responsibility have received a sentence from a criminal court. Corrective service agencies may also be responsible for persons prior to sentencing. Unsentenced persons may be held on remand in correctional facilities or be subject to supervised bail or similar community-based court orders.

**11.26 PROPORTION OF DEFENDANTS PROVEN GUILTY, By selected principal sentences — 2002–03**



Source: *Criminal Courts, Australia, 2002–03 (4513.0)*.

**11.27 CRIMINAL COURT FINALISATIONS — 2002–03**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.(a)
Court level	'000	'000	'000	'000	'000	'000	'000	'000	'000
Supreme Court	0.9	0.5	1.1	0.4	0.5	0.7	0.3	0.2	4.5
District/County Court	9.0	4.6	7.6	1.2	2.8	..	..	..	25.3
Magistrates' Court(b)	260.1	120.1	155.0	52.5	62.1	38.9	11.7	6.2	706.7
<b>Total</b>	<b>270.0</b>	<b>125.2</b>	<b>163.7</b>	<b>54.1</b>	<b>65.4</b>	<b>39.6</b>	<b>12.0</b>	<b>6.4</b>	<b>736.5</b>

(a) Totals may not add as a result of rounding. (b) Tasmanian data are estimated, based on finalisations made in Hobart.

Source: *Steering Committee for the Review of Commonwealth/State Service Provision, 'Report on Government Services 2004'*.

All states and territories operate prisons and other types of corrective services. Separate provisions exist in each state and territory for dealing with juvenile offenders. The Australian Government does not operate any prisons or other corrective services, as federal offenders (persons convicted of offences under Commonwealth laws) are supervised by state or territory agencies for correctional purposes. The majority of convicted adult prisoners from the Australian Capital Territory serve their sentences in New South Wales prisons, but local provision is made for the custody of unsentenced prisoners and periodic detainees, and for those under the supervision of community corrections (e.g. probation and parole).

In 2002–03, 12 of the 97 prisons in Australia were privately operated facilities. These prisons operate in conjunction with state operated prisons and are monitored by the corrective services authorities in a similar manner to state operated prisons.

Corrective services oversee prisons, periodic detention and community-based corrections. At March 2004, almost 74,000 persons were serving either a custodial or community-based order in Australia (table 11.28). Of these 31% of persons were in full-time custody and 68% were serving a community-based order. Community-based corrections includes restricted movement, reparation (fine option and community service) and supervision (parole, bail and sentenced probation).

### 11.28 PERSONS IN CUSTODY AND COMMUNITY-BASED PROGRAMS(a) — March quarter 2004

	NSW(b)	Vic.	Qld	SA	WA	Tas.	NT	ACT in ACT(c)	ACT in NSW(b)	ACT total	Aust.(b)
<b>PRISONERS IN FULL-TIME CUSTODY</b>											
Males	7 774	3 346	4 866	1 364	2 733	415	715	49	112	161	21 262
Females	557	238	321	88	224	31	18	5	5	10	1 482
<b>Persons</b>	<b>8 331</b>	<b>3 584</b>	<b>5 187</b>	<b>1 452</b>	<b>2 957</b>	<b>446</b>	<b>733</b>	<b>54</b>	<b>117</b>	<b>171</b>	<b>22 744</b>
<b>PERSONS IN PERIODIC DETENTION(d)</b>											
Males	676	..	..	..	..	..	..	87	..	87	763
Females	56	..	..	..	..	..	..	2	..	2	58
<b>Persons</b>	<b>733</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>89</b>	<b>..</b>	<b>89</b>	<b>822</b>
<b>PERSONS WITH COMMUNITY-BASED CORRECTIONS ORDERS(e)</b>											
Males	14 099	6 268	9 012	4 793	3 955	802	903	963	..	963	40 795
Females	2 440	1 376	2 432	1 068	1 159	170	125	163	..	163	8 934
<b>Persons</b>	<b>16 621</b>	<b>7 972</b>	<b>11 444</b>	<b>5 894</b>	<b>5 115</b>	<b>973</b>	<b>1 028</b>	<b>1 126</b>	<b>..</b>	<b>1 126</b>	<b>50 172</b>
<b>TOTAL PERSONS UNDER CORRECTIVE SERVICES AUTHORITY(e)</b>											
Males	22 549	9 614	13 878	6 157	6 688	1 217	1 618	1 099	112	1 211	62 820
Females	3 053	1 614	2 753	1 156	1 383	201	143	170	5	175	10 474
<b>Persons</b>	<b>25 685</b>	<b>11 556</b>	<b>16 631</b>	<b>7 346</b>	<b>8 072</b>	<b>1 419</b>	<b>1 761</b>	<b>1 269</b>	<b>117</b>	<b>1 386</b>	<b>73 738</b>

(a) Average figures for the first day of each month in the quarter. (b) Data for NSW include ACT prisoners held in NSW prisons. The ACT in NSW figures are a subset of NSW figures and are not separately counted in the Australian totals. (c) Refers to unsentenced persons in ACT prison custody and may include some sentenced fine default only prisoners. (d) Data for persons in periodic detention is collected as average daily. (e) Includes persons whose sex is unknown.

Source: Corrective Services, Australia, March Quarter 2004 (4512.0).

## Prisoners

The National Prisoner Census, conducted annually on the night of 30 June, counts all persons who are in the legal custody of adult corrective services, including periodic detainees in New South Wales and the Australian Capital Territory. At any given point in time, most prisoners are serving long sentences for relatively serious offences, but the flow of offenders in and out of prisons consists primarily of persons serving short sentences for less serious offences.

The total prison population on 30 June 2003 was 23,555. New South Wales had the highest proportion of prisoners (38%), followed by Queensland (22%).

There were 21,961 male prisoners at 30 June 2003, comprising 93% of the total prisoner population (table 11.29). The median age of prisoners was 32 years for males and 31 years for females. The majority of prisoners were young adult males, with 55% (12,841) of all prisoners being males aged 20–34 years (graph 11.30).

There were 4,818 Indigenous prisoners (21% of the prisoner population) on 30 June 2003. Over the past decade, Indigenous prisoners have accounted for an increasing proportion of the total prisoner population (graph 11.31).

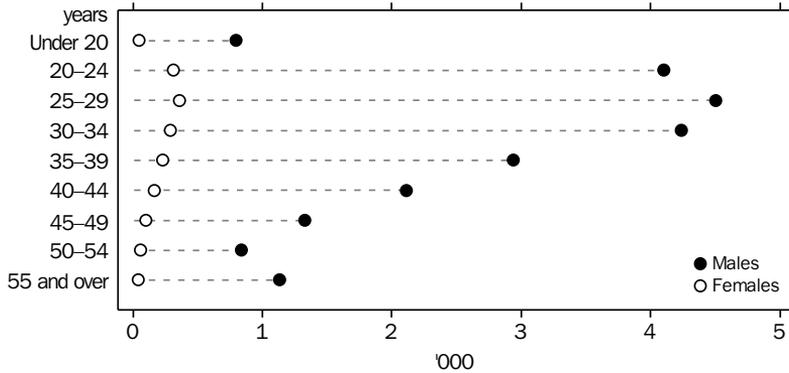
**11.29 PRISONERS, By states and territories — 30 June 2003**

	NSW(a)	Vic.	Qld	SA	WA	Tas.	NT	ACT in ACT	ACT in NSW(a)	ACT total	Aust.(b)
NUMBER											
<b>All prisoners</b>	<b>8 881</b>	<b>3 763</b>	<b>5 243</b>	<b>1 455</b>	<b>2 899</b>	<b>453</b>	<b>729</b>	<b>132</b>	<b>117</b>	<b>249</b>	<b>23 555</b>
Males	8 289	3 482	4 895	1 352	2 681	429	707	126	111	237	21 961
Females	592	281	348	103	218	24	22	6	6	12	1 594
Indigenous	1 563	174	1 210	244	1 107	53	571	4	12	16	4 818
Non-Indigenous	7 099	3 589	4 033	1 049	1 882	400	158	128	105	233	18 356
Unknown	219	—	—	162	—	—	—	—	—	—	381
Sentenced	7 044	3 068	4 153	983	2 447	355	612	76	117	193	18 738
Unsentenced	1 837	695	1 090	472	452	98	117	56	—	56	4 817
PROPORTION (%)											
All prisoners	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Males	93.3	92.5	93.4	92.9	92.5	94.7	97.0	95.5	94.9	95.2	93.2
Females	6.7	7.5	6.6	7.1	7.5	5.3	3.0	4.5	5.1	4.8	6.8
Indigenous	17.6	4.6	23.1	16.8	35.1	11.7	78.3	3.0	10.3	6.4	20.5
Non-Indigenous	79.6	95.4	76.9	72.1	64.9	88.3	21.7	97.0	89.7	93.6	77.9
Unknown	2.5	—	—	11.1	—	—	—	—	—	—	1.6
Sentenced	79.3	81.5	79.2	67.6	84.4	78.4	84.0	57.6	100.0	77.5	79.5
Unsentenced	20.7	18.5	20.8	32.4	15.6	21.6	16.0	42.4	—	22.5	20.5

(a) The majority of full-time prisoners sentenced in the ACT are held in NSW prisons. (b) The ACT in NSW figures are a subset of the NSW figures, and are not separately counted in the Australian totals.

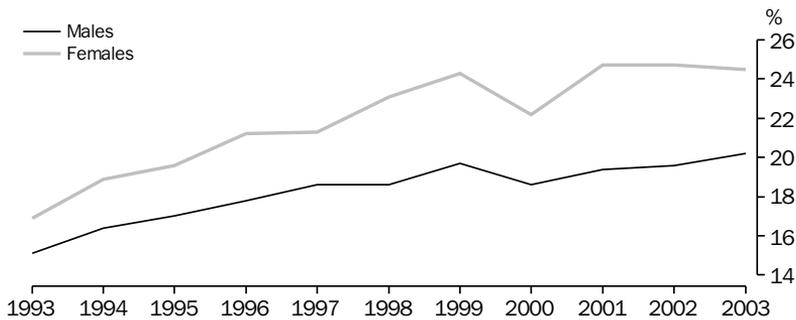
Source: *Prisoners in Australia, 2003 (4517.0)*.

**11.30 PRISONERS, By age group — 30 June 2003**



Source: *Prisoners in Australia, 2003 (4517.0)*.

**11.31 PROPORTION OF PRISONERS WHO ARE INDIGENOUS(a)**



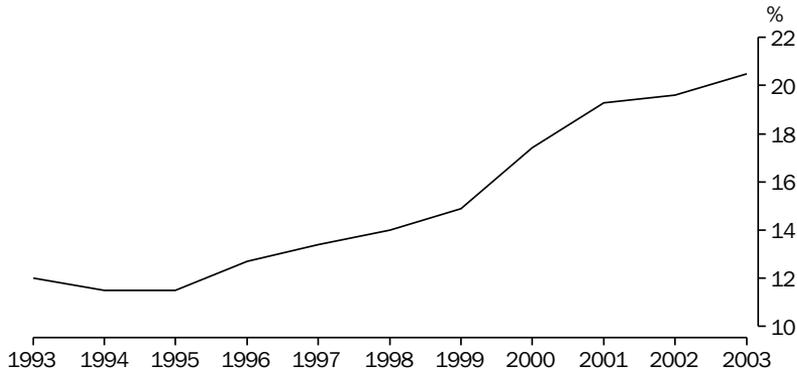
(a) Indigenous male prisoners as a proportion of all male prisoners and Indigenous female prisoners as a proportion of all female prisoners.

Source: *1994-2003 Prisoners in Australia (4517.0)*; *1993 Australian Institute of Criminology*.

Unsentenced prisoners include unconvicted prisoners awaiting a court hearing or trial and convicted prisoners awaiting sentencing. At 30 June 2003, one in five (20%) of the total prisoner population were unsentenced prisoners. Over the past 10 years, unsentenced prisoners

have accounted for an increasing number and proportion of the total prisoner population. The proportion of prisoners who were unsentenced increased from 12% in 1993 to 21% in 2003 (graph 11.32).

### 11.32 PROPORTION OF UNSENTENCED PRISONERS



Source: *Prisoners in Australia, 2003* (4517.0).

## Women in prison

While women have consistently been a small proportion of the total prison population for the past ten years, their imprisonment rate has increased more than the male rate over this period. This article describes characteristics of women in prison, and how these have changed over recent years. Where relevant, comparisons are made with the corresponding characteristics for men in prison.

In 1993 the female imprisonment rate was 11.5 per 100,000 female adult population. (Adult female population is defined as females aged 18 years and over in all states and territories except Victoria and

Queensland where 'adult' refers to persons aged 17 years and over.) By 2003 the female imprisonment rate had steadily increased to 20.4 (table 11.33). Although the representation of females among the total prison population has increased at a greater rate than that of males over the past decade, it remains relatively small. Females account for 7% of the Australian prison population. At 30 June 2003 there were 1,594 female prisoners, compared with 21,961 male prisoners.

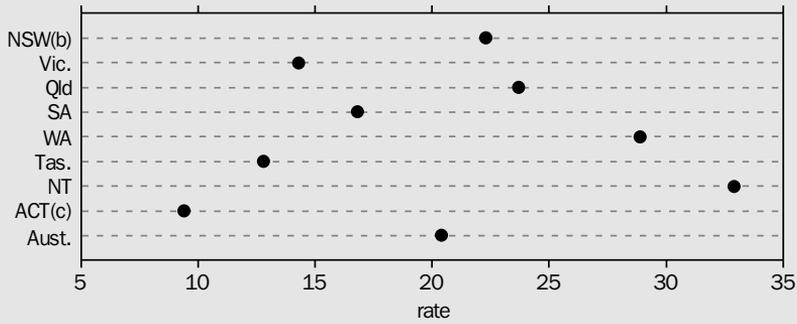
### 11.33 PRISONERS(a)

30 June	Females			Males			All prisoners	
	no.	%(b)	rate(c)	no.	%(b)	rate(c)	no.	rate(c)
1993	764	4.8	11.5	15 102	95.2	221.0	15 866	119.2
1994	837	4.9	12.2	16 107	95.1	241.9	16 944	125.5
1995	835	4.8	12.0	16 593	95.2	245.9	17 428	127.3
1996	972	5.3	13.8	17 221	94.7	251.9	18 193	130.9
1997	1 096	5.7	15.3	18 032	94.3	258.2	19 128	137.0
1998	1 128	5.7	15.6	18 778	94.3	266.5	19 906	139.2
1999	1 365	6.3	18.6	20 173	93.7	269.8	21 538	145.2
2000	1 385	6.4	18.6	20 329	93.6	280.3	21 714	147.7
2001	1 498	6.7	19.8	20 960	93.3	284.5	22 458	150.5
2002	1 484	6.6	19.2	21 008	93.4	282.4	22 492	148.3
2003	1 594	6.8	20.4	21 961	93.2	290.8	22 555	153.4

(a) Prior to 1997, the Australian total excludes ACT periodic detainees. (b) Percentage of total prisoner population. (c) Rate per 100,000 adult population.

Source: *Prisoners in Australia* (4517.0); Australian Institute of Criminology, 'Australian Prisoners, Results of the National Prison Census, 1993'.

### 11.34 FEMALE IMPRISONMENT RATE(a) — 2003



(a) Rate per 100,000 female adult population. (b) Data for NSW excludes ACT prisoners held in NSW. (c) Data for ACT includes ACT prisoners held in NSW, as well as ACT prisoners held in ACT.

Source: *Prisoners in Australia, 2003* (4517.0).

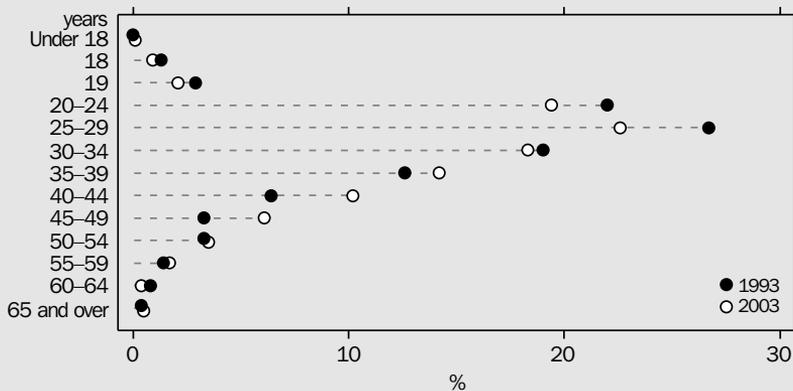
In 2003, the female imprisonment rate varied by the state or territory of imprisonment. As graph 11.34 shows, the Northern Territory recorded the highest female imprisonment rate (32.9 per 100,000 female adult population), followed by Western Australia (28.9), and Queensland (23.7). The lowest rate was recorded in the Australian Capital Territory (9.4 per 100,000 female adult population).

The age profile of females in prison in 2003 was older than in 1993. In 1993, 72% were aged less than 35 years; by 2003, the proportion of this age group had decreased to 63% (graph 11.35). The median age had increased from 29 to 31 years. The largest age group in both 1993 and 2003 was

those aged 25–29 years (27% and 23% respectively) but the proportion of almost every age group less than 35 years decreased. Similarly, the proportion of almost every age group 35 years and over increased during the same period. Possible reasons for the older female prison population may be changes in offending patterns and the sentencing practices of the criminal justice system.

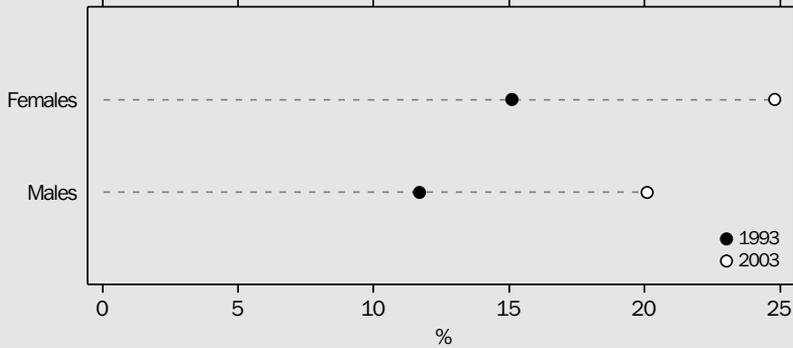
Prisoners comprise persons who have received a term of imprisonment from a court (sentenced prisoners) and persons who are in custody on remand while awaiting the outcome of their trial (unsentenced prisoners). Compared with 1993,

### 11.35 FEMALE PRISONERS, By age



Source: *Prisoners in Australia, 2003* (4517.0); 1993: Australian Institute of Criminology, *Australian Prisoners*.

### 11.36 UNSENTENCED PRISONERS



Source: *Prisoners in Australia, 2003* (4517.0); 1993: Australian Institute of Criminology, *Australian Prisoners*.

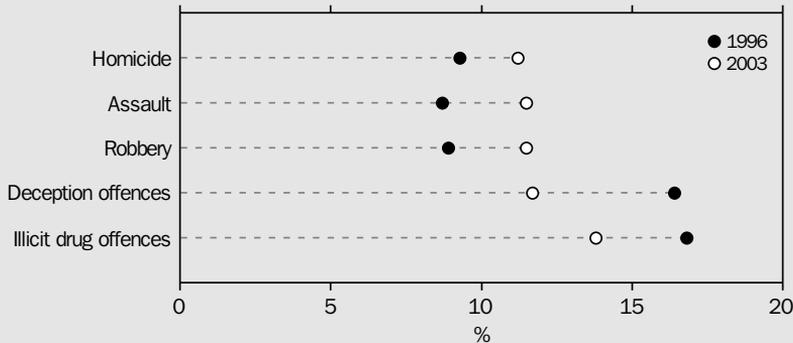
in 2003 there were higher proportions of both female and male persons in custody on remand. More prisoners were awaiting the outcome of their trial. Unsentenced female prisoners increased from 15% to 25% as a proportion of the total female population, and the proportion of male unsentenced prisoners increased from 12% to 20% (graph 11.36).

The most serious offence for which a prisoner is sentenced is defined as the offence for which prisoners have received the longest sentence. In 2003 the largest most serious offence categories for female prisoners were illicit drug offences

(14% of female prisoners), deception and related offences (12%), robbery (12%), assault (12%), and homicide and related offences (11%) (graph 11.37).

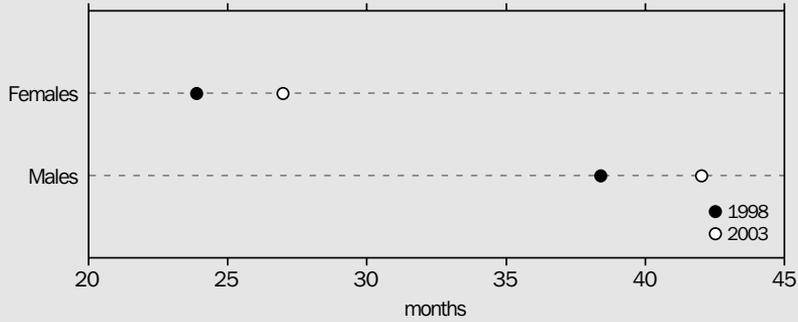
Data from 1996 are used for comparison of offences over time, as this was the first year that the current offence classification was introduced. In 2003 the proportion of female prisoners with a most serious offence involving illicit drugs or deception was lower than in 1996. In contrast, the proportions of robbery, assault and homicide and related offences, all involving physical violence, were higher in 2003 compared with 1996.

### 11.37 SENTENCED FEMALE PRISONERS, By selected most serious offence(a)



(a) Due to changes in offence classifications, data are not available for a 10-year period.  
Source: *Prisoners in Australia* (4517.0).

### 11.38 SENTENCED PRISONERS, By median aggregate sentence length(a)



(a) Prisoners with indeterminate and periodic detention sentences are excluded from these calculations.

Source: *Prisoners in Australia* (4517.0).

In 2003 aggregate sentence length for female prisoners varied from less than one month to over ten years. The median aggregate sentence length for female sentenced prisoners was 27 months. The median aggregate sentence length for males was longer (42 months).

In this article data from 1998 are used to compare change in median sentence length across different time periods. Differences in the scope of the collection from 1993 to 1997 means that these data are not directly comparable with the current collection. Between 1998 and 2003, the

median sentence length increased for both female and male prisoners (graph 11.38). For females it increased from 24 months to 27 months and for males it increased from 38 months to 42 months.

This article has outlined a number of characteristics of women in prison and how these have changed over time. For more information about females in the justice system, see *Corrective Services, Australia* (4512.0) and *Criminal Courts, Australia* (4513.0) and *Recorded Crime – Victims, Australia* (4510.0).

## Most serious offence

At 30 June 2003 almost half (47%) of all sentenced prisoners were convicted with a most serious offence involving violence or the threat of violence, including homicide (10%), sexual assault (11%), acts intended to cause injury (assault) and robbery (both 13%) (table 11.39). A further 13% of sentenced prisoners had a most serious offence of UEWI, and 10% were serving sentences for a most serious offence involving illicit drugs.

There were differences in the types of most serious offence for which men and women were imprisoned. The highest numbers of most serious offences for males in prison at 30 June 2003 involved assault, robbery, UEWI, and sexual assault (graph 11.40). In the case of female prisoners, drug offences, deception offences, robbery and assault were the frequent most serious offences.

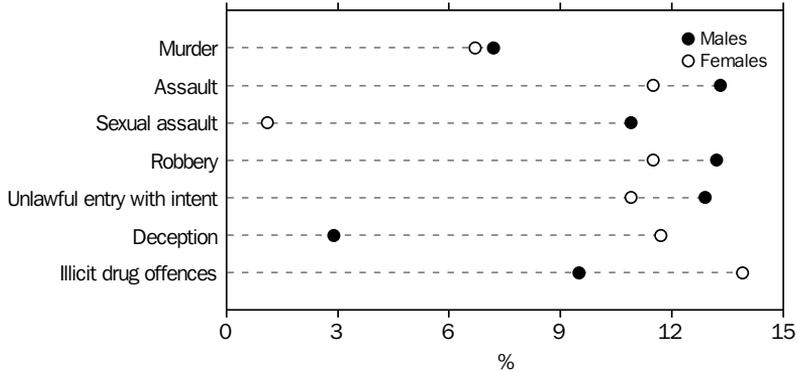
**11.39 SENTENCED PRISONERS, By most serious offence — 30 June 2003**

	NSW(a)	Vic.	Qld	SA	WA	Tas.	NT	ACT in ACT	ACT in NSW(a)	ACT total	Aust.(b)
Homicide	594	355	502	160	224	49	56	1	11	12	1 941
Acts intended to cause injury	1 086	203	609	73	266	38	208	7	10	17	2 490
Sexual assault and related offences	581	354	631	101	355	44	56	3	14	17	2 125
Dangerous or negligent acts endangering persons	42	25	76	1	82	—	18	9	—	9	253
Abduction and related offences	63	28	10	4	10	3	4	1	3	4	123
Robbery, extortion and related offences	958	388	579	143	379	28	19	3	17	20	2 497
Unlawful entry with intent	794	430	549	151	367	38	57	5	18	23	2 391
Theft and related offences	487	354	177	53	159	34	17	10	13	23	1 291
Deception and related offences	235	102	174	54	62	9	9	2	5	7	647
Illicit drug offences	856	325	318	86	229	7	19	1	6	7	1 841
Weapons and explosive offences	38	11	9	2	6	—	1	2	—	2	69
Property damage and environmental pollution	39	34	59	9	16	12	9	2	2	4	180
Public order offences	63	21	11	5	14	1	2	1	—	1	118
Road traffic and motor vehicle regulatory offences	553	84	134	18	106	43	90	18	3	21	1 046
Offences against justice procedures, govt. security and govt. operations	632	273	130	120	112	49	32	10	15	25	1 358
Miscellaneous offences	23	81	185	3	60	—	15	1	—	1	368
<b>Total</b>	<b>7 044</b>	<b>3 068</b>	<b>4 153</b>	<b>983</b>	<b>2 447</b>	<b>355</b>	<b>612</b>	<b>76</b>	<b>117</b>	<b>193</b>	<b>18 738</b>

(a) The majority of full-time prisoners sentenced in the ACT are held in NSW prisons. (b) The ACT in NSW figures are a subset of the NSW figures and are not separately counted in the Australian totals.

Source: *Prisoners in Australia, 2003 (4517.0)*.

**11.40 SENTENCED PRISONERS, By selected most serious offence — 30 June 2003**



Source: *Prisoners in Australia, 2003* (4517.0).

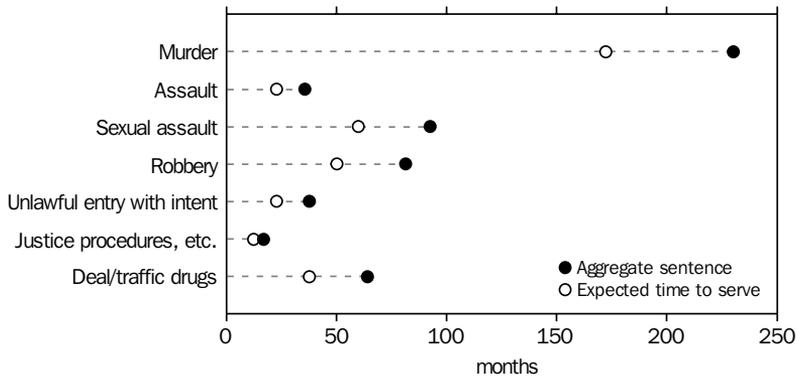
**Sentence length**

Aggregate length of sentence is a measure of the sentences imposed on an offender, sometimes taking multiple offences into account. It is not measured for prisoners who receive an indeterminate type of sentence such as 'life'. Periodic detainees' sentences are also measured separately. At 30 June 2003 the average aggregate sentence of all prisoners sentenced to a specific term was 4.9 years (graph 11.41). Nearly one in

four sentenced prisoners (23%) had an average aggregate sentence of 2–5 years, with another 22% with a sentence of 5–10 years.

The time a prisoner is expected to serve in custody depends upon the sentence originally handed down, the system of remissions and the forms of parole available. Taking into account the earliest dates for release of sentenced prisoners, the average expected time to serve at 30 June 2003 was 3.2 years.

**11.41 SENTENCED PRISONERS, By average sentence length — 30 June 2003**



Source: *Prisoners in Australia, 2003* (4517.0).

## Community-based corrections

During the March quarter 2004 there was an average of 50,172 persons in community-based corrections, with sentenced probation being the most prevalent option for all states and territories (table 11.42).

## Deaths in custody

In 1991 the Royal Commission into Aboriginal Deaths in Custody, which investigated the deaths of 99 Indigenous persons in police or prison custody occurring between January 1980 and May 1989,

presented its findings and recommendations. One of the outcomes was the establishment of a National Deaths in Custody Monitoring and Research Program at the Australian Institute of Criminology.

During 2002, 69 people died in all forms of custody in Australia, a 21% decrease since 2001. Of the 69 deaths, 14 were of Indigenous persons. The largest number of deaths in custody recorded since 1990 was in 1997 (105), while the largest number of deaths of Indigenous persons was in 1995 (21) (table 11.43).

### 11.42 PERSONS IN COMMUNITY-BASED CORRECTIONS(a)(b) — March quarter 2004

Type of penalty	NSW(a)	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Community-based corrections	16 621	7 972	11 444	5 894	5 115	973	1 028	1 126	50 172
Restricted movement	202	..	66	86	58	..	63	4	480
Reparation									
Fine option	17	1 643	1 729	986	272	78	3	..	4 728
Community service	4 347	1 016	1 834	1 421	2 142	407	256	123	11 547
Supervision (compliance)									
Parole	3 631	1 452	952	910	1 250	98	150	119	8 563
Bail	299	..	..	535	67	..	7	181	1 088
Sentenced probation	10 107	4 083	7 415	2 453	3 280	509	583	833	29 262

(a) Average of figures for the first day of each month in the quarter. (b) As a person may have more than one type of order, the sum of the components may be greater than the total.

Source: *Corrective Services, Australia, March Quarter 2004 (4512.0)*.

### 11.43 DEATHS IN CUSTODY

	Police		Prison		Total(a)		
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Total
1990	5	26	5	28	10	55	65
1991	5	26	8	31	13	57	70
1992	7	24	2	34	9	58	67
1993	3	28	7	42	10	71	81
1994	3	24	11	42	14	67	81
1995	4	22	17	42	21	66	87
1996	6	23	12	40	18	64	82
1997	6	23	9	67	15	90	105
1998	6	19	9	60	16	79	95
1999	6	20	13	46	19	66	85
2000	5	20	11	53	17	74	91
2001	5	26	14	42	19	68	87
2002	6	13	8	42	14	55	69

(a) Includes deaths that occurred in custody other than police or prison custody (such as juvenile detention).

Source: *Australian Institute of Criminology, National Deaths in Custody database, 1990–2002*.

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### Web sites

#### Australian sites

Australian Crime Commission, last viewed October 2004 <<http://www.crimecommission.gov.au>> responsible for criminal intelligence collections and analysis, setting national criminal intelligence priorities, conducting intelligence led investigations of criminal activity of national significance, and the exercise of coercive powers to assist intelligence operations and investigations.

Australian Federal Police, last viewed October 2004 <<http://www.afp.gov.au>> principle law enforcement agency through which the Australian Government pursues its law enforcement interests.

Australian Institute of Criminology, last viewed October 2004 <<http://www.aic.gov.au>> has a national focus for the study of crime and criminal justice in Australia and the dissemination of criminal justice information. The Institute draws on information supplied to it by a wide variety of sources.

Australian Law Online, last viewed October 2004 <<http://www.law.gov.au>> gives all Australians access to Government legal information and services available nationwide.

National Crime Prevention, last viewed October 2004 <<http://www.ncp.gov.au>> formerly known as the National Campaign Against Violence and Crime, it was launched in 1997 by the Prime Minister, with the aim of preventing violence and crime and reducing fear of violence and crime in the community.

NSW Bureau of Crime Statistics and Research, last viewed October 2004 <<http://www.lawlink.nsw.gov.au/bocsar1.nsf>> the statistical and research agency within the NSW Attorney General's Department. Conducts statistical monitoring, research and evaluation and provides comprehensive statistical information on crime and criminal justice in NSW.

Office of Crime Statistics at the SA Attorney General's Department, last viewed October 2004

<<http://www.ocsar.sa.gov.au>> conducts statistical monitoring, research and evaluation and provides comprehensive statistical information on crime and criminal justice in South Australia.

Productivity Commission, last viewed October 2004 <<http://www.pc.gov.au>> examines the performance of government in Australia in the service areas of education, health, justice, emergency management, and community services and housing. Involves all governments.

University of Melbourne, Criminology Department, last viewed October 2004

<<http://www.criminology.unimelb.edu.au>> The first school of criminology in Australia. Provides information on current research, and links to criminology and related resources.

University of Western Australia, Crime Research Centre, last viewed October 2004

<<http://www.law.ecel.uwa.edu.au/crc>> coordinates and publishes comprehensive statistics on crime and justice for Western Australia. Also conducts research into various aspects of crime and criminal justice.

### **International sites**

Canadian Centre for Justice Statistics at Statistics Canada, last viewed October 2004

<<http://www.statcan.ca>> Canada's national statistics agency. Provides statistics about Canada's population, resources, economy, society and culture. The Centre for Justice Statistics includes extensive statistics and research papers on crime and justice.

Department of Justice Canada, last viewed October 2004 <<http://www.canada.justice.gc.ca/en/index.html>> provides information on Canada's Department of Justice, including government reports and information on Canadian law.

Home Office, United Kingdom, last viewed October 2004 <<http://www.homeoffice.gov.uk/rds>> Government Department responsible for internal affairs in England and Wales. Crime and policing information includes policies on crime reduction and prevention as well as specific crime and justice statistics.

International Victimology, last viewed October 2004 <<http://www.victimology.nl>> launched in 1999 as a resource for improving justice for victims of crime and abuse of power. Features two databases: Victimology Research (victimology research in progress), and Victimisation Prevention (promising international practices).

NZ Ministry of Justice, last viewed October 2004 <<http://www.justice.govt.nz>> provides strategic and policy information on issues across the justice sector, including its criminal, civil and constitutional elements.

United Nations Office for Drug Control and Crime Prevention, last viewed October 2004

<<http://www.odccp.org>> provides information on the UN crime program including terrorism, corruption, organised crime, trafficking in human beings, trafficking in drugs and the UNCJIN. Analysis and statistics are also available.

US Bureau of Justice Statistics, last viewed October 2004 <<http://www.ojp.usdoj.gov/bjs>> provides statistics on crime and victims, criminal offenders, law enforcement, prosecution, Federal justice system, courts and sentencing, corrections, the criminal records system and special topics (including drugs, firearms, homicide trends, re-entry trends and international statistics).

US Department of Justice, last viewed October 2004 <<http://www.usdoj.gov>> brings together information on the law, prevention and controlling crime and justice issues. Information includes civil rights and liberties violations, disabilities, dispute resolution, domestic violence, faith based and community initiatives, fraud, immigration information, prison and parole information, trafficking in persons, youth violence and victims of crime.

US National Institute of Justice, last viewed October 2004 <<http://www.ojp.usdoj.gov/nij>> the research, development and evaluation agency of the US Justice Department.

US Office of Justice Programs, last viewed October 2004 <<http://www.ojp.usdoj.gov>> provides funding, training, programs, statistics and research about the justice system, fighting crime, crime victims, as well as special topics (e.g. firearms and crime, advancing justice through DNA technology).



## CULTURE AND RECREATION

Cultural and recreational activities are important contributors to the wellbeing of individuals and communities. They take many forms including involvement in creative and performing arts, music, literature, cultural heritage, religious activities, libraries, radio, television, sports and amusements.

This chapter reviews a range of cultural and recreational activities which Australians undertake and provides a statistical summary, where available, for those activities. It also provides information on the industries providing a range of culture and recreation services in Australia, and information on religious affiliation.

Statistics have been drawn from household and industry surveys conducted by the Australian Bureau of Statistics (ABS), as well as its compilations of administrative data, such as information about government funding of heritage and arts activities. Other Australian Government organisations have also supplied data used in this chapter.

Further information on the operations of organisations referred to in this chapter, including their administrative and legislative background, may be obtained from their individual web sites, addresses of which are provided throughout and at the end of the chapter.



## Cultural and natural heritage

Australia's heritage draws on its cultural and natural environments and the history of its people.

Cultural heritage includes historic places of significance, such as: old towns, and residential and commercial buildings; Indigenous ceremonial grounds and rock art galleries; shipwrecks; streetscapes; as well as paintings, objects, books, aircraft and natural history specimens. Increasingly what was formerly intangible, such as traditions, customs and habits, is being recorded and documented in photographs, films, tapes and digital records – these also add to Australia's cultural heritage.

Natural heritage refers to natural features, sites or landscapes that are significant because of their ecosystems, biodiversity or geodiversity, or because of their scientific, social, aesthetic or life-support value to present and future generations of people. Extensive areas of coastline, forests, wetlands and deserts are included in national parks, nature reserves and wilderness areas. Many smaller sites are important habitats for native flora and fauna, enabling the conservation of threatened species. Many natural places are significant to Indigenous communities for cultural reasons.

Conservation of heritage places involves identifying them, surveying their values, and classifying and managing them. These functions are shared between all levels of government and their statutory authorities, with assistance from academic and professional bodies, individuals, community conservation organisations such as the national trusts, and conservation councils in each state and territory.

The Australian Government focuses on the assessment and protection of places of world and national heritage significance and on heritage under its control. The statutory provisions for national and Commonwealth heritage were inserted into the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) on 1 January 2004. The legislation establishes procedures to identify, conserve and protect places of national heritage significance, provides for the identification and management of Commonwealth heritage places, and establishes an independent expert body, the Australian Heritage Council, to advise the Minister on the listing and protection of heritage places.

The National Heritage List has been established to protect places of outstanding heritage significance to Australia. The list presents and protects the places that best tell the story of our unique continent, the development of our nation and the evolution of our distinctively Australian character and national identity. The first three places were listed in July 2004 and over 30 other nominations for National Heritage Listing were being assessed at that time. The list will include natural, historic and Indigenous places.

Another new list, the Commonwealth Heritage List, specifies places of heritage value which are owned or leased by the Australian Government. Australian Government-owned places include telegraph stations, defence sites, migration centres, customs houses, lighthouses, national institutions such as Old Parliament House, memorials, islands and marine areas. In June 2004, 336 places of heritage value were named on the new Commonwealth Heritage List.

Other major Australian Government heritage activities include the nomination of sites for World Heritage listing, and the protection of Aboriginal and Torres Strait Islander heritage. At 30 June 2004, there were 15 Australian places on the World Heritage List.

The Register of the National Estate, accessible at <<http://www.deh.gov.au/heritage/index.html>>, is a list of important natural, Indigenous and historic places throughout Australia, from local to national significance, and both publicly and privately owned. During 2003–04 the number of places on the Register of the National Estate increased by 36 to 13,129. Details by state or territory and type of place, and comparisons with the previous year are shown in table 12.1.

All states and territories maintain lists or registers of heritage places that have particular importance to the people of the state or territory. There is also a register of historic shipwrecks in Australian waters, and heritage registers or lists are maintained by many local governments and the National Trust.

The Australian Heritage Directory, at <<http://www.heritage.gov.au>>, provides public access to the National Heritage List, Commonwealth Heritage List, World Heritage List, Register of the National Estate, state and territory historic Heritage Lists, and the Australian National Shipwreck Database.

## 12.1 PLACES ON THE REGISTER OF THE NATIONAL ESTATE

	Indigenous places		Historic places		Natural places		Total	
	2002–03	2003–04	2002–03	2003–04	2002–03	2003–04	2002–03	2003–04
New South Wales	221	221	3 125	3 136	487	488	3 833	3 845
Victoria	111	111	2 427	2 431	254	254	2 792	2 796
Queensland	155	155	738	739	322	324	1 215	1 218
South Australia	153	153	1 209	1 205	390	391	1 752	1 749
Western Australia	74	74	969	972	283	285	1 326	1 331
Tasmania	66	66	1 209	1 210	263	263	1 538	1 539
Northern Territory	105	107	147	157	63	68	315	332
Australian Capital Territory(a)	30	30	195	193	30	30	255	253
External territories	—	—	42	42	25	24	67	66
<b>Total</b>	<b>915</b>	<b>917</b>	<b>10 061</b>	<b>10 088</b>	<b>2 117</b>	<b>2 128</b>	<b>13 093</b>	<b>13 129</b>

(a) Includes Jervis Bay.

Source: Department of the Environment and Heritage.

### National parks

National parks and other protected areas are areas of land and/or sea especially dedicated to the protection of biodiversity and other natural and cultural resources. They are established under Commonwealth, state or territory laws or other legal means. All governments participate in the development of a comprehensive, adequate and representative national reserve system as part of Australia's obligation under the United Nations Biodiversity Convention established in 1993. Most national parks and other protected areas in Australia are declared and managed by state and territory governments, although the establishment of protected areas managed by conservation or other groups commenced within the last decade. Declaration and management of Indigenous protected areas, Indigenous-owned land that is managed to protect its natural and associated cultural values, commenced in 1998. The Australian Government declares and manages parks and reserves on land owned or leased by the Commonwealth, in Commonwealth waters and on Indigenous land leased to the Commonwealth.

Although there are nearly 50 different protection designations in Australia, all protected areas are classified into one or more of the World Conservation Union protected area management categories, the most common being 'national park' and 'nature reserve'. The types of areas managed include: strictly protected areas managed mainly for science with very limited public access; areas where recreation is encouraged, but where resource development adverse to conservation of the environment is not;

and multiple use areas where ecologically sustainable resource utilisation, recreation and nature conservation can coexist.

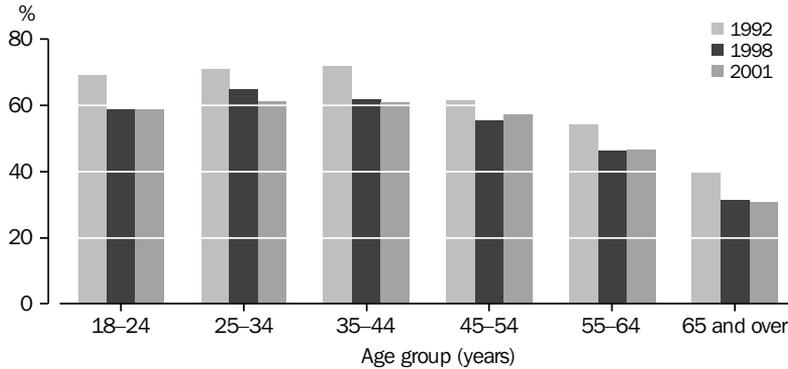
Lists and descriptions of the parks and reserves managed by Australian, state and territory governments can be accessed using links on the Parks and Reserves page of the Department of Environment and Heritage web site at <<http://www.deh.gov.au/parks>>.

### Visits to World Heritage areas, national and state parks

The ABS Environmental Attitudes and Practices Survey is a household survey collecting data on several environmental topics, including visits to World Heritage areas, and national and state parks. The most recent survey found people between the ages of 25 and 44 years were the most likely group to have made a visit to these areas and parks in the 12 months prior to March 2001. During that period 61% of people aged 25–34 years or 35–44 years visited one of these areas, compared with an attendance rate of 54% for all adults. However, as shown in graph 12.2, outings to these areas and parks have tended to decline between 1992 and 2001 within each age group.

For those who had not visited a World Heritage area, national or state park in the 12 months prior to March 2001, 36% gave lack of time as the main reason. Inability to visit because of age or health was the next most common reason for not visiting these areas (17%).

## 12.2 VISITS TO WORLD HERITAGE AREAS, NATIONAL AND STATE PARKS



Source: *Environmental Issues: People's Views and Practices, March 2001 (4602.0)*.

## Museums and art galleries

Museums (including art galleries) engage in the acquisition, collection management, conservation, interpretation and exhibition of heritage objects and artefacts. Heritage objects include those that inform us about natural science, applied science, history, transport, art and other culture.

Australian Museums and Galleries On Line (AMOL, formerly known as Australian Museums On Line) provides access to a database of information on over 1,500 national, state, territory, regional and local museums across Australia at <<http://www.amol.org.au>>. AMOL includes a searchable database of objects from collecting institutions across Australia.

### Museum attendance

The 2002 Survey of Attendance at Selected Cultural Venues and Events showed 24.9% of the population aged 18 years and over (3.6 million people) had visited an art gallery at least once in the previous 12 months (table 12.3). This is higher than the attendance rate of 20.9% (2.9 million people) determined when the survey was run in 1999. The attendance rate at museums (other than art galleries) was 25.0% (3.6 million people) in 2002, compared with 19.6% (2.8 million people) in 1999.

This large rise in attendance can be partly explained by the temporary closure of some large museums during the 1999 survey period.

### 12.3 ATTENDANCE(a) AT MUSEUMS — 2002

	Art galleries	Museums
Attendance rate(b)	%	%
Males	22.0	24.6
Females	27.7	25.4
Persons	24.9	25.0
Age group (years)		
18-24	23.8	22.3
25-34	23.9	27.0
35-44	25.8	29.1
45-54	27.8	25.3
55-64	28.0	25.7
65 and over	19.7	18.3
Birthplace		
Australia	24.8	24.9
Main English-speaking countries	29.0	29.6
Other countries	22.6	22.6

(a) Attendance at least once in the 12 months prior to interview in 2002. (b) The number of people who attended, expressed as a percentage of the number of people in that population group.

Source: *Attendance at Selected Cultural Venues and Events, Australia, 2002 (4114.0)*.

## Museums industry

The ABS conducted a survey of museums in respect of the 1999–2000 financial year. Museums were defined for the purpose of the survey as organisations operating enclosed areas storing artefacts, artworks and museum objects, and which were open to the general public. Commercial art galleries were not included in the survey.

At the end of June 2000 there were 2,049 museum establishments comprising 249 art museums/galleries, 411 historic properties and 1,389 other museums (e.g. social history, natural history and science museums) (table 12.4). The majority of museum establishments (58.0%) were operated without employees, relying on the assistance of 14,570 volunteers. Museums with employees also rely on the services of volunteers. The 861 museum establishments with employees, at the end of June 2000, had a total of 6,956 employees or working proprietors and 15,393 volunteers.

The 78 museums with 100 or more employees averaged 121,300 admissions each (or 34.4% of total museum admissions) in 1999–2000. This compares with an average of 34,800 admissions for museums with 20–99 employees, 29,100 admissions for museums with 5–19 employees and 7,100 admissions for museums with 1–4 employees. Museums which were operated solely by volunteers had an average of 4,200 admissions in 1999–2000.

At the end of June 2000 there were 61.6 million artefacts, artworks and museum objects located in museums, of which 16.1% were on display. The majority (59.3%) of these artefacts, artworks and museum objects were in the 78 large museums with employment of 100 or more. These large museums displayed only 1.6% of their artefacts, artworks and museum objects.

## Botanic gardens, zoological parks and aquariums

### Botanic gardens and herbaria

Botanic gardens are scientific and cultural institutions established to collect, study, exchange and display plants for research and for the education and enjoyment of the public. Some botanic gardens have an associated herbarium, which is a scientific collection of dried preserved plant specimens used for research and the accurate classification and identification of plants and plant material. Many recently established gardens operate under the auspices of local government or community groups and have a native plant and conservation focus.

There are major botanic gardens in each capital city, and these are managed by the respective state or territory government, with the exception of Brisbane (which is managed by the City Council) and Canberra (which is managed by the Australian Government). The Booderee Botanic Gardens at Jervis Bay is also managed by the Australian Government on behalf of the traditional Aboriginal owners of the land, the Wreck Bay Aboriginal Community Council, under arrangements in place since December 1995.

Information about the botanic gardens and herbaria in Australia can be obtained from the web sites: Australian National Botanic Gardens at <<http://www.anbg.gov.au>>, Council of Heads of Australian Botanic Gardens at <<http://www.chabg.gov.au>>, Directory of Australian Botanic Gardens and Arboreta at <<http://www.chabg.gov.au/bg-dir>>, and Resources of Australian Herbaria at <<http://www.chah.gov.au/resources>>.

### 12.4 MUSEUMS — 1999–2000

	Units	Art museums/ galleries	Historic properties	Other museums	Total
Museum/gallery establishments at end June 2000	no.	249	411	1 389	2 049
Artefacts/artworks/museum objects at end of June 2000	'000	1 157.5	*2 740.0	57 737.8	61 635.3
Admissions during the year ended 30 June 2000	'000	6 527.6	*7 260.0	13 744.2	27 531.8
Employment at end June 2000	no.	1 741	1 010	4 205	6 956
Volunteers for the month of June 2000	no.	4 177	5 929	19 857	29 963
Income	\$m	197.2	64.4	454.8	716.4
Expenses	\$m	164.4	57.4	420.7	642.5

Source: *Museums, Australia, 1999–2000 (8560.0)*.

'Australia's Virtual Herbarium' (AVH) is an on-line botanical information resource accessible via the web, which links the databases of the eight major herbaria. More than 40% of the specimens housed in Australian herbaria have been 'databased' to date, and it is anticipated that by 2006 the AVH will provide on-line access to information and locational data for over six million plant specimens. The Australia's Virtual Herbarium web site address is <<http://www.anbg.gov.au/avh>>.

### Attendance at botanic gardens

The 2002 Survey of Attendance at Selected Cultural Venues and Events showed 41.6% of the population aged 18 years and over (6.0 million people) visited a botanic garden at least once in the 12 months prior to interview (table 12.5). In 1999 the attendance rate by adults was 36.4% (5.1 million people).

#### 12.5 ATTENDANCE(a) AT BOTANIC GARDENS — 2002

Attendance rate(b)	%
Males	40.0
Females	43.2
Persons	41.6
Age group (years)	
18–24	42.6
25–34	45.5
35–44	43.4
45–54	41.4
55–64	42.2
65 and over	33.1
Birthplace	
Australia	40.4
Main English-speaking countries	48.1
Other countries	42.8

(a) Attendance at least once in the 12 months prior to interview in 2002. (b) The number of people who attended, expressed as a percentage of the number of people in that population group.

Source: *Attendance at Selected Cultural Venues and Events, Australia, 2002 (4114.0)*.

The ABS Botanic Gardens Census, which was a census of employing organisations whose main activity was the operation of botanic gardens, showed there were 11.8 million visits to botanic gardens during 1999–2000. This includes visits by Australian adults, children, and people from outside Australia, as well as multiple visits by individuals. The six largest botanic gardens

(i.e. those employing 50 or more persons) accounted for 61.9% of these visits at an average of 332,000 visits per location.

### Botanic gardens industry

The ABS Botanic Gardens Census in respect of 1999–2000 found there were 72 employing organisations operating botanic gardens at 123 locations at the end of June 2000. The operations of these organisations covered 3,664 hectares (ha), comprising 3,050 ha of botanic gardens and 614 ha of arboreta. The organisations employed 1,250 people at the end of June 2000 and utilised the services of 1,991 volunteers during the month of June. Many of the smaller botanic gardens have few or no staff, and are particularly reliant on volunteers for their operation. The 54 smaller organisations, those employing less than ten people, provided paid employment for a total of 156 people at the end of June 2000. They were assisted by 871 volunteers during that month.

### Zoological parks and aquariums

Zoological parks and aquariums (i.e. animal, fauna, bird and reptile parks, aquariums, aviaries, butterfly houses and dolphinariums) are primarily engaged in the breeding, preservation, study and display of native and/or exotic fauna in captivity, and are accessible to the general public.

There are zoological parks and aquariums throughout Australia. As well as the four traditional zoos in Sydney, Melbourne, Adelaide and Perth, there are numerous wildlife parks and sanctuaries, some of which are associated with urban zoos and others which are privately owned. Some of the better known zoological parks and sanctuaries are Taronga Park (Sydney), Healesville Sanctuary (60 km from Melbourne), the Western Plains Zoo (Dubbo), Victoria's Open Range Zoo at Werribee (a Melbourne suburb), The Territory Wildlife Park (Darwin), Monarto Zoological Park (70 km from Adelaide), Lone Pine Koala Sanctuary (Brisbane) and Currumbin Sanctuary (Gold Coast).

More information about Australian zoological parks and aquariums can be obtained from the 'Zoos in Australia' page on the Australian Government's culture and recreation web site, <<http://www.cultureandrecreation.gov.au/articles/zoo>>.

## Attendance at zoological parks and aquariums

The 2002 Survey of Attendance at Selected Cultural Venues and Events showed 40.0% of the population aged 18 years and over (5.8 million people) visited a zoological park or aquarium during the 12 months prior to interview (table 12.6). Of these, 56.3% (3.3 million people, or 22.6% of the Australian population aged 18 years and over) visited a zoo at least once during the year. In 1999 the attendance rate by adults at zoological parks and aquariums was 33.8% (4.8 million people).

### 12.6 ATTENDANCE(a) AT ZOOLOGICAL PARKS AND AQUARIUMS — 2002

Attendance rate(b)	%
Males	38.3
Females	41.8
Persons	40.0
Age group (years)	
18–24	43.2
25–34	51.9
35–44	49.1
45–54	36.7
55–64	32.8
65 and over	20.1
Birthplace	
Australia	39.9
Main English-speaking countries	46.2
Other countries	36.7

(a) Attendance at least once in the 12 months prior to interview in 2002. (b) The number of people who attended, expressed as a percentage of the number of people in that population group.

Source: *Attendance at Selected Cultural Venues and Events, Australia, 2002 (4114.0)*.

## Zoological parks and aquariums industry

An ABS survey of the zoological parks and aquariums industry, in respect of 1996–97, showed there were almost 8 million paid admissions to zoological parks and aquariums during that year. At the end of June 1997, there were 65 businesses in this industry, comprising 53 zoological parks and 12 aquariums. There were 1,946 persons employed in the zoological parks and aquariums industry at the end of June 1997. Full-time employees accounted for 65.2% (1,268) of total employment. A further 1,591 persons worked for zoological parks and aquariums on a volunteer basis during June 1997. The majority of these volunteers (75.0%) worked as guides and information officers.

## Libraries and archives

### Libraries

The main activities of libraries are the acquisition, collection, organisation, preservation and loan of library materials such as books, magazines, manuscripts, musical scores, maps and prints.

The National Library of Australia (NLA) is the country's largest reference library. The NLA's role is to ensure that documentary resources of national significance relating to Australia and the Australian people, as well as significant non-Australian library materials, are collected, preserved and made accessible either through the Library itself or through collaborative arrangements with other libraries and information providers.

Libraries are increasingly making use of the Internet as a way of enhancing access to information, and the National Library's web site at <<http://www.nla.gov.au>> is an example of this principle at work. It provides on-line visitors with access to information about more than 5,400 Australian libraries, their collections and services via the Australian Libraries Gateway at <<http://www.nla.gov.au/libraries>>. Over 1,500 of these libraries are public libraries, mainly operated by local governments. Others include school and university libraries, parliamentary libraries, corporate or business libraries, family history libraries and subject-specific libraries.

### Public Lending Right (PLR)

PLR is a cultural program of the Australian Government, first established in 1974 and currently administered by the Department of Communications, Information Technology and the Arts. It makes payments to eligible Australian book creators and publishers on the basis that income is lost from the availability of their books for loan in public lending libraries. PLR also supports the enrichment of Australian culture by encouraging the growth and development of Australian writing and publishing. Australia is one of 20 countries operating a PLR program.

Some 8,737 book creators and publishers received PLR payments in 2003–04, totalling about \$6.5m. The rates of payment under the current PLR scheme are \$1.37 per copy of each eligible book for creators and 34.25 cents per copy of each eligible book for publishers.

The Educational Lending Right (ELR) program complements the PLR. ELR came into effect under the Australian Government's Book Industry Assistance Plan in 2000–01, and the program was recently extended to continue until at least 2007–08. An annual survey of the book stock of a representative sample of educational lending libraries (including school, technical and further education (TAFE), and university libraries) is used to determine payments. In 2003–04, some 8,285 book creators and publishers received ELR payments totalling about \$10.2m.

Further information on these two programs can be obtained from the web site, <<http://www.dcita.gov.au>> under the heading 'Grants and Funding'.

### Library attendance

The 2002 Survey of Attendance at Selected Cultural Venues and Events, which provides data on people who visited a national, state or local government library, found 42.1% of the persons aged 18 years and over (almost 6.1 million people) attended a library at least once in the 12 months prior to interview (table 12.7). In 1999 the adult attendance rate was 36.8% (5.2 million people).

#### 12.7 ATTENDANCE(a) AT LIBRARIES(b) — 2002

Attendance rate(c)	%
Males	34.5
Females	49.6
Persons	42.1
Age group (years)	
18–24	47.2
25–34	42.0
35–44	47.4
45–54	41.9
55–64	36.9
65 and over	35.7
Birthplace	
Australia	41.5
Main English-speaking countries	49.3
Other countries	40.4

(a) Attendance at least once in the 12 months prior to interview in 2002. (b) National, state or local government library only. (c) The number of people who attended, expressed as a percentage of the number of people in that population group.

Source: *Attendance at Selected Cultural Venues and Events, Australia, 2002 (4114.0)*.

### Archives

The primary function of archives is the permanent preservation of records which are unique because of their administrative, financial, legal, research, cultural or other information value. The records are generally no longer required for the conduct of current activities by government agencies, non-government organisations or individuals.

The National Archives of Australia (NAA) is the organisation which promotes reliable record keeping and maintains a visible and accessible archival collection on behalf of the Australian Government. There are NAA offices and reading rooms in all states and territories, and their national headquarters in Canberra features various public exhibitions such as the Federation Gallery, where Australia's original 'birth certificates', including the Constitution and Queen Victoria's Royal Commission of Assent, are on display.

Archives, as is the case with libraries, are increasingly making use of the Internet to provide access to their records. The 'Archives of Australia' web site, at <<http://www.archivenet.gov.au>>, provides information about archives in Australia and operates as a portal to the web sites of other Australian archival institutions. These include: the Australian War Memorial, which collects private material concerning Australians at war, and is the custodian of official Commonwealth records relating to war or war-like operations; ScreenSound Australia (which was integrated with the Australian Film Commission in July 2003) which collects cultural material relevant to film and sound media; state and territory government archives; and archives established by churches, business corporations, universities and city councils.

### Libraries and archives industry

An ABS survey of public libraries and archives in respect of 1999–2000 showed at the end of June 2000 there were 505 local government library organisations with 1,510 library locations, eight national and state library organisations with 26 locations, and eight national and state archive organisations with 27 locations. The libraries held 54.3 million books and other library materials at the end of June 2000, of which 36.4 million were available as lending stock. The total income of the industry in 1999–2000 was \$792m, with government funding accounting for 91% (\$725m) of the total.

## Literature and print media

### Book publishing

During 2002–03 there were 246 businesses which were either predominantly engaged in book publishing, or generated income of \$2m or more from this activity. Table 12.8 shows these organisations generated \$1,578.6m in income, of which \$1,369.4m was from the sale of books. Of the total book sales, \$877.0m (64%) was attributed to Australian titles. Between 2001–02 and 2002–03

the operating profit before tax for book publishing businesses increased from \$50.2m to \$88.4m and the profit margin increased from 3.3% to 5.6%.

Table 12.9 shows, apart from a slight dip in 2000–01, the total sales of books (both Australian and imported titles) has generally risen steadily from \$841.7m in 1994 to \$1,369.4m in 2002–03. This increase in the value of books sold has not been reflected in the number of books sold, which has fluctuated over the period, peaking at 130.6 million in 1995–96 and falling to its lowest level of 104.3 million in 2000–01.

#### 12.8 BOOK PUBLISHERS

	Units	2001–02	2002–03
Organisations at end June	no.	237	246
Income			
Sales of all books	\$m	1 356.8	1 369.4
Sales of Australian titles	\$m	853.8	877.0
Sales of imported titles	\$m	503.0	492.4
Sales of other goods	\$m	59.6	73.9
Other income	\$m	126.3	135.3
<i>Total</i>	<i>\$m</i>	<i>1 542.7</i>	<i>1 578.6</i>
Average income per business	\$m	6.5	6.4
Expenses			
Wages and salaries paid	\$m	249.6	248.6
Royalties and fees paid	\$m	93.5	102.3
Other expenses	\$m	1 117.3	1 136.8
<i>Total</i>	<i>\$m</i>	<i>1 460.4</i>	<i>1 487.7</i>
Average expenses per business	\$m	6.2	6.0
Ratio of royalties and fees paid to sales of Australian titles	%	10.9	11.7
Export sales of books	\$m	189.2	209.5
Internet sales of books	\$m	6.8	**14.1
Operating profit before tax	\$m	50.2	88.4
Profit margin	%	3.3	5.6
Industry value added	\$m	401.6	444.3

Source: *Book Publishers, Australia, 2002–03 (1363.0)*.

#### 12.9 BOOK PUBLISHERS, Selected years

	Units	1994(a)	1995–96	1997–98	1999–2000	2000–01	2001–02	2002–03
Number of books sold	million	124.8	130.6	111.5	129.4	104.3	129.8	114.4
Sales of all books	\$m	841.7	950.0	1 035.6	1 270.4	1 260.6	1 356.8	1 369.4
Sales of Australian titles	\$m	487.7	561.1	623.5	756.1	747.7	853.8	877.0
Sales of imported titles	\$m	354.0	388.9	412.1	514.3	512.9	503.0	492.4
Export sales of books(b)	\$m	81.1	80.3	109.8	151.1	162.5	189.2	209.5

(a) Data were collected on a calendar year basis in 1994. (b) Includes re-export sales and excludes sales of rights.

Source: *Book Publishers, Australia, 2002–03 (1363.0)*.

## Book retailing

Book sales valued at \$1,274.9m were reported by the 1,415 employing businesses identified as having retail bookselling activity in 2002–03 (table 12.10). Most of the income from book sales was generated by the 522 businesses classified as bookshops (74% or \$947.3m). In total, book retailers sold over 75.6 million new books during 2002–03.

The total number of businesses reporting book sales decreased by 12% (188) in 2002–03. Booksellers other than bookshops (particularly newsagents) were largely responsible for this decrease, with 129 less businesses reporting book sales. However, the decrease in the number of businesses did not result in corresponding decreases in other data items such as income, expenditure, and the number of books sold, all of which increased between 2001–02 and 2002–03.

## Children's reading

In April 2003 the ABS conducted a survey of children's participation in cultural and leisure activities, which included reading for pleasure as one of six selected leisure activities. The survey found 75% of children aged 5–14 years had spent an average time of eight hours reading for

pleasure outside of school hours during the two school weeks prior to interview, making it the second-most popular leisure activity for children after watching television or videos. More information about this survey can be found in *Children's participation in selected leisure activities*.

## Performing arts

The performing arts include music performances, acting, dance performances, opera and musicals, circuses and puppet shows.

## Attendance at the performing arts

Attendance at the performing arts is a significant aspect of the cultural life of many Australians. Table 12.11 shows that in the 12 months prior to interview in 2002, 26.4% of the Australian population aged 18 years and over (3.8 million people) attended at least one popular music concert, 18.7% (2.7 million people) attended at least one opera or musical, and 18.0% (2.6 million people) attended at least one theatre performance. Attendance rates at most of the performing arts were generally similar to or slightly higher than those recorded in a survey conducted in 1999.

**12.10 BOOK RETAILERS**

	Units	Bookshops(a)		Other booksellers(b)		Total businesses	
		2001–02	2002–03	2001–02	2002–03	2001–02	2002–03
Number of businesses	no.	581	522	1 022	893	1 603	1 415
Number of books sold	million	41.8	43.7	29.4	31.9	71.2	75.6
<b>Income</b>							
Retail sales of new books(c)	\$m	957.4	947.3	289.3	327.6	1 246.7	1 274.9
Other retail sales	\$m	103.2	98.5	48 352.2	51 317.3	48 455.3	51 415.9
Other income	\$m	33.4	27.6	3 275.8	5 447.3	3 309.2	5 474.9
<i>Total</i>	<i>\$m</i>	<i>1 095.4</i>	<i>1 073.5</i>	<i>51 970.7</i>	<i>57 092.3</i>	<i>53 066.1</i>	<i>58 165.8</i>
Average income per business	\$m	1.9	2.1	50.9	63.9	33.1	41.1
Average sales of new books per business	\$m	1.6	1.8	0.3	0.4	0.8	0.9
<b>Expenses</b>							
Purchases of new books	\$m	604.6	590.1	217.3	269.8	821.9	859.9
Other expenses	\$m	471.8	467.3	50 325.9	54 912.6	50 797.7	55 379.9
<i>Total</i>	<i>\$m</i>	<i>1 076.4</i>	<i>1 057.4</i>	<i>50 543.2</i>	<i>55 182.4</i>	<i>51 619.6</i>	<i>56 239.8</i>
Average expenses per business	\$m	1.9	2.0	49.5	61.8	32.2	39.8
Average purchases of new books per business	\$m	1.0	1.1	0.2	0.3	0.5	0.6

(a) Includes only those businesses which are classified according to the ANZSIC as Newspaper, book and stationery retailing and for which the value of new book sales comprises at least 50% of all retail sales. (b) Includes only those businesses which are classified according to the ANZSIC as Supermarket and grocery stores; Department stores; Retailing n.e.c.; or Newspaper, book and stationery retailing and for which the value of new book sales comprises less than 50% of all retail sales. (c) Includes electronic and audio books.

Source: *Book Retailers, Australia, 2002–03 (1371.0)*.

### 12.11 ATTENDANCE(a) AT THE PERFORMING ARTS — 2002

Attendance rate(b)	Popular music concerts	Classical music concerts	Dance performances	Musicals and operas	Theatre performances	Other performing arts
	%	%	%	%	%	%
Males	26.6	7.7	8.4	15.1	15.3	19.2
Females	26.2	10.2	13.4	22.1	20.6	21.5
Persons	26.4	9.0	10.9	18.7	18.0	20.4
Age group (years)						
18–24	43.8	6.3	10.5	16.0	19.8	23.3
25–34	33.2	6.6	10.3	17.9	17.7	24.0
35–44	25.9	8.1	14.0	17.1	19.4	20.9
45–54	24.9	10.9	12.1	21.6	19.9	20.6
55–64	20.3	13.2	10.7	23.2	17.6	19.5
65 and over	10.4	9.7	6.9	16.6	13.0	12.9
Birthplace						
Australia	27.8	8.1	10.5	19.8	18.9	20.5
Main English-speaking countries	28.5	11.5	12.6	20.5	21.3	23.5
Other countries	19.5	10.8	11.6	12.7	12.1	17.9

(a) Attendance at least once in the 12 months prior to interview in 2002. (b) The number of people who attended, expressed as a percentage of the number of people in that population group.

Source: *Attendance at Selected Cultural Venues and Events, Australia, 2002 (4114.0)*.

## Performing arts industries

An ABS survey of performing arts industries in 1999–2000 identified 1,437 employing businesses mainly engaged in the performing arts. Of these, 705 provided live music and theatre productions; 125 operated venues for performing arts such as concert halls and entertainment centres; and 606 provided services to the arts industry such as festival management, casting agency operation, costume design and set designing. These businesses employed 16,429 persons at the end of June 2000 and a further 20,752 persons worked as volunteers. In 1999–2000 they received a total income of \$1,633.8m, divided almost equally between government funding (\$470.0m) and receipts from the box office (\$460.5m).

An ABS survey of businesses mainly involved in music and theatre production in 2002–03 indicated that compared with 1999–2000 there had been a 23% increase in the number of such businesses (from 705 to 865), a 12% increase in their employment (from 7,060 to 7,842) and a 16% decrease in volunteers (from 3,034 to 2,548). More information is available in *Chapter 20 Service industries*, which also includes information about performing arts festivals of more than two days duration held in 2002–03.

Information about many of the performing arts companies in Australia is available under the headings 'Music' and 'Performing Arts' in the Australian Government's culture and

recreation web portal at

<<http://www.cultureandrecreation.gov.au>>.

Prominent Australian companies, such as the Symphony Australia Orchestral Network, Opera Australia, The Australian Ballet and Musica Viva publish annual reports on their web sites (see *Bibliography*) which provide information about employment and attendances.

## Film and video

### Film and video production

The film and video production industry comprises businesses mainly engaged in the production of motion pictures on film or video tape for theatre or television projection. Services such as casting, film editing and titling are also included.

Australia has a well-developed film and video production industry comprising, for the most part, small specialised companies. They produce programs ranging from feature films to sports coverage, documentaries and television commercials. A relatively small number of Australian companies engage exclusively in film and television drama production. The majority specialise in the production of commissioned programs such as commercials and corporate communications.

According to the Australian Film Commission (AFC) the major market for Australian audiovisual products is the domestic television broadcast industry. However, export markets are also important for feature films and television dramas, some high-budget documentaries and some commercials.

A survey of businesses involved in film and video production services was conducted by the ABS in respect of 2002–03. At the end of June 2003 there were 2,174 film and video production businesses employing a total of 16,427 people.

In 2002–03 the film and video production businesses generated \$1,596.6m in income. This income mainly comprised \$393.6m from the production of television programs, \$360.5m from the provision of post-production or film laboratory services, \$350.9m from the provision of production services to other businesses, and \$228.4m from the production of commercials.

Film and video production activity is undertaken by film and video production businesses, film and video distribution businesses and television businesses. During 2002–03 these businesses incurred total film and video production costs of \$1,502.5m. Of these costs, \$1,140.7m was spent on productions specifically for television, \$219.3m on commercials and advertisements and \$142.4m on productions other than for television. These businesses completed, or were working on, 5,774 productions other than for television, of which 5,057 were corporate, marketing or training productions and 66 were feature films. More information from the ABS survey on film and video production can be found in *Chapter 20 Service industries*.

The Australian Government provides assistance and encouragement, for the production of high-cost feature films, television dramas and documentaries, through measures such as the investment program of the Film Finance Corporation Australia, the development program of the AFC and the Australian content regulations of the Australian Broadcasting Authority.

Table 12.12 shows the number and value of Australian, co-produced and foreign titles shot in Australia from 2000–01 to 2003–04. Total feature film and TV drama production activity dropped in 2002–03 for the first time in eight years. In that year, the total production value of titles (Australian, co-produced and foreign) fell by 18%

to \$737m. The increase to \$815m in 2003–04 was entirely due to foreign features and one high-budget, US studio-financed Australian animation feature, without which the total production value of Australian features would have been similar to the eight-year low of \$49m in 2002–03. TV drama production has been declining for several years, with total expenditure in Australia falling from a peak of \$393m in 2000–01 to \$222m in 2003–04.

Additional information about film and video production, can be obtained from the AFC web site at <<http://www.afc.gov.au/gtp>>. Links to over 700 Australian film and television web sites are available on the AFC web site at <<http://www.afc.gov.au/industrylinks>>.

## Film and video distribution

The film and video distribution industry comprises businesses mainly engaged in leasing or wholesaling motion pictures on film, video tape or DVD to organisations for exhibition or sale. Agents mainly engaged in leasing and wholesaling films and videos to organisations are also included.

At 30 June 2000 there were 58 businesses in the industry, which employed 1,426 people. In 1999–2000 these businesses generated \$1,141.8m in total income and had an operating profit before tax of \$103.6m. The main sources of income were the sale, rental or lease of prerecorded video tapes, disks, films and interactive software (\$841.1m), and the provision of channels to pay television broadcasters (\$169.2m).

## Motion picture exhibition

The motion picture exhibition industry comprises businesses mainly engaged in screening motion pictures on film, video tape or DVD. It also includes businesses mainly engaged in drive-in theatre operation, cinema operation and film or video festival operation.

The ABS conducted a survey on the motion picture exhibition industry in respect of 1999–2000. At the end of June 2000 there were 173 businesses in the industry employing 9,282 people. At the end of June 2000 there were 326 cinema sites and 17 drive-in sites in Australia. While the number of cinema sites remained virtually unchanged from June 1994, the number of drive-in sites reduced from 41 sites in June 1994 to 28 sites in June 1997 to 17 sites in June 2000.

## 12.12 FILM AND VIDEO PRODUCTION

Type of film	2000–01			2001–02			2002–03			2003–04		
	Number	Value	Spend in Aust.(a)									
	no.	\$m	\$m									
<b>Features</b>												
Australian(b)(c)	22	80	78	24	131	129	15	49	49	15	134	113
Co-production(d)	3	82	24	2	39	28	2	22	14	1	7	5
Foreign(e)	5	204	114	7	374	185	5	327	169	7	432	249
<b>Total</b>	<b>30</b>	<b>367</b>	<b>216</b>	<b>33</b>	<b>544</b>	<b>341</b>	<b>22</b>	<b>398</b>	<b>231</b>	<b>23</b>	<b>573</b>	<b>366</b>
<b>TV drama</b>												
Australian(b)	41	240	235	38	212	207	38	222	214	34	190	185
Co-production(d)	5	110	81	6	101	83	4	27	12	2	14	7
Foreign(e)	16	145	77	5	39	31	12	91	56	5	38	30
<b>Total</b>	<b>62</b>	<b>495</b>	<b>393</b>	<b>49</b>	<b>352</b>	<b>321</b>	<b>54</b>	<b>339</b>	<b>281</b>	<b>41</b>	<b>243</b>	<b>222</b>
<b>Total</b>												
Australian(b)	63	321	313	62	343	336	53	270	262	49	324	298
Co-production(d)	8	192	105	8	140	111	6	48	26	3	21	12
Foreign(e)	21	350	191	12	413	216	17	418	225	12	470	279
<b>Total</b>	<b>92</b>	<b>863</b>	<b>610</b>	<b>82</b>	<b>896</b>	<b>662</b>	<b>76</b>	<b>737</b>	<b>513</b>	<b>64</b>	<b>815</b>	<b>588</b>

(a) Includes some expenditure on foreign production elements – for example, fees for non-Australian actors or other individuals while working in Australia. (b) Productions under Australian creative control. (c) Figures for Australian features in 2003–04 include one high-budget animation feature that is being made over a number of years, but in order to be consistent methodology its budget is counted in a single year, not apportioned across the duration of the production. (d) Includes official co-productions and other productions involving shared creative control, that is, with a mix of Australians and foreigners in key creative positions. (e) Productions under foreign creative control with a substantial amount shot in Australia.

Source: Australian Film Commission.

From June 1994 the number of cinema screens more than doubled, from 754 in June 1994 to 1,513 screens in June 2000. Paid admissions to cinemas increased by almost a third, from 60 million paid admissions during 1993–94 to 79 million during 1999–2000.

### Cinema attendance

The 2002 Survey of Attendance at Selected Cultural Venues and Events found 69.9% of the Australian population aged 18 years and over (10.1 million people) attended a cinema, drive-in or other public screening of a film at least once in the 12 months prior to interview in 2002 (table 12.13). Attendance at cinemas was significantly higher than in 1999, when the attendance rate was 65.6% (9.2 million people).

### 12.13 ATTENDANCE(a) AT CINEMAS — 2002

Attendance rate(b)	%
Males	68.2
Females	71.6
Persons	69.9
<b>Age group (years)</b>	
18–24	92.1
25–34	81.0
35–44	76.7
45–54	69.9
55–64	56.7
65 and over	38.6
<b>Birthplace</b>	
Australia	71.7
Main English-speaking countries	75.9
Other countries	58.5

(a) Attendance at least once in the 12 months prior to interview in 2002. (b) The number of people who attended, expressed as a percentage of the number of people in that population group.

Source: Attendance at Selected Cultural Venues and Events, Australia, 2002 (4114.0).

## Radio and television broadcasting

Broadcasting services in Australia are regulated primarily through the *Broadcasting Services Act 1992* (Cwlth). The Act identifies and defines categories of broadcasting services, establishes regulatory arrangements for broadcasting services, and establishes the Australian Broadcasting Authority as the independent regulator for radio and television in Australia.

The Act defines six categories of broadcasting services covering both radio and television:

- national broadcasting services – the Australian Broadcasting Corporation and the Special Broadcasting Service, which are largely regulated through separate legislation
- commercial broadcasting services – free-to-air radio and television services operated for profit and funded predominantly by advertising revenue
- community broadcasting services – non-profit free-to-air services provided for community purposes
- subscription broadcasting services – services with general appeal to the public and funded predominantly by customer subscriptions
- subscription narrowcasting services – services with limited appeal to the general public (either because of content or availability) and funded predominantly by customer subscriptions
- open narrowcasting services – services providing programs targeted to special interests groups (e.g. foreign language), or of limited appeal because of content or availability, and not funded by subscriptions.

International broadcasting services may fall into any of the last five categories and are targeted, to a significant extent, to audiences outside Australia, using a radiocommunications transmitter in Australia.

### Radio and television licences

The Australian Broadcasting Authority (ABA) is the regulator for radio and television broadcasting, digital broadcasting, and Internet content in Australia. As well as planning the availability of segments of the broadcasting services bands (VHF/UHF television, FM and AM radio), the ABA has the power to allocate, renew, suspend and

cancel licences and to collect any fees payable for those licences. Table 12.14 shows the number of radio and television licences on issue in Australia.

**12.14 RADIO AND TELEVISION LICENCES ON ISSUE**

	30 June 2002	30 June 2003
Commercial television broadcasting licences	52	53
Commercial radio broadcasting licences	255	257
Community radio broadcasting licences	312	334
Remote Aboriginal community television licences	80	76
Open narrowcasting services planned in licence area plans	170	207
International broadcasting licences	10	10

Source: Australian Broadcasting Authority, *Annual Report, 2002–03*.

Further information about the ABA can be obtained from the web site, <<http://www.aba.gov.au>>.

### Television broadcasting services

The ABS conducted a survey of television broadcasting services businesses (excluding public and community television broadcasting businesses) in respect of 2002–03. This showed that at the end of June 2003 there were 27 commercial free-to-air television broadcasting businesses and six subscription television broadcasting businesses, employing a total of 9,094 people. In 2002–03 these businesses earned a total income of \$5,158.8m. Commercial free-to-air television broadcasters recorded an operating profit before tax of \$658.9m, while subscription broadcasters reported an operating loss before tax of \$451.5m. More information from the ABS survey on television services is available in *Chapter 20 Service industries*.

According to an ABS survey on household use of information technology, pay TV subscriptions have increased steadily since the mid-1990s, from 5% of households in 1996 to 11% in 1998, 17% in 2000 and 21% in 2002. There is greater penetration of pay TV into metropolitan areas – 23% of metropolitan households had a pay TV subscription in 2002 compared with 17% of other households.

## Support for heritage and arts

### Cultural Ministers Council (CMC)

The CMC was established in 1984 to provide a forum for the exchange of views on issues affecting cultural activities in Australia and New Zealand. It comprises Australian Government, state and territory government ministers responsible for arts and cultural heritage, as well as the corresponding New Zealand government minister. The relevant minister from Papua New Guinea participates with observer status.

Governments are aware of the significance of the impact of cultural activities on general civic, social, political and economic development. One of the Council's many roles is to recognise and promote the linkages between the cultural aspects of our lives and the development of a robust Australian society. CMC's core activities include, the commissioning of studies and investigations through the appointment of working or advisory groups and/or consultants. The CMC's Statistics Working Group plays an important role in this regard. This group liaises with the ABS on cultural statistics; monitors the need for the development, collection and dissemination of culture and leisure statistics; commissions studies; and provides advice to the CMC on statistical matters. Additional information about the CMC and its activities can be obtained from the web site, <<http://www.dcita.gov.au/cmc/index.html>>.

### Australia Council

The Australia Council for the Arts is the Australian Government's arts funding and advisory body. It was formed as an interim council in 1973 and was given statutory authority by the *Australia Council Act 1975* (Cwlth).

The Australia Council supports Australian artists and arts organisations through diverse funding options, in order to allow them to pursue artistic excellence, to create and present their work, to take advantage of opportunities to improve and develop their skills, and to tour and promote their work to wider audiences nationally and internationally. It supports young, emerging, developing and established artists through a range of grant programs. These programs cover: Aboriginal and Torres Strait Islander arts; community and cultural development; dance; literature; major performing arts; music; new media arts; theatre; and visual arts and craft.

During 2002–03, 4,765 grant applications were made to the Australia Council, of which 1,982 were successful. These grants totalled \$126.6m in 2002–03. Two-thirds of the grants, amounting to 93% of the funding, went to organisations or groups, and the remaining grants, with an average value of \$13,608, were paid directly to individual artists. Further information about the Australia Council and its activities can be obtained from their web site, <<http://www.ozco.gov.au>>.

### Training in the arts

Training in the arts in Australia involves a broad range of organisations. Formal training is available through courses in TAFE institutions, universities and private institutions. A number of on-the-job training programs are also available in the arts, and many organisations offer in-house training programs for their staff. The last decade has seen the development in some states of multi-disciplinary tertiary institutions providing training in the arts.

A number of national specialised education institutions have been established to provide training in cultural fields. For example, the Australian Film, Television and Radio School is the national training centre for the film and broadcasting industries. The National Institute of Dramatic Art is the national training school for people who wish to enter the professions of actors, directors, designers, stage managers, theatre crafts technicians, production managers or teachers of voice and movement. The Australian Ballet School provides full-time training for young Australian dancers seeking a career in the classical dance profession. The Australian National Academy of Music offers master classes and short-term programs which bring distinguished national and international performers and music educators into contact with students.

## Funding for heritage and arts

### Government funding

Total government funding for heritage and arts activities was \$4,933.1m in 2002–03. Of this, the Australian Government contributed \$1,670.5m (34%), state and territory governments contributed \$2,238.1m (45%) and local governments provided \$1,024.5m (21%).

Total government funding for heritage and arts activities, facilities and services increased by \$250.1m (5%) in 2002–03. The higher funding was mainly from local governments which increased their contribution by \$182.6m (22%) compared with the previous year. Funding by the Australian Government, and state and territory governments also increased, by \$50.1m (3.1%) and \$17.4m (0.8%) respectively. A similar 5% (\$237.1m) increase in overall government funding was reported between 2000–01 and 2001–02 (table 12.15).

In 2002–03 total funding of over \$1b was allocated to both nature parks and reserves (\$1,071.5m) and broadcasting and film activities (\$1,065.6m) by the Australian, state and territory governments. The other major recipients of government funding from Australian, and state and territory governments were 'other museums' (which consists of museums other than art museums) (\$490.9m), and libraries and archives (\$471.2m) (table 12.16). It is not possible to determine the contribution of local governments to these activities as comprehensive funding details for local governments are not available for 2002–03.

### 12.15 GOVERNMENT FUNDING FOR HERITAGE AND ARTS, By level of government

Category of funding	2000–01 \$m	2001–02 \$m	2002–03 \$m
<b>Australian</b>			
Heritage	502.3	471.1	461.1
Arts	1 146.6	1 149.3	1 209.4
<i>Total</i>	1 648.9	1 620.4	1 670.5
<b>State and territory</b>			
Heritage	1 632.0	1 806.6	1 891.3
Arts	292.6	414.0	346.9
<i>Total</i>	1 924.6	2 220.7	2 238.1
<b>Local</b>	872.4	841.9	1 024.5
<b>Total</b>	<b>4 445.9</b>	<b>4 683.0</b>	<b>4 933.1</b>

Source: *Cultural Funding by Government, Australia, 2002–03 (4183.0)*.

### 12.16 GOVERNMENT FUNDING FOR HERITAGE AND ARTS — 2002–03

Category of funding	Level of government		
	Australian \$m	State and territory \$m	Local \$m
<b>Heritage</b>			
Art museums	52.0	144.2	n.a.
Other museums	204.6	286.3	n.a.
Nature parks and reserves	83.7	987.8	n.a.
Zoological parks, aquaria and botanic gardens	7.9	114.6	n.a.
Libraries and archives	112.8	358.4	n.a.
<i>Total</i>	461.1	1 891.3	n.a.
<b>Arts</b>			
Literature and print media	25.4	4.3	n.a.
Performing arts	99.9	72.6	n.a.
Performing arts venues	0.5	91.3	n.a.
Visual arts and crafts	13.2	13.3	n.a.
Broadcasting and film	979.6	86.0	n.a.
Community cultural centres and activities	13.4	15.4	n.a.
Administration of culture	37.8	24.3	n.a.
Other arts n.e.c.	39.5	39.7	n.a.
<i>Total</i>	1 209.4	346.9	n.a.
<b>Total</b>	<b>1 670.5</b>	<b>2 238.1</b>	<b>1 024.5</b>

Source: *Cultural Funding by Government, Australia, 2002–03 (4183.0)*.

Local governments are significant providers of library services to the community. For 2000–01, when more details of local government funding were available, libraries and archives received more than half of the heritage and arts funding provided by local governments (\$458.7m out of a total of \$872.4m). This was 55% of the total funding provided to libraries and archives by all three levels of government.

## Business funding

The ABS conducted the Business Generosity Survey in respect of 2000–01. During that period businesses gave \$1,447m to organisations or individuals, of which ‘arts and culture activities’ (namely the performing arts; the creative arts; museum, art gallery and library activities; and zoological or botanical parks and gardens operation) received \$70m. This comprised \$40m of sponsorship, \$23m of donations and over \$6m of ‘business to community projects’ funding. Sport and recreation activities received 43% of the total given by businesses to organisations or individuals. For additional information see *Funding for sport and recreation*. Other activities covered by the survey were community service and welfare, health, education and training, and environmental activities.

## Religious affiliation

In 1983 the High Court of Australia defined religion as ‘a complex of beliefs and practices which point to a set of values and an understanding of the meaning of existence’.

At the time of European settlement the Aboriginal inhabitants followed their own religions involving beliefs in spirits behind the forces of nature, and the influence of ancestral spirit beings.

During the 1800s European settlers brought their traditional churches to Australia. These included the Church of England (now the Anglican Church), and the Methodist, Catholic, Presbyterian, Congregationalist, Lutheran and Baptist churches.

With the exception of a small but significant Lutheran population of Germanic descent, Australian society in 1901 was predominantly Anglo-Celtic, with 40% of the population being Anglican, 23% Catholic, 34% other Christian and about 1% professing non-Christian religions.

Further waves of migration helped to reshape the profile of Australia’s religious affiliations over subsequent decades. The impact of migration from Europe in the aftermath of World War II led to increases in affiliates of the Orthodox Churches, the establishment of Reformed bodies, growth in the number of Catholics (largely from Italian migration), and the creation of ethnic parishes among many other denominations. More recently, immigration from South-East Asia and the Middle East has expanded Buddhist and Muslim numbers considerably, and increased the ethnic diversity of existing Christian denominations.

In response to the 2001 Census of Population and Housing question stated religious affiliations were: 27% Catholic, 21% Anglican, 21% other Christian denominations and 5% non-Christian religions. Just over a quarter of all persons either stated they had no religion, or did not adequately respond to the question to enable classification of their religion.

A question on religious affiliation has been asked in every census taken in Australia, with the voluntary nature of this question having been specifically stated since 1933. In 1971 the instruction ‘if no religion, write none’ was introduced. This saw a seven-fold increase from the previous census year in the percentage of persons stating they had no religion. Since 1971 this percentage has progressively increased to about 16% in 1996 and 2001. Table 12.17 provides a summary of the major religious affiliations at each census since 1901.

Table 12.18 shows the distribution of religious groupings by the number and percentage of affiliates at the 1996 and 2001 censuses, and the change which occurred during the five-year period. Affiliates of religions other than Christianity have shown the largest proportional increases since the 1996 census. Buddhist affiliates increased by 79%, Hindu affiliates by 42%, Islam affiliates by 40% and Judaism affiliates by 5%.

Growth in the numbers and proportions of persons of all ages affiliating with Buddhism, Islam and Hinduism are largely due to changes in the countries of origin of recent immigrants. Between 1996 and 2001 there were just over half a million new arrivals to Australia and, although the most common religious affiliation of immigrants is Christianity, affiliates of other religions are more highly represented among recent immigrants than in the total population.

## 12.17 MAJOR RELIGIOUS AFFILIATIONS

Census year	Christianity				Other religions	No religion	Not stated/ inadequately described	Total '000
	Anglican %	Catholic %	Other %	Total %				
1901	39.7	22.7	33.7	96.1	1.4	0.4	(a)2.0	3 773.8
1911	38.4	22.4	35.1	95.9	0.8	0.4	(a)2.9	4 455.0
1921	43.7	21.7	31.6	96.9	0.7	0.5	(a)1.9	5 435.7
1933	38.7	19.6	28.1	86.4	0.4	0.2	12.9	6 629.8
1947	39.0	20.9	28.1	88.0	0.5	0.3	11.1	7 579.4
1954	37.9	22.9	28.5	89.4	0.6	0.3	9.7	8 986.5
1961	34.9	24.9	28.4	88.3	0.7	0.4	10.7	10 508.2
1966	33.5	26.2	28.5	88.2	0.7	0.8	10.3	11 599.5
1971	31.0	27.0	28.2	86.2	0.8	6.7	6.2	12 755.6
1976	27.7	25.7	25.2	78.6	1.0	8.3	11.4	13 548.4
1981	26.1	26.0	24.3	76.4	1.4	10.8	11.4	14 576.3
1986	23.9	26.0	23.0	73.0	2.0	12.7	12.4	15 602.2
1991	23.8	27.3	22.9	74.0	2.6	12.9	10.5	16 850.3
1996	22.0	27.0	21.9	70.9	3.5	16.6	9.0	17 752.8
2001	20.7	26.6	20.7	68.0	4.9	15.5	11.7	18 769.2

(a) Includes 'object to state'.

Source: ABS data available on request, *Census of Population and Housing*.

## 12.18 RELIGIOUS AFFILIATION

	1996		2001		Change %
	'000	%	'000	%	
Christianity					
Anglican	3 903.3	22.0	3 881.2	20.7	-0.6
Baptist	295.2	1.7	309.2	1.6	4.8
Catholic	4 799.0	27.0	5 001.6	26.6	4.2
Churches of Christ	75.0	0.4	61.3	0.3	-18.2
Jehovah's Witness	83.4	0.5	81.1	0.4	-2.8
Lutheran	250.0	1.4	250.4	1.3	0.2
Orthodox	497.0	2.8	529.4	2.8	6.5
Pentecostal	174.7	1.0	194.6	1.0	11.4
Presbyterian and Reformed	675.5	3.8	637.5	3.4	-5.6
Salvation Army	74.1	0.4	71.4	0.4	-3.7
Uniting Church	1 334.9	7.5	1 248.7	6.7	-6.5
Other Christian	420.6	2.4	497.9	2.7	18.4
Buddhism	199.8	1.1	357.8	1.9	79.1
Hinduism	67.3	0.4	95.5	0.5	41.9
Islam	200.9	1.1	281.6	1.5	40.2
Judaism	79.8	0.4	84.0	0.4	5.2
Other religions	68.6	0.4	92.4	0.5	34.6
No religion	2 948.9	16.6	2 906.0	15.5	-1.5
Not stated/inadequately described	1 604.7	9.0	2 187.7	11.7	36.3
<b>Total</b>	<b>17 752.8</b>	<b>100.0</b>	<b>18 769.2</b>	<b>100.0</b>	<b>5.7</b>

Source: ABS data available on request, *1996 and 2001 Censuses of Population and Housing*.

Of all people affiliating with Hinduism in 2001, 82% had been born overseas, with 34% born in India and 11% in Sri Lanka. Similarly, nearly three-quarters of all those affiliating with Buddhism had been born overseas – 26% in Vietnam and 8% in China. Of persons of all ages affiliating with Islam in 2001, 62% were overseas born, with almost 11% born in Lebanon and 9% in Turkey.

Christian denominations had smaller proportional changes in the numbers of affiliates than the non-Christian religions. Between 1996 and 2001 Catholic affiliates increased by 4.2% and Baptist affiliates by 4.8%. However, as the total population grew by 6% during this period, the actual percentage of the population professing affiliation to these denominations remained virtually unchanged. The most notable decreases in Christian affiliation occurred for Churches of Christ (decreasing by 18%), the Uniting Church (decreasing by 7%), and Presbyterian and Reformed (decreasing by 6%). An 11% increase was seen for Pentecostal affiliation between 1996 and 2001 (from 174,720 to 194,592). A substantial increase, associated with immigration from South Eastern Europe, was also seen for the Orthodox Churches, with the number of Orthodox affiliates increasing by 7% (from 497,015 to 529,444).

In 2001, 82% of persons aged 65 years and over identified themselves as Christian, compared with 60% of 18–24 year olds. In contrast, the other religions have a younger age profile. For example, 15% of all Christian affiliates were aged 65 years and over, compared with 6% of Buddhist affiliates; and 8% of Christian affiliates were aged between 18 and 24 years, compared with 13% of Buddhist affiliates. The largest group of Buddhist affiliates was 35–44 year olds. Similar trends were evident

for Hindu and Muslim affiliates. In the 2001 census, people in the 18–24 years age group were the most likely to state that they had no religion (20%).

## Employment and participation in cultural activities

### Employment in cultural occupations

The 2001 Census of Population and Housing provides information on the number and characteristics of people aged 15 years and over whose main job in the week prior to the census was in a cultural occupation. People who had unpaid involvement in cultural activities, or who worked part time in cultural activities but had another job they regarded as their main job in the week prior to the census, would not be recorded in the census as being in cultural occupations.

The 2001 census found 259,909 people (3.1% of all employed persons) worked in a cultural occupation. This was a 13.3% increase from 1996, when 229,330 people had their main job in a cultural occupation, and compares with an 8.7% increase for all occupations. In 2001, 56.1% of all people employed in cultural occupations as their main job were males and 43.9% were females. In 1996 the percentage of females employed in cultural occupations (42.8%) was slightly lower.

Table 12.19 shows the number and sex of people who were recorded as having a main job in selected cultural occupations in the 2001 Census of Population and Housing. The ten occupations shown are those in which the highest numbers of people were employed.

**12.19 CULTURAL OCCUPATIONS WITH HIGHEST NUMBERS OF EMPLOYED PERSONS — 2001**

Occupation	Males	Females	Persons
Printing tradesperson(a)	22 943	4 736	27 679
Graphic designer	11 545	9 599	21 144
Minister of religion	11 415	2 823	14 238
Architects and landscape architects(b)	10 064	3 037	13 101
Librarian	1 748	8 565	10 313
Music teacher (private)	2 569	5 876	8 445
Library assistant	1 174	7 224	8 398
Photographer	4 453	2 392	6 845
Instrumental musician	5 070	1 555	6 625
Architectural associate	5 223	1 188	6 411

(a) Comprises Printing tradespersons n.f.d., Graphic pre-press tradespersons, Printing machinists and small offset printers, Binders and finishers and Screen printers. (b) Comprises Architects and landscape architects n.f.d., Architect and Landscape architect.

Source: *Employment in Culture, Australia, 2001* (6273.0).

## Involvement in culture and leisure activities

Cultural work is often intermittent, unpaid or not a person's main job. Therefore, the 2001 Work in Selected Culture and Leisure Activities Survey, conducted by the ABS, collected data about the involvement of people aged 15 years and over in such activities over a 12-month period.

During the 12 months prior to interview in April 2001, an estimated 2.5 million people (16.8% of the Australian population aged 15 years and over) were involved in some form of paid or unpaid work relating to the culture and leisure activities covered in the survey. The Australian Capital Territory had the highest participation rate in culture and leisure activities for residents aged 15 years and over (28.8%), and this was significantly higher than the participation rate for all persons (16.8%) (table 12.20). These figures exclude involvement solely for the respondent's own use or that of their family.

More people had paid involvement in writing (214,800), design (210,700) and visual art activities (175,800) than in any other culture or leisure activity in the survey. Of those involved in writing, 40.0% received payment; for design, 60.2% received payment; while for visual art activities, 34.9% received payment. The activity with the highest percentage of people with paid involvement was television, with 64.6% of the 83,600 people involved receiving some payment.

According to the 2002 General Social Survey, conducted by the ABS, 23% of adults participated in church or religious activities during the three months prior to interview. Women (26%) were more likely than men (20%) to have participated in church or religious activities. This pattern was evident among all age groups. As with religious affiliation, participation in church or religious activities tended to increase with age. Among 18–24 year olds, 23% of women and 16% of men had participated in church or religious activities. Rates for people 65 years and over were higher at 29% for women and 24% for men.

The Voluntary Work Survey conducted by the ABS in 2000 found religious organisations received unpaid help from 743,400 people aged 18 years and over, of whom 60% were female. There were also an estimated 280,200 people (about 2% of the adult population) undertaking voluntary work for heritage and arts organisations. Of these, 58% were female and 42% were male. Some of these people provided voluntary work to more than one organisation, so there was a total of 306,400 voluntary involvements in heritage and arts organisations. The most common type of heritage or arts involvement was with organisations involved in the performing arts (102,600 or 34% of all heritage and arts involvements). By comparison, the Voluntary Work Survey found the level of volunteerism was higher for organisations categorised as 'sports and physical recreation', 'education, training and youth development' and 'community and welfare' each receiving help from about one million people.

**12.20 PERSONS INVOLVED IN SELECTED CULTURE AND LEISURE ACTIVITIES(a) — 2001**

	Some paid involvement(b)	Unpaid involvement only	Total persons involved	Persons with no involvement	Total persons	Participation rate
	'000	'000	'000	'000	'000	%
New South Wales	291.2	465.6	756.8	4 311.5	5 068.4	14.9
Victoria	222.2	416.6	638.8	3 141.7	3 780.5	16.9
Queensland	163.1	334.8	497.9	2 272.8	2 770.7	18.0
South Australia	74.7	140.9	215.6	965.6	1 181.2	18.3
Western Australia	91.3	157.1	248.4	1 220.8	1 469.2	16.9
Tasmania	20.1	45.8	65.9	297.8	363.7	18.1
Northern Territory(c)	8.8	11.4	20.2	90.7	110.9	18.2
Australian Capital Territory	28.5	39.3	67.8	167.9	235.7	28.8
<b>Australia</b>	<b>900.0</b>	<b>1 611.5</b>	<b>2 511.5</b>	<b>12 468.7</b>	<b>14 980.2</b>	<b>16.8</b>

(a) Excludes persons involved solely for their own use or that of their family. (b) Includes persons who only received payment in kind. Of the 900,000 people who received some payment, 53,700 (6.0%) only received payment in kind. (c) Refers to mainly urban areas only.

Source: *Work In Selected Culture and Leisure Activities, Australia, April 2001 (6281.0)*.

## Household expenditure on culture

Regular surveys on household expenditure are conducted by the ABS, with the most recent conducted in respect of 1998–99. Findings from this survey showed households spent, on average, \$27.19 per week on selected cultural goods and services in 1998–99 (table 12.21), which was 3.9% of their average weekly expenditure on all goods and services. From 1984 to 1998–99, total household expenditure on culture increased by 45.7% after adjusting for price changes. The 1998–99 survey found cultural items for which average household expenditure was relatively large included books (\$3.11 per week), televisions (\$2.62 per week), newspapers (\$2.54 per week) and pre-recorded compact discs and records (\$1.91 per week).

**12.21 EXPENDITURE ON CULTURE BY HOUSEHOLDS — 1998–99**

	Average weekly household expenditure	Total annual household expenditure
	\$	\$m
Literature	7.55	2 804.0
Music	2.06	765.1
Performing arts	1.48	549.6
Visual arts and crafts	1.54	571.9
Broadcasting, electronic media and film	4.13	1 533.8
Other arts	1.35	501.4
Heritage	0.17	63.1
Other culture	8.90	3 305.3
<b>Total expenditure on culture</b>	<b>27.19</b>	<b>10 097.9</b>

Source: Cultural Ministers Council Statistics Working Group, 'Household Expenditure on Culture'.

## Children's participation in organised cultural activities

A survey of children's activities in the 12 months to April 2003 found 29% of children aged 5–14 years (780,400 children) participated in at least one of four selected organised cultural activities outside of school hours.

Girls were more than twice as likely as boys (43% compared with 17%) to participate in at least one of these activities (table 12.22). Girls were also more likely than boys to be involved in two or more of the selected activities (12% of girls compared with 2% of boys). The rate of children's participation in at least one of the organised cultural activities ranged from 33% in Western Australia to 25% in the Northern Territory.

Playing a musical instrument was the most popular of the selected cultural activities (17%), followed by dancing (12%), singing (5%) and drama (4%). The activity with the highest ratio of girls to boys was dancing, with 14 times more girls participating than boys.

During the 12 months to April 2003, 94% of those children who were involved in dancing had lessons, while 80% of those involved in drama, 78% of those playing a musical instrument, and 70% of those involved in singing had lessons.

## Changes in participation since 2000

While the overall picture of children's participation did not change dramatically between 2000 and 2003 – 29.4% of children participated in at least one of the four selected organised cultural activities in the 12 months to April 2000 compared with 29.5% in 2003 – there were some interesting differences in the participation rates for girls and boys.

Participation in organised cultural activities varied markedly between boys and girls in 2000, and the differences became even more pronounced in 2003. While the girls' participation rate increased from 40% to 43% (driven mainly by greater involvement in dancing), the participation rate for boys fell from 20% to 17%, largely as a result of the decrease in boys playing a musical instrument (table 12.23).

Details about children's participation in organised sports and other leisure activities are provided in *Children's participation in organised sport* and *Children's participation in selected leisure activities*.

## 12.22 CHILDREN PARTICIPATING IN SELECTED ORGANISED CULTURAL ACTIVITIES(a) — 2003

	Age (years)										All children
	5	6	7	8	9	10	11	12	13	14	
	%	%	%	%	%	%	%	%	%	%	%
<b>Males</b>											
Playing a musical instrument	4.8	4.5	7.3	13.8	16.0	17.5	22.1	14.9	15.0	15.2	13.2
Singing	*1.2	*1.2	*1.1	3.2	3.3	*2.4	6.1	*1.4	*1.9	*1.2	2.3
Dancing	**0.5	*1.3	*1.8	*1.9	*1.4	*2.6	2.9	*1.3	*1.6	*1.0	1.6
Drama	**0.5	*1.8	*1.3	3.3	*2.3	3.5	3.3	*2.5	*2.0	*2.7	2.3
Total(b)	6.4	8.3	10.3	18.2	20.6	22.4	27.6	16.9	17.9	18.8	16.8
<b>Females</b>											
Playing a musical instrument	5.3	9.4	17.2	21.1	30.1	23.9	27.9	26.9	23.8	19.6	20.7
Singing	*1.9	4.5	6.2	6.1	10.6	8.2	9.9	7.8	7.1	7.8	7.0
Dancing	26.9	29.3	26.6	25.3	23.2	19.9	28.4	23.9	19.4	15.3	23.8
Drama	*2.3	4.5	5.3	5.8	7.2	6.3	8.8	8.2	5.8	8.2	6.3
Total(b)	30.2	37.9	41.5	44.6	49.7	43.2	51.8	48.4	43.2	36.3	42.8
<b>Persons</b>											
Playing a musical instrument	5.0	6.8	12.1	17.4	22.8	20.6	24.9	20.8	19.3	17.4	16.8
Singing	*1.5	2.8	3.6	4.6	6.9	5.2	7.9	4.5	4.4	4.5	4.6
Dancing	13.3	14.9	13.9	13.3	12.0	11.0	15.3	12.4	10.3	8.0	12.4
Drama	*1.4	3.1	3.3	4.5	4.7	4.9	6.0	5.3	3.8	5.4	4.3
Total(b)	18.0	22.7	25.5	31.0	34.8	32.5	39.4	32.3	30.3	27.3	29.5

(a) Outside of school hours during the 12 months prior to interview in April 2003. (b) The sum of activities do not add to the total because some children were involved in more than one activity.

Source: *Children's Participation in Cultural and Leisure Activities, Australia, April 2003 (4901.0)*.

## 12.23 CHILDREN PARTICIPATING IN SELECTED ORGANISED CULTURAL ACTIVITIES(a)

	2000		2003	
	Number '000	Participation rate %	Number '000	Participation rate %
<b>Males</b>				
Playing a musical instrument	213.8	15.8	179.0	13.2
Singing	38.9	2.9	31.6	2.3
Dancing	22.9	1.7	22.2	1.6
Drama	42.8	3.2	31.5	2.3
Total(b)	266.8	19.7	228.5	16.8
<b>Females</b>				
Playing a musical instrument	260.1	20.2	266.5	20.7
Singing	85.6	6.7	90.9	7.0
Dancing	251.1	19.5	307.1	23.8
Drama	79.0	6.1	81.0	6.3
Total(b)	510.9	39.7	552.0	42.8

(a) Outside of school hours during the 12 months prior to interview in April. (b) The sum of activities do not add to the total because some children were involved in more than one activity.

Source: *Children's Participation in Cultural and Leisure Activities, Australia, April 2003 (4901.0)*.

## Sport and recreation

Australia is recognised internationally as a nation that is very much involved in sport. Many Australians are involved in sport and recreation and there are believed to be many benefits associated with participating in sport and physical activity, including enjoyment, social interaction, health, personal achievement, national pride and community involvement. In many ways sport unites and personifies the nation. Interestingly, Australians were competing internationally as 'Australia' before Australia was federated as a nation (in 1901).

## Sport and recreation administration

Governments invest in sport and recreation because it returns both tangible and intangible benefits to the nation. Governments of all levels play an important role in the development of Australian sport and recreation. The provision of quality facilities, whether they be state of the art stadiums or community cycling paths, encourages physical activity and, importantly, good health.

## Sport and Recreation Ministers' Council (SRMC)

The SRMC provides the major mechanism for liaison between the Australian Government and state and territory governments on matters concerned with the development of sport and recreation in Australia and, more recently, in New Zealand and Papua New Guinea. The SRMC is a forum for cooperation and coordination between the respective governments, with its membership comprising ministers with prime responsibility for sport and recreation. The Standing Committee on Recreation and Sport – comprising representatives of the relevant ministers' departments and the Australian Sports Commission – provides advice and administrative support to the SRMC.

## Australian Sports Commission (ASC) and Australian Institute of Sport (AIS)

The ASC is the Australian Government agency responsible for the funding and development of sport at the national level. The ASC supports a wide range of programs designed to develop sporting excellence and increase participation in sports by all Australians.

A major program within the ASC is the AIS. The AIS is responsible for developing elite sport on a national basis with a particular focus on success at the international level. For the purposes of elite

sports development, it integrates sport science and medical services, sports management activities, funding, athlete welfare and implementation of the technical requirements for sporting success. The AIS conducts a national scholarship program that includes 35 programs in 26 sports, involving approximately 700 athletes.

More information about the ASC and the AIS can be obtained from the web sites, <<http://www.ausport.gov.au>> and <<http://www.ais.org.au>>.

## National Sporting Organisations (NSOs)

Sports in Australia are managed and coordinated by NSOs. Each organisation manages the participation and development of a specific sport in Australia. Many NSOs receive funding from the ASC to assist them to develop community participation programs and high performance activities. There are about 130 such organisations in Australia. More information about most of these organisations can be obtained from the Australian Sports Directory on the ASC web site at <<http://www.ausport.gov.au>>.

## Australian Sports Drug Agency (ASDA)

The ASDA is the custodian of Australia's athlete anti-doping program and it plays a leading role, within Australian and international sports communities, in delivering drug testing and education services. ASDA also provides policy advice to sporting organisations and the Australian Government regarding 'drugs in sport' issues. ASDA is an independent statutory authority and was established in 1990. The Australian Sports Drug Agency web site is <<http://www.asda.org.au>>.

## Sports and physical recreation services

The ABS conducted a series of surveys of the sports and physical recreation industries and government organisations providing sports and physical recreation services in respect of 2000–01. Because of the large and one-off impact of the Olympic and Paralympic Games, which took place in Sydney in September and October 2000, data relating to the activities of the respective organising committees for these games have been excluded from the analysis presented here.

At the end of June 2001 there were 7,145 employing organisations involved in the provision of sports and physical recreation activities (table 12.24). This total comprised:

1,034 horse and dog racing organisations; 667 health and fitness centres and gymnasia; 863 other sports and physical recreation venues; 755 sports and physical recreation administrative organisations (collectively referred to below as 'sports administration'); 1,937 sports and physical recreation clubs, teams and sports professionals (collectively referred to below as 'sports clubs'); 1,259 other sports and physical recreation support services; and 630 government organisations providing sport and recreation services. These organisations had a total income of \$5,491.1m and expenses of \$5,632.9m in 2000–01. At the end of June 2001 the organisations employed 98,267 people and during that month they were assisted by 178,837 volunteers.

There is considerable variation in the nature of the industries. For example, while 44% of the private sector organisations were 'not for profit', these were mainly concentrated in the sports administration industry, in which all 755 organisations operated on a not-for-profit basis, and in the sports clubs industry, in which 1,565 (81%) were not for profit. The sports administration and sports clubs industries were also responsible for the vast majority (94%) of the volunteers working for sports and physical recreation industries during the month of June. There were nine volunteers for each one employee in the sports administration industry in June 2001, and the ratio was 2.7 volunteers to 1 employee in the sports clubs industry. Employees outnumbered volunteers in each of the other industries.

#### 12.24 SPORTS AND PHYSICAL RECREATION SERVICES(a) — 2000–01

	Units	Horse and dog racing	Health and fitness centres and gymnasia	Other sports venues and physical recreation venues	Sports and physical recreation administration	Sports and physical recreation clubs, teams and professionals	Other sports services(b)	Government organisations(c)	Total
<b>Businesses/ organisations at 30 June 2001</b>									
For profit	no.	750	620	743	—	372	1 181	—	3 667
Not for profit	no.	284	47	119	755	1 565	78	—	2 848
Government	no.	—	—	—	—	—	—	630	630
<b>Total</b>	<b>no.</b>	<b>1 034</b>	<b>667</b>	<b>863</b>	<b>755</b>	<b>1 937</b>	<b>1 259</b>	<b>630</b>	<b>7 145</b>
<b>Total employment at end June 2001</b>									
Males	no.	9 641	4 490	8 239	8 443	15 736	3 141	—	(d)49 690
Females	no.	6 259	8 062	7 603	3 370	7 575	4 887	—	(d)37 756
<b>Persons</b>	<b>no.</b>	<b>15 900</b>	<b>12 552</b>	<b>15 842</b>	<b>11 814</b>	<b>23 312</b>	<b>8 028</b>	<b>10 820</b>	<b>98 267</b>
<b>Total volunteers during the month of June</b>	<b>no.</b>	<b>n.a.</b>	<b>*546</b>	<b>*7 962</b>	<b>106 427</b>	<b>61 950</b>	<b>1 952</b>	<b>—</b>	<b>178 837</b>
<b>Total income</b>	<b>\$m</b>	<b>1 135.6</b>	<b>294.3</b>	<b>733.8</b>	<b>1 000.9</b>	<b>1 381.8</b>	<b>215.2</b>	<b>729.5</b>	<b>5 491.1</b>
<b>Total expenses</b>	<b>\$m</b>	<b>1 107.3</b>	<b>278.1</b>	<b>754.3</b>	<b>954.5</b>	<b>1 386.9</b>	<b>186.5</b>	<b>965.3</b>	<b>5 632.9</b>
<b>Operating profit/surplus before tax(e)</b>	<b>\$m</b>	<b>30.6</b>	<b>16.0</b>	<b>*-18.6</b>	<b>45.7</b>	<b>** -12.5</b>	<b>28.0</b>	<b>—</b>	<b>89.3</b>

(a) Excludes data relating to the organising committees of the Sydney 2000 Olympic and Paralympic Games. (b) Includes sports services such as education and coaching. (c) For Government organisations, only income and expenditure related to sports and physical services were included, and only employees who spent the majority of their time on sports and physical recreation related activities were included. (d) Excludes Government organisations. (e) This item is derived as total income minus total expenses, plus closing inventories minus opening inventories.

Source: Sports Industries, Australia, 2000–01 (8686.0).

At least 60% of the employees in the sports administration, sports clubs and the horse and dog racing industries were males. Health and fitness centres and gymnasia had the highest level of female employment, both in absolute terms (8,062) and as a percentage of people employed (64%). Casual employment was a feature of all of the industries. The percentage of employees employed on a casual basis ranged from 52% in the sports clubs industry to 71% in health and fitness centres and gymnasia.

The main sources of income for each industry were:

- for the horse and dog racing industry, net industry and TAB distributions (49% of total income) and training fees (12%)
- for health and fitness centres and gymnasia, membership fees (65%) and casual playing fees (19%)
- for other sports and physical recreation venues, casual playing fees (40%) and rent, leasing and hiring income (8.5%)
- for sports administration, admissions including season ticket memberships (20%) and sponsorship and fundraising (18%)
- for sports clubs, subscription or membership fees (23%) and sponsorship and fundraising (18%)
- for sports and physical recreation support services, which include sports coaches, personal fitness training services and sports management services, 57% of the total income mainly comprised fees for services, such as fees for coaching and other specialist sports services.

## Amusement and leisure industries

The latest ABS surveys of major amusement and theme parks, and amusement centres were conducted in respect of 2000–01. Major amusement and theme parks were defined as parks which were operated on a commercial basis, were permanently based at a fixed site, had multiple rides and attractions and had over 50,000 attendees for the year.

At the end of June 2001 there were 30 major amusement and theme parks operating in Australia, employing 4,150 persons. During 2000–01 there were 8.9 million visits to these amusement and theme parks. Total income for businesses operating these parks was \$287m. The seven parks in Queensland earned 71% of this total income and had 59% of the total employment; and the 12 parks in New South Wales earned 24% of the total income and had 36% of the total employment.

Amusement centres include indoor play centres, amusement machine centres, mini golf centres, go-kart venues and similar operations. At the end of June 2001 there were 288 businesses operating amusement centres. These operations were carried out at 384 locations – 236 in capital cities and suburbs and 148 in other areas. Of the 384 locations, 138 were amusement machine centres. Amusement centres employed 2,793 people at the end of June 2001 and earned a total income of \$136.9m in 2000–01 (table 12.25).

### 12.25 AMUSEMENT CENTRES — 2000–01

	Businesses at end June(a)	Locations at end June		Employment at end June		Wages and salaries		Total income	
		no.	%	no.	%	\$m	%	\$m	%
New South Wales	79	107	27.8	697	25.0	9.7	26.8	37.6	27.5
Victoria	88	109	28.3	1 162	41.6	16.0	44.1	54.9	40.1
Queensland	47	63	16.4	367	13.1	4.7	12.8	21.5	15.7
Western Australia	30	35	9.1	168	6.0	1.8	5.0	8.0	5.8
South Australia	36	45	11.7	295	10.6	3.0	8.4	10.2	7.5
Tasmania	10	14	3.6	35	1.3	0.5	1.4	1.8	1.3
Northern Territory	3	3	0.8	7	0.3	—	0.1	0.2	0.2
Australian Capital Territory	9	9	2.3	63	2.3	0.5	1.4	2.7	2.0
<b>Australia</b>	<b>288</b>	<b>384</b>	<b>100.0</b>	<b>2 793</b>	<b>100.0</b>	<b>36.2</b>	<b>100.0</b>	<b>136.9</b>	<b>100.0</b>

(a) Multi-state businesses are counted in each state in which they operate. Hence the counts of businesses for states and territories do not sum to the total for Australia.

Source: *Selected Amusement and Leisure Industries, Australia, 2000–01 (8688.0)*.

## Funding for sport and recreation

### Government funding

Total expenditure by all three levels of government on sport and recreation activities in 2000–01 was \$2,124.2m. Of this, Australian Government expenditure was \$198.9m (9.4% of the total), state and territory governments spent \$875.2m (41.2%) and local governments spent \$1,050.1m (49.4%) (table 12.26). Of all government expenditure on sport and recreation activities, recurrent expenditure (\$1,585.5m) was much larger than capital expenditure (\$538.6m).

The Sydney 2000 Olympic and Paralympic Games were held in the 2000–01 financial year. While the Australian Government and New South Wales Government contributed most of the funding for this event, other state and territory governments also provided funds for hosting events and providing training venues for overseas athletes.

The Australian Government contributed an estimated \$71.8m, while the New South Wales Government provided \$382.3m for this event.

### Business funding

According to the ABS Business Generosity Survey, during 2000–01 businesses gave \$1,447m to organisations and individuals, of which sport and recreation activities (which included the operation of sporting events, clubs and teams; indoor or outdoor recreational facility operations; social, leisure and hobby club activities; and recreational parks and gardens operations) received \$628m (43%). This comprised \$480m of sponsorship, \$109m of donations and \$39m of 'business to community projects' funding. Activities associated with sport and recreation attracted the most business sponsorship funding compared with the other activities surveyed, namely community service and welfare, arts and culture, health, education and training, and environmental activities.

#### 12.26 GOVERNMENT FUNDING FOR SPORT AND RECREATION — 2000–01

Category of funding	Level of government			Total \$m	Proportion of total %
	Commonwealth \$m	State and territory \$m	Local \$m		
<b>Administration and regulation</b>					
Administration, policy and planning	29.8	74.2	37.3	141.2	6.6
Regulation and control	39.7	20.3	4.6	64.6	3.0
<i>Total</i>	69.5	94.4	41.9	205.8	9.7
<b>Venues, grounds and facilities</b>					
Venues and sports grounds(a)	14.5	185.8	410.1	610.5	28.7
Recreation parks and waterways	—	94.4	587.4	681.8	32.1
<i>Total</i>	14.5	280.2	997.5	1 292.2	60.8
<b>Participation and special events</b>					
Participation by clubs, teams and individuals	2.4	67.0	6.5	75.9	3.6
Special events(b)	77.0	374.9	—	451.9	21.3
<i>Total</i>	79.4	441.9	6.5	527.8	24.8
<b>Other services</b>					
Horse and dog racing	—	22.5	n.a.	22.5	1.1
Coaching and training	24.4	26.5	n.a.	50.9	2.4
Other support services	11.2	9.6	n.a.	20.8	1.0
<i>Total</i>	35.5	58.6	4.2	98.4	4.6
<b>Total</b>	<b>198.9</b>	<b>875.2</b>	<b>1 050.1</b>	<b>2 124.2</b>	<b>100.0</b>

(a) Includes funding for Sydney 2000 Olympic and Paralympic Games venues. (b) Includes funding for Sydney 2000 Olympic and Paralympic Games, excluding venues.

Source: *Sport and Recreation Funding by Government, Australia, 2000–01 (4147.0)*.

## Employment and involvement in sports and physical activities

### Employment in sport and physical recreation occupations

The 2001 Census of Population and Housing provides information on the number and characteristics of people aged 15 years and over whose main job in the week prior to the census was in a sport and physical recreation occupation. People who had unpaid involvement in sport and physical recreation activities and people who worked in sport and physical recreation as a 'second job' were not recorded as being in sport and physical recreation occupations, unless their main job (in terms of hours worked) was a sport and physical recreation occupation.

The 2001 census found 83,008 people (1.0% of all employed persons) had their main job in a sport and physical recreation occupation. This is a 21.6% increase from 1996 when 68,274 people (0.9%) had their main job in a sport and physical recreation occupation, and compares with an 8.7% increase for all occupations.

Of those employed in a sport and physical recreation occupation in 2001, fitness instructors (12,364 persons) and greenkeepers (11,928 persons) were prominent (table 12.27). In August 2001 there were more males (50,113 or 60.4%) than females (32,895 or 39.6%) employed in sport and physical recreation occupations. By comparison, of all employed persons, 54.8% were male and 45.2% were female.

## Involvement in organised sports and physical activities

In the 12 months to April 2001, 4.1 million people (27.1% of all people aged 15 years and over) were involved in sport and physical activity organised by a club, association or other organisation. This involvement includes players or participants and those involved in non-playing roles that support, arrange and/or run organised sport and physical activity. Of these, over 1.4 million people (9.5% of all people aged 15 years and over) were involved as coaches, referees, administrators, scorers or in other non-playing roles.

Of the 4.1 million people involved in organised sport and physical activity, 0.9 million (21.6% of those involved) were both a player and involved in at least one non-playing role. Of the 1.4 million people with non-playing involvement, 33.8% participated in more than one non-playing role. In all, these 1.4 million people had 2.1 million involvements in non-playing roles in the 12 months prior to interview.

Of the 3.5 million players, 88,100 (2.5%) received some payment (either in dollars and/or goods and services) for their involvement, and of the 2.1 million non-playing involvements, 233,500 (11%) attracted some payment (table 12.28). These data, and the figures in table 12.24, indicate how heavily reliant sports organisations are on the support of unpaid helpers.

### 12.27 PERSONS EMPLOYED IN SELECTED SPORT AND PHYSICAL RECREATION OCCUPATIONS — 2001

	Males	Females	Persons
Fitness instructor(a)	3 685	8 679	12 364
Greenkeeper(b)	11 637	291	11 928
Veterinarian	2 975	2 032	5 007
Veterinary nurse	121	4 737	4 858
Recreation officer	1 035	2 807	3 842
Stud hand or stable hand	1 626	1 867	3 493
Boat builder and repairer(c)	3 153	60	3 213
Ticket collector or usher	1 576	1 624	3 200
Animal trainer(d)	2 251	875	3 126
Other sports coach	1 991	887	2 878

(a) Comprises Fitness instructors and related workers n.f.d. and Fitness instructor. (b) Comprises Greenkeepers n.f.d., Greenkeeper and Apprentice greenkeeper. (c) Comprises Boat builder and repairer, and Apprentice boat builder and repairer. (d) Comprises Animal trainers n.f.d., Horse trainer and Animal trainers n.e.c.

Source: *Employment in Sport and Recreation, Australia, 2001 (4148.0)*.

## 12.28 INVOLVEMENT IN ORGANISED SPORTS AND PHYSICAL ACTIVITIES(a) — 2001

Type of involvement	Some paid involvement(b)	Unpaid involvement only	Total involvements	Participation rate(c)
	'000	'000	'000	%
Playing	88.1	3 428.3	3 516.4	23.5
Non-playing roles				
Coach, instructor or teacher	105.8	452.6	558.4	3.7
Referee or umpire	69.5	270.5	340.0	2.3
Committee member or administrator	24.3	570.7	595.0	4.0
Scorer or timekeeper	*14.6	439.1	453.7	3.0
Medical support	*11.9	78.2	90.1	0.6
Other involvement	*7.3	79.8	87.1	0.6
Total non-playing involvements	233.5	1 890.9	2 124.3	..
<b>Total involvements</b>	<b>321.6</b>	<b>5 319.2</b>	<b>5 640.8</b>	<b>..</b>

(a) Relates to persons aged 15 years and over who were involved in sport or physical activity organised by a club, association or other organisation in the 12 months prior to interview in April 2001. (b) Includes those who were paid for all or some of their involvement. Payment includes payment in dollars and/or goods and services. (c) Refers to the number of persons involved in organised sport and physical activity, expressed as a percentage of the civilian population aged 15 years and over.

Source: *Involvement in Organised Sport and Physical Activity, Australia, April 2001* (6285.0).

The Voluntary Work Survey, conducted by the ABS in 2000, collected information on the types of organisations, clubs and associations to which people provided unpaid help in the form of time, services or skills. The survey found 4.3 million persons aged 18 years and over undertook voluntary work in the 12 months before interview in 2000. Sport and physical recreation organisations had the largest number of volunteers, receiving help from 1.1 million volunteers. Education, training and youth development organisations and community and welfare organisations also received help from close to one million volunteers. Although female volunteers outnumbered male volunteers overall, this situation was reversed in sport and physical recreation organisations where 60% of volunteers were male. Almost a third (31%) of volunteers who worked for sports and physical recreation organisations were aged 35–44 years and 40% of sports volunteers had children aged 5–14 years. Some volunteers provided assistance to more than one sports organisation, so the total number of voluntary involvements in sports organisations (1.3 million) exceeded the total number of volunteers for sports organisations.

### Participation in sports and physical activities

The ABS conducted a survey on the sports and physical activities in which people participated during a 12-month period prior to interview in 2002. This includes participation in sports or physical activities, such as football or netball, that

are usually organised by a club or association. It also includes other sport and physical activities undertaken for recreation or exercise, which may not be organised, such as walking for exercise. Thus, for example, participation in swimming will include people who swim recreationally at the beach, those who swim competitively as part of a team, and those who swim laps at the local pool for exercise.

The survey found 62.4% of the population (9,056,300 people) aged 18 years and over participated as a player (rather than in a support role) at least once during the 12-month period in one or more sports or physical activities (table 12.29). Participation rates were highest for the 18–24 year age group (72.6%), and declined steadily with age. The rate for persons aged 65 years and over was 45.6%. Slightly more males (65.0%) than females (59.9%) had participated in sports or physical activities at least once during the 12 months prior to interview. However, 38.6% (5.6 million) of the population had participated at least weekly, on average, during this period, with females (38.7% or 2.8 million) reporting a similar weekly participation rate to males (38.6% or 2.8 million).

### Popular sports and physical activities

The 2002 survey indicated the activities which attracted the most participants were walking (about 3.7 million people), swimming (1.6 million), aerobics/fitness (1.6 million) and tennis (1.0 million).

## 12.29 PARTICIPATION IN SPORT AND PHYSICAL ACTIVITIES(a) — 2002

Age group (years)	Males		Females		Persons	
	Number '000	Participation rate %	Number '000	Participation rate %	Number '000	Participation rate %
18–24	751.6	77.6	630.5	67.4	1 382.1	72.6
25–34	1 098.3	75.5	988.2	68.0	2 086.5	71.8
35–44	994.1	68.1	915.8	62.2	1 909.9	65.1
45–54	771.5	58.3	799.7	60.5	1 571.2	59.4
55–64	533.2	56.1	557.4	59.7	1 090.7	57.9
65 and over	516.0	50.6	500.0	41.3	1 016.0	45.6
<b>Total</b>	<b>4 664.7</b>	<b>65.0</b>	<b>4 391.6</b>	<b>59.9</b>	<b>9 056.3</b>	<b>62.4</b>

(a) Relates to persons aged 18 years and over who participated in sport or physical activity as a player at least once during the 12 months prior to interview.

Source: *Participation in Sport and Physical Activities, Australia, 2002 (4177.0)*.

For men, the most popular activities were walking and golf. For women, walking and aerobics/fitness were most popular. Table 12.30 shows the ten sports or physical activities in which the most men participated and the ten in which the most women participated.

### Exercise and Australians

The ABS National Health Survey, conducted in 2001, found 70% of adults had exercised for recreation, sport or fitness during the previous two weeks. Overall proportions of males and females who exercised were similar, but females were more likely to walk for exercise than males (58% and 50% respectively) while males were more likely to have undertaken moderate (40%) and vigorous (20%) exercise in the last two weeks, compared with females (33% and 11% respectively).

### Attendance at sporting events

Attending sports events (such as club matches and international competitions) is a popular pastime of many Australians. The 2002 ABS Sports Attendance Survey indicated 7 million people, or 48% of all people aged 18 years and over, attended a sporting event (excluding junior and school sport) at least once in the previous 12 months. The overall attendance rate was virtually unchanged from the rates recorded in similar surveys conducted in 1995 and 1999. Men (56%) were more likely to have attended a sporting event than women (41%). For both men and women, attendance rates were highest for the 18–24 year age group (70% and 59% respectively) and steadily declined with age. Among men aged 65 years and over, the attendance rate was 27%, while for women in this age group it was 16%.

The sport with the highest attendance was Australian rules football – 2.5 million people attended this sport on at least one occasion during the year (table 12.31). Horse racing (1.9 million), motor sports (1.5 million) and rugby league (1.5 million) were also among the most attended sports.

## 12.30 ADULT PARTICIPATION IN SELECTED SPORTS AND PHYSICAL ACTIVITIES(a) — 2002

	Number	Participation rate
	'000	%
<b>MALES</b>		
Walking for exercise	1 255.2	17.5
Golf	890.3	12.4
Swimming	708.4	9.9
Aerobics/fitness	632.3	8.8
Tennis	544.5	7.6
Cycling	524.0	7.3
Running	440.9	6.1
Fishing	437.5	6.1
Cricket (outdoor)	340.8	4.7
Soccer (outdoor)	318.9	4.4
<b>FEMALES</b>		
Walking for exercise	2 407.9	32.9
Aerobics/fitness	953.2	13.0
Swimming	867.4	11.8
Tennis	443.4	6.1
Netball	389.4	5.3
Cycling	305.6	4.2
Yoga	266.2	3.6
Bush walking	240.1	3.3
Running	221.9	3.0
Dancing	206.4	2.8

(a) Relates to persons aged 18 years and over who participated in sport or physical activity as a player at least once during the 12 months prior to interview.

Source: *Participation in Sport and Physical Activities, Australia, 2002 (4177.0)*.

### 12.31 ATTENDANCE(a) AT SELECTED SPORTING EVENTS — 2002

	Number			Attendance rate(b)		
	Males	Females	Persons	Males	Females	Persons
	'000	'000	'000	%	%	%
Australian Rules football	1 503.9	982.0	2 486.0	21.0	13.4	17.1
Horse racing	1 062.6	802.6	1 865.2	14.8	11.0	12.9
Motor sports	993.3	480.1	1 473.4	13.8	6.6	10.2
Rugby League	951.4	513.2	1 464.6	13.3	7.0	10.1
Cricket (outdoor)	635.2	231.0	866.2	8.9	3.2	6.0
Soccer (outdoor)	519.3	282.6	801.9	7.2	3.9	5.5
Rugby Union	469.7	203.9	673.6	6.5	2.8	4.6
Harness racing	318.9	189.4	508.3	4.4	2.6	3.5
Basketball	226.0	208.4	434.4	3.1	2.8	3.0
Tennis	192.5	201.0	393.5	2.7	2.7	2.7
Dog racing	150.7	81.6	232.3	2.1	1.1	1.6
Netball	66.9	152.8	219.7	0.9	2.1	1.5

(a) Attendance at least once in the 12 months prior to interview in 2002 by persons aged 18 years and over. (b) The number of people who attended, expressed as a percentage of the number of people in that population group.

Source: *Sports Attendance, Australia, 2002 (4174.0)*.

### Household expenditure on sports and physical recreation

The 1998–99 Household Expenditure Survey found households spent an average of \$11.03 per week on selected sports and physical recreation products. This was 1.6% of the average weekly expenditure on all products and 1.3% of the average weekly household income. The categories of sports and physical recreation products with the highest levels of expenditure were sports facility hire charges (\$2.07 per week), swimming pools (\$1.29 per week) and boats, their parts and accessories (\$1.21 per week).

In total, households spent \$4,096.4m on selected sports and physical recreation products during 1998–99. Of this, \$1,968.3m was spent on sports and physical recreation services, \$1,630.4m on sports, physical recreation and camping equipment, and \$493.9m on sports and recreation vehicles.

After adjusting for price changes, the average total weekly household expenditure on sports and physical recreation was virtually unchanged between 1993–94 and 1998–99. However, this was the result of upward movements in some expenditure categories balancing the downward movements in others. Categories for which average weekly household expenditure increased substantially were boats, their parts and accessories (a 146.9% increase) and sports lessons

(74.0%). Categories which recorded falls in average weekly household expenditure were sporting club subscriptions (a 35.1% decrease), sports and physical recreation equipment (21.4%) and sports facility hire charges (15.2%).

### Children's participation in organised sport

A survey of children's activities in the 12 months to April 2003 found 1.6 million children aged 5–14 years (62%) participated outside of school hours in sport that had been organised by a school, club or association.

Participation in organised sport peaked at the age of 10 years for boys and 11 years for girls. However, across all ages boys were more likely to participate than girls – the total participation rate was 69% for boys and 54% for girls (table 12.32). There was also a higher percentage of boys participating in more than one sport (35% of boys compared with 23% of girls).

Of children in all the states and territories, those in Western Australia had the highest participation rate (66%) in organised sport outside of school hours, while those in Queensland had the lowest participation rate (54%).

### 12.32 CHILDREN'S PARTICIPATION IN ORGANISED SPORT(a) — 2003

Age (years)	Number			Participation rate		
	Males '000	Females '000	Persons '000	Males %	Females %	Persons %
5	67.1	45.4	112.5	51.5	36.7	44.3
6	80.4	52.9	133.3	60.5	42.1	51.5
7	91.0	66.1	157.1	67.4	51.4	59.6
8	101.1	73.6	174.7	73.8	56.9	65.6
9	98.9	74.1	173.0	72.0	56.7	64.6
10	104.2	81.6	185.8	75.6	62.5	69.3
11	102.0	84.1	186.1	73.7	64.0	69.0
12	102.7	79.6	182.2	74.1	60.2	67.3
13	91.0	73.7	164.7	66.5	56.5	61.6
14	93.5	67.5	161.0	70.1	53.0	61.7
<b>Total</b>	<b>931.9</b>	<b>698.5</b>	<b>1 630.4</b>	<b>68.6</b>	<b>54.2</b>	<b>61.6</b>

(a) Outside of school hours during the 12 months prior to interview in April 2003.

Source: *Children's Participation in Cultural and Leisure Activities, Australia, April 2003 (4901.0)*.

#### Children's sports with the most participants

The most popular organised sport for children was swimming with a participation rate of 17%, followed by outdoor soccer (13%). The organised sports that attracted most boys were outdoor soccer (with a participation rate for boys of 22%), swimming (16%), and Australian rules football (14%). For girls, the sports with the highest participation rates were netball (18%), swimming (17%), and tennis (8%) (table 12.33). Dancing was

an organised cultural (and physical) activity with a higher participation rate for girls (24%) than any organised sport (table 12.22).

About an equal percentage of girls and boys participated in athletics, hockey and swimming. However, there is a clear difference between the sexes in preference or opportunities for some sports. Most netball players and gymnasts were girls (97% and 76%), while boys made up 99% of rugby league players, 95% of Australian rules footballers, and 93% of outdoor cricket players.

### 12.33 CHILDREN'S PARTICIPATION IN SELECTED ORGANISED SPORTS(a) — 2003

	Number			Participation rate		
	Males '000	Females '000	Persons '000	Males %	Females %	Persons %
Swimming	213.6	225.5	439.1	15.7	17.5	16.6
Soccer (outdoor)	301.1	54.8	355.9	22.2	4.2	13.4
Netball	8.2	233.0	241.2	0.6	18.1	9.1
Tennis	128.3	100.1	228.5	9.5	7.8	8.6
Basketball	116.1	88.9	205.0	8.6	6.9	7.7
Australian Rules football	184.2	9.4	193.6	13.6	0.7	7.3
Cricket (outdoor)	124.2	9.5	133.6	9.1	0.7	5.0
Martial arts	83.9	45.8	129.7	6.2	3.6	4.9
Athletics and track and field	51.7	48.6	100.2	3.8	3.8	3.8
Gymnastics and trampolining	22.5	69.9	92.4	1.7	5.4	3.5
Rugby League	76.2	**0.9	77.1	5.6	**0.1	2.9
Hockey	33.3	33.0	66.3	2.5	2.6	2.5

(a) Outside of school hours during the 12 months prior to interview in April 2003.

Source: *Children's Participation in Cultural and Leisure Activities, Australia, April 2003 (4901.0)*.

## Changes in participation since 2000

The overall number of children involved in organised sport increased by more than 62,000 between 2000 and 2003, increasing the participation rate by two percentage points to 62%. This was mainly caused by an increased participation rate among boys (from 66% in 2000 to 69% in 2003).

The organised sport with the highest participation rate in both 2000 and 2003 was swimming, which attracted an additional 59,000 participants during this period. Of the 12 sports with the highest participation rates, the one showing the largest decrease in participation was rugby league, with 18,000 fewer children involved in 2003 than in 2000 (table 12.34).

For information about children's involvement in cultural and leisure activities, see *Children's participation in organised cultural activities* and *Children's participation in selected leisure activities*.

## Children's participation in selected leisure activities

A survey of children's activities conducted in April 2003 found almost all children aged 5–14 years (99.8% or 2,641,500) were involved in

at least one of six selected leisure activities outside of school hours in the two school-weeks prior to interview.

While TV or video watching attracted almost equal percentages of boys (99%) and girls (98%), a much greater percentage of boys played electronic or computer games (82% of boys compared with 59% of girls), rode bikes (70% versus 53%), or went skateboarding or rollerblading (28% versus 17%). Girls participated to a much greater extent than boys in reading for pleasure (82% of girls compared with 68% of boys), and art and craft activities (61% versus 39%) (table 12.36).

Children spent more time watching television or videos than they did on any of the other selected activities, with an average of 22 hours over a school fortnight. By contrast, the average time spent by participants on each of the two next-most popular activities (reading for pleasure and playing electronic or computer games) was eight hours over a school fortnight. The times children spent participating in the remaining selected activities were very similar, with both bike riding and art and craft activities averaging six hours, and skateboarding or rollerblading averaging five hours over a school fortnight.

**12.34 CHILDREN INVOLVED IN ORGANISED SPORT(a)**

	2000		2003	
	Number '000	Participation rate %	Number '000	Participation rate %
Swimming	380.1	14.4	439.1	16.6
Soccer (outdoor)	302.3	11.4	355.9	13.4
Netball	241.4	9.1	241.2	9.1
Tennis	223.8	8.5	228.5	8.6
Basketball	200.3	7.6	205.0	7.7
Australian Rules football	174.4	6.6	193.6	7.3
Cricket (outdoor)	140.9	5.3	133.6	5.0
Martial arts	104.6	4.0	129.7	4.9
Athletics and track and field	104.1	3.9	100.2	3.8
Gymnastics and trampolining	67.7	2.6	92.4	3.5
Rugby League	95.1	3.6	77.1	2.9
Hockey	64.2	2.4	66.3	2.5
Other organised sports	371.7	14.1	396.6	15.0
<b>Total(c)</b>	<b>1 568.2</b>	<b>59.4</b>	<b>1 630.4</b>	<b>61.6</b>

(a) Outside of school hours during the 12 months prior to interview in April. (b) Care should be taken when interpreting the data in these columns as some of the changes between years are not statistically significant. (c) The sum of activities do not add to the total because some children were involved in more than one activity.

Source: *Children's Participation in Cultural and Leisure Activities, Australia, April 2003 (4901.0)*.

## Changes in participation since 2000

The largest changes between 2000 and 2003 in participation in these selected leisure activities were a decline of 212,900 in the number of children who skateboarded or rollerbladed and an increase of 140,500 in the number of children who did art and craft activities (table 12.35). However, this does not imply that children's leisure activities have become more sedentary over the period, as

they may have increased their participation in organised sport or other active leisure pursuits not covered by the survey.

Details about children's participation in organised sports and organised cultural activities are outlined in *Children's participation in organised sport* and *Children's participation in organised cultural activities*.

**12.35 CHILDREN INVOLVED IN SELECTED LEISURE ACTIVITIES(a)**

	2000		2003	
	Number '000	Participation rate %	Number '000	Participation rate %
<b>Males</b>				
Skateboarding or rollerblading	481.6	35.6	386.4	28.5
Bike riding	963.1	71.1	957.4	70.5
Watching TV or videos	1 312.2	96.9	1 338.6	98.6
Playing electronic or computer games	1 071.5	79.1	1 110.8	81.8
Art and craft activities	466.1	34.4	529.8	39.0
Reading for pleasure(b)	..	..	919.2	67.7
<b>Total(c)</b>	<b>1 342.6</b>	<b>99.1</b>	<b>1 356.3</b>	<b>99.9</b>
<b>Females</b>				
Skateboarding or rollerblading	335.8	26.1	218.2	16.9
Bike riding	723.0	56.2	687.4	53.3
Watching TV or videos	1 248.1	96.9	1 262.4	97.9
Playing electronic or computer games	747.5	58.1	759.7	58.9
Art and craft activities	704.6	54.7	781.5	60.6
Reading for pleasure(b)	..	..	1 061.8	82.3
<b>Total(c)</b>	<b>1 276.0</b>	<b>99.1</b>	<b>1 285.2</b>	<b>99.6</b>
<b>Persons</b>				
Skateboarding or rollerblading	817.4	30.9	604.5	22.8
Bike riding	1 686.1	63.8	1 644.8	62.1
Watching TV or videos	2 560.3	96.9	2 601.0	98.2
Playing electronic or computer games	1 818.9	68.9	1 870.5	70.7
Art and craft activities	1 170.7	44.3	1 311.2	49.5
Reading for pleasure(b)	..	..	1 981.0	74.8
<b>Total(c)</b>	<b>2 618.6</b>	<b>99.1</b>	<b>2 641.5</b>	<b>99.8</b>

(a) Outside of school hours during the past two school weeks prior to interview in April. (b) Reading for pleasure was not included as a leisure activity in 2000. (c) The sum of activities do not add to the total because some children were involved in more than one activity.

Source: *Children's Participation in Cultural and Leisure Activities, Australia, April 2003 (4901.0)*.

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## INDUSTRY STRUCTURE AND PERFORMANCE

This chapter presents a consolidated view of industrial production in Australia. The current structure and performance of the main industrial components of the Australian economy, and their relative contribution to overall economic activity, are described in terms of the value of production and employment by industries. Statistics are also provided on the growth of industries over the past ten years and the changing contribution of individual industries to total economic activity during the period. More detailed information on the structure and performance of individual industries is provided in later chapters.

This chapter begins by outlining the development of industry since European settlement in *The evolution of Australian industry*. The section *Value of goods and services produced by industries* examines industry gross value added and the contribution of individual industries to Australia's gross domestic product. *An industry view of employment* looks at industry shares of total employment, average weekly paid hours, and compensation of employees. *Industry productivity* provides data on multifactor productivity for the market sector as a whole and gross value added per hour worked for market sector industries.

The chapter concludes with an article *100 years of change in Australian industry*.



## The evolution of Australian industry

Australia's economic development has been one of contrast and change. In the early years of European settlement, between 1788 and 1820, there was little scope for industrial or commercial enterprises. The government, as both main producer and main consumer, established workshops to produce the basic necessities of life – flour, salt, bread, candles, leather and leather articles, blacksmith's products, tools and domestic items.

Between 1820 and 1850 the pastoral industry led Australia's economic development, and by 1850 it was supplying well over 50% of the British market for imported wool. The growth in the wool industry brought great advances in the rest of the economy, with local manufacturing industries being established in response to new market opportunities. Gold surpassed wool as Australia's major export earner throughout the 1850s and 1860s, resulting in a rapid expansion of banking and commerce. Increased public works activity during the 1870s played an important role in encouraging expansion in manufacturing. By 1901 this expansion had resulted in an economy where agriculture, manufacturing, mining, construction and the service industries all provided significant contributions to Australia's wealth.

From 1901 to 1930 manufacturing expanded further, with impetus from Federation and the elimination of customs barriers between states, and from World War I. With the onset of World War II, the Australian manufacturing sector was sufficiently developed and diversified to respond to the demand for war materials and equipment. Key industries expanded and new ones developed rapidly to produce munitions, ships, aircraft, new kinds of equipment and machinery, chemicals, textiles and so on. After the war all sectors of the economy experienced growth. The onset of the oil price rises in 1973–74 led the world into recession. Inflation, coupled with slower growth in Australia's gross domestic product (GDP), affected all sectors of the economy. The modest employment growth between 1968 and 1979 was dominated by the service industries.

The 1980s and 1990s saw a decline in the relative contribution to GDP from goods-producing industries and a rise in the contribution from service industries. The falling contribution from goods-producing industries is largely the result of a decline in manufacturing's share of GDP.

The mining, manufacturing, and electricity, gas and water supply industries experienced declining employment, along with outsourcing of some activities, particularly support services.

The article *100 years of change in Australian industry* provides a more detailed examination of the development of Australian industries over the past 100 years.

## Value of goods and services produced by industries

One measure of the importance of an industry is its contribution to the Australian economy. The size of the Australian economy is typically described in terms of GDP, and the structure and performance of the economy in terms of industry gross value added (GVA).

GDP is an estimate of the total market value of goods and services produced in Australia in a given period after deducting the cost of goods and services used up in the process of production (intermediate consumption), but before deducting consumption of fixed capital. This is also described as the unduplicated value of economic production. This measure avoids double counting the goods and services produced at successive stages of production. Accordingly, it is a measure of the value added in production.

Industry GVA is the term used to describe the unduplicated value of goods and services produced by individual industries. This measure removes the distortion caused by variations in the incidence of commodity taxes and subsidies across the output of individual industries. More information is provided in *Chapter 29 National accounts*.

Table 13.1 provides details of industry GVA and GDP for 2002–03. Data are presented at a broad industry level, generally equating to the Division level of the Australian and New Zealand Standard Industrial Classification (ANZSIC). In the ANZSIC, individual businesses are assigned an appropriate industry category on the basis of their predominant activities. The table provides estimates of the unduplicated production of goods and services (industry GVA) in 2002–03, along with percentage changes from 2001–02 and average annual rates of growth between 1992–93 and 2002–03.

In 2002–03 the value of Australian production (GDP) was \$734,209m (in chain volume terms), an increase of 2.8% from 2001–02. The average annual rate of growth in GDP between 1992–93 and 2002–03 was 3.8%. In 2002–03 the ratio of GDP to the estimated resident population (GDP per person) was \$36,930.

Graph 13.2 shows industry GVA shares of GDP in 2002–03. The manufacturing industry contributed the largest share to GDP (10.8% or \$78,958m) in 2002–03. This was followed by the property and business services industry (10.2% of GDP or \$75,091m). The finance and insurance industry was the third most important industry in terms of contribution to GDP, contributing 7.2% or \$53,073m.

Between 1992–93 and 2002–03, the greatest relative increase in industry GVA share of GDP was for the property and business services industry

(1.2 percentage points). The next biggest increases were for the communication services (0.9 percentage points) and construction (0.8 percentage points) industries.

In the same ten-year period, the greatest fall in relative shares of GDP was for the manufacturing industry (–1.5 percentage points). The next largest decreases in relative shares were for the agriculture, forestry and fishing (–1.2 percentage points), education (–1.0 percentage points), and electricity, gas and water supply (–0.5 percentage points) industries.

Movements in the chain volume measures of GDP and industry GVA (from which the direct effects of price changes have been removed) are important indicators of economic growth. More information on chain volume measures is provided in *Chapter 29 National accounts*.

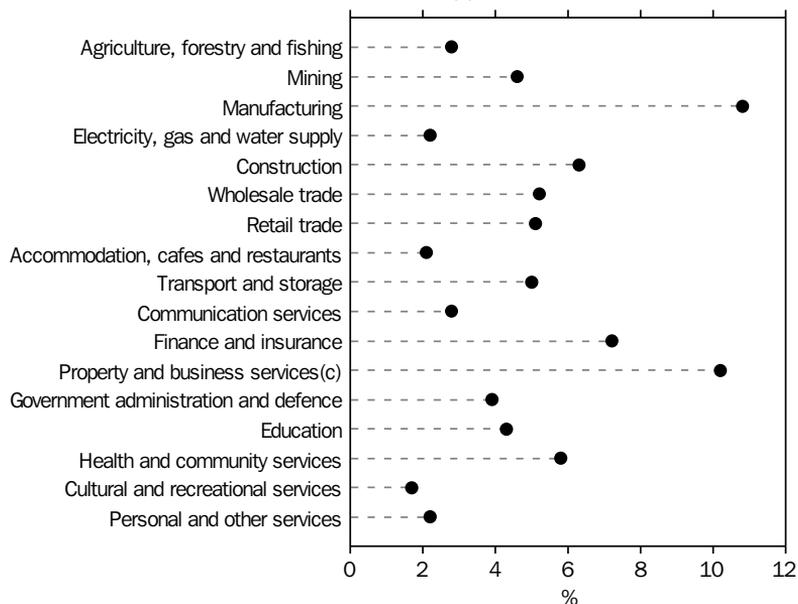
### 13.1 INDUSTRY GROSS VALUE ADDED(a) AND GROSS DOMESTIC PRODUCT, Chain volume measures(b)

	1992–93	2001–02	2002–03	Change from 2001–02 to 2002–03	Average annual rate of growth from 1992–93 to 2002–03
	\$m	\$m	\$m	%	%
Agriculture, forestry and fishing	19 700	27 663	20 206	–27.0	0.3
Mining	24 398	33 822	33 944	0.4	3.4
Manufacturing	61 589	76 686	78 958	0.3	2.5
Electricity, gas and water supply	13 778	15 977	16 145	1.1	1.6
Construction	27 737	39 540	45 977	16.3	5.2
Wholesale trade	22 823	36 089	37 919	5.1	5.2
Retail trade	25 028	36 034	37 689	4.6	4.2
Accommodation, cafes and restaurants	10 079	14 630	15 206	3.9	4.2
Transport and storage	23 161	34 718	36 382	4.8	4.6
Communication services	9 689	19 163	20 378	6.3	7.7
Finance and insurance	34 256	50 792	53 073	4.5	4.5
Property and business services(c)	45 624	75 524	75 091	–0.6	5.1
Government administration and defence	21 553	27 755	28 353	2.2	2.8
Education	26 766	31 201	31 619	1.3	1.7
Health and community services	28 684	41 236	42 725	3.6	4.1
Cultural and recreational services	9 407	12 470	12 327	–1.1	2.7
Personal and other services	11 422	16 011	16 081	0.4	3.5
Ownership of dwellings	44 972	63 326	65 836	4.0	3.9
Taxes less subsidies on products	42 319	61 733	63 723	3.2	4.2
Statistical discrepancy	832	0	2 577	..	..
<b>GDP</b>	<b>(d)504 145</b>	<b>714 370</b>	<b>734 209</b>	<b>2.8</b>	<b>3.8</b>

(a) At basic prices. (b) Reference year is 2001–02. (c) Excludes ownership of dwellings. (d) Chain volume measures for 1992–93 are not additive.

Source: Australian System of National Accounts, 2002–03 (5204.0).

**13.2 CONTRIBUTION TO GROSS DOMESTIC PRODUCT(a),  
Chain volume measures(b) — 2002–03**



(a) Industry GVA at basic prices as a proportion of GDP. (b) Reference year is 2001–02.  
(c) Excludes ownership of dwellings.

Source: Australian System of National Accounts, 2002–03 (5204.0).

Graph 13.3 provides the average annual rate of growth in industry GVA (in chain volume terms) between 1992–93 and 2002–03. The communication services industry had the highest average annual rate of growth (7.7%), followed by both the construction and wholesale trade industries (5.2%). Average annual growth rates provide an indicator of the broad underlying behaviour of the annual series over several years. These averages, however, smooth annual movements in the series and mask the highest and lowest annual movements.

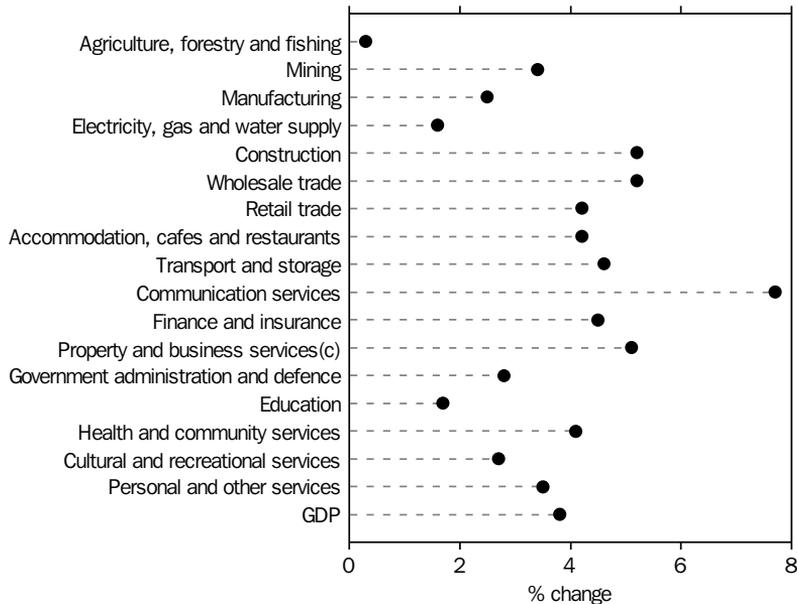
The average annual growth rates shown were affected by year-on-year changes in levels between 1992–93 and 2002–03. In terms of year-on-year changes, the fastest growing industry in this period, the communication services industry, showed strong and relatively steady increases in GVA from 1992–93 to 1998–99. In the most recent period (2001–02 to 2002–03) the communication services industry rose by 6.3%.

On average, the value of production (GVA) of the agriculture, forestry and fishing industry grew by only 0.3% each year between 1992–93 and

2002–03. However, year-on-year growth in the value of this industry varied significantly over time. The GVA of the agriculture, forestry and fishing industry fell by 17.0% between 1993–94 and 1994–95 and by 27.0% in the period, 2001–02 to 2002–03, due to the effects of drought on agricultural production. Over the ten-year period, 1992–93 to 2002–03, the largest year-on-year growth followed the 1994–95 drought with a 23.5% increase between 1994–95 and 1995–96.

The value of production (GVA) of the construction industry grew, on average, by 5.2% each year in the ten-year period 1992–93 to 2002–03. In terms of year-on-year growth, this series changed significantly in recent years. In the most recent period (2001–02 to 2002–03) the GVA of the construction industry grew by 16.3%, with the previous period (2000–01 to 2001–02) also recording strong growth (11.7%). This growth followed a fall of 15.6% between 1999–2000 and 2000–01, coinciding with the introduction of The New Tax System in July 2000.

**13.3 AVERAGE ANNUAL RATE OF GROWTH IN THE PRODUCTION OF GOODS AND SERVICES(a), Chain volume measures(b) — 1992–93 to 2002–03**



(a) Industry GVA at basic prices. (b) Reference year is 2001–02. (c) Excludes ownership of dwellings.

Source: Australian System of National Accounts, 2002–03 (5204.0).

**An industry view of employment**

Another measure of the significance of an industry is its contribution to employment. Employment (and unemployment) data are used as social indicators by government, research and welfare organisations. Employment is also an indicator of economic activity, although turning points in the employment series tend to lag turning points in the business cycle.

Graph 13.4 presents industry shares of total employment in 2002–03. These data were derived from the Australian Bureau of Statistics (ABS) Labour Force Survey and relate to the civilian population aged 15 years and over. People are considered to be employed if they were in paid work for one hour or more in the reference week, or worked for one hour or more without pay in a family business or farm. Employment is further described in *Chapter 6 Labour*.

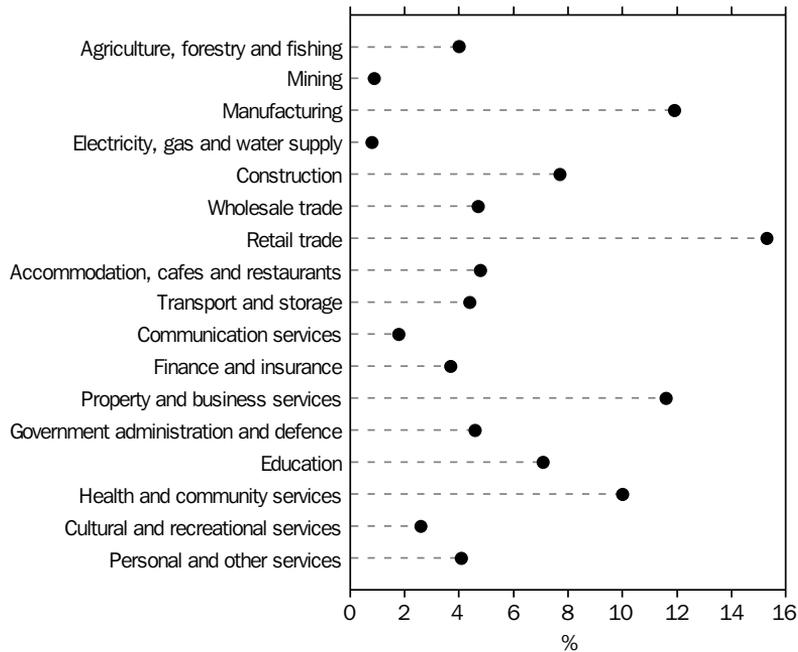
In 2002–03, 9.4 million people were employed across all industries. The retail trade industry employed the greatest number of people of all industries (1.4 million employed persons or 15.3%

of total employment). The manufacturing industry employed 1.1 million people (11.9% of total employment). This was followed by the property and business services (11.6%), health and community services (10.0%), construction (7.7%), and education (7.1%) industries.

These industries were also the main employing industries in 1992–03. Between 1992–03 and 2002–03 the property and business services industry share of total employment increased by 3.5 percentage points. Conversely, manufacturing industry’s share of total employment declined by 2.4 percentage points over this period.

The industry composition of average weekly paid hours for wage and salary earners provides an insight into the labour market. Data on this topic are derived from the biennial ABS Survey of Employee Earnings and Hours. This survey covers all employing organisations in Australia (public and private sectors) except enterprises primarily engaged in the agriculture, forestry and fishing industry, private households employing staff, and foreign embassies and consulates.

### 13.4 SHARE OF TOTAL EMPLOYMENT(a) — 2002–03



(a) Annual average of quarterly data.

Source: *Labour Force, Australia, Detailed - Electronic Delivery, May 2004 (6291.0.55.001)*.

Graph 13.5 shows average weekly total paid hours for full-time adult non-managerial employees by industry in May 2002 compared with the average for all industries in the period (39.5 hours). Total paid hours are equal to ordinary time paid hours plus overtime paid hours. The highest average weekly paid hours for full-time adult non-managerial employees was in the mining industry (45.8 hours), followed by the transport and storage (42.0 hours) and manufacturing (41.4 hours) industries. The lowest average weekly paid hours was in the education industry (36.0 hours).

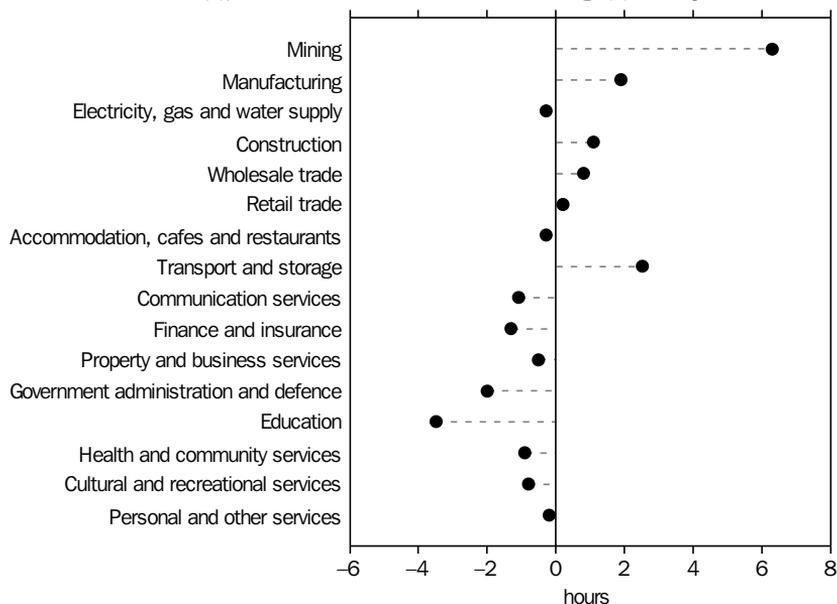
Paid overtime accounted for 3.8% of average weekly total paid hours for full-time adult non-managerial employees. The industry in which employees worked the most paid overtime was mining (12.9% of total paid hours for that industry). Paid overtime in the transport and storage, construction, and manufacturing industries accounted for 7.6%, 7.4% and 7.2% of total paid hours respectively.

Compensation of employees is both an economic and social indicator. This item includes wages and salaries (paid in cash and in kind) and employer social contributions (e.g. employers' contributions to superannuation and worker's compensation premiums). Wages and salaries in kind can include meals, housing, uniforms, and vehicles.

Graph 13.6 presents industry shares of total compensation of employees in 2002–03. These data are in current prices (i.e. they are valued at the prices of the period to which the data relate (2002–03)). In this period, total compensation of employees was \$360,012m. Total wages and salaries was \$325,009m (90.3% of total compensation of employees).

The property and business services industry held the largest share of total compensation of employees (14.4%), followed by the manufacturing (12.4%), health and community services (9.9%), education (8.2%) and retail trade (8.1%) industries. These industries were also in the top six labour intensive industries (along with construction) in 2001–02.

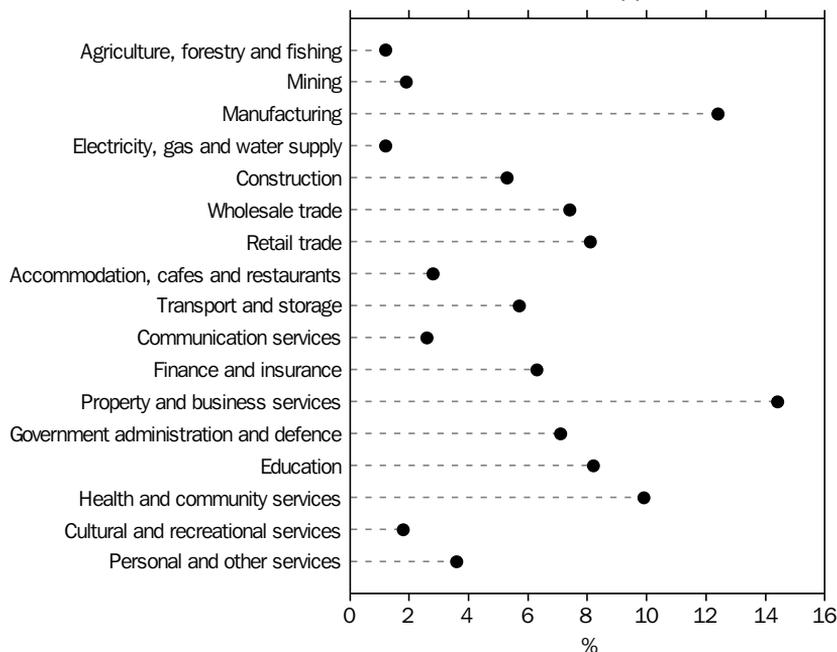
**13.5 AVERAGE WEEKLY TOTAL PAID HOURS FOR FULL-TIME ADULT NON-MANAGERIAL EMPLOYEES(a), Difference from all industries average(b) — May 2002**



(a) Excludes agriculture, forestry and fishing. (b) The all industries average weekly total paid hours is 39.5 hours.

Source: *Employee Earnings and Hours, Australia, May 2002 (6306.0)*.

**13.6 SHARE OF TOTAL COMPENSATION OF EMPLOYEES(a) — 2002-03**



(a) This item comprises wages and salaries plus employers' social contributions.

Source: *Australian System of National Accounts, 2002-03 (5204.0)*.

## Industry productivity

Multifactor productivity (MFP) statistics provide a measure of changes in the efficiency of production. These measures are used by both government and private organisations to help gauge the effect of changes in work practices, technology, education and training.

MFP is the ratio of a measure of economic output to a combination of two or more factor inputs. In simple terms, MFP represents that part of the change in production that cannot be explained by changes in the measured inputs.

MFP statistics use chain volume industry GVA as the measure of economic output. Two inputs are used – labour (hours worked) and capital. The capital input used is a measure of different capital assets such as dwellings, other buildings and structures, and machinery and equipment, along with livestock, intangibles and non-agricultural land.

This means that MFP largely represents the effects of technical progress, improvements in the work force, improvements in management practices, and economies of scale. MFP can also be affected in the short to medium term by other factors such as the weather, and by variations in capacity utilisation associated with the business cycle.

MFP measures are calculated for the market sector, an industry grouping comprising the following industries: agriculture, forestry and fishing; mining;

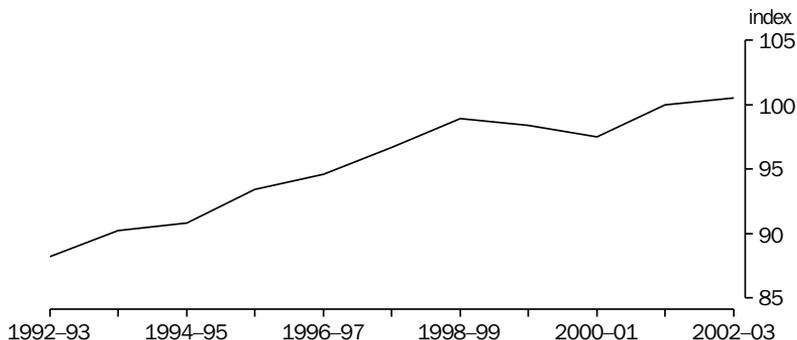
manufacturing; electricity, gas and water supply; construction; wholesale trade; retail trade; accommodation, cafes and restaurants; transport and storage; communication services; finance and insurance; and the cultural and recreational services industries. These are industries with marketed activities for which there are satisfactory estimates of the growth in the volume of output.

MFP estimates are subject to growth in the business cycle. It is for this reason that MFP growth is generally analysed as average growth rates from the peak of one growth cycle to the peak of another. This analysis assumes that labour is being utilised to the same degree at each peak in the growth cycle.

Graph 13.7 shows the MFP index for the market sector from 1992–93 to 2002–03. Over the most recent business growth cycle (1993–94 to 1998–99), MFP of the market sector has grown annually, on average, by 1.8%. This was more than twice the average annual growth rate over the previous business growth cycle (0.7% between 1988–89 and 1993–94).

MFP statistics are available only for the market sector as a whole. Although MFP is the more comprehensive measure of productivity, the ABS also produces industry labour productivity indexes. One measure of labour productivity, an index of industry GVA in chain volume measures per hour worked, is useful because it is available for each market sector industry.

**13.7 MULTIFACTOR PRODUCTIVITY OF THE MARKET SECTOR(a)**



(a) Reference year for index is 2001–02 = 100.0.

Source: Australian System of National Accounts, 2002–03 (5204.0).

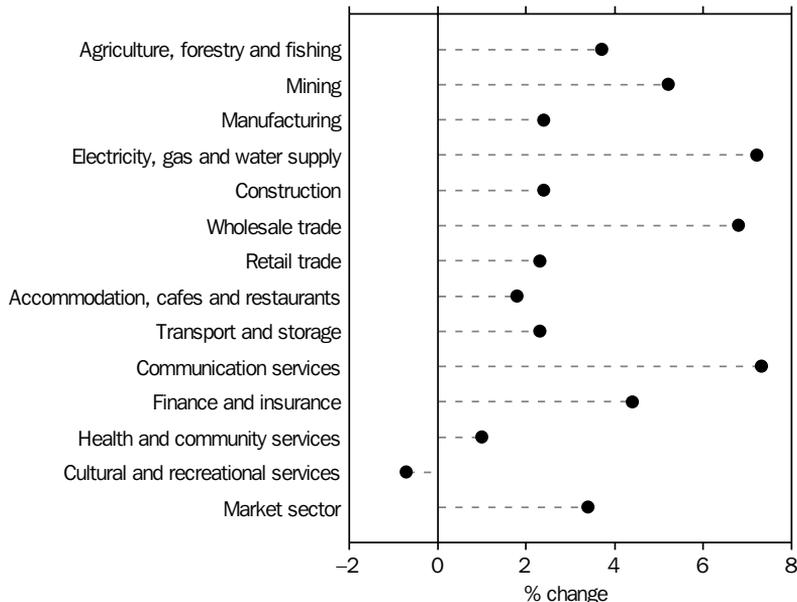
Labour productivity is constant if there is no change in the amount produced (chain volume GVA) per hour worked. Changes in this ratio reflect changes in the average skill or productivity level of the workforce. This measure reflects not only the contribution of labour to changes in production but also the contribution of capital and other factors (e.g. technological changes and managerial efficiency).

Movements in employment and hours worked tend to lag movements in GDP. The implication being, in the period of the growth cycle when the growth in output is declining, indexes of labour productivity are also likely to decline, particularly if rapid growth in GDP is abruptly ended. Conversely, labour productivity indexes are likely to grow strongly when the economy comes out of a cyclical trough.

Graph 13.8 shows the average annual rate of growth in the amount produced per hour worked for market sector industries over the most recent business growth cycle (1993–94 to 1998–99). Over this period, the average annual growth rate was 3.4% for the market sector as a whole.

Most of the market sector industries increased their productivity per hour worked. Between 1993–94 and 1998–99, the industries with the highest average annual productivity growth rates were communication services (7.4%), electricity, gas and water supply (7.2%), wholesale trade (6.8%) and mining (5.2%). Negative growth was seen only in the cultural and recreational services industry. On average, this industry's productivity fell by 0.7% per year between 1993–94 and 1998–99.

**13.8 AVERAGE ANNUAL RATE OF GROWTH IN AMOUNT PRODUCED PER HOUR WORKED(a), Market sector industries — 1993–94 to 1998–99**



(a) Indexes of gross value added per hour worked in chain volume measures. Reference year is 2001–02 = 100.0.

Source: Australian System of National Accounts, 2002–03 (5204.0).

In the previous business growth cycle (1988–89 to 1993–94), market sector productivity per hour worked grew, on average, by 2.3% each year. The communication services industry and the electricity, gas and water supply industry were again the top two productive industries in terms of growth in amount produced per hour worked. The mining industry was the third most productive industry (rising on average by 5.3% each year). In this cycle, negative growth in amount produced per hour worked was seen in

the accommodation, cafes and restaurants (–1.6%), wholesale trade (–1.4%) and cultural and recreation services (–0.4%) industries.

The largest increase in productivity between the two business cycles (1988–89 to 1993–94 and 1993–94 to 1998–99) was in the wholesale trade industry. This industry's average annual productivity was 8.2 percentage points greater in the most recent cycle compared with the previous cycle.

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### **ABS products**

*Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993* (1292.0) available in the Statistical Concepts Library on the ABS web site <<http://www.abs.gov.au>>

*Australian System of National Accounts, 2002–03* (5204.0)

*Employee Earnings and Hours, Australia, May 2002* (6306.0)

*Labour Force, Australia, Detailed - Electronic Delivery, May 2004* (6291.0.55.001)

# 100 years of change in Australian industry

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As the Australian Bureau of Statistics (ABS) celebrates its centenary of operations, an examination of the changes in Australian industry over the past 100 years is an appropriate way to mark this significant milestone. An analysis of an entire century of Australian industry presents a perspective not usually available in ABS publications, and it provides an interesting and informative view on how the nation's economy has developed over a long period of time.

The key economic measure chosen for the analysis is industry shares of gross domestic product (GDP). Unlike dollar values, industry shares of GDP are relatively unaffected by changes in the value of money over time. The Australian national accounts, the source of such data, only exist in their current comprehensive form from 1948–49 onwards. To provide data for the entire 100 years, the national accounts data have been supplemented with data external to the ABS. Estimates of value added by major industry groups compiled by NG Butlin for the period 1900–01 to 1938–39 have been used. While this leaves a gap in the industry series from 1939–40 to 1947–48, the time series created nevertheless provides an interesting view of the changes in industry composition and contribution to national production over most of the 20th century.

The estimates by Butlin are not official statistics. The ABS has not undertaken an analysis of the quality of these estimates and there may be other estimates of Australia's historical performance that differ from Butlin's. However, for the purposes of this article, Butlin's estimates provide a perspective on industry in the earlier part of the 20th century not covered by official statistics.

The concepts and classifications underlying ABS data collections and the national accounts have changed from time to time to reflect changes in industries, the economy and in international standards. While ABS makes every effort to maintain comparable industry definitions and consistent national accounts data sets over time, there is a limit to which this

can be done over a long time span. Even data available from 1948–49 to the present are not strictly comparable over the entire length of the series (see *Notes on the series*).

The individual industries covered in the analysis are: agriculture, forestry and fishing; mining; manufacturing; construction; government administration and defence; finance, distribution and other services (referred to as the services industry for the purposes of this article); dwelling rent; and the remaining, or other industries combined.

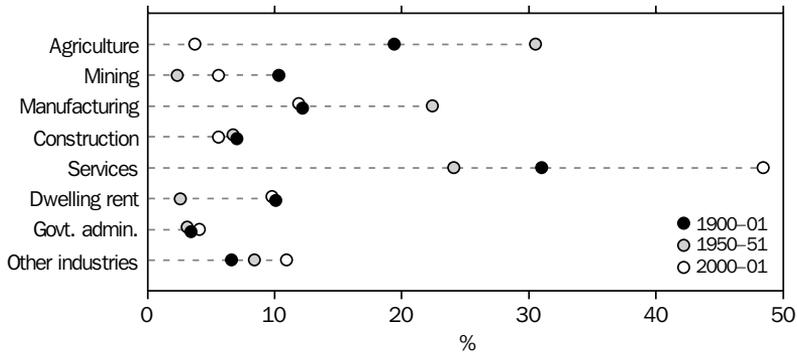
## Industry composition in 1900–01, 1950–51 and 2000–01 – a snapshot

As an introduction to the 100-year series, graph S13.1 shows data from the three key years 1900–01, 1950–51 and 2000–01. The graph highlights the major contribution of the services industry to GDP at all three time points, and the fall in agriculture's share of GDP between 1950–51 and 2000–01. Importantly, an industry's share of GDP should not be seen as an indicator of an industry's performance, but rather as a relative indication of how significant an industry is to the economy at a particular point in time.

### 1900–01

At the time of Federation, Australia's largest single industry was agriculture, forestry and fishing, which contributed 19.4% to GDP. Distribution services (within the services industry) was the next largest contributor, with just over 15% of GDP. The manufacturing, mining and dwelling rent industries each contributed between 10% and 12%, while construction and other industries each contributed 7% to GDP. Government administration and defence contributed 3.4% to GDP, while the services group contributed a combined total of 31% to GDP.

### S13.1 INDUSTRY SHARES OF GDP



Source: NG Butlin (1985) for the period 1900-01 to 1938-39; Australian National Accounts for the period 1948-49 to 2002-03.

## 1950-51

Industry comparisons are a little distorted in 1950-51 as the value of agricultural output was inflated by high prices during the Korean War. Agriculture contributed just over 30% to GDP in 1950-51. Agriculture also contributed over 30% to GDP in 1916-17 and 1917-18, corresponding to the later years of World War I.

Manufacturing's contribution to GDP almost doubled to 22.4% between 1900-01 and 1950-51, reflecting the development of manufacturing during World War II as well as post-war efforts to promote manufacturing in Australia. Mining's share of GDP declined to 2.6% of GDP in 1950-51, mainly reflecting declining gold production since 1900-01. Dwelling rents' contribution to GDP fell to 2.6%.

Contributions of the construction and government administration industries were about the same as in 1900-01, while the contribution of services had declined, partly reflecting the abnormally large share of GDP claimed by agriculture in 1950-51.

## 2000-01

Services contributed almost half (48.4%) to GDP in 2000-01. Manufacturing, the next largest industry, contributed 11.9%, slightly less than its 12.2% contribution in 1900-01, but half of its contribution of 22.4% in 1950-51. Dwelling rent contributed 9.8% to GDP, only slightly less than

its contribution in 1900-01, but almost four times as much as its contribution 1951. Both the mining and construction industries contributed 5.6% in 2000-01. Mining's share had more than doubled since 1950-51, but was still only around half its share of GDP in 1900-01.

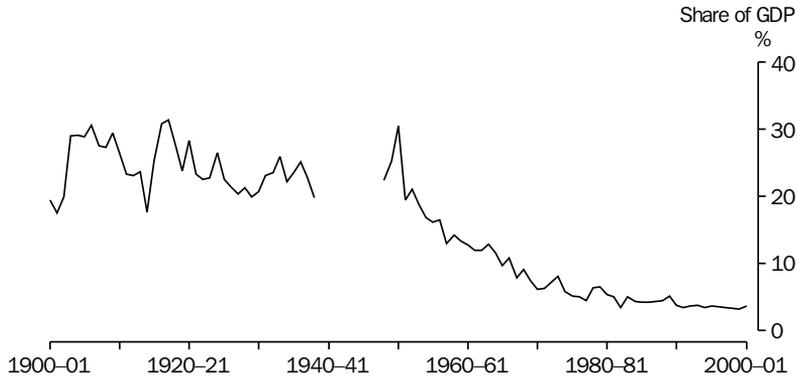
Agriculture, the largest individual industry in 1900-01 and 1950-51, was only 3.7% of GDP. Government administration increased its contribution to 4.1%, slightly higher than in 1900-01 and 1950-51.

## Contribution of individual industries

### Agriculture, forestry and fishing

The story of agriculture in Australia is a story told in two halves. For the first half of the 20th century, agriculture's contribution to GDP generally hovered between 20% to 30% of GDP. In the second half, starting with the Korean War peak in 1950-51, agriculture's relative contribution to GDP declined fairly consistently to between 4% and 5% of GDP from the 1980s onward (graph S13.2). Drought and other climatic events influence agricultural output more than output from other industries. For example, the recent drought was largely the reason for the agriculture, forestry and fishing industry's share of GDP dropping from 4.2% in 2001-02 to 2.9% in 2002-03.<sup>1</sup>

### S13.2 AGRICULTURE, FORESTRY AND FISHING



Source: NG Butlin (1985) for the period 1900-01 to 1938-39; Australian National Accounts for the period 1948-49 to 2000-01.

Two million hectares (ha) of land were devoted to the production of wheat for grain during 1901-02, producing over 1 million tonnes of wheat at an average yield of 0.51 tonnes per ha. By the early-1950s wheat for grain was grown on over 4 million ha producing an average yield of 1.2 tonnes per ha. In 2000-01 wheat for grain was grown on 12 million ha, producing 22 million tonnes at an average yield of 1.82 tonnes per ha, over three times the average yield in 1901-02. The effect of drought on agriculture is evident in 2002-03, where the average yield decreased to just 0.90 tonnes per ha.

The nation's livestock herds have also increased. Where 72 million sheep and 8.5 million cattle were farmed in 1901-02, 106 million sheep and 27.9 million cattle were farmed in 2001-02. The 1970s saw the nation's herds at their peak levels with over 179 million sheep farmed in 1970 and over 31 million cattle farmed in 1976.

#### Mining

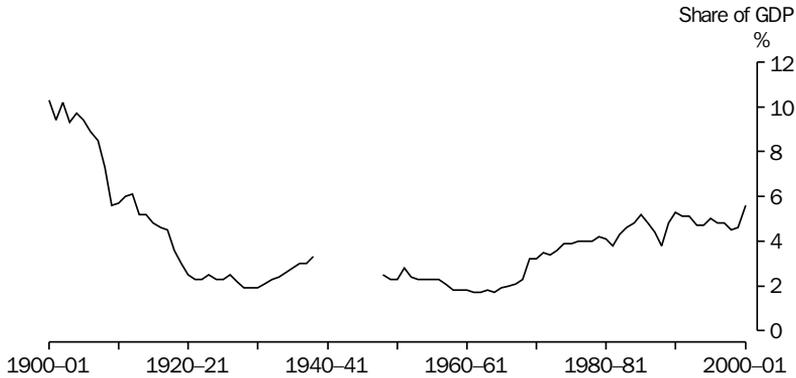
The value of Australia's mining output in 1900-01 (10% of GDP) was dominated by gold production with smaller contributions from copper, lead and coal. The value and

contribution to GDP from the mining industry declined through to 1930-31 as the amount of gold extracted declined. Gold production declined from 103 tonnes in 1901 to 77 tonnes in 1911, 24 tonnes in 1921 and 19 tonnes in 1931. Lead and zinc production increased substantially during this period, but not enough to offset the declining value of gold production (graph S13.3).

By 1930-31 the mining industry contributed only 2% of GDP. Gold production increased again through the 1930s, along with large increases in lead, zinc and coal production, so that mining's contribution to GDP was just over 3% in 1938-39.

Mining's share of GDP began to increase again in the late-1960s as the scale of iron ore production increased. In 1961 Australia produced 5 million tonnes of iron ore. In 1971 production of iron ore had increased to 57 million tonnes. Production of coal increased from 41 million tonnes in 1961 to 73 million tonnes in 1971. Production of iron ore and coal continued to grow through the 1980s, principally driven by export demand. Mining's contribution to GDP has generally been around 5% since the mid-1980s.

### S13.3 MINING



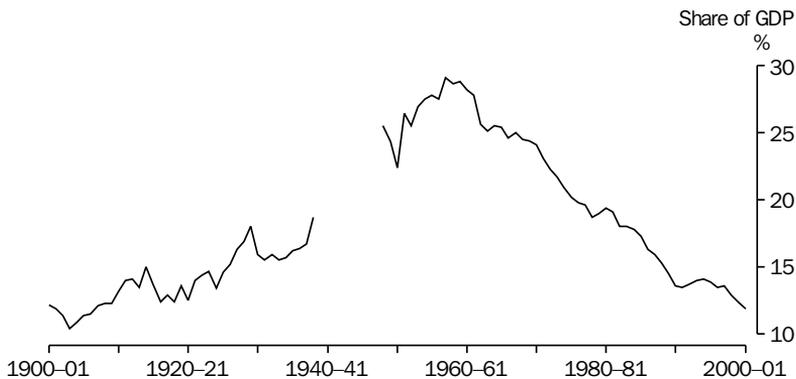
Source: NG Butlin (1985) for the period 1900-01 to 1938-39; Australian National Accounts for the period 1948-49 to 2000-01.

### Manufacturing

The manufacturing industry's contribution to GDP reflects the prominence of the industry for almost 60 years, peaking at just under 30% of GDP in the late-1950s and early-1960s, before a long period of decline in its share of GDP to 11% of GDP in 2000-01. The missing time series, from 1939-40 to 1947-48, corresponds with what is probably the period

of fastest growth in Australia's manufacturing industry. The manufacturing industries developed during World War II were supported and encouraged by government policy in the post-war years, but ultimately began to decline in importance. As for agriculture, the value of output of manufacturing has not diminished, rather the output of other industries has grown more consistently since the early-1960s (graph S13.4).

### S13.4 MANUFACTURING



Source: NG Butlin (1985) for the period 1900-01 to 1938-39; Australian National Accounts for the period 1948-49 to 2000-01.

## Construction

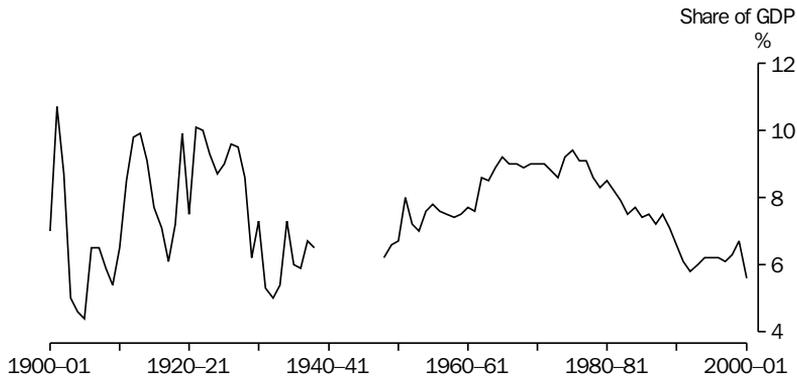
Construction's contribution to GDP fluctuated significantly in the period up to World War II, with the low levels of the 1930s corresponding with the Depression (graph S13.5).

The immediate post-World War II period was a time of fairly constant increase in the construction industry's share of GDP, corresponding with post-war building and reconstruction, including major developments such as the Snowy Mountains Hydro-electric Scheme. Construction's contribution to GDP peaked in the period from the mid-1960s to mid-1970s, averaging around 9.5% of GDP. Since then, construction's relative share of GDP declined fairly steadily to 6% in the early-1990s, where it has since remained.

## Government administration and defence

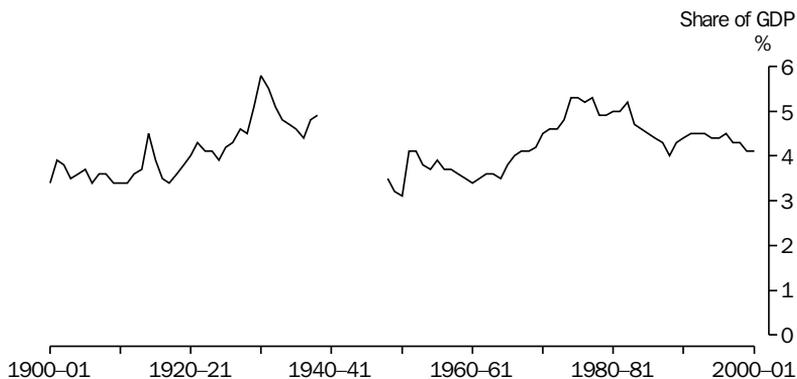
The contribution of the government administration and defence industry to GDP has been relatively consistent at around 3.5% to 4.5% of GDP for most of the period covered. Government's contribution peaked at 5.8% in 1930–31, around the start of the Depression (although data are not available for the World War II years where it can be expected to be higher still). Government's share rose steadily from 3.4% in 1960–61 to over 5% in the period 1973–74 to 1982–83. From 1983–84 the government administration and defence industry's share of GDP fell consistently to 4.0% in 1988–89. It has since remained in a narrow band between 4.1% and 4.5% (graph S13.6).

### S13.5 CONSTRUCTION



Source: NG Butlin (1985) for the period 1900–01 to 1938–39; Australian National Accounts for the period 1948–49 to 2000–01.

### S13.6 GOVERNMENT ADMINISTRATION AND DEFENCE



Source: NG Butlin (1985) for the period 1900–01 to 1938–39; Australian National Accounts for the period 1948–49 to 2000–01.

## Services

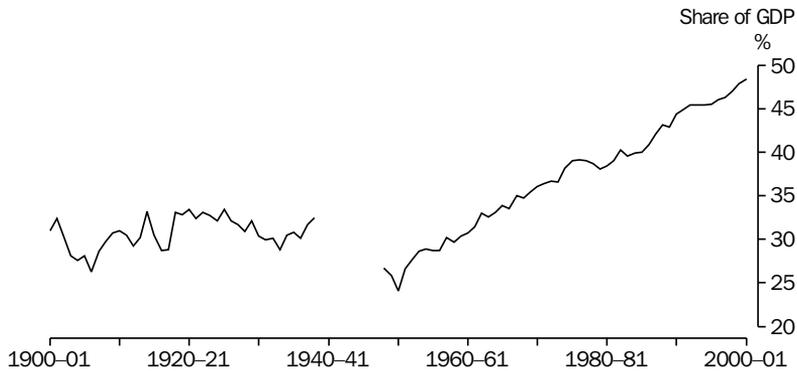
The services industry group contributed around 30% to GDP from 1900–01 to the early-1960s (graph S13.7). Since then, its contribution has steadily increased to just under 50% of GDP in 2002–03. This industry group embraces a wide range of services including: wholesale trade; retail trade; accommodation, cafes and restaurants; communication services; finance and insurance; property and business services; education; health and community services; cultural and recreational services; and personal and other services.

From 1985–86, the period for which more complete industry data are available, the most significant increases in contributions to GDP have been in property and business services (6.6% in 1985–86 to 11.6% in 2002–03), and finance and insurance (3.6% in 1985–86 to 8.1% in 2002–03) industries. Distribution services (the wholesale and retail trade industries) contributed about the same to total GDP in both 1900–01 (15%) and 2002–03 (14%).

## Dwelling rent

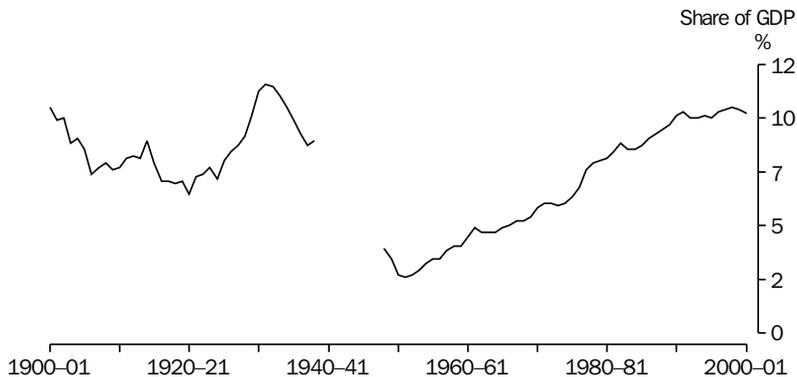
Dwelling rent's share of GDP was around 10% in both 1900–01 and 2002–03 (graph S13.8).

### S13.7 FINANCE, DISTRIBUTION AND OTHER SERVICES



Source: NG Butlin (1985) for the period 1900–01 to 1938–39; Australian National Accounts for the period 1948–49 to 2000–01.

### S13.8 DWELLING RENT



Source: NG Butlin (1985) for the period 1900–01 to 1938–39; Australian National Accounts for the period 1948–49 to 2000–01.

The concept of dwelling rent as an ‘industry’ is explained in *Notes on the series*. However, it is worth noting that dwelling rent comprises actual rent, as paid by tenants to landlords, and an imputed rent to owner occupiers.

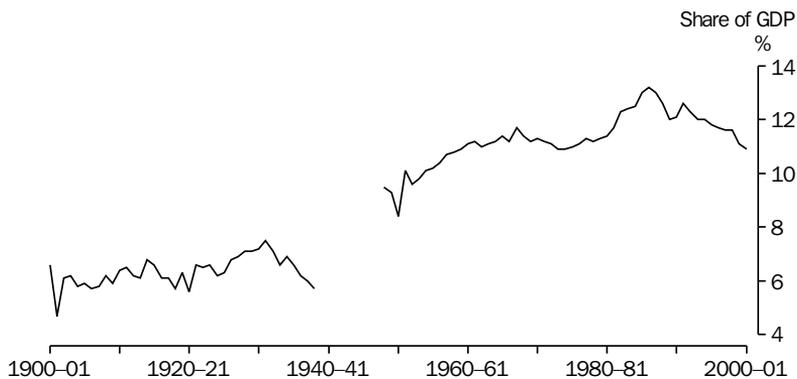
In 1900–01 the dwelling rent industry contributed around 10% to GDP. Housing rents were generally high as demand for housing exceeded supply. In the early-20th century, states introduced legislation to provide public rental housing for low income earners, followed by Commonwealth Government moves to provide financial assistance for access to home ownership to medium to low-income groups. These actions led to an increase in the supply of more affordable housing with a consequent decline in rent’s share of GDP to around 7% in the mid-1920s. From that time, rent’s contribution increased sharply to 11% in 1931–32. The increased share through this later period is due to contraction in other industries through the Depression, rather than an increase in the value of dwelling rent. The rent share of GDP fell from the mid-1930s as the rest of the economy picked up while the value of the rent industry stayed more or less constant.

In the post-World War II period, the dwelling rent industry’s share of GDP increased from a low of 2.6% in 1951–52 to peak at 10% in 1999–2000. Some doubt remains over the consistency of the data available for dwelling rent for the first half of the century compared with the second half and, therefore, trends over the whole of the 100-year period should be interpreted with caution.

### Other industries

Changes in the combined contribution of the remaining, or other industries to GDP since the mid-1980s were chiefly driven by changes in the communication services component (separately identified from 1985–86 onwards). Communication services contributed 2.4% to GDP in 1985–86, increasing to 3.3% in 1997–98 and 1998–99, before falling away slightly to 2.9% in 2002–03. Transport and storage services contributed 6.8% in 1985–86, falling fairly steadily to 5.3% in 2002–03. Electricity, water and gas increased its share from 1.9% in 1949–50 to 3.9% in the late-1980s, before falling away fairly steadily to 2.5% of GDP in 2002–03 (graph S13.9).

**S13.9 OTHER INDUSTRIES**



Source: NG Butlin (1985) for the period 1900–01 to 1938–39; Australian National Accounts for the period 1948–49 to 2000–01.

## Notes on the series

In creating the historical time series, limitations arise which may result in some inconsistencies.

Time series for 1948–49 to 2002–03 were compiled from estimates published in various editions of Australia's official national accounts, most recently in *Australian System of National Accounts, 2002–03* (5204.0). Time series for 1900–01 to 1938–39 were compiled by NG Butlin from a combination of official and other statistical material. Estimates of industry-based GDP are not available for the period 1939–40 to 1947–48, though estimates of Australia's national income and expenditure were compiled by the Commonwealth Bureau of Census and Statistics (the predecessor of the ABS) for this period.

While every effort has been made to ensure the consistency and comparability of the time series, there are some differences in scope that should be noted.

Estimates from 1989–90 to 2002–03 are for industry gross value added at basic prices, consistent with the recommendations of the System of National Accounts 1993. Those for 1948–49 to 1988–89 are for industry gross value at factor cost and are consistent with the recommendations of the System of National Accounts 1968 (SNA68). The Butlin series are simply described as industry shares of gross domestic product, but can also be presumed to be at factor cost and be broadly consistent with SNA68. The difference between estimates at basic prices and factor cost is relatively minor in the context of these series.

The Butlin series, covering the period 1900–01 to 1938–39, were produced from data that are likely to be less comprehensive and of lesser quality than the series available from official estimates for the second half of the century. Data for services in particular are expected to be relatively weak compared with that available from 1948–49. Also, the Butlin series are not subject to the same integrated national accounts estimation process as the later series.

The industry classification used in Australia's national accounts, and more widely in economic statistics, has also changed from time to time to reflect changes in the composition and importance of various industries, as well as to align more closely with international standards.

While these factors should be borne in mind, it is considered unlikely they will significantly impact on the broad overview of the changing nature of the Australian economy presented in this article.

The first five industries: agriculture, forestry and fishing; mining; manufacturing; construction; and government administration are relatively well known and require little further explanation. Finance, distribution and other services, represents something of a 'catch-all' for a diverse range of services including: wholesale trade; retail trade; accommodation, cafes and restaurants; finance and insurance; property and business services; education; health and community services; cultural and recreational services; and personal and other services. While it would be desirable to produce separate time series for the major components in this group, the level of detail available prior to 1985–86 prevents this. For example, from 1948–49 to 1985–86, 'Trade' includes wholesale and retail distribution services, accommodation services, cafes and restaurants. Butlin's 'Distribution' series covers wholesale and retail trade while accommodation, cafes and restaurants is part, though not all, of his 'Other services' series. Therefore, a wholesale and retail trade series (including accommodation, etc.), cannot be identified for the full time series.

The value of housing services, whether provided by rented dwellings or owner-occupied dwellings, have always been included in the national accounts measure of GDP. The ratio of owner-occupied to rented dwellings can vary significantly between countries and even over short periods of time, so that both international and intertemporal comparisons of the production and consumption of housing services could be distorted if no imputation were made for the value of own-account housing services. A separate industry, 'ownership of dwellings' is created in the Australian national accounts to record the value added by all housing services. This industry is represented by the series 'dwelling rent' in this article.

The final series shown is for the remaining, or other industries combined, which mainly comprises the electricity, water and gas, and the transport, storage and communication industries, with some unallocated elements in the Butlin series.

## Endnote

- 1 In this article, annual figures of industry gross value added and gross domestic product are based on prices in each reference period (i.e. in current prices) rather than chain volume measures. Consequently, the individual industry shares of GDP in 2002–03, for example, shown in this article differ somewhat from those obtained from table 13.1 and shown in graph 13.2, and cited generally in this publication.

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## AGRICULTURE

Climate, soil type, topography and the availability of irrigation water, are the main factors which influence the type of land use undertaken by Australian farmers. These factors, together with access to markets and technological advances, all contribute to the continuing evolution of Australian agriculture. Australian agriculture is fundamentally based on extensive pastoral and cropping activities, however diversification into intensive livestock and horticultural industries is increasing. Improved farming practices and technology continue to increase farm productivity in response to external market signals.

While Australian agriculture no longer contributes a large share to gross domestic product (GDP) – averaging around 3% in recent years – it utilises a large proportion of natural resources, accounting for 70% of stored water use and almost 60% of Australia's land area. In addition, the dependence of agriculture on Australia's unpredictable climate means it often significantly affects regional economies and the national economy on a scale far greater than most other industries of similar size. The widespread drought experienced in 2002–03 severely affected the production of crops and stock numbers. The economic impact of the drought on the growth of the Australian economy is discussed in 'Impact of the farm season on Australian production in 2002–03 and 2003–04', *Chapter 29 National accounts*.

Until the late-1950s, agricultural products accounted for more than 80% of the value of Australia's exports. Since then, despite increasing agricultural output, the proportion has declined markedly as the Australian economy has become more diverse. The quantity and value of production have expanded in the mining, manufacturing and, in recent years, the service industries. For the five years prior to June 2002, exports from the agriculture industry averaged 9% of the total trade. However, the 2002–03 drought severely reduced agricultural production and the amount of agricultural product available for international trade, resulting in Australian agricultural exports dropping to 7.4% of total exports in 2002–03. Australian agriculture occupies a significant place in global rural trade, with wool, beef, wheat, cotton, dairy products and sugar being particularly important. Australia is also an important source of fruit, rice and flowers.

The major source of statistics on land use, commodity production and livestock numbers in this chapter is the annual Agricultural Survey, a large sample survey conducted by the Australian Bureau of Statistics (ABS). Every five years the survey is replaced by the Agricultural Census, with the last census having been conducted in 2001, coinciding with the 2001 Census of Population and Housing.

The chapter contains an article *Australian wine and grape industries in perspective – a decade of growth*. It concludes with an article *Australia's beef cattle industry*.

## The agricultural environment

Australia's average elevation is the lowest of any continent, with a mean elevation just exceeding 200 metres. The dominant topographical feature of the continent is the Great Dividing Range, which spans the length of the eastern seaboard and has a profound influence on regional weather patterns and land use.

Australia's agricultural landscapes support a wide range of soils. Most are ancient, strongly weathered and infertile by world standards, with deficiencies in phosphorus and nitrogen. Those on floodplains are younger and more fertile. Very few are considered good quality soils for agriculture. To offset nutrient deficiencies, superphosphate and nitrogenous fertilisers are widely used, particularly on pasture and cereal crops. Fragile soil structure and a susceptibility to waterlogging are other common features of Australian soils, while large areas are naturally affected by salt or acidity. These soil characteristics restrict particular agricultural activities, sometimes ruling out agricultural activity altogether.

With the exception of Antarctica, Australia is the world's driest continent. Approximately a third of the continent is classed as arid (with an average annual rainfall of less than 250 mm) and another third as semi-arid (receiving 250–500 mm annually). The wet summer conditions of northern Australia are suited to beef cattle grazing in inland areas and the growing of sugar and tropical fruits in coastal areas. The drier summer conditions of southern Australia favour wheat and other dryland cereal farming, sheep grazing and dairy cattle (in the higher rainfall areas), as well as beef cattle. Within regions there is also a high degree of rainfall variability from year-to-year, which is most pronounced in the arid and semi-arid regions. Rainfall variability is very high by global standards and often results in lengthy periods without rain. The seasonality and variability of rainfall in Australia requires that water be stored, and 70% of stored water use (including groundwater) is accounted for by the agricultural sector. Under normal seasonal conditions, the ability of primary producers to store water ensures that there are adequate supplies of water for those agricultural activities requiring a continuous supply. The development of large scale irrigation schemes has opened up areas of inland Australia to agricultural activities which otherwise would not have been possible.

Evaporation is another important element of Australia's environment affecting agricultural production. Hot summers are accompanied by an abundance of sunlight. This combination of climatic variables leads to high rates of evaporation. Areas that have been cleared for crop and pasture production tend to coincide with areas that receive five to nine months of effective rainfall (where rainfall exceeds evaporation) each year. In areas of effective rainfall of more than nine months, generally only higher value crops or tropical crops and fruits are grown, while in areas with effective rainfall of less than five months, cropping is usually restricted to areas that are irrigated.

Since European settlement the vegetation of Australia has altered significantly. In particular, large areas of Australia's forest and woodland vegetation systems have been cleared, predominantly for agricultural activity. The areas that have been altered most are those which have been opened up to cultivation or intensive grazing. Other areas, particularly those semi-arid regions previously cleared of timber and scrub to allow extensive grazing of native grasses, now show signs of returning to their previous condition. In recent years various state and territory legislation has seen restrictions applied to the area of old growth and regrowth forest and woodland that can be cleared without a permit.

For more detail see *Chapter 1 Geography and climate*.

## Land used for agriculture

In spite of Australia's harsh environment, agriculture is the most extensive form of land use. At 30 June 2003, the estimated total area of establishments with agricultural activity was 439.5 million hectares (ha), representing about 57% of the total land area (tables 14.1 and 14.2). The remainder of the land area consists of unoccupied land (mainly desert in western and central Australia), Aboriginal land reserves (mainly located in the Northern Territory and Western Australia), forests, mining leases, national parks and urban areas.

There has been a small decline in the overall area of establishments with agricultural activity in recent years. The reasons for this are varied. They include the resumption of some private land for national parks; the splitting up of farms, some to smaller farms (urban sprawl is a part of this process); the conversion of agricultural land to other business activities, such as forestry; and the transfer of land to Aboriginal ownership, some of which is no longer used for agricultural purposes.

Livestock grazing accounts for the largest area of land use in agriculture, with approximately 340 million ha, or in excess of 75% of all agricultural land, being used for this activity. In the higher rainfall and irrigated areas, livestock grazing has led to the replacement of large areas of native vegetation with more productive introduced pastures and grasses, many of which have now become naturalised.

At 30 June 2003 approximately 5% of total agricultural land was under crops, with a further 5% under sown pastures and grasses.

## Irrigation

The high variability in river flow and annual rainfall, which are features of the Australian environment, means that successful ongoing production of many crops and pastures is dependent on irrigation. With such variation in rainfall, it is uncommon for farmers to receive all of their irrigation water entitlement each year. In 2001–02 farmers were allocated, on average, 85% of their irrigation water entitlement.

Rice is only grown in areas that can guarantee an adequate supply of irrigation water. Cotton, vegetables, fruit (including nuts and grapes) and sugar cane are the other most intensively irrigated crops, with 91%, 84%, 79% and 43% respectively of their total growing areas being irrigated in 2001–02.

The total area of land irrigated, about 2.5 million ha in 2001–02 (table 14.3), represents less than 1% of the total land used for agriculture. However, produce from irrigated land accounted for around 28% of the total gross value of agricultural production in 2000–01.

Most irrigated land is located within the confines of the Murray–Darling Basin, which covers parts of New South Wales, Victoria, Queensland and South Australia.

Agriculture accounted for approximately 67% of water consumption in Australia in 2000–01. More information on the use of water by the agriculture sector is provided in *Chapter 24 Environment*.

### 14.1 AGRICULTURAL LAND USE — 30 June

	Area of crops mill. ha	Area of establishments with agricultural activity mill. ha	Proportion of Australian land area %
1998(a)	21.5	463.8	60.3
1999(a)	23.3	453.7	59.0
2000	23.8	455.5	59.2
2001	24.5	455.7	59.2
2002	24.1	447.0	58.1
2003	23.6	439.5	57.1

(a) 31 March.

Source: *Agricultural Commodities, Australia (7121.0)*.

### 14.2 AREA OF ESTABLISHMENTS WITH AGRICULTURAL ACTIVITY — 30 June

	NSW mill. ha	Vic. mill. ha	Qld mill. ha	SA mill. ha	WA mill. ha	Tas. mill. ha	NT mill. ha	Aust.(a) mill. ha
1998(b)	60.3	12.7	148.2	57.5	115.8	1.9	67.3	463.8
1999(b)	59.3	12.8	140.3	59.4	113.1	1.9	66.9	453.7
2000	62.1	13.3	145.4	59.9	105.6	1.8	67.5	455.5
2001	61.0	13.2	146.0	57.3	109.2	1.9	67.1	455.7
2002	63.4	12.8	141.4	53.5	109.0	1.8	65.2	447.0
2003	65.1	13.4	139.0	54.1	102.7	1.8	63.3	439.5

(a) Includes ACT. (b) 31 March.

Source: *Agricultural Commodities, Australia (7121.0)*.

### 14.3 AREA OF CROPS AND PASTURES IRRIGATED — 2001–02

	NSW '000 ha	Vic. '000 ha	Qld '000 ha	SA '000 ha	WA '000 ha	Tas. '000 ha	NT '000 ha	ACT '000 ha	Aust. '000 ha
Pastures (native or sown)	330	478	63	61	^ 11	29	4	—	976
Cereals									
Rice	143	^ 2	—	(a)	—	(a)	—	—	145
Other cereals	290	^ 33	^ 52	(a)	^ —	(a)	—	—	376
Total	434	^ 35	^ 53	^ 5	—	^ 2	—	—	528
Cotton	^ 290	—	127	—	—	—	—	—	418
Sugar cane cut for crushing	**	—	233	—	4	—	—	—	237
Vegetables	17	26	29	12	9	17	—	—	110
Fruit (incl. nuts)	28	24	32	19	6	^ 4	3	—	116
Grapevines	29	35	^ 2	61	^ 7	*1	—	—	137
All other crops	^ 26	8	^ 20	^ 10	3	14	—	—	81
<b>Total</b>	<b>1 126</b>	<b>588</b>	<b>541</b>	<b>174</b>	<b>39</b>	<b>68</b>	<b>8</b>	<b>—</b>	<b>2 545</b>

(a) Data not separately collected but included in total cereals.

Source: *Agricultural Commodities, Australia, 2001–02 (7121.0)*.

## Characteristics of Australian farms

At 30 June 2003 there were almost 133,000 establishments undertaking agricultural activity with an annual value of agricultural operations of \$5,000 or more. For the majority of these establishments (131,609) their primary activity was agriculture. While the remainder were undertaking some form of agricultural activity, their main activity was not in agriculture. The majority of agricultural establishments were engaged in either beef cattle farming (36,208), grain growing (11,960), mixed grain/sheep/beef farming (17,104), sheep farming (13,250) or dairy cattle farming (11,003) (table 14.4).

## Employment in agriculture

The agriculture sector is an important source of employment in regional and rural Australia. The number of people employed in agriculture and related services decreased slightly in 2004 to 345,700 persons, following a significant drop in 2003 (table 14.5). The significant reduction in 2003 was largely the result of the drought experienced over most of Australia during that

period, which severely affected the agriculture sector. The majority of persons employed in agriculture in 2004 were male (69%).

## Gross value of agricultural commodities produced

The contribution of agriculture to the Australian economy can be measured in a number of ways. The most direct measurement available is the gross value of agricultural production for the year ending 30 June. In 2002–03 the estimate of gross value of agricultural production in current prices was \$32.6b.

Table 14.6 shows the gross value of agricultural commodities produced for the years 1997–98 to 2002–03. The values shown are the values of recorded production at the wholesale prices realised in the principal marketplace. Also shown are chain volume indexes of the value of production, which provide an indication of the change in value after the direct effects of price changes are eliminated. Chain volume measures are discussed in the section *Chain volume or 'real' GDP, Chapter 29 National accounts*.

#### 14.4 ESTABLISHMENTS UNDERTAKING AGRICULTURAL ACTIVITY — 30 June 2003

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
<b>Agriculture</b>									
Horticulture and fruit growing									
Plant nurseries	773	309	530	123	168	45	21	5	1 974
Cut flower and flower seed growing	^ 241	^ 190	162	^ 65	^ 130	^ 39	6	—	833
Vegetable growing	720	905	1 379	422	468	490	7	—	4 391
Grape growing	1 157	2 111	^ 160	2 235	^ 588	^ 118	5	4	6 377
Apple and pear growing	^ 170	^ 254	*49	*113	^ 161	143	—	2	891
Stone fruit growing	426	355	*105	^ 217	^ 165	^ 42	—	—	1 309
Kiwi fruit growing	*33	**	—	—	**	—	—	—	*48
Fruit growing n.e.c.	1 984	^ 470	1 939	530	319	^ 33	115	—	5 390
Grain, sheep and beef cattle farming									
Grain growing	2 598	2 639	1 446	3 277	1 970	*29	2	—	11 960
Grain-sheep/beef cattle farming	6 588	3 200	1 278	2 462	3 536	*40	—	1	17 104
Sheep-beef cattle farming	4 815	2 821	811	859	^ 478	290	—	23	10 097
Sheep farming	5 461	3 805	422	1 544	1 342	646	—	30	13 250
Beef cattle farming	11 753	7 923	11 878	1 241	2 003	1 183	206	21	36 208
Dairy cattle farming	1 602	6 615	1 258	591	360	575	1	1	11 003
Poultry farming									
Poultry farming (meat)	312	164	117	63	64	^ 14	1	—	735
Poultry farming (eggs)	^ 141	*124	^ 74	^ 32	^ 62	^ 19	6	1	^ 457
Other livestock farming									
Pig farming	300	^ 188	291	^ 113	^ 92	^ 22	2	—	1 009
Livestock farming n.e.c.(a)	^ 522	^ 427	*407	*102	^ 135	^ 37	4	3	^ 1 637
Other crop growing									
Sugar cane growing	463	—	4 294	—	5	—	—	—	4 762
Cotton growing	^ 295	—	^ 225	—	—	—	—	—	520
Crop and plant growing n.e.c.	^ 227	^ 449	^ 675	^ 120	*58	112	12	—	1 655
<b>Total agriculture industries</b>	<b>40 577</b>	<b>32 961</b>	<b>27 502</b>	<b>14 108</b>	<b>12 107</b>	<b>3 875</b>	<b>388</b>	<b>91</b>	<b>131 609</b>
Other industries	^ 499	^ 265	^ 185	*153	^ 163	*96	10	3	1 374
<b>Total</b>	<b>41 077</b>	<b>33 225</b>	<b>27 687</b>	<b>14 261</b>	<b>12 270</b>	<b>3 971</b>	<b>398</b>	<b>94</b>	<b>132 983</b>

(a) Details relating to horse farming and deer farming are included in livestock farming n.e.c. and therefore estimates are not comparable with previous years.

Source: *Agricultural Commodities, Australia, 2002–03 (7121.0)*.

#### 14.5 EMPLOYED PERSONS(a) IN AGRICULTURE AND RELATED SERVICES TO AGRICULTURE(b)

	Males		Females		Persons '000
	'000		'000		
1998	277.3		126.4		403.7
1999	267.8		125.8		393.6
2000	284.8		130.8		415.6
2001	269.0		132.4		401.4
2002	278.6		133.6		412.2
2003	239.8		110.0		349.8
2004	236.5		109.2		345.7

(a) The estimates of employed persons include persons who worked without pay for at least one hour per week in a family business or on a farm (i.e. unpaid family helpers). Persons who worked in another industry and in agriculture are classified to the industry of predominant activity. (b) Annual average of quarterly data.

Source: ABS data available on request, *Labour Force Survey*.

### 14.6 AGRICULTURAL COMMODITIES PRODUCED, Gross value and chain volume index(a)

	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03
GROSS VALUE OF COMMODITIES PRODUCED (Current prices) (\$m)						
<b>Crops</b>						
Barley for grain	1 032.0	835.5	864.8	1 343.5	1 724.8	984.2
Oats for grain	223.3	156.6	118.4	138.4	251.3	209.7
Wheat for grain	3 801.5	4 011.0	4 831.2	5 130.4	6 356.3	2 691.9
Other cereal grains	702.1	810.9	750.4	881.2	989.0	723.6
Sugar cane cut for crushing	1 247.7	1 044.1	881.9	656.7	989.1	1 018.9
Fruit and nuts	1 586.8	1 763.0	1 761.1	2 041.5	2 129.7	2 216.1
Grapes	998.2	1 200.1	1 118.2	1 517.5	1 577.7	1 370.8
Vegetables	1 812.3	1 864.4	1 861.9	2 182.6	2 268.5	2 125.6
All other crops(b)	3 904.3	4 540.7	4 735.1	4 642.4	5 116.3	4 134.1
<i>Total</i>	<i>15 308.2</i>	<i>16 226.3</i>	<i>16 923.0</i>	<i>18 534.2</i>	<i>21 402.7</i>	<i>15 474.9</i>
<b>Livestock slaughterings and other disposals</b>						
Cattle and calves	4 138.2	4 476.6	5 048.7	6 430.6	7 142.4	6 411.1
Sheep and lambs	1 062.2	1 053.5	1 053.5	1 401.8	2 117.6	2 036.9
Pigs	709.8	689.7	791.7	822.3	967.7	911.3
Poultry	1 053.6	1 018.5	1 030.8	1 060.2	1 174.9	1 280.5
<i>Total(c)</i>	<i>6 991.9</i>	<i>7 255.8</i>	<i>7 944.2</i>	<i>9 737.8</i>	<i>11 434.5</i>	<i>10 676.0</i>
<b>Livestock products</b>						
Wool	2 753.9	2 141.0	2 149.2	2 541.2	2 713.2	3 317.8
Milk	2 817.0	2 899.6	2 845.2	3 053.3	3 717.1	(d)2 795.2
Eggs	347.5	337.1	321.4	332.7	320.4	(d)294.0
<i>Total(e)</i>	<i>5 957.8</i>	<i>5 411.8</i>	<i>5 353.7</i>	<i>5 964.7</i>	<i>6 750.7</i>	<i>6 412.1</i>
<b>Total value(e)</b>	<b>28 258.0</b>	<b>28 893.9</b>	<b>30 220.9</b>	<b>34 236.7</b>	<b>39 587.9</b>	<b>32 563.0</b>
CHAIN VOLUME INDEX OF GROSS VALUE OF COMMODITIES PRODUCED (Index number)						
<b>Crops</b>						
Barley for grain	166.4	154.9	130.2	174.5	214.2	100.0
Oats for grain	170.3	187.9	116.8	109.7	149.8	100.0
Wheat for grain	181.9	213.4	246.1	219.8	241.6	100.0
Other cereal grain	132.9	168.5	164.5	187.0	150.4	100.0
Legumes for grain	190.4	205.3	204.6	111.9	118.1	100.0
Oilseeds	108.4	225.5	297.9	217.3	213.5	100.0
Sugar cane cut for crushing	112.0	105.2	113.5	85.3	86.4	100.0
Cotton	184.5	178.3	184.5	182.8	185.5	100.0
Nursery production	67.6	88.2	108.4	111.2	112.7	100.0
Fruit and nuts	83.2	81.4	92.9	103.5	99.4	100.0
Grapes	66.3	81.6	83.8	103.6	114.0	100.0
Vegetables	88.8	93.4	105.1	112.4	109.9	100.0
All other crops(b)	108.0	122.9	106.0	116.1	115.8	100.0
<i>Total</i>	<i>117.2</i>	<i>130.5</i>	<i>141.4</i>	<i>139.7</i>	<i>145.6</i>	<i>100.0</i>
<b>Livestock slaughterings and other disposals</b>						
Cattle and calves	93.6	96.2	96.7	100.8	96.6	100.0
Sheep and lambs	94.9	96.3	103.8	113.6	107.8	100.0
Pigs	81.6	86.1	86.5	86.8	94.1	100.0
Poultry	86.6	90.2	94.5	89.8	96.8	100.0
<i>Total(c)</i>	<i>92.0</i>	<i>94.9</i>	<i>97.0</i>	<i>100.2</i>	<i>98.3</i>	<i>100.0</i>
<b>Livestock products</b>						
Wool	127.5	127.0	129.5	118.3	107.5	100.0
Milk	91.4	98.5	105.0	102.1	109.2	(d)100.0
Eggs	94.2	99.1	95.3	103.7	98.0	(d)100.0
<i>Total(e)</i>	<i>105.2</i>	<i>109.0</i>	<i>113.5</i>	<i>108.5</i>	<i>107.8</i>	<i>100.0</i>
<b>Total(e)</b>	<b>105.2</b>	<b>113.4</b>	<b>120.1</b>	<b>119.5</b>	<b>121.4</b>	<b>100.0</b>

(a) Chain volume indexes reflect the change in volume of production between two periods, enabling a comparison of the value of production between the periods without it being affected by any change in price between the periods. To obtain a measure of the value of production at 2002-03 prices for a commodity in this table for an earlier period, multiply the reference year (2002-03) value of the commodity by the chain volume index value of that commodity for the earlier period, and divide by 100. (b) Includes pastures and grasses. Excludes crops for green feed and silage. (c) Includes other livestock. (d) Excludes NT. (e) Includes milk and eggs for NT for 2002-03, and honey and beeswax prior to 2001-02.

Source: *Agricultural Commodities, Australia (7121.0)*; *Value of Agricultural Commodities Produced, Australia (7503.0)*.

## Financial statistics of farm businesses

Estimates of selected financial aggregates of farm businesses in this section are based on data collected in the annual Australian Agricultural and Grazing Industries Survey conducted by the Australian Bureau of Agricultural and Resource Economics. This collection covers farm businesses engaged in the 'broadacre' industries of grain growing, sheep and beef farming, and beef cattle feedlot operations (Australian and New Zealand Standard Industrial Classification (Group 012)).

### Financial performance

Selected financial performance measures – expressed as annual averages per farm – for all broadacre farm businesses for the years 1998–99 to 2002–03 are shown in table 14.7 and graphs 14.8, 14.9 and 14.10.

In 2002–03 Australia experienced a severe and widespread drought. As a result, the production of most crops was substantially reduced. Drought also affected pasture and water availability resulting in higher than usual turn-off of unfinished livestock. The need for increased supplementary feeding of livestock, coupled with higher grain prices, resulted in an increase in cash

costs for livestock farms. Following a large increase in receipts in the previous year, average total cash receipts for broadacre farms are estimated to have decreased by 16% in 2002–03. Average total cash costs for broadacre farms increased by around 1% in 2002–03.

Farm cash income is a measure of the cash funds available for farm investment and consumption after paying all costs incurred in production, including interest payments, but excluding capital payments and payments to family workers. It is a short-term measure of farm income because it takes no account of depreciation on assets. Average cash income for the broadacre farms as a group more than halved to \$46,500 in 2002–03 (graph 14.8), from a year of high farm cash income in 2001–02.

Average farm business profit was negative in 2002–03 falling from \$42,400 in 2001–02 to negative \$25,100 in 2002–03 (graph 14.9). Farm business profit is a longer-term measure of the profitability of farms because it takes account of depreciation and inventory changes.

For the broadacre industries as a group, rate of return averaged –0.2% in 2002–03 (graph 14.10), down from 3.7% in 2001–02.

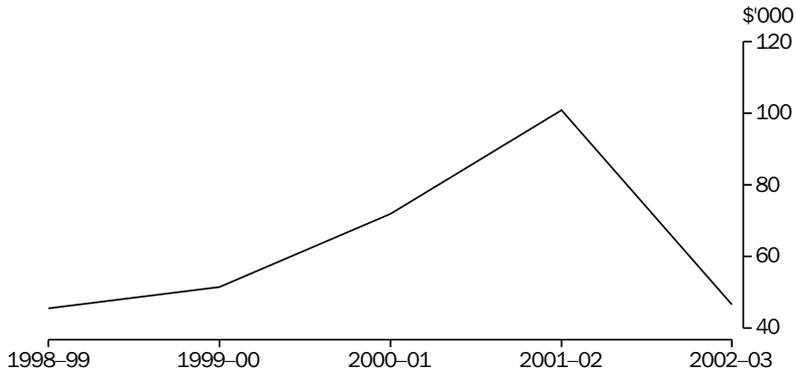
**14.7 BROADACRE FARM BUSINESSES, Selected financial performance measures**

Annual average for farming	Units	1998–99	1999–2000	2000–01	2001–02	2002–03
Total cash receipts	\$000	211.2	221.0	254.5	314.3	262.6
less Total cash costs	\$000	165.8	169.6	182.7	213.5	216.1
Farm cash income	\$000	45.4	51.3	71.9	100.8	46.5
plus Build-up in trading stocks	\$000	2.7	–1.2	–1.7	6.4	–3.9
less Depreciation	\$000	20.5	21.2	22.3	25.1	26.5
less Operator and family labour	\$000	36.9	36.4	38.4	39.7	41.3
Farm business profit	\$000	–9.4	–7.5	9.4	42.4	–25.1
Profit at full equity(a)	\$000	7.2	8.8	27.9	63.0	–3.1
plus Capital appreciation	\$000	15.1	22.7	90.6	77.6	148.8
Profit at full equity (incl. capital appreciation)	\$000	22.3	31.4	118.5	140.6	145.7
Farm capital at 1 July	\$000	1 323.0	1 317.4	1 432.3	1 699.6	1 953.8
Rate of return (excl. capital appreciation)(b)	%	0.5	0.7	1.9	3.7	–0.2
Rate of return (incl. capital appreciation)(b)	%	1.7	2.4	8.3	8.3	7.5
Off-farm income(c)	\$000	18.8	21.1	23.6	25.3	25.9

(a) Farm business profit, plus rent, interest and finance lease payments less depreciation on leased items. (b) Computed by expressing profit at full equity as a percentage of total opening capital. (c) Collected for owner manager and spouse only. Includes income from wages, other businesses, investment and social welfare payments. Average for those responding farms for which details of off-farm income are available for both owner manager and spouse.

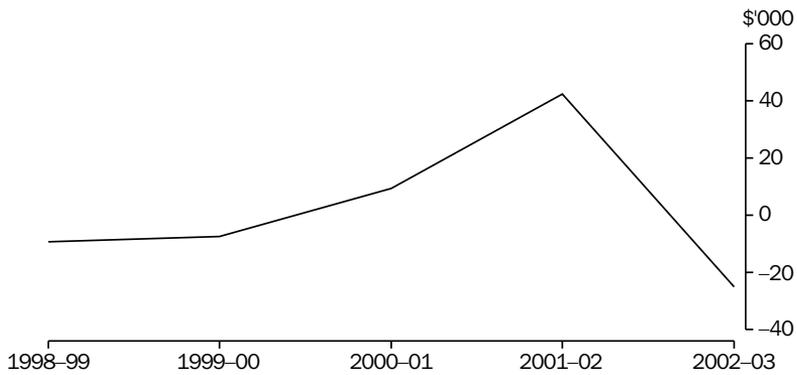
Source: Australian Bureau of Agricultural and Resource Economics.

#### 14.8 BROADACRE FARM BUSINESSES, Farm cash income



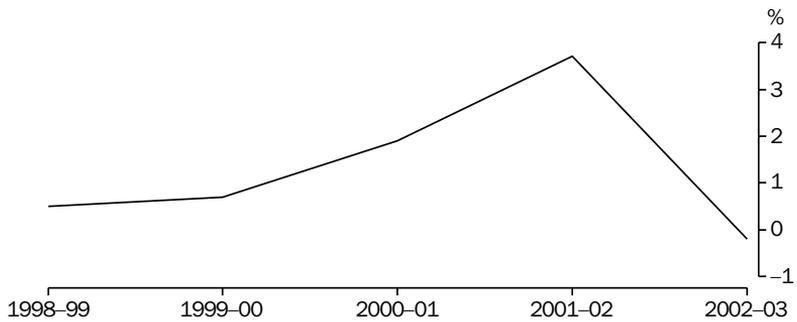
Source: Australian Bureau of Agricultural and Resource Economics.

#### 14.9 BROADACRE FARM BUSINESSES, Farm business profit



Source: Australian Bureau of Agricultural and Resource Economics.

#### 14.10 BROADACRE FARM BUSINESSES, Rate of return (excluding capital appreciation)(a)



(a) Computed by expressing profit at full equity as a percentage of total opening capital.

Source: Australian Bureau of Agricultural and Resource Economics.

## Crops

The area of land sown to crops has more than doubled in the past 40 years, reflecting improved plant genetics, greater variety in plant species, increased mechanisation and fertiliser use, as well as better control of pests and diseases in Australia. Table 14.11 shows the area of crops in the states and territories of Australia since 1880–81, and table 14.12 is a summary of the area, production and gross value of the principal crops in the most recent years.

## Cereal grains

In Australia, cereals are divided into autumn–winter–spring growing (winter cereals) and spring–summer–autumn growing (summer cereals). In temperate regions winter cereals such as wheat, oats, barley and rye are often grown in rotation with pastures, such as subtterranean clover, medics or lucerne, and with other winter crops such as canola, field peas and lupins. Rice, maize and sorghum are summer cereals, often being grown in rotation with winter cereals in some areas.

## Wheat

Wheat is Australia's largest crop. It is produced in all states but primarily on the mainland in a narrow crescent known as the wheat belt. Inland of the Great Dividing Range, the wheat belt stretches in a curve from central Queensland through New South Wales, Victoria and southern South Australia. In Western Australia, the wheat belt continues around the south-west of the state and some way north, along the western side of the continent (map 14.13).

Most of Australia's wheat is exported for human consumption. A small proportion of production is used domestically for human consumption, with lower quality grain being used for domestic stock feed.

New varieties of wheat have enabled it to be grown in more marginal areas in recent years. In particular the development of dual purpose winter wheat varieties which, like oats, allow grazing of the plant up to a few months prior to harvest, have become very popular in some areas.

**14.11 AREA OF CROPS**

	NSW '000 ha	Vic. '000 ha	Qld '000 ha	SA '000 ha	WA '000 ha	Tas. '000 ha	NT '000 ha	ACT '000 ha	Aust. '000 ha
1880–81	245	627	46	846	26	57	—	—	1 846
1890–91	345	822	91	847	28	64	—	—	2 197
1900–01	990	1 260	185	959	81	91	—	—	3 567
1910–11	1 370	1 599	270	1 112	346	116	—	—	4 813
1920–21	1 807	1 817	316	1 308	730	120	—	1	6 099
1930–31	2 756	2 718	463	2 196	1 939	108	1	2	10 184
1940–41	2 580	1 808	702	1 722	1 630	103	—	2	8 546
1949–50	2 295	1 881	832	1 518	1 780	114	—	4	8 424
1959–60	2 888	1 949	1 184	1 780	2 628	130	1	3	10 564
1969–70	4 999	2 212	2 208	2 290	3 912	98	6	2	15 728
1979–80	5 243	2 243	2 334	2 771	5 281	79	2	1	17 954
1990–91	4 073	2 063	2 872	2 933	5 359	75	6	—	17 382
1991–92	3 846	2 039	2 302	2 920	5 216	76	5	—	16 404
1992–93	3 906	2 258	2 316	3 073	5 668	73	4	1	17 297
1993–94	4 209	2 317	2 394	2 940	6 100	78	5	—	18 043
1994–95	3 432	2 296	2 056	2 991	6 182	77	4	—	17 040
1995–96	4 757	2 439	2 495	3 219	6 419	75	4	—	19 409
1996–97	5 589	2 552	2 685	3 279	6 950	73	5	—	21 133
1997–98	5 648	2 565	2 682	3 290	7 328	78	4	—	21 595
1998–99	6 173	2 749	3 014	3 648	7 597	76	7	—	23 264
1999–2000	6 114	3 081	3 130	3 670	7 691	77	6	—	23 769
2000–01	6 723	3 044	2 955	3 982	7 731	79	6	1	24 520
2001–02	6 635	2 958	2 683	4 175	7 525	78	6	—	24 060
2002–03	6 040	3 283	2 263	4 337	7 556	74	7	2	23 562

Source: *Agricultural Commodities, Australia (7121.0)*; Historical data available on request.

**14.12 SELECTED CROPS, Area, production and gross value**

	Area			Production			Gross value		
	2000-01	2001-02	2002-03	2000-01	2001-02	2002-03	2000-01	2001-02	2002-03
	'000 ha	'000 ha	'000 ha	'000 tonnes	'000 tonnes	'000 tonnes	\$m	\$m	\$m
<b>Cereals for grain</b>									
Barley	3 454	3 707	3 864	6 743	8 280	3 865	1 343	1 725	984
Grain sorghum	758	823	667	1 935	2 021	1 465	279	349	300
Maize	74	83	50	345	454	310	65	90	72
Oats	650	784	911	1 050	1 434	957	138	251	210
Rice	177	144	46	1 643	1 192	438	350	327	153
Wheat	12 141	11 529	11 170	22 108	24 299	10 132	5 130	6 356	2 692
Lupins for grain	1 180	1 139	1 025	1 055	1 215	726	217	304	212
<b>Crops cut for hay</b>									
Cereal crops for hay	419	434	505	1 657	1 716	1 581	184	204	332
Non-cereal crops for hay	42	^41	^54	115	124	^166	17	19	32
<b>Other crops</b>									
Sugar cane cut for crushing	403	426	448	28 117	31 424	36 995	657	989	1 019
Tobacco	2	^2	2	6	6	6	39	37	41
Cotton lint	536	458	245	666	675	^364	(a)1 305	(a)1 327	(a)^853
Peanuts (in shell)	17	^15	^10	39	^29	^28	28	^21	^22
Soybean	33	32	^6	49	63	^9	18	^22	^3
Canola	1 459	1 332	1 298	1 775	1 756	871	545	675	389
Sunflower	82	79	^47	77	70	^26	27	^27	^19
<b>Orchard fruit</b>									
Oranges	n.a.	n.a.	n.a.	550	451	599	277	281	337
Apples	n.a.	n.a.	n.a.	325	321	326	282	348	381
Pears (excl. Nashi)	n.a.	n.a.	n.a.	169	145	136	90	99	80
Peaches	n.a.	n.a.	n.a.	74	89	^97	73	76	^84
<b>Other fruit</b>									
Bananas	12	13	11	358	313	265	409	415	322
Pineapples	3	3	3	120	119	105	44	40	33
Grapes (bearing)	131	143	143	1 546	1 754	1 497	1 518	1 578	1 371
<b>Vegetables</b>									
Carrots	8	8	7	321	331	306	189	199	162
Potatoes	40	38	36	1 302	1 333	1 247	458	485	485
Tomatoes	10	8	7	556	425	364	257	^230	^226
<b>All crops (excl. pastures and grasses)</b>	<b>24 520</b>	<b>24 060</b>	<b>23 562</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>17 759</b>	<b>20 625</b>	<b>14 527</b>

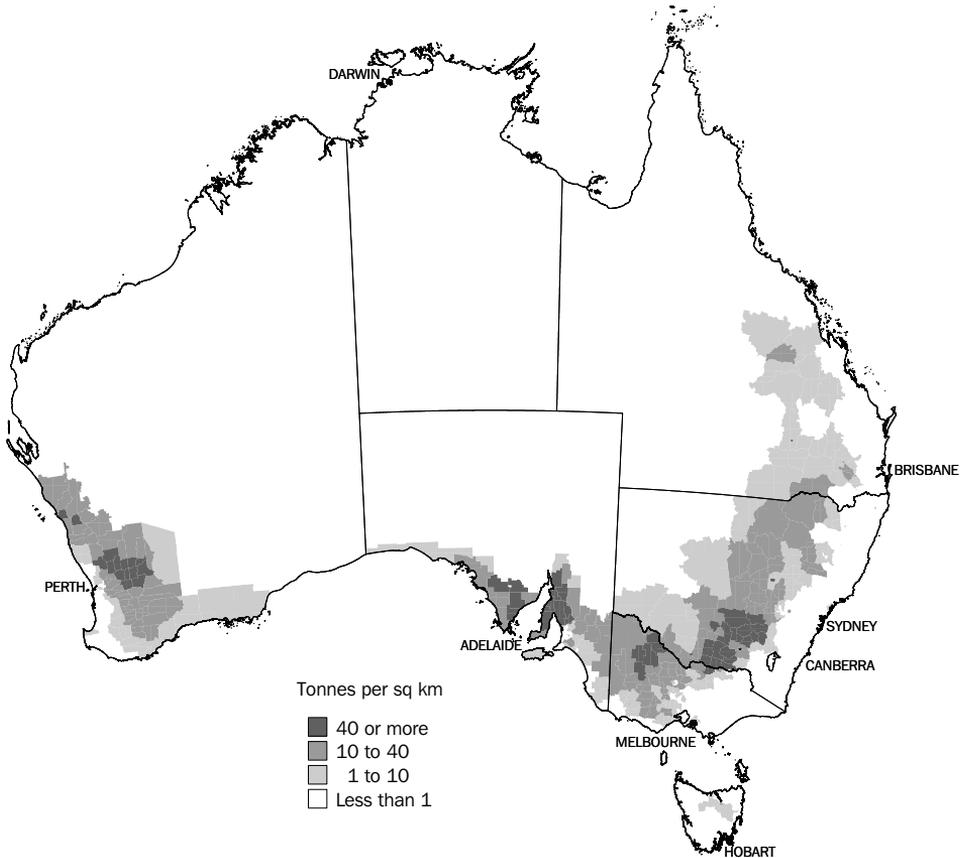
(a) Includes value of cotton seed.

Source: *Agricultural Commodities, Australia (7121.0)*.

Severe drought conditions across Australia more than halved wheat production to 10.1 million tonnes in 2002-03 (table 14.14). The main falls occurred in New South Wales where production fell by 69% to 2.5 million tonnes, and Western Australia, where production fell by 48% to 4.0 million tonnes. Graph 14.15 shows variability

in wheat yields is a part of life for wheat growers, with dry periods and, less commonly, floods resulting in significant falls in production approximately every ten years over the past 100 years.

### 14.13 WHEAT FOR GRAIN, Production — 2000–01(a)



(a) This map has been generated using Agricultural Census data at the Statistical Local Area level for 2000–01.  
Source: AgStats on GSP (7117.0.30.001) CD-ROM product 1996–97 to 2000–01.

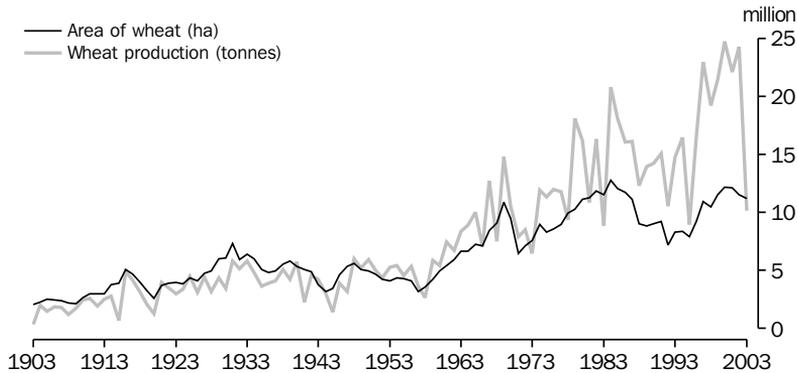
### 14.14 WHEAT FOR GRAIN, Area and production

	NSW	Vic.	Qld	SA	WA	Tas.	Aust.(a)
AREA ('000 ha)							
1997–98	2 936	857	1 001	1 438	4 205	3	10 441
1998–99	3 174	949	1 139	1 762	4 515	4	11 543
1999–2000	3 425	1 235	1 096	1 850	4 556	6	12 168
2000–01	3 671	1 143	885	1 976	4 460	7	12 141
2001–02	3 446	1 136	604	1 987	4 350	6	11 529
2002–03	2 995	1 239	514	1 957	4 458	7	11 170
PRODUCTION ('000 tonnes)							
1997–98	5 906	1 503	1 392	2 689	7 725	12	19 227
1998–99	6 563	1 462	1 941	3 310	8 170	18	21 465
1999–2000	8 602	2 642	1 904	2 586	9 004	20	24 757
2000–01	7 867	3 080	1 157	4 162	5 814	26	22 108
2001–02	8 043	2 791	901	4 778	7 760	25	24 299
2002–03	2 495	890	601	2 072	4 047	25	10 132

(a) Includes ACT.

Source: Agricultural Commodities, Australia (7121.0).

## 14.15 WHEAT PRODUCTION



Source: *Agricultural Commodities, Australia (7121.0)*; Historical data available on request.

### Oats

Oats are traditionally grown in moist, temperate regions. However, in recent years improved varieties and management practices have enabled oats to be grown over a wider range of soil and climatic conditions. Oats have a high fodder feed value and, with the exception of recently developed dual purpose varieties of wheat, produce a greater bulk of growth than other winter cereals. They need less cultivation, and respond well to superphosphates and nitrogen. Oats have two main uses – as a grain crop, and as a fodder crop. Fodder crops can either be grazed in the initial stages of growth and then locked up for a period prior to harvesting for grain, or else mown and baled for hay or cut for chaff.

The majority of Australian oats harvested for grain is used domestically for stock feed purposes. A small proportion of high quality grain is used for human consumption. A small proportion of grain production is exported for human consumption.

After three years of low plantings, the total area of oats planted in 2002–03 increased by 16% to 911,000 ha (table 14.16) as growers anticipated increased demand and prices for oat grain, especially for stockfeed. Due to the dry conditions production fell by 33% to 957,000 tonnes, the lowest level recorded since 1995. Production in Western Australia was less affected than other states, with a 14% drop in production. The Western Australian crop of 477,000 tonnes represented just under 50% of the national harvest.

### Barley

This cereal contains two main groups of varieties, 2-row and 6-row (the number of rows referring to the number of rows of seed on each stalk). The former is generally, but not exclusively, preferred for malting purposes. Barley is grown principally as a grain crop, although in some areas it is used as a fodder crop for grazing, with grain being subsequently harvested if conditions are suitable. It is often grown as a rotation crop with wheat, oats and pasture. As barley has a short growing period, it may provide quick grazing or timely fodder supplies when other sources are not available. Barley grain may be crushed to meal for stock feed or sold for malting.

The total area of barley planted in 2002–03 increased by 4% to 3,864,000 ha (table 14.17). Despite the increase in plantings, production more than halved to 3,865,000 tonnes due to the extremely dry conditions in the main growing states.

### Grain sorghum

The sorghums are summer growing crops which are used in a number of ways: grain sorghum for grain; sweet or fodder sorghum, Sudan grass and Columbus grass for silage, green feed and grazing; and broom millet for brooms and brushware. However, the grain is used primarily as stockfeed and is an important source for supplementing other coarse grains for this purpose.

Grain sorghum is the third biggest cereal crop (in terms of production) despite it only being grown in significant quantities in Queensland and New South Wales. Queensland produced 63% of the total harvest of 1,465,000 tonnes in 2002–03 (table 14.18).

#### 14.16 OATS FOR GRAIN, Area and production

	NSW	Vic.	Qld	SA	WA	Tas.	Aust.(a)
AREA ('000 ha)							
1997-98	325	172	16	111	305	8	937
1998-99	354	188	18	112	228	8	909
1999-2000	160	138	10	70	199	6	584
2000-01	168	140	13	75	248	7	650
2001-02	231	142	^ 11	^ 108	287	6	784
2002-03	308	188	*9	88	314	4	911
PRODUCTION ('000 tonnes)							
1997-98	488	369	13	153	596	15	1 634
1998-99	669	458	15	178	463	14	1 798
1999-2000	284	296	12	78	439	10	1 118
2000-01	246	351	6	117	317	13	1 050
2001-02	320	334	^ 7	^ 203	557	12	1 434
2002-03	149	250	^ 4	70	477	7	957

(a) Includes ACT.

Source: *Agricultural Commodities, Australia (7121.0)*.

#### 14.17 BARLEY FOR GRAIN, Area and production

	NSW	Vic.	Qld	SA	WA	Tas.	Aust.
AREA ('000 ha)							
1997-98	701	618	135	1 017	1 036	13	3 521
1998-99	638	568	163	975	811	11	3 167
1999-2000	476	585	130	845	550	9	2 596
2000-01	615	693	112	1 041	983	10	3 454
2001-02	665	700	96	1 151	1 088	7	3 707
2002-03	636	778	108	1 194	1 140	8	3 864
PRODUCTION ('000 tonnes)							
1997-98	1 365	928	205	2 027	1 926	31	6 482
1998-99	1 247	870	320	2 051	1 469	30	5 987
1999-2000	1 040	1 189	254	1 409	1 117	22	5 032
2000-01	1 253	1 670	115	2 320	1 358	26	6 743
2001-02	1 382	1 656	171	2 782	2 263	26	8 280
2002-03	428	478	148	1 440	1 349	21	3 865

Source: *Agricultural Commodities, Australia (7121.0)*.

#### 14.18 GRAIN SORGHUM, Area and production

	NSW	Vic.	Qld	SA	WA	Tas.	Aust.
AREA ('000 ha)							
1997-98	123	3	379	—	1	—	507
1998-99	216	**	367	—	*2	—	587
1999-2000	200	*1	419	(a)	*2	(a)	622
2000-01	258	2	494	(a)	2	(a)	758
2001-02	258	**	562	(a)	**	(a)	823
2002-03	255	**	405	(a)	**	(a)	667
PRODUCTION ('000 tonnes)							
1997-98	382	6	691	—	2	—	1 081
1998-99	822	**	1 059	—	*6	—	1 891
1999-2000	804	**	1 308	(a)	*2	(a)	2 116
2000-01	770	4	1 156	(a)	4	(a)	1 935
2001-02	767	*4	1 247	(a)	**	(a)	2 021
2002-03	^ 531	**	930	(a)	**	(a)	1 465

(a) Data not collected.

Source: *Agricultural Commodities, Australia (7121.0)*.

## Maize

Maize is a summer cereal requiring specific soil and climatic conditions. The majority of maize used for grain is grown in the south-east and Atherton Tablelands regions of Queensland, and the north coast, northern slopes and tablelands, and the Murrumbidgee Irrigation Area regions in New South Wales. Small amounts are grown for green feed and silage in association with the dairy industry.

In 2002–03 maize grain production decreased by 32% to 310,000 tonnes (table 14.19).

## Rice

Almost all of Australia's rice is grown in New South Wales, with production centred in the Murrumbidgee Irrigation Area. Rice production is dependent on supplies of irrigation water and, therefore, is significantly affected by reductions in irrigation water allocations available to farmers.

Due to the drought, rice production fell in 2002–03 by 63% to 438,000 tonnes (table 14.20).

### 14.19 MAIZE FOR GRAIN, Area and production

	NSW	Vic.	Qld	SA	WA	Tas.	Aust.(a)
AREA ('000 ha)							
1997–98	22	1	34	—	—	—	57
1998–99	27	1	37	**	*—	—	64
1999–2000	22	1	59	(b)	*—	(b)	82
2000–01	26	1	47	(b)	*—	(b)	74
2001–02	28	*1	53	(b)	**	(b)	83
2002–03	^21	*1	^28	(b)	—	(b)	50
PRODUCTION ('000 tonnes)							
1997–98	161	10	97	—	3	—	272
1998–99	186	3	145	**	*4	—	338
1999–2000	178	4	224	(b)	*—	(b)	406
2000–01	178	8	159	(b)	*—	(b)	345
2001–02	246	*9	198	(b)	*—	(b)	454
2002–03	^163	*15	^131	(b)	—	(b)	310

(a) Includes NT. (b) Data not collected.

Source: *Agricultural Commodities, Australia (7121.0)*.

### 14.20 RICE FOR GRAIN, Area and production

	NSW	Vic.	Qld	SA	WA	Tas.	Aust.
AREA ('000 ha)							
1997–98	146	1	—	—	—	—	147
1998–99	148	1	—	—	—	—	148
1999–2000	131	(a)	(a)	(a)	**	(a)	131
2000–01	175	2	(a)	(a)	*—	(a)	177
2001–02	143	^2	(a)	(a)	—	(a)	144
2002–03	45	**	(a)	(a)	—	(a)	46
PRODUCTION ('000 tonnes)							
1997–98	1 320	4	—	—	—	—	1 324
1998–99	1 357	5	—	—	—	—	1 362
1999–2000	1 084	(a)	(a)	(a)	**	(a)	1 084
2000–01	1 625	18	(a)	(a)	*—	(a)	1 643
2001–02	1 179	*14	(a)	(a)	—	(a)	1 192
2002–03	435	**	(a)	(a)	—	(a)	438

(a) Data not collected.

Source: *Agricultural Commodities, Australia (7121.0)*.

## Vegetables and fruit

### Vegetables

Australia produces an extremely wide variety of vegetables, partly as a result of the varied tastes of the cosmopolitan population. Many vegetables, such as spring onions, mushrooms and fresh tomatoes are grown close to major capital cities, taking advantage of proximity to markets and low transport costs. However, the majority of vegetables are produced in the major irrigation areas of each state and territory, where access to land and water are the key drivers of investment.

In 2002–03 the area sown to vegetables was 121,200 ha, a decrease of 8% from the previous year. Potatoes were by far the largest vegetable crop in terms of area and production, accounting for 30% of the total area of vegetables planted in 2002–03 (tables 14.21 and 14.22). Tasmania and South Australia together produced just over 50% of the national potato crop in 2002–03. Tasmania accounted for almost all green pea production, producing 97% of the national crop, or 26,489 tonnes in 2002–03.

### Fruit (excluding grapes)

A wide variety of fruit is grown in Australia, ranging from pineapples, mangoes and pawpaws in the tropics to pome, stone and berry fruits in

temperate regions. Table 14.23 shows the number of trees for the main types of orchard fruit, and the area under cultivation for bananas and pineapples.

The most significant crops in terms of gross value of production are bananas, oranges and apples. Production of bananas, which occurs mainly in coastal Queensland, fell 15% in 2002–03 to 264,800 tonnes. In 2002–03 the gross value of the apple crop increased 9% to \$380.6m (table 14.24).

### Grapes

Grapes are a temperate crop requiring predominantly winter rainfall and warm to hot summer conditions for ripening. Almost all grape production in Australia depends on irrigation water as a supplement to rainfall. An absence of late-spring frosts is essential if the loss of the developing fruit is to be prevented. Grapes are grown for winemaking, drying, and to a lesser extent, for table use. Some of the better known grape producing areas are the Adelaide Hills, Barossa Valley, Clare Valley, Riverland, McLaren Vale and Coonawarra in South Australia; Sunraysia and the Yarra Valley in Victoria; the Hunter and Riverina in New South Wales; the Swan Valley and Margaret River in Western Australia; and the Tamar Valley and Coal River Valley in Tasmania.

**14.21 SELECTED VEGETABLES, Area**

	French and runner beans	Carrots	Onions	Green peas	Lettuces	Potatoes	Pumpkins	Tomatoes	All vegetables
	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha
1997–98	6.6	7.2	5.6	7.0	5.7	42.6	5.9	8.0	130.6
1998–99	5.9	6.5	5.4	6.2	6.2	41.3	7.5	8.5	130.2
1999–2000	6.6	7.0	5.3	5.5	5.2	36.8	9.0	8.3	127.4
2000–01	6.6	8.0	5.0	5.8	5.8	39.6	8.3	9.6	137.1
2001–02	6.6	7.7	5.5	6.0	6.0	37.9	6.5	8.5	131.7
2002–03	7.0	7.4	5.3	5.5	6.1	35.9	6.6	7.3	121.2

Source: *Agricultural Commodities, Australia (7121.0)*.

**14.22 SELECTED VEGETABLES, Production**

	French and runner beans	Carrots	Onions	Green peas (shelled weight)	Lettuces	Potatoes	Pumpkins	Tomatoes
	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes
1997–98	35.6	266.5	218.9	34.6	129.1	1 371.6	84.8	380.1
1998–99	30.4	256.6	224.0	29.9	131.1	1 326.8	87.6	394.4
1999–2000	34.5	283.3	247.1	30.4	151.9	1 199.6	108.8	413.6
2000–01	32.8	320.9	221.9	26.2	152.7	1 302.1	109.4	556.2
2001–02	33.7	331.1	282.5	28.4	135.0	1 333.2	96.3	425.0
2002–03	34.6	305.7	228.6	27.4	121.5	1 247.3	93.2	364.4

Source: *Agricultural Commodities, Australia (7121.0)*.

### 14.23 SELECTED FRUIT, Number of trees(a) and area

	Orchard fruit						Area of tropical fruit		All area of fruit and nuts (excluding grapes) ha
	Apples	Apricots	Oranges	Peaches	Pears	Plums and prunes	Bananas	Pineapples	
	'000 trees	'000 trees	'000 trees	'000 trees	'000 trees	'000 trees	ha	ha	
1997-98	5 845	569	6 667	1 498	1 381	1 015	10 478	2 762	144 082
1998-99	5 969	565	6 400	1 509	1 401	1 024	11 405	2 821	145 265
1999-2000	6 115	520	6 945	1 972	1 401	1 420	11 730	2 817	154 049
2000-01	6 455	498	6 669	1 674	1 373	1 328	11 737	2 733	170 545
2001-02	8 070	^ 411	6 767	1 587	1 312	1 325	12 583	2 963	161 439
2002-03	8 391	^ 440	7 129	^ 2 150	1 306	1 470	10 659	2 616	174 123

(a) Refers to trees of bearing age (i.e. four years and over for apples, six years and over for other fruit).

Source: *Agricultural Commodities, Australia (7121.0)*.

### 14.24 SELECTED FRUIT, Quantity and value of production

	Apples	Apricots	Oranges	Peaches	Pears	Plums and prunes	Bananas	Pineapples
QUANTITY OF PRODUCTION ('000 tonnes)								
1997-98	308.9	19.9	499.8	64.8	152.9	26.4	223.0	123.0
1998-99	334.4	21.5	445.8	66.0	156.7	22.7	225.2	131.4
1999-2000	319.7	19.9	510.0	86.0	156.4	24.2	256.9	139.3
2000-01	324.6	20.6	550.2	74.1	168.9	31.3	358.4	119.6
2001-02	320.5	^ 12.4	450.6	88.7	144.9	25.5	313.3	119.3
2002-03	326.1	^ 19.7	599.5	^ 97.2	135.9	^ 33.2	264.8	104.7
GROSS VALUE OF PRODUCTION (\$m)								
1997-98	272.7	31.0	257.9	53.4	107.8	44.1	230.3	37.3
1998-99	321.1	27.9	296.2	65.5	112.4	42.4	266.3	39.4
1999-2000	273.7	^ 31.8	276.4	74.3	72.1	43.4	283.8	43.7
2000-01	282.0	29.5	276.8	72.7	90.2	58.5	408.6	44.0
2001-02	348.0	18.1	280.8	75.7	99.4	52.7	415.3	40.1
2002-03	380.6	^ 24.7	336.7	^ 84.3	80.3	^ 64.3	321.6	32.5

Source: *Agricultural Commodities, Australia (7121.0)*.

### 14.25 VITICULTURE, Area, production and value

	Area		Production of grapes for		Total production(a)	
	Bearing	Total	Winemaking	Drying	Quantity	Gross value
	'000 ha	'000 ha	'000 tonnes fresh weight	'000 tonnes fresh weight	'000 tonnes fresh weight	\$m
1997-98	78	99	871	177	1 112	998.2
1998-99	95	123	1 076	119	1 266	1 200.1
1999-2000	111	140	1 111	133	1 311	1 118.2
2000-01	131	148	1 391	90	1 546	1 517.5
2001-02	143	159	1 515	153	1 754	1 577.7
2002-03	143	157	1 330	92	1 497	1 370.8

(a) Includes grapes used for table and other purposes.

Source: *Agricultural Commodities, Australia (7121.0)*; *Australian Wine and Grape Industry (1329.0)*.

The gross value of grape production for 2002-03 decreased by 13% from the previous year, to \$1,370.8m. Tables 14.25 and 14.26 show the area of vines and the quantity of grapes produced.

More information on grape growing and wine production is provided in *Australian wine and grape industries – a decade of growth*.

### 14.26 VITICULTURE, Area and production — 2002–03

Area of vines at harvest	Area of vines at harvest			Production of grapes used for			
	Bearing	Not yet bearing	All vines	Winemaking	Drying	Table and Other	Total
	ha	ha	ha	tonnes fresh weight	tonnes fresh weight	tonnes fresh weight	tonnes fresh weight
Red grapes	88 645	6 847	95 491	772 522	8 572	28 400	809 493
White grapes	54 148	7 853	62 001	557 074	83 692	46 680	687 446
<b>Total grapes</b>	<b>142 793</b>	<b>14 700</b>	<b>157 492</b>	<b>1 329 595</b>	<b>92 264</b>	<b>75 080</b>	<b>1 496 939</b>

Source: Australian Wine and Grape Industry, 2003 (1329.0).

## Selected other crops

### Oilseeds

The oilseeds industry is a relatively young industry by Australian agricultural standards. The specialist oilseed crops grown include sunflower, soybeans, canola and safflower. Sunflower and soybeans are summer crops while the others are winter crops. In Australia, oilseeds are crushed for their oil, which is used for edible and industrial purposes, and for protein meals for livestock feeds.

The 1990s saw the emergence of canola as the main oilseed crop, with production increasing from around 70,000 tonnes in 1990–91 to a high of 2.5 million tonnes in 1999–2000. Canola production accounted for over 95% of the total Australian oilseed crop of 907,000 tonnes in 2002–03 (table 14.27). Before the emergence of canola, the main specialist oilseed crop was sunflower seed. Peanuts and cotton are also major sources of oil as a by-product to their main outputs, which are food and fibre respectively.

### Cotton

Cotton is grown mainly in inland areas of northern New South Wales and southern Queensland, primarily for its fibre (lint), and relies heavily on irrigation water to produce profitable yields. When the cotton is mature, seed cotton is taken to a gin where it is separated (ginned) into cotton lint and cotton seed. The lint is used for yarn while the cotton seed is further processed at an oil mill, where the short fibres (linters) remaining on the cotton seed after ginning are removed. These fibres are too short to make into cloth, but are used for wadding, upholstery and paper. The seeds are then separated into kernels and hulls. The hulls are used for stock feed and as fertiliser, while the kernels are crushed to extract oil. The oilcake residue (crushed kernels) is ground into meal, which is a protein roughage, and is used as a stock feed.

The estimated gross value of cotton lint and cotton seed in 2002–03 was \$853m, a 36% decrease from the previous year (table 14.28).

### 14.27 OILSEEDS, Area and production

	NSW	Vic.	Qld	SA	WA	Tas.	Aust.(a)
AREA ('000 ha)							
1997–98	310	125	89	67	248	—	839
1998–99	496	222	145	136	537	1	1 538
1999–2000	613	319	143	216	879	*1	2 172
2000–01	569	266	79	157	517	—	1 589
2001–02	585	241	^60	165	394	^1	1 447
2002–03	514	248	^28	214	349	^—	1 355
PRODUCTION ('000 tonnes)							
1997–98	419	142	82	92	270	—	1 005
1998–99	793	268	166	196	615	1	2 039
1999–2000	968	438	151	249	963	*2	2 770
2000–01	894	383	73	206	353	—	1 910
2001–02	796	349	^52	273	419	^1	1 890
2002–03	201	177	^17	211	299	—	907

(a) Includes ACT.

Source: Agricultural Commodities, Australia (7121.0).

#### 14.28 COTTON LINT, Area, production and value

	Area	Quantity	Gross value(a)
	'000 ha	'000 tonnes	\$m
1997-98	381	564	1 228
1998-99	446	634	1 353
1999-2000	435	698	1 416
2000-01	536	666	1 305
2001-02	458	675	1 327
2002-03	245	364	^853

(a) Includes value of cotton seed.

Source: *Agricultural Commodities, Australia (7121.0)*.

#### Sugar

Sugar cane is grown commercially in Australia along the east coast over a distance of some 2,100 kilometres in a number of areas from Maclean in northern New South Wales to Mossman in Queensland. More recently, it has also been grown in Western Australia.

About 90% of production occurs in Queensland (table 14.29), with 75% of the crop grown north of the Tropic of Capricorn in areas where rainfall is reliable and the warm, moist and sunny conditions are ideal for growing sugar cane.

#### Crops and pastures cut for hay or silage

To counter Australia's seasonal conditions and unreliable rainfall, many farmers use hay and silage as methods of fodder conservation to supplement pasture and other natural sources of stockfeed.

Considerable areas are devoted to fodder crops and sown pastures, which are either used for grazing (as green feed) or harvested and conserved as hay or silage (table 14.30).

#### 14.29 SUGAR CANE CUT FOR CRUSHING, Area, production and yield

	New South Wales			Queensland			Western Australia		
	Area harvested	Production	Yield	Area harvested	Production	Yield	Area harvested	Production	Yield
	'000 ha	'000 tonnes	tonnes/ha	'000 ha	'000 tonnes	tonnes/ha	'000 ha	'000 tonnes	tonnes/ha
1997-98	19	2 416	127.0	394	36 790	93.4	3	326	126.7
1998-99	20	2 555	126.0	379	35 587	93.9	3	392	135.5
1999-2000	20	2 493	123.8	405	35 316	87.2	3	355	123.2
2000-01	18	1 826	102.5	382	25 867	67.7	3	423	122.2
2001-02	^25	^2 886	114.4	398	28 250	70.9	3	288	105.9
2002-03	21	2 362	110.6	423	34 231	80.9	3	401	116.4

Source: *Agricultural Commodities, Australia (7121.0)*.

#### 14.30 CROPS AND PASTURES CUT FOR HAY OR SILAGE, Area and production

	Hay		Silage made
	Area	Production	Production
	'000 ha	'000 tonnes	'000 tonnes
1998-99	1 568	6 245	2 770
1999-2000	1 373	5 331	2 981
2000-01	1 521	6 433	2 960
2001-02	1 416	5 864	2 966
2002-03	1 299	4 913	2 549

Source: *Agricultural Commodities, Australia (7121.0)*.

## Australian wine and grape industries in perspective – a decade of growth

The Australian wine and grape industries have experienced strong growth over the past ten years. Production of grapes for winemaking and production of wine both more than doubled in the period 1992–93 to 2002–03. Although grape and wine production fell in 2002–03, at a time of drought in most regions, domestic and export sales of wine continued to grow. Total exports of Australian wine exceeded domestic sales for the first time in 2001–02 – a pattern repeated in 2002–03.

### Area of vines

In the ten-year period from 1992–93 to 2002–03 the total area of vines being cultivated more than doubled from 62,709 hectares (ha) to 157,492 ha (table 14.31). The area of vines in South Australia, the main source of grapes, increased 40,520 ha (to 66,654 ha). In New South Wales the increase was 24,358 ha (to 37,039 ha) while the vine area in Victoria increased by 18,221 ha (to 38,284 ha). The area of vines in the remaining states and territories grew by 11,235 ha (to 15,066 ha).

The area of vines not yet bearing is an indication of the growth in plantings. The total area of vines not yet bearing grapes increased by 24,899 ha from 1992–93 to 1999–2000 (graph 14.32). As these vines matured, there was a reflected increase in the area of vines bearing grapes which resulted in a 42% (or 32,533 ha) increase between 1997–98 and 1999–2000. This growth spurt has been followed by three years of

reduced area of vines not yet bearing, indicating a reduction in plantings in recent years. The area of vines bearing grapes increased 50% from 95,301 ha in 1998–99 to 143,373 ha in 2001–02, with a slight decrease in 2002–03.

### Grape production

In 2002–03, 89% (1,329,595 tonnes) of all grapes produced (1,496,939 tonnes) were used for winemaking, 6% (92,264 tonnes) were used for drying and 5% (75,080 tonnes) were produced for table and other grapes (graph 14.33).

The production of grapes used for winemaking more than doubled from 544,487 tonnes in 1992–93 to 1,329,595 tonnes in 2002–03. There was a sustained increase over the five-year period between 1996–97 and 2001–02 before drought conditions forced production down. Production fell by 184,906 tonnes in 2002–03 following the record production of 1,514,501 tonnes in 2001–02. The regions contributing most to growth between 1996–97 and 2002–03 were South Australia, up 244,303 tonnes (to 612,095 tonnes), New South Wales, up 188,261 tonnes (to 362,526 tonnes) and Victoria, up 100,667 tonnes (to 282,439 tonnes).

There was a 51% increase in the production of table and other grapes over the ten-year period from 49,681 tonnes to 75,080 tonnes while the production of grapes used for drying decreased by 104,784 tonnes (or 53%).

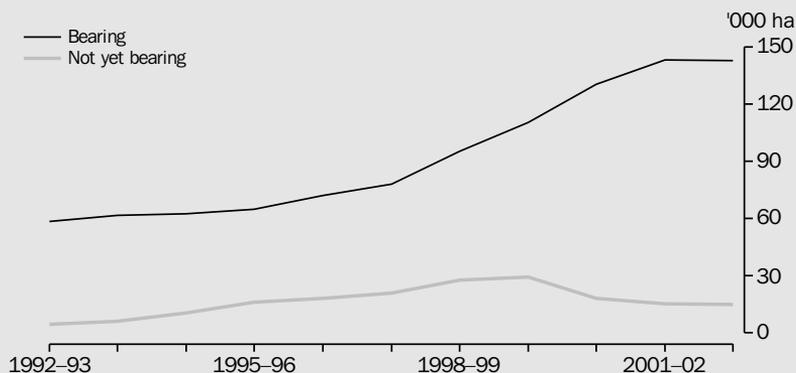
**14.31 AREA OF VINEYARDS**

	Bearing ha	Not yet bearing ha	Total ha
1992–93	58 369	4 339	62 709
1993–94	61 362	5 711	67 074
1994–95(a)	62 454	10 415	72 869
1995–96(a)	64 845	15 715	80 559
1996–97	72 119	17 678	89 797
1997–98	78 090	20 521	98 612
1998–99	95 301	27 614	122 915
1999–2000	110 623	29 238	139 861
2000–01	130 591	17 666	148 257
2001–02	143 373	15 222	158 594
2002–03	142 793	14 700	157 492

(a) Excludes ACT and NT.

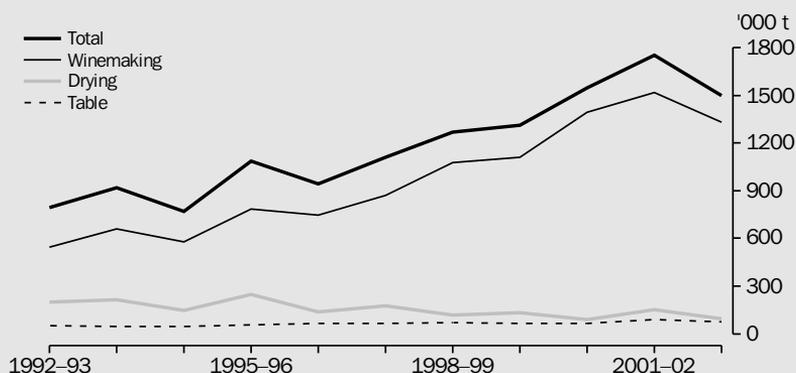
Source: *Australian Wine and Grape Industry (1329.0)*.

### 14.32 AREA OF VINEYARDS



Source: Australian Wine and Grape Industry (1329.0).

### 14.33 GRAPE PRODUCTION AND INTENDED USE



Source: Australian Wine and Grape Industry (1329.0).

## Grape varieties

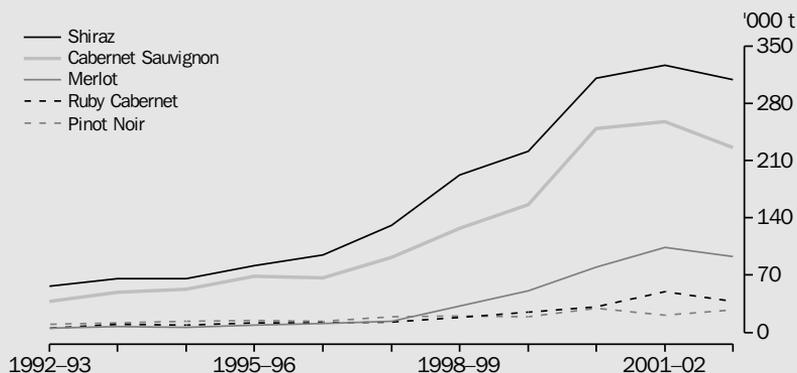
The 1,329,595 tonnes of grapes produced for winemaking in 2002-03 comprised 772,522 tonnes of red grapes (58%) and 557,074 tonnes of white grapes (42%). By comparison, of the winemaking grapes produced in 1992-93, 29% were red grapes and 71% were white grapes, indicating a shift in consumer preferences and export demand over the past decade.

The top five varieties of red grapes produced for winemaking in 2002-03 were shiraz (40% of all red grapes produced), cabernet sauvignon (29%), merlot (12%), ruby cabernet (5%) and pinot noir (4%) (graph 14.34). The two biggest contributors to the very strong growth in red grape production over the ten years were shiraz, increasing by 252,603 tonnes, and cabernet sauvignon,

increasing by 187,871 tonnes. Merlot has also played an important role in increased red grape production with the 4,767 tonnes produced in 1992-93 jumping to 92,865 tonnes in 2002-03.

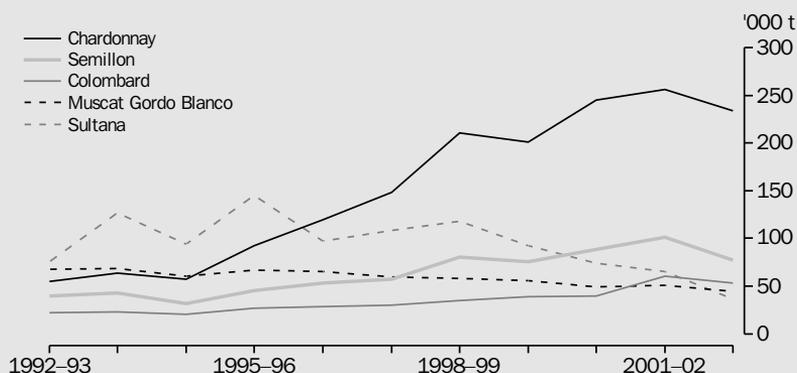
The top five white grape varieties produced for winemaking in 2002-03 were chardonnay (42% of all white grapes produced), semillon (14%), colombar (10%), muscat gordo blanco (8%) and sultana (6%) (graph 14.35). In 1992-93, 14% of all white grapes produced for winemaking were chardonnay grapes, compared with 42% in 2002-03. On the other hand, in 1992-93 over a third of white grapes were comprised of sultana and muscat gordo blanco grape varieties, but they only contributed 14% in 2002-03.

### 14.34 PRODUCTION OF RED GRAPES



Source: Australian Wine and Grape Industry (1329.0).

### 14.35 PRODUCTION OF WHITE GRAPES



Source: Australian Wine and Grape Industry (1329.0).

## Wine production and grapes crushed

Following the increased production of grapes for winemaking in the past ten years, grape crush and wine production have also shown strong growth. The grape crush for 2002-03 was 123% or 772,341 tonnes greater than in 1992-93.

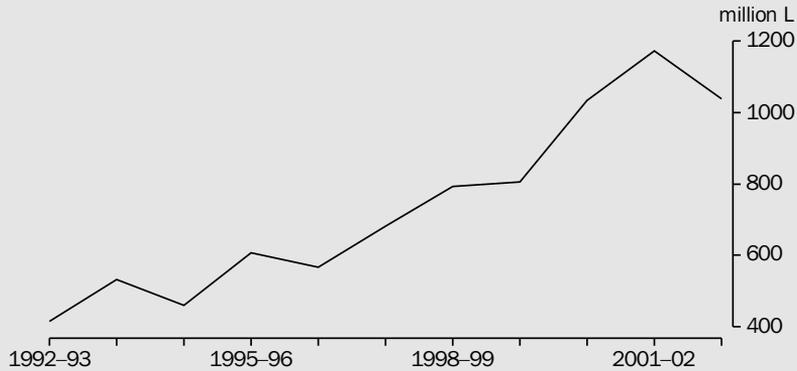
However, there was a 13% fall in the quantity of grapes crushed between 2001-02 and 2002-03 to 1,398,528 tonnes. Both red and white grape crushes fell from 2001-02 to 2002-03, by 9% and 18% respectively.

In 2002-03 South Australia accounted for the largest proportion of grapes crushed with 46%, or 646,922 tonnes crushed. This is a 126% increase on their 1992-93 crush of 286,718 tonnes. New South Wales contributed 34% or 474,653 tonnes

of grapes crushed, more than double the 230,426 tonnes crushed in 1992-93 while Victoria's crush in 2002-03 accounted for 15%, or 211,094 tonnes, up 115% from the 98,106 tonnes in 1992-93.

Beverage wine production more than doubled over the past ten years, up from 414.8 million litres in 1992-93 to 1,037.6 million litres in 2002-03 (graph 14.36). The first decrease in the production of beverage wine recorded in the past six years occurred in 2002-03, with production falling from the previous year's record of 1,174.1 million litres. Despite this, the 2002-03 beverage wine production was the second highest volume recorded.

### 14.36 BEVERAGE WINE PRODUCTION



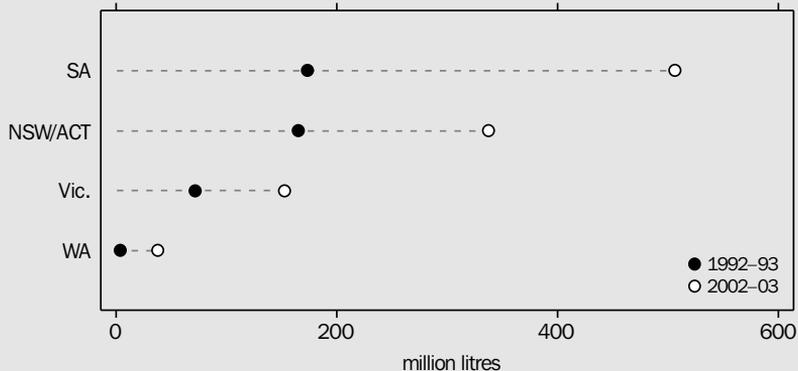
Source: Australian Wine and Grape Industry (1329.0).

South Australia has been the dominant wine producing state for the past ten years (graph 14.37). In 2002-03 South Australia accounted for almost half (49% or 506.7 million litres) of total beverage wine production, an increase on its share of production in 1992-93 (42%). New South Wales/Australian Capital Territory contributed the next largest share at 33% or 337.4 million litres production in 2002-03 (compared with 40% in 1992-93). Victoria produced 15% or 152.9 million litres in 2002-03 (compared with 17% in 1992-93). Overall, the top three wine manufacturing states accounted for 96% or 996,994 million litres of total beverage

wine production in 2002-03 – in 1992-93 these three states accounted for the entire production of Australian beverage wine.

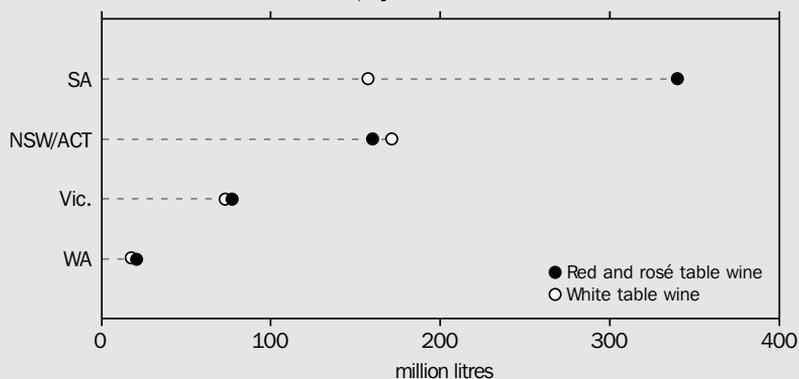
Over half of all red wine production in 2002-03 was produced in South Australia (57% or 340.1 million litres) with New South Wales/Australian Capital Territory contributing a further 27%, or 160.0 million litres (graph 14.38). New South Wales/Australian Capital Territory produced the largest quantity of white wine (40.7% or 171.2 million litres), followed closely by South Australia with 37.5% or 157.4 million litres.

### 14.37 BEVERAGE WINE PRODUCTION, By selected states/territories



Source: Australian Wine and Grape Industry (1329.0).

**14.38 TABLE WINE PRODUCTION, By selected states/territories — 2002–03**



Source: Australian Wine and Grape Industry (1329.0).

### Consumption of wine in Australia

Total annual domestic sales of Australian wine by winemakers has risen by 29% over the past ten years, from 312.1 million litres in 1992–93 to 402.5 million litres in 2002–03. This increase has been driven by table wine sales, up by 40% during this period, while the volume of all other wine types combined fell 12%. The increase in table wine sales over the period has been led by increased sales of red wine.

The other major component in the total domestic consumption of wine is the volume of imported wine released for consumption. This has varied significantly over the past ten years. From a base of 7.8 million litres of wine imported in 1992–93, it has doubled to 17.1 million litres in 2002–03. However, during this period it has been as high as 25.6 million litres (in 1997–98) and has averaged 17.0 million litres per year over the period. This compares with an average of 9.5 million litres per year in the ten years to 1993–94. It suggests that during the period of expansion in wine production and sales since the early-1990s, Australian winemakers have balanced the combined demands of domestic and overseas wine consumers, by adjusting their intake of imported wine.

Annual per person consumption, for people aged 15 years and over, has steadily increased during most of the past ten years, from 23.4 litres in

1992–93 to 26.9 litres in 2002–03. The movement in the past decade is in line with the longer term trend which has seen the per person consumption of wine climb from levels of less than 3 litres in the late-1930s. By way of contrast, in the ten years to 2002–03 the per person consumption of beer has fallen 10%.

### Disposals of Australian wine

While domestic sales of Australian wine increased by 29% in the past ten years, exports have experienced a much greater increase. Over the period, exports have increased five-fold from 102.8 million litres in 1992–93 to 518.6 million litres in 2002–03. The total annual exports of Australian wine exceeded domestic sales for the first time in 2001–02 – a pattern repeated in 2002–03 (table 14.39).

In 2002–03 Europe received the largest share of exports (56%), the North American share rose considerably to 34% while Oceania fell to 7%. In 2002–03 the countries with the major share of the export volume were the United Kingdom with 209.5 million litres (40%), the United States of America with 150.9 million litres (29%) and New Zealand with 32.2 million litres (6%). The European Union, which includes the United Kingdom, received 281.5 million litres or 54% of Australia's exported wine in 2002–03.

### 14.39 DISPOSALS OF AUSTRALIAN PRODUCED WINE AND WINE AVAILABLE FOR CONSUMPTION

	Domestic sales of Australian produced wine (1) '000 L	Wine imports cleared for home consumption '000 L	Wine available for consumption(a) '000 L	Exports of Australian produced wine (2) '000 L	Total disposals of Australian produced wine (1 + 2) '000 L
1992-93	312 083	7 832	321 870	102 832	414 915
1993-94	319 532	8 341	330 424	125 464	444 996
1994-95	313 357	14 057	329 929	113 663	427 020
1995-96	309 463	20 256	332 191	129 671	439 134
1996-97	333 591	13 589	349 674	154 393	487 984
1997-98	338 814	25 622	367 494	192 404	531 218
1998-99	348 349	24 255	375 480	216 149	564 498
1999-2000	369 271	19 607	392 486	284 935	654 206
2000-01	384 847	12 773	401 299	338 289	723 136
2001-02	386 232	14 478	404 235	418 393	804 625
2002-03	402 479	17 112	423 774	518 642	921 121

(a) Includes domestic sales and imports plus an allowance for home production.

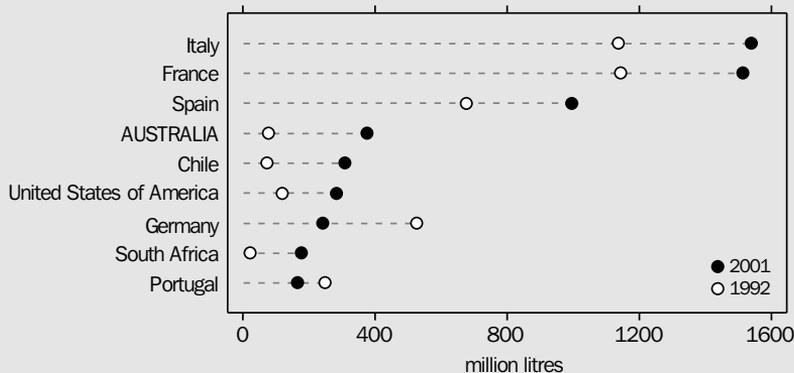
Source: *Apparent Consumption of Alcohol, Australia (4307.0.55.001)*; *Apparent Consumption of Foodstuffs, Australia (4306.0)*; *Australian Wine and Grape Industry (1329.0)*.

### International comparisons

Australia's vineyard area, wine production and wine exports have all increased significantly in the past ten years. The relatively small domestic market means Australia currently exports more domestically produced wine than it consumes. Of the countries for which the latest data (2001)

is available, Chile was the only other country to achieve a higher export proportion than Australia. In 2001 Australia ranked 12th in area of vines planted (compared with 21st in 1992), 10th in terms of grape production (16th), 7th for wine production (11th) and was the 4th largest wine exporter by volume (8th).

14.40 EXPORTS OF WINE, Selected countries



Source: *Office International de la Vigne et du Vin*.

## Livestock

Cattle, sheep and pigs are the main livestock grown in Australia and have been present since the earliest days of European settlement. Table 14.41 provides details of livestock numbers from 1861.

**14.41 LIVESTOCK**

	Cattle '000	Sheep and lambs '000	Pigs '000
1861	3 958	20 135	351
1871	4 276	41 594	543
1881	7 527	62 184	816
1891	10 300	97 881	891
1901	8 640	70 603	950
1911	11 745	98 066	1 026
1921	13 500	81 796	674
1931	11 721	110 568	1 072
1941	13 256	122 694	1 797
1951	15 229	115 596	1 134
1961	17 332	152 579	1 615
1971	24 373	177 792	2 590
1981	25 168	134 407	2 430
1991	23 662	163 238	2 531
1992	23 880	148 203	2 570
1993	24 062	138 099	2 646
1994	25 758	132 569	2 775
1995	25 731	120 862	2 653
1996	26 377	121 116	2 526
1997	26 695	120 228	2 555
1998	26 851	117 491	2 768
1999	26 578	115 456	2 626
2000	27 588	118 552	2 511
2001	27 722	110 928	2 748
2002	27 870	106 166	2 940
2003	26 664	99 252	2 658

Source: *Agricultural Commodities, Australia (7121.0)*;  
Historical data available on request.

### Cattle

Cattle farming occurs in all states and territories. While dairy cattle are restricted mainly to southern and coastal districts, beef cattle are concentrated in Queensland and New South Wales.

Cattle numbers in Australia increased slowly during the 1960s and 1970s, despite seasonal changes and heavy slaughterings, to a peak of 33.4 million in 1976. Beef cattle production is often combined with cropping, dairying and sheep. In the northern half of Australia, cattle properties and herd sizes are very large, pastures

are generally unimproved, fodder crops are rare and beef is usually the only product. The industry is more intensive in the south, with higher stocking rates per hectare, improved pastures and use of fodder crops, use of rotational grazing practices and increased inputs such as fertiliser and animal health products.

Drought conditions in the early-1980s led to a decline in the beef herd until 1984. For the next five years the size of the herd remained relatively stable. Between 1989 and 1998 cattle numbers increased gradually, despite unfavourable weather conditions continuing in many parts of Australia. After a slight decline in 1999, cattle numbers increased to 27.9 million in 2002. Dry conditions over much of the country in 2002–03 has seen cattle numbers fall by 4% to 26.7 million.

Table 14.42 shows the number of cattle by age, sex and purpose, and table 14.43 shows the number of cattle by state and territory.

### Dairying

Dairying is a major Australian agricultural industry. The estimated gross value of dairy production at farm gate prices in 2002–03 was \$2,795m (tables 14.6 and 14.44). This represented 9% of the gross value of agricultural production. The number of milk cattle in 2003, at 3 million was 3% less than in 2002 (table 14.42).

### Dairy production

Most dairy production occurs in high rainfall coastal fringe areas where climate and natural resources allow production to be based on year-round pasture grazing. This enables efficient, low-cost milk production. With the exception of several inland river schemes, pasture growth generally depends on natural rainfall. Feedlot-based dairying is expanding, although it remains uncommon.

Milk production rose steadily until 1999–2000. Less favourable seasonal conditions and farm exits associated with deregulation of the milk industry saw production decrease by 3% to 10,545 million litres in 2000–01, before recovering to 11,271 million litres in 2001–02. Dry seasonal conditions, limiting the growth of pastures and the availability of fodder crops, has seen milk production fall to 10,326 million litres in 2002–03 (table 14.44).

#### 14.42 CATTLE, By purpose — 30 June

	1998(a)	1999(a)	2000	2001	2002	2003
	'000	'000	'000	'000	'000	'000
<b>Milk cattle</b>						
Cows (in milk and dry)	2 060	2 155	2 171	2 176	2 123	2 050
Other milk cattle	1 015	1 065	969	1 041	1 008	999
<b>Total</b>	<b>3 076</b>	<b>3 220</b>	<b>3 140</b>	<b>3 217</b>	<b>3 131</b>	<b>3 049</b>
<b>Meat cattle</b>						
Bulls and bull calves used or intended for service	547	528	518	591	620	570
Other calves under one year	6 026	5 740	5 872	6 083	5 679	5 292
Cows and heifers one year and over	11 783	11 621	12 282	12 007	12 652	12 245
Other cattle one year and over	5 420	5 469	5 774	5 823	5 788	5 508
<b>Total</b>	<b>23 776</b>	<b>23 358</b>	<b>24 448</b>	<b>24 504</b>	<b>24 739</b>	<b>23 615</b>
<b>Total cattle</b>	<b>26 851</b>	<b>26 578</b>	<b>27 588</b>	<b>27 722</b>	<b>27 870</b>	<b>26 664</b>

(a) At 31 March.

Source: *Agricultural Commodities, Australia (7121.0)*.

#### 14.43 CATTLE, By state and territory — 30 June

	NSW	Vic.	Qld	SA	WA	Tas.	NT	Aust.(a)
	'000	'000	'000	'000	'000	'000	'000	'000
1998(b)	6 351	4 142	10 867	1 214	1 973	728	1 567	26 851
1999(b)	6 291	4 125	10 748	1 183	1 931	724	1 567	26 578
2000	5 970	4 264	11 808	1 184	2 165	617	1 571	27 588
2001	6 215	4 405	11 376	1 242	2 128	636	(c)1 707	27 722
2002	6 021	4 412	11 544	1 381	2 104	619	(c)1 777	27 870
2003	5 817	4 388	10 740	1 401	1 945	682	(c)1 683	26 664

(a) Includes ACT. (b) At 31 March. (c) Excludes dairy cattle.

Source: *Agricultural Commodities, Australia (7121.0)*.

#### 14.44 WHOLE MILK INTAKE BY FACTORIES, Production, use and value

	Market milk sales by factories	Milk used in the manufacture of dairy products	Total intake	Gross value
	mill. litres	mill. litres	mill. litres	\$m
1997–98	1 848	7 591	9 439	2 817
1998–99	1 859	8 319	10 178	2 900
1999–2000	1 842	9 005	10 847	2 845
2000–01	1 920	8 625	10 545	3 053
2001–02	1 886	9 385	11 271	3 717
2002–03	1 925	8 401	10 326	(a)2 795

(a) Excludes NT.

Source: *Agricultural Commodities, Australia (7121.0)*; *Dairy Australia*.

#### 14.45 SHEEP AND LAMBS, By state — 30 June

	NSW	Vic.	Qld	SA	WA	Tas.	Aust.(a)
	mill.						
1998(b)	40.8	21.1	11.0	13.1	27.5	3.9	117.5
1999(b)	40.6	21.0	10.6	13.1	26.4	3.8	115.5
2000	43.4	22.7	9.2	13.8	26.1	3.3	118.6
2001	40.9	22.3	8.7	12.6	23.1	3.2	110.9
2002	38.5	21.4	6.8	13.0	23.1	3.4	106.2
2003	33.7	20.4	4.8	13.1	23.9	3.3	99.3

(a) Includes ACT and NT. (b) At 31 March.

Source: *Agricultural Commodities, Australia (7121.0)*.

## Domestic dairy market

Average annual per person milk consumption has stabilised at around 100 litres since the mid-1980s. According to Dairy Australia data for 2002–03, Australians consumed 97 litres of milk, 12.0 kilograms of cheese and 5.4 kilograms of yoghurt per person.

## Dairy exports

In 2003–04 Australia exported dairy products valued at \$2.1b (1.9% of total merchandise exports). Milk and cream and milk products (excluding butter and cheese) contributed \$1.2b while cheese and curd, and butter and other fats and oils derived from milk brought in \$737m and \$183m respectively.

## Sheep

Sheep numbers reached a peak of 180 million in Australia in 1970 (graph 14.48). In general, numbers have fallen since then. Poor market prospects for wool after 1990 had a marked impact on the flock size with sheep numbers falling rapidly until 1995, after which there was a gradual decline until 1999 (tables 14.45 and 14.46). By 30 June 2003, sheep and lambs had fallen to 99.3 million with numbers being severely affected by drought conditions throughout much of the country.

Map 14.47 shows the distribution of sheep and lambs in Australia at 30 June 2001.

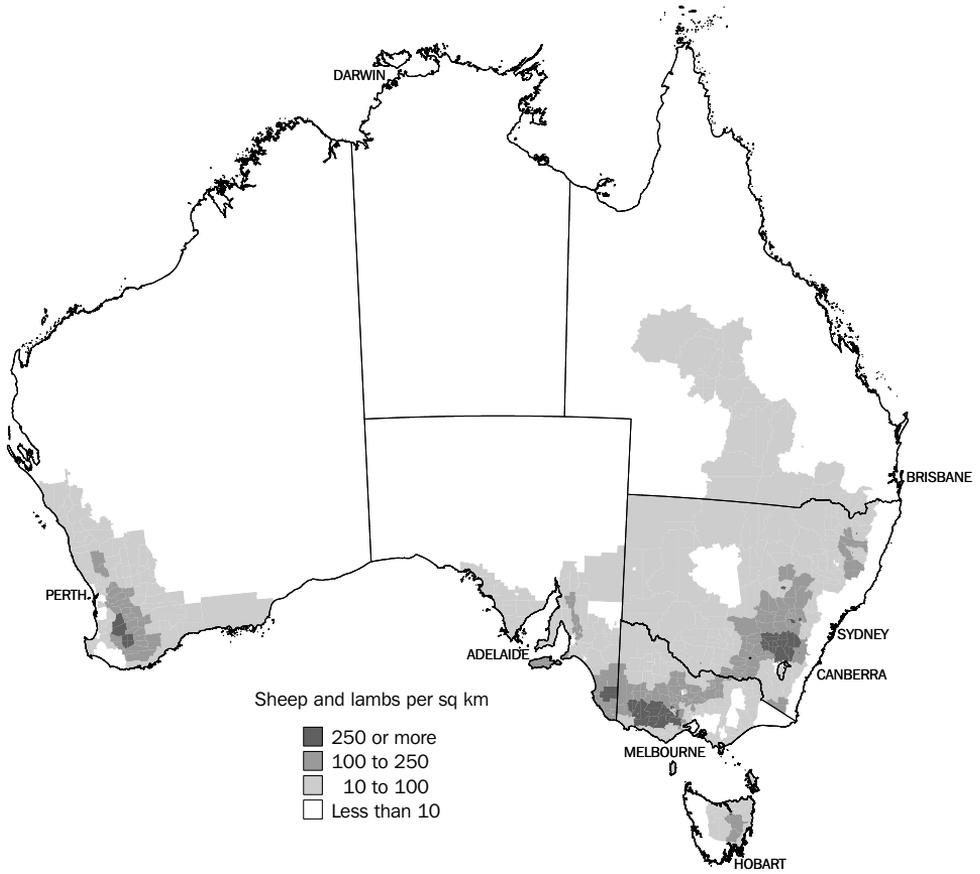
**14.46 SHEEP AND LAMBS — 30 June**

	1998(a)	1999(a)	2000	2001	2002	2003
	mill.	mill.	mill.	mill.	mill.	mill.
Sheep	87.5	86.0	87.9	83.0	77.8	73.4
Lambs (under 1 year old)	30.0	29.5	30.7	28.0	28.4	25.9
<b>Total</b>	<b>117.5</b>	<b>115.5</b>	<b>118.6</b>	<b>110.9</b>	<b>106.2</b>	<b>99.3</b>

(a) At 31 March.

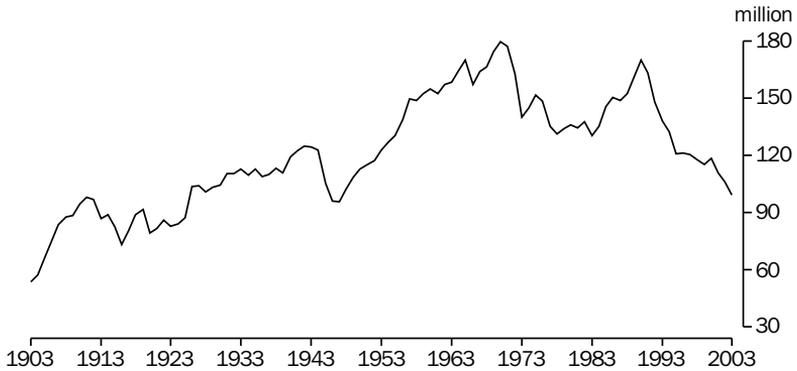
Source: *Agricultural Commodities, Australia (7121.0)*.

**14.47 SHEEP AND LAMBS, Distribution — 30 June 2001(a)**



(a) This map has been generated using Agricultural Census data at the Statistical Local Area level for 2000–01.  
 Source: AgStats on GSP (7117.0.30.001) CD-ROM product 1996–97 to 2000–01.

**14.48 SHEEP AND LAMBS**



Source: *Agricultural Commodities, Australia (7121.0)*; Historical data available on request.

## Pigs

Pig farming is a highly intensive industry. The majority of pigs are grown in specially designed sheds which provide a controlled environment conducive to the efficient production of large numbers of animals. The number of pigs decreased by 10% to 2.7 million at 30 June 2003 with the industry largely affected by the increased feed grain costs due to shortages caused by the drought. The number of establishments reporting pigs fell by 12% to 2,900 at 30 June 2003. Recent changes in the Australian pig industry have seen many smaller producers leave the industry and existing producers increase their size of operations in an attempt to remain viable.

Table 14.49 shows New South Wales is the largest producer of pigs, followed by Queensland and Victoria.

## Poultry

Poultry farming is a highly intensive industry, with the majority of poultry raised in large sheds which provide the birds with a stable environment protected from the elements. The poultry farming industry consists of two streams – meat production and egg production – both being major users of feed grains. Although the industry has grown over recent years, there was a decline in 2001–02 and 2002–03 with poultry numbers falling by 1% to 85.5 million birds at 30 June 2003 (table 14.50).

**14.49 PIGS — 30 June**

	NSW	Vic.	Qld	SA	WA	Tas.	Aust.(a)
	'000	'000	'000	'000	'000	'000	'000
1998(b)	849	518	648	424	303	24	2 768
1999(b)	778	521	621	406	277	22	2 626
2000	710	523	544	438	276	18	2 511
2001	845	557	597	438	286	22	2 748
2002	833	673	643	410	361	18	2 940
2003	729	555	663	381	309	^ 19	2 658

(a) Includes NT. (b) At 31 March.

Source: *Agricultural Commodities, Australia (7121.0)*.

**14.50 POULTRY — 30 June**

	Chickens(a)			Other poultry			Total all poultry '000
	Chickens for egg production	Meat chickens (broilers)	Total chickens	Ducks	Turkeys	Other poultry	
	'000	'000	'000	'000	'000	'000	
1998(b)	14 036	75 504	89 540	456	1 268	673	91 937
1999(b)	13 912	77 863	91 775	370	1 331	448	93 924
2000	12 016	72 912	84 928	517	1 360	224	87 029
2001	14 276	76 697	90 973	770	717	437	92 897
2002	12 858	72 144	85 002	567	584	*160	86 313
2003	12 913	70 912	83 825	^ 694	*772	**244	85 535

(a) Includes breeding stock. (b) At 31 March.

Source: *Livestock Products, Australia (7215.0)*.

## Meat production and slaughtering

Tables 14.51 and 14.52 show details of slaughtering and meat production from abattoirs, and from commercial poultry and other slaughtering establishments. They include estimates of animals slaughtered on farms and by country butchers. The data relate only to slaughtering for human consumption and do not include animals condemned or those killed for boiling down.

Production of beef for 2003–04 decreased 2% to 1,998,000 tonnes.

Changing patterns in both consumer demand, and sheep and lamb supply have seen production of lamb meat exceed production of mutton for each of the past five years. In 2003–04

mutton production decreased by 18% to 220,000 tonnes and lamb production increased by 4% to 341,000 tonnes.

Significant changes have taken place in the pig meat producing industry in recent years. Capital investment and corporate takeovers have seen the emergence of a few large companies producing a significant proportion of all pig meat sold in Australia. These moves, and the trend to more intensive and efficient production techniques, have seen pig meat production rise steadily since the mid-1970s when production dipped to a low of 174,000 tonnes. In 2003–04 pig meat production decreased 3% to 406,000 tonnes.

Table 14.53 shows the gross value of livestock slaughtering over recent years. Following five years of increases, the value of slaughtering and other disposals decreased in 2002–03 by 7%.

### 14.51 PRODUCTION OF MEAT

	Carcass weight					Dressed weight		
	Beef '000 tonnes	Veal '000 tonnes	Mutton '000 tonnes	Lamb '000 tonnes	Pig meat '000 tonnes	Total red meat '000 tonnes	Chicken meat(a) '000 tonnes	Total poultry(a)(b) '000 tonnes
1998–99	1 973	38	316	312	370	3 009	564	607
1999–2000	1 952	36	333	347	363	3 031	598	638
2000–01	2 086	33	348	367	365	3 200	619	657
2001–02	1 996	31	296	348	396	3 067	667	705
2002–03	2 035	38	268	329	420	3 090	690	726
2003–04	1 998	35	220	341	406	3 000	684	721

(a) Excludes NT and Tas. (b) Includes other fowls, turkeys, ducks and drakes.

Source: *Livestock Products, Australia (7215.0)*.

### 14.52 LIVESTOCK AND POULTRY SLAUGHTERED FOR HUMAN CONSUMPTION

	Cattle mill. head	Calves mill. head	Sheep mill. head	Lambs mill. head	Pigs mill. head	Chickens(a) mill. head	Other fowls(b) and turkeys mill. head	Ducks and drakes mill. head
1998–99	7.9	1.2	15.1	16.1	5.2	375.0	10.2	3.5
1999–2000	7.5	1.1	15.9	17.6	5.0	394.0	9.5	4.1
2000–01	7.9	1.0	16.6	18.6	5.0	398.9	8.4	4.0
2001–02	7.6	1.0	14.4	17.4	5.4	415.6	8.6	4.0
2002–03	8.1	1.1	13.7	16.9	5.7	419.2	9.2	4.1
2003–04	7.8	1.0	10.4	16.6	5.6	420.1	9.6	4.5

(a) Excludes NT and Tas. (b) Comprises hens, roosters, etc.

Source: *Livestock Products, Australia (7215.0)*.

### 14.53 GROSS VALUE OF LIVESTOCK SLAUGHTERINGS AND OTHER DISPOSALS

	Cattle and calves		Sheep and lambs(a)		Pigs	Poultry	Total(b)
	\$m		\$m		\$m	\$m	\$m
1997–98	4 138.2	1 066.2	709.8	1 053.6	6 991.9		
1998–99	4 476.6	1 053.5	689.7	1 018.5	7 255.8		
1999–2000	5 048.7	1 053.5	791.7	1 030.8	7 944.2		
2000–01	6 430.6	1 401.8	822.3	1 060.2	9 737.8		
2001–02	7 142.4	2 117.6	967.7	1 174.9	11 434.5		
2002–03	6 411.1	2 036.9	911.3	1 280.5	10 676.0		

(a) Excludes the value of wool on skins. (b) Includes value of other livestock.

Source: *Value of Agricultural Commodities Produced, Australia (7503.0)*.

The largest customers for Australian beef in recent years have been the United States of America, Japan and the Republic of (South) Korea. In 2003–04 the United States of America was the main customer for Australian beef with 364,000 tonnes purchased, 3% more than the previous year's shipment. Japan was Australia's second largest customer with 332,000 tonnes purchased, up 19% on the previous year. The Republic of (South) Korea was the third largest importer of Australian beef, purchasing 81,000 tonnes.

Table 14.54 shows the volume of exports of fresh, chilled or frozen meat. Despite a 5% drop in exports in 2003–04, beef was again Australia's major meat export with shipments of bone-out beef being the major component at 848,400 tonnes. Exports of bone-in mutton in 2003–04 decreased for the third year in row, down 21% to 85,800 tonnes.

Table 14.55 shows the number, gross weight, gross value and unit value of live sheep and cattle exported for slaughter. The number of live sheep exported for slaughter in 2003–04 decreased by 34% to 3,844,800 head. The number of live cattle exported for slaughter in 2003–04 decreased 41% to 578,800 head.

The number of live, pure-bred breeding sheep exported decreased from 12,700 in 2002–03 to 1,700 in 2003–04. During the same period the number of live, pure bred breeding cattle exported increased from 31,300 head in 2002–03 to 104,000 head in 2003–04 and the value of these cattle exports rose from \$38.2m to \$144.5m respectively.

The article *Australia's beef cattle industry* provides a more detailed description of the industry and its development over the past 100 years.

### 14.54 EXPORTS OF FRESH, CHILLED OR FROZEN MEAT

	Beef		Veal(a)		Mutton		Lamb		Pork
	Bone-in '000 tonnes	Bone-out '000 tonnes	Bone-in '000 tonnes	Bone-out '000 tonnes	Bone-in '000 tonnes	Bone-out '000 tonnes	Bone-in '000 tonnes	Bone-out '000 tonnes	Meat '000 tonnes
1998–99	61.0	836.6	1.6	6.1	114.7	51.4	71.6	9.3	16.5
1999–2000	44.0	818.4	1.6	7.4	120.9	55.5	86.6	11.1	39.2
2000–01	39.9	939.5	2.1	6.4	127.8	63.8	103.7	12.3	43.9
2001–02	31.7	891.5	2.4	7.1	113.9	52.1	104.6	13.8	59.0
2002–03	33.8	893.6	3.6	6.5	109.1	52.2	87.7	14.3	62.8
2003–04	28.9	848.4	2.9	6.2	85.8	42.3	99.8	18.1	50.2

(a) Includes buffalo meat.

Source: *Livestock Products, Australia (7215.0)*.

#### 14.55 LIVE SHEEP AND CATTLE EXPORTS(a)

	Live sheep exports				Live cattle exports			
	Number	Gross weight	Gross value	Unit value	Number	Gross weight	Gross value	Unit value
	'000	'000 tonnes	\$'000	\$	'000	'000 tonnes	\$'000	\$
1998–99	4 958.7	254.9	181 671	36.64	713.0	264.7	342 667	480.57
1999–2000	4 858.6	243.3	180 345	37.12	845.7	317.1	432 645	511.60
2000–01	5 936.0	283.6	257 661	43.41	845.8	314.3	481 827	569.66
2001–02	6 443.2	318.0	391 705	60.79	797.0	293.5	525 535	659.41
2002–03	5 843.2	273.0	408 235	69.86	976.6	362.5	569 288	582.93
2003–04	3 844.8	188.4	266 360	69.28	578.8	191.3	315 175	544.53

(a) Number of live animals exported, other than pure bred breeding animals.

Source: *Livestock Products, Australia (7215.0)*.

## The wool industry

Australia is the world's largest wool producing country, accounting for about 25% of world production. Wool production has been declining in Australia and the world for the past ten years, and is expected to continue to do so in the medium term. Since 1990 Australian wool production has almost halved, to around 551,100 tonnes in 2002–03. Almost all of Australia's wool is exported, the major markets being China, Italy, Taiwan and India.

### Wool production

Shorn greasy wool contains an appreciable amount of grease, dirt, vegetable matter and other material. The exact quantities of these impurities in the fleece vary with climatic and pastoral conditions, seasonal fluctuations and the breed

and condition of the sheep. It is, however, the clean wool fibre that is ultimately consumed by the textile industry, and the term 'clean yield' is used to express the net wool fibre content present in greasy wool.

The gross value of wool produced in 2002–03 increased to \$3,317.8m (table 14.56), little more than half the value recorded in 1988–89 (\$5.9b), the peak year in the wool boom of the 1980s.

### Wool receivals

The total amounts of taxable wool received by brokers and purchased by dealers in recent years are shown in table 14.57. They exclude wool received by brokers on which tax had already been paid by other dealers (private buyers) or brokers.

#### 14.56 SHEARING, WOOL PRODUCTION AND VALUE

	Sheep and lambs	Average fleece weight	Wool production			
			Shorn wool		Total wool	
			Quantity	Gross value	Quantity	Gross value
	mill.	kg	'000 tonnes	'000 tonnes	'000 tonnes	\$m
1996–97	156.4	4.37	685.0	46.1	731.1	2 621.2
1997–98	155.5	4.12	640.7	48.9	689.6	2 753.9
1998–99	147.9	4.32	638.8	48.8	687.6	2 141.0
1999–2000	142.7	4.50	642.3	52.5	694.8	2 149.2
2000–01	136.8	4.30	589.8	54.9	644.7	2 541.2
2001–02	122.0	4.4	536.5	50.4	586.9	2 713.2
2002–03	115.4	4.36	503.0	48.1	551.1	3 317.8

(a) Comprises dead and fellmongered wool, and wool exported on skins.

Source: *Agriculture, Australia (7113.0)*; *Livestock Products, Australia (7215.0)*; *ABARE, 'Australian Commodities, March Quarter 2000'*.

### 14.57 TAXABLE WOOL RECEIVALS

	Receivals			Brokers as proportion of total receivals %
	Brokers '000 tonnes	Dealers '000 tonnes	Brokers and dealers '000 tonnes	
1996-97	565.2	119.9	685.0	82.5
1997-98	524.0	116.7	640.7	81.8
1998-99	526.9	111.8	638.8	82.5
1999-2000	517.5	124.8	642.3	80.6
2000-01	487.2	102.6	589.8	82.6
2001-02	436.8	99.7	536.5	81.4
2002-03	390.6	112.5	503.0	77.7
2003-04	384.2	83.3	467.6	82.2

Source: *Livestock Products, Australia (7215.0)*.

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# Australia's beef cattle industry

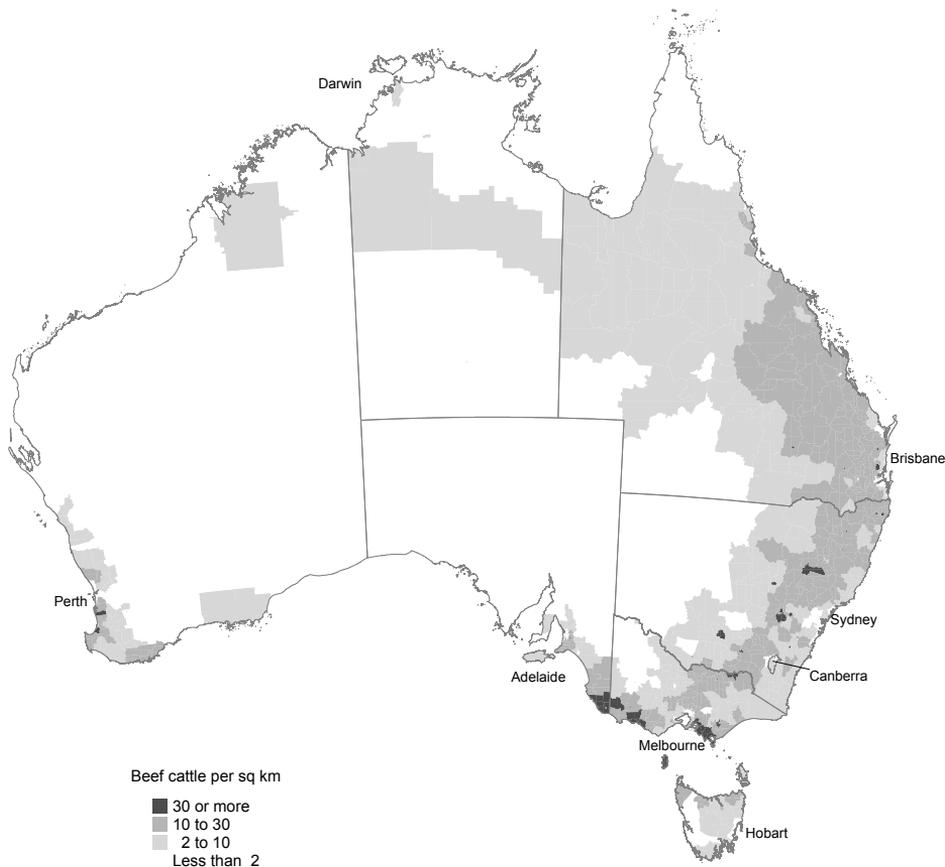
The beef cattle industry is one of Australia's major agricultural industries. It is an extremely diverse industry, ranging from intensively managed small holdings in the south-east of Australia, where more fertile soils and plentiful supplies of water allow high stocking rates, to extensive large scale unfenced cattle stations where cattle rarely see a human being, except for infrequent musters.

About a quarter of the approximately 133,000 farming establishments (with an annual estimated value of agricultural operations (EVAO) of \$5,000 or more), derive their main income from beef cattle farming. Another fifth

earned a significant portion of their income from beef cattle combined with grain growing and/or sheep farming.

In June 2004 the beef cattle herd was expected to number about 23.3 million, down 1% on the 23.6 million animals recorded in June 2003. During 2003–04, a total of 8.8 million cattle and calves were slaughtered with an estimated value of over \$6.0b. This slaughter produced just over 2.0 million tonnes of beef and veal in the year. Exports of these products in 2003–04 earned \$3.9b, which was about 3.5% of total merchandise exports, while sales of live cattle to foreign markets raised another \$460m.

**S14.1 BEEF CATTLE, Distribution — 30 June 2001**



Source: 2000–01 Agricultural Census data.

## Historical overview

The first European settlers arrived in 1788 with six head of cattle. The *Year Book Australia 1901–1907* records:

... during the years immediately succeeding the first settlement, the growth of the number of livestock was slow and notwithstanding importations from India and the Cape of Good Hope, the total of the herd amounted in 1800 to 1,044 cattle. During the next fifty years, however, the pastoral industry made rapid strides and at the end thereof (1850) the total reached 1,894,834.

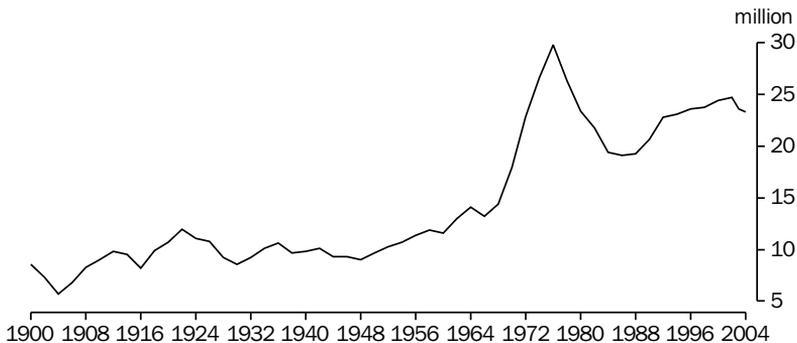
This growth was to continue for the next 50 years and by 1900 the beef cattle herd had climbed to 8.6 million head. However, the impact of two world wars and the Depression saw numbers remain comparatively stable for the next 50 years, and in 1950 the beef cattle herd stood at 9.7 million head.

Despite the introduction of Brahman cattle in the 1930s, Australia's beef herd continued to be dominated by *Bos taurus* cattle of British origin, such as Hereford, Aberdeen Angus and Beef Shorthorn, well into the 1950s. During the 1950s more *Bos indicus* breeds were

introduced and they, and their crossbred offspring, have proven to be well suited to the northern parts of the continent. These cattle have played a major role in the development of Australia's northern cattle herd and the growth of the live cattle trade to South East Asia. In the late-1960s, large European *Bos taurus* breeds such as Limousin, Charolais and Simmental were introduced and crossed with British breed stock to produce later finishing, larger animals.

With this new mix of breeds, beef cattle numbers increased rapidly through the 1960s and 1970s to reach a peak of 29.8 million in 1976. Due to high levels of world production of beef and the imposition of quantitative limitations on imports by major overseas buyers, world beef prices collapsed during 1974–75. Drought and continued low prices in the early-1980s led to a decline in the beef herd to 19.4 million by March 1984. For the next five years, the size of the herd remained relatively static. Between 1989 and 2002, beef cattle numbers gradually increased to a peak of 24.7 million in June 2002, but the recent drought has reduced the beef herd by nearly 1.4 million head over the past two years (graph S14.2 and table S14.3).

**S14.2 BEEF CATTLE HERD(a)**



(a) 2004 level estimated by the Australian Bureau of Agricultural and Resource Economics (ABARE).

Source: ABS Agricultural Censuses and Surveys; ABARE.

### S14.3 BEEF CATTLE — 30 June

	1999(a)	2000	2001	2002	2003	2004
	'000	'000	'000	'000	'000	'000
Bulls and bull calves used or intended for service	528	518	591	620	570	n.a.
Other calves under one year	5 740	5 872	6 083	5 679	5 292	n.a.
Cows and heifers one year and over	11 621	12 282	12 007	12 652	12 245	n.a.
Other cattle one year and over	5 469	5 774	5 823	5 788	5 508	n.a.
<b>Total</b>	<b>23 358</b>	<b>24 448</b>	<b>24 504</b>	<b>24 739</b>	<b>23 615</b>	<b>(b)23 300</b>

(a) At 31 March. (b) ABARE estimate.

Source: *Agricultural Commodities, Australia (7121.0)*; ABARE.

## Global context

According to the Food and Agriculture Organisation of the United Nations, Australia had the tenth largest cattle herd in the world in 2003, with the top four being India (226 million), Brazil (190 million), China (103 million), and the United States of America (USA) (96 million). Despite its relatively modest herd (about 2% of the world's cattle population), Australia is currently the world's largest exporter of beef contributing nearly 25% of the total beef traded. However, as Australia only produces about 4% of the total world beef supply, its share and pricing ability in the world market has always been susceptible to the influences of production levels in other major beef producing nations. One such factor, which greatly influences the profitability of Australian beef production, is the USA cattle production cycle. Peaks in this cycle have occurred about every 10 to 12 years and are usually triggered by high levels of grain production in the USA.

Other international events in recent years have also affected the industry. The Asian economic crisis of 1997 saw the value of Australia's trade of live cattle fall 22% in the year to June 1998. Sales the following year were no better. However, the falls were partially offset by increases in live cattle exports to Northern Africa. This increase in demand from Northern Africa occurred because their traditional European suppliers had been unable to provide cattle due to outbreaks of bovine spongiform encephalopathy (BSE or 'mad cow disease') and foot and mouth disease (FMD) in their herds.

Since 2000 a range of factors have contributed to fluctuations in Australia's beef and live cattle trade. These have included the detection of BSE in Japan, Canada and the USA (and associated falls in consumption), the value of the Australian dollar, a downturn in the USA

food service sector (affecting the importation of manufacturing beef), changing attitudes to beef consumption in other markets, for example, the Philippines and Egypt, herd rebuilding in the USA, the war in Iraq and renewed economic growth in the USA and Asia in late-2003.

## Industry structure

In 2002–03 there were 36,200 establishments classified as 'beef cattle' farms, accounting for 27% of the total 133,000 agricultural establishments. This compares with 5% in 1960, 19% in 1980, 15% in 1990 and 25% in 1995. Another 27,200 establishments were classified to the 'grain-sheep and grain-beef industry' and the 'sheep-beef' industry in 2002–03. This general trend toward increasing numbers of beef cattle establishments coincides with a decline in the numbers of 'dairy', 'sheep' and 'grain-sheep/grain-beef' establishments. In particular, the dairy industry has shed over 9,500 establishments (about 46%) since 1979–80.

In 2002–03, of the 23.6 million meat cattle herd, establishments classified to the beef cattle industry held 17.2 million head (or around 73% of the total herd), while establishments classified to the 'grain-sheep and grain-beef' industry and the 'sheep-beef' industry held 4.1 million head of cattle (or around 18% of the total herd). During the year, establishments with an EVAO of less than \$200,000 accounted for 72% of all establishments with beef cattle but held only 30% of the beef herd. At the other end of the scale, establishments with an EVAO greater than \$1m accounted for 3% of all farms with cattle and ran 32% of the beef herd.

In just over two decades, the size of the average cattle herd has increased by 52%. In 1979–80 the average herd numbered 218 and

by 1989–90 it had risen to 301. By 1994–95, it had risen to 306 and in 2002–03 numbered 331. In 1979–80 small herds were common, with 72% of herds having less than 150 head. At the other end of the scale, just over 1% of herds contained over 2,000 head. By 1989–90 a move to larger herds had become apparent as the number of herds with less than 150 head had fallen to 60% while herds over 2,000 head had risen to 2%. In 2002–03 the situation remained about the same.

## Feedlots

The production cycle of the beef industry has changed over the past 30 years with the introduction of feedlots. Feedlots are defined as 'a confined yard area with watering and feeding facilities where cattle are completely hand fed or mechanically fed for the purpose of production'.

Feedlots made their first appearance in the USA in the 1920s but it was not until the 1950s that Australia began experimenting with the concept. In the mid-1960s commercial feedlotting started on the Darling Downs in Queensland. This industry within an industry was born out of a demand from overseas customers, for a specifically tailored, consistently high quality, year round product.

Traditionally, Australian consumers have preferred leaner beef while some markets, especially the Japanese, prefer high levels of marbling in their beef. To meet these requirements, along with a growing domestic demand, cattle raised on pastures are 'finished' on a highly nutritious diet of grain feed prior to slaughter or live export. Barley and sorghum are the most common grains used. Cattle stay on this feed for periods varying from about 30 days up to about 300 days depending on the level of marbling and weight required by the particular customer.

Despite a setback to its evolution in 1975, when access to the Japanese market closed temporarily, the feedlot industry in Australia had grown to 830 feedlots by 1996 when accreditation first commenced. Since then, a significant number of mainly small lots have ceased operations or not achieved nor sought accreditation. As a result, the number of accredited feedlots was down to 710 by June 2000 and down further to 575 by March 2004.

It is expected that over the next year or two this figure will increase slightly and eventually stabilise at about the 600 mark.

In contrast to the declining number of feedlots, total feedlot carrying capacity had risen to a record high of 926,000 head as at 31 March 2004. Numbers on-feed were reported to be 666,000 head (72% of total carrying capacity), nearly half of which was in Queensland and over a third in New South Wales. Of total capacity, 55% was held by 23 feedlots, each with a licensed capacity of 10,000 head or more. At the other extreme, 17% was held by about 481 feedlots, each with a licensed capacity of less than 1,000 head.

Most of the cattle being held on feedlots at 31 March 2004 were destined for the Japanese market (which was expected to consume 356,000 head or 53% of available supply). The next biggest market was the domestic market (which was expected to consume around 249,000 head or 37% of available supply).

## Slaughtering

Cattle slaughter rates have increased steadily over time as the cattle herd has grown and as consumer demands and preferences have changed. In 1901 about an eighth of the 8.6 million head herd were slaughtered while in 1950 a quarter of the then 9.7 million head herd were slaughtered. In 2003–04, 8.8 million cattle and calves were slaughtered, representing around 33% of the total cattle herd. In 2003–04 the dairy industry was estimated to have contributed nearly 1.7 million cattle to the total slaughter. This number was made up of 270,000 beef bred cattle, 860,000 bobby calves and 560,000 cull dairy cows.

Current average dressed carcass weight for cattle and calves stands at 232 kgs, a 36% increase on the 171 kgs in 1950. Slaughtering in 2003–04 were valued at over \$6.0b while in 1949–50 slaughtering were valued (in 2004 prices) at \$1.7b. Queensland slaughtered the most cattle and calves in 2003–04 (3.7 million) followed by Victoria (2.2 million), and New South Wales (1.8 million). Recent livestock slaughtering data show the effects of the 2002–03 drought. Beef production in 2003–04 fell 1.8% to 2.0 million tonnes over the previous year while veal production declined by 8% to 35,000 tonnes. The number of female

cattle presented for slaughter dropped 6.2% in 2003–04 compared with 2002–03 while the number of male cattle slaughtered only dropped 1.9% as primary producers began the process of rebuilding herd numbers.

## Beef and veal exports

In 1901 Australia exported 43,600 tonnes of beef (about 25% of total production and 2% of total export trade) valued at \$122.3m (in 2004 prices). The main destinations were the United Kingdom (50%), South Africa (36%) and the Philippines (8%). In 2003–04 Australia exported 886,400 tonnes of beef and veal (44% of total beef/veal production) worth \$3,908m (3.5% of total merchandise trade). In tonnage terms, this was 5% less than the previous year due to the effects of BSE on Australian exports to Canada and a strong Australian dollar affecting some Asian markets. In value terms, there was virtually no difference in the return to producers in 2003–04 due to the higher prices for beef in the USA and north Asian markets. It is also interesting to note that the price per tonne paid for export beef in 1901 (in 2004 prices) was 60% of what farmers received in 2003–04.

Despite the overall decline in the tonnage of beef and veal exported, shipments to the largest customers, the USA and Japan, increased 3% and 19% respectively in 2003–04. However, Canada's take fell 87% from 69,000 tonnes to 8,900 tonnes and exports to the Republic of (South) Korea, Taiwan, Indonesia and the Philippines combined

declined by 28,000 tonnes (18%). Total beef and veal exports in 2003–04 were 25% more than in 1989–90 and nearly five times those of 1959–60 (table S14.4).

## Live cattle exports

In 1901 Australia exported 2,413 live cattle valued at \$44,000 and imported 114 cattle valued at \$7,182. Since then, the balance has moved even further in Australia's favour with Australia exporting 683,000 head with a value of \$460m in 2003–04, while importing only 4 beasts (for breeding) with a value of \$168,000 in that year. Australia now exports more live cattle than any other country.

The majority of live cattle exported are classified as 'other than pure bred breeding animals' and are usually intended for slaughter in their country of destination. In 2003–04, 578,800 head of this type of cattle were exported. In recent years, Australia's trade in this commodity has fluctuated following a steady increase up to 1996–97, after which the Asian economic downturn caused shipments to fall 20% to 694,000 head in 1997–98. The main component of the lost trade during the two-year slump to June 1999, was an 80% fall in the export of cattle to Indonesia. On the other hand Libya in 1997–98 and Egypt in 1998–99 each increased their purchases four-fold (in both cases) to make up much of the difference over the period.

**S14.4 BEEF AND VEAL EXPORTS, Destination**

	1899– 1900	1909– 10	1919– 20	1929– 30	1939– 40	1949– 50	1959– 60	1969– 70	1979– 80	1989– 90	1999– 2000	2003– 04
	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t
United States of America	—	—	0.1	0.2	0.3	—	89.3	234.8	343.6	349.8	317.9	363.8
Japan	—	—	—	2.8	0.2	0.1	2.0	16.5	98.2	190.8	326.9	331.5
Korea, Republic of (South)	—	—	—	—	—	—	—	—	8.2	68.8	72.7	80.5
Taiwan	—	—	—	—	—	—	—	—	6.7	29.7	29.5	30.2
Indonesia	—	—	—	0.2	0.1	—	—	—	0.3	0.3	16.0	11.8
Malaysia and Singapore	—	—	—	1.3	2.6	0.1	4.1	2.5	9.4	4.6	12.9	10.7
Canada	—	—	—	—	—	—	—	23.4	23.9	30.4	34.4	8.9
Philippines	3.6	4.5	1.3	3.3	0.6	—	1.1	1.2	3.8	0.3	17.9	7.5
United Kingdom	21.8	41.4	48.0	35.6	112.1	62.1	81.7	27.1	6.1	5.6	7.4	4.9
Egypt	0.1	0.6	3.0	2.7	6.4	3.9	—	—	4.0	—	1.2	0.5
South Africa	16.0	1.7	—	—	—	—	—	—	—	—	2.5	0.3
Other	2.1	1.4	2.6	25.0	1.3	16.5	11.7	22.4	74.6	28.4	32.0	35.7
<b>Total</b>	<b>43.6</b>	<b>49.6</b>	<b>55.0</b>	<b>71.1</b>	<b>123.6</b>	<b>82.7</b>	<b>189.9</b>	<b>327.9</b>	<b>578.8</b>	<b>708.7</b>	<b>871.3</b>	<b>886.4</b>

Source: ABS International Trade special data service.

Live exports of cattle for slaughter rose to 846,000 head in 1999–2000 and remained at that level in 2000–01. This was due to an improvement in the Indonesian economy, the impacts of BSE and FMD in European and South American countries and a weaker Australian dollar. In 2001–02 live exports for slaughter fell 6% as cattle prices rose and the economic recoveries in Indonesia and the Philippines stalled. The record level in 2002–03 of 977,000 head (surpassing the previous high in 1996–97) was due to renewed demand from Indonesia along with increased demand from Malaysia, Saudi Arabia and Brunei.

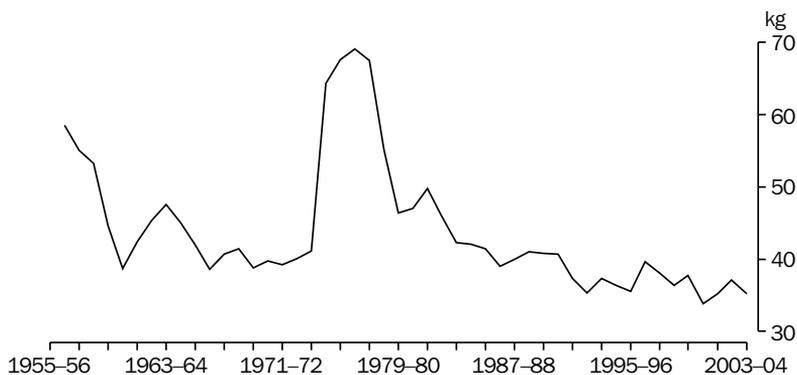
However, the new level could not be maintained in 2003–04 as currency fluctuations saw exports of live slaughter cattle fall 41% to 578,800 head, a loss to Australia of \$254m. Indonesia remained the largest export market despite reducing its take to 333,000 head, 31% less than the previous year. In other major losses, the Egyptian market virtually collapsed (104,000 to 3,000 head), exports to the Philippines were halved to 54,000 head and sales of live slaughter cattle to Saudi Arabia ceased altogether (from 52,000). Malaysia's share in 2003–04 also fell, down 30% to 67,000 head. One bright note in the year was a four-fold increase in sales to Jordan (9,000 to 38,000 head).

## Domestic consumption of beef and veal

Over the past 40 years Australians' eating habits have undergone many changes. Reasons for these changes include new cultural influences, health considerations, changes in relative prices of different foods and substitutes, product marketing and so on. While beef/veal continues to be one of the most popular meats, it has both enjoyed and suffered the effects of these changes.

Beef and veal consumption grew from 40 kg per person in the late-1960s to a peak of 70 kg in 1976–77, coinciding with record production and low prices. Ten years later, reflecting changing attitudes to red meat, consumption had fallen to 39 kg. This trend continued with consumption in 1995–96 falling to 36 kg per person. The small increase to 37 kg per person in 2002–03 was expected to precede a period over the next several years during which time consumption of beef and veal will run at about 35–36 kg per person. Such fluctuations are not new and reflect changes in the cattle industry as well as changes in social attitudes and economic conditions. The relationship of beef cattle prices to beef consumption is shown in graphs S14.5 and S14.6.

**S14.5 BEEF CONSUMPTION PER PERSON**



Source: *Apparent Consumption of Foodstuffs, Australia (4306.0)*; ABARE data.

### S14.6 BEEF PRICE PER HEAD(a)



(a) At 2004 prices.

Source: ABS data available on request.

Consumer preferences for alternative sources of protein have also changed with the main changes being the increased consumption of chicken and the reduced consumption of sheep meat. Consumption of chicken meat increased by 28% from 24 kg in 1988–89 to 31 kg per person in 1998–99. In 2002–03, per person consumption of chicken meat stood at 35 kg, with the Australian Bureau of Agriculture and Resource Economics (ABARE) expecting it to exceed consumption of beef/veal in 2003–04. Over the period from 1988–89 to 1998–99, sheep meat consumption fell from 22 kg per person to 16 kg, with a further decline to 14 kg expected in 2003–04.

By comparison, the consumption of pigmeat remained relatively constant through the 1990s at around 19 kg per person. It has since increased slightly and was expected to peak at 22 kg in 2003–04 before easing back to around the 20 kg mark. Seafood consumption remained in the 10–11 kg per person range during the 1990s but recent data suggests it may now almost rival sheep meat's consumption rate.

### Short-term outlook

Assuming the return of normal seasonal conditions in 2004–05, ABARE expects the beef cattle herd to rebuild to pre-drought levels by

2006–07. This rebuilding, along with a drought affected calving and lower overall numbers, will cause slaughtering to decline by over 4% in 2004–05. Consequently, beef production in 2004–05 is forecast to fall by about 2% but increased average slaughter weights and smaller proportion of cows and calves should partially offset the lower slaughter numbers.

Exports of beef to Australia's biggest customer in this trade, the USA, are expected to fall slightly in 2004–05. Australia's herd rebuilding process will constrain its ability to increase supply and competition from other beef exporting countries is expected to see USA prices ease. In the Asian markets, prices are also forecast to fall, especially once the embargoes on USA beef are lifted (imposed after the discovery of a case of BSE) and USA product again becomes available in late-October 2004. An assumed depreciation of the Australian dollar should partially offset the affect of these price falls.

These same lower currency rates should also make overseas sales of Australian live cattle for slaughter more attractive. However, supply will be an issue and any increase of exports in this commodity is not expected to be large.

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## FORESTRY AND FISHING

This chapter outlines the main features of two important primary industries in Australia – forestry and commercial fishing. Some information on recreational fishing is also provided.

The forests and wood products industries, based on native and plantation forests, employed approximately 92,700 people in 2003–04. The value of exports and imports of forest products was substantial at about \$2.1b and \$4.0b respectively in 2002–03, making Australia a net importer of forest products.

Australia's fisheries resources are diverse. Over 3,000 species of marine and freshwater fish, and at least an equal number of crustacean and mollusc species, occur in waters in and around Australia. Less than 600 of these are commercially fished. However, almost all the major known fish, crustacean and mollusc resources are fully fished. Aquaculture, or 'fish farming', is an alternative to harvesting the naturally occurring fish stocks and has considerable potential as a way to ensure the sustainability of harvesting yields.

The gross value of Australian fisheries production, at the point of landing, was about \$2.3b in 2002–03, of which aquaculture accounted for 32%. The value of exports (which includes marketing and transport costs) and imports (including insurance and freight costs) of fisheries products stood at \$1.8b and \$1.2b respectively in 2002–03, making Australia a net exporter of these products.



## Forestry

Australia's native and plantation forests are an important natural resource providing a wide range of products and benefits to the community.

Forests are a reservoir of biological diversity and are functioning ecosystems. They provide protection for soils and water resources, and are increasingly being recognised for their potential as carbon sinks through their ability to absorb carbon from the atmosphere. They are the foundation for a broad range of cultural and spiritual experiences for diverse groups of people and a major tourist attraction for Australians and overseas visitors, providing for a vast array of recreational and educational activities.

Forests and plantations provide the basis for Australia's forest industries. Employment and wealth flow directly from the wood products derived from the forests, such as sawn timber, fibreboard, plywood and paper, and support a variety of other forest products and services, such as honey, wildflowers, natural oils, gums, resins, medicines, firewood and craft wood.

The Australian Government, and the state and territory governments share a vision of ecologically sustainable management of the forest estate that integrates environmental, commercial and community values and uses. These values are embodied in regional forest agreements negotiated in New South Wales, Victoria, Western Australia and Tasmania.

Australia is engaged with the global community in measuring, monitoring and reporting indicators for sustainable forest management. As a member of the international forest initiative – the Montreal Process (1994) – Australia has contributed to the development of the seven national criteria and 67 national indicators for the sustainable management of temperate and boreal forests. Australia has adopted the internationally agreed criteria and indicators, and added others to reflect its own unique forests, providing a consistent framework for monitoring and reporting on the status of its forests.

### Forest estate

#### Native forest

A forest is defined by Australia's National Forest Inventory as an area incorporating all living and non-living components, dominated by trees having usually a single stem and a mature or

potentially mature stand height exceeding two metres, and with an existing or potential crown cover of over-storey strata about equal to or greater than 20%. This definition includes Australia's diverse native forests, regardless of age. It is also sufficiently broad to encompass areas of trees that are sometimes described as woodlands.

Based on this definition, the total area of native forest as at November 2003 is estimated at 162.7 million hectares (ha), which is about 21% of Australia's land area (table 15.1). Some 121.6 million ha (75%) of native forest were on public land, and 38.9 million ha (24%) were on private land with the remaining 1% on land of unresolved tenure. The 121.6 million ha of forests growing on public land, consisted of 75.6 million ha (62%) on leasehold tenure, 21.5 million ha (18%) in Nature Conservation Reserves, 13.1 million ha (11%) on other Crown land, and 11.4 million ha (9%) managed by state forest authorities for multiple uses including wood production, recreation and informal reserves. Taking forested leasehold land together with private freehold forest, some 114.5 million ha, or 70% of Australia's native forests, were under private management.

#### Plantations

The combined resource of standing planted forests in Australia was 1.7 million ha planted to December 2003 (table 15.2). Softwood plantations, which are dominated by the exotic species *Pinus radiata*, represented 59% (988,000 ha). Hardwood plantations, which are almost all native eucalyptus species, mainly the *Eucalyptus globulus* variety, represented 41% (676,000 ha). The proportion of the estate accounted for by hardwood plantations is continuing to increase, up from 15% in 1994 and 29% in 1999 to 41% in 2003.

A diverse range of ownership arrangements exists in the Australian plantation industry, including a variety of joint venture and annuity schemes between public and private parties. Private ownership of trees in plantation forests has increased from 46% in 1999 to 57% in 2003. Private ownership of land under plantation forests has increased from 42% to 52% over the same period.

As a result of severe bushfires during January 2003, 11,000 ha (65%) of plantation forest in the Australian Capital Territory was destroyed.

### 15.1 NATIVE FOREST AREAS — December 2003

	NSW '000 ha	Vic. '000 ha	Qld '000 ha	SA '000 ha	WA '000 ha	Tas. '000 ha	NT '000 ha	ACT '000 ha	Aust. '000 ha
<b>DOMINANT CANOPY SPECIES</b>									
Eucalypt									
Tall	3 820	2 465	1 189	1	170	1 130	—	28	8 803
Medium	18 190	3 407	36 022	596	12 399	1 281	11 268	81	83 244
Low	186	519	1 373	1 208	2 646	65	16 643	7	22 647
Mallee	22	1 171	122	6 044	4 969	—	—	—	12 328
Total	22 218	7 562	38 706	7 849	20 184	2 476	27 911	116	127 022
Acacia	1 251	63	6 984	1 939	4 563	74	1 613	—	16 487
Melaleuca	44	96	5 301	1	—	19	1 593	—	7 054
Rainforest	486	16	2 885	—	5	598	224	—	4 214
Casuarina	1 000	4	216	763	40	1	14	—	2 038
Mangrove	3	2	196	19	173	—	355	—	748
Callitris	1 240	56	387	261	—	1	386	—	2 330
Other	415	135	1 059	34	398	—	738	—	2 779
<b>Total</b>	<b>26 658</b>	<b>7 936</b>	<b>55 733</b>	<b>10 866</b>	<b>25 365</b>	<b>3 169</b>	<b>32 836</b>	<b>117</b>	<b>162 680</b>

#### TENURE

Public									
Multiple use forest(a)	2 496	3 312	2 925	—	1 600	1 062	—	—	11 395
Nature Conservation Reserve(b)	4 471	3 050	5 000	3 943	3 805	1 105	12	106	21 492
Other Crown land(c)	1 055	207	1 131	392	9 387	80	890	—	13 142
Leasehold(d)	9 470	46	35 581	5 255	8 920	—	16 313	11	75 596
Total	17 492	6 615	44 637	9 590	23 712	2 247	17 215	117	121 625
Private	8 523	1 298	10 213	822	1 639	922	15 511	—	38 928
Unresolved tenure	643	23	883	454	14	—	110	—	2 127
<b>Total</b>	<b>26 658</b>	<b>7 936</b>	<b>55 733</b>	<b>10 866</b>	<b>25 365</b>	<b>3 169</b>	<b>32 836</b>	<b>117</b>	<b>162 680</b>

(a) Publicly owned land managed for multiple use including wood production. (b) Public land on which wood production is excluded (national parks, etc.). (c) Reserved areas of educational, scientific and other public institutional land, including easements, defence land, and other minor tenure classifications. (d) Crown land where the right to harvest or clear land must be approved by state/territory governments. Often known as pastoral leases.

Source: Bureau of Rural Sciences, 'National Forest Inventory, 2004'.

### 15.2 PLANTATION AREAS — December 2003

Species type	NSW '000 ha	Vic. '000 ha	Qld '000 ha	SA '000 ha	WA '000 ha	Tas. '000 ha	NT '000 ha	ACT '000 ha	Aust. '000 ha
Hardwood(a)	51	155	31	37	252	147	4	—	676
Softwood	280	212	181	120	109	76	4	5	988
Unknown	—	—	1	—	—	—	—	—	2
<b>Total</b>	<b>331</b>	<b>367</b>	<b>213</b>	<b>158</b>	<b>361</b>	<b>223</b>	<b>8</b>	<b>5</b>	<b>1 666</b>

(a) Includes a small amount of mixed plantings.

Source: Bureau of Rural Sciences, 'National Plantation Inventory, Annual Update, March 2004'.

## Farm forestry

Farm forestry generally refers to the incorporation of commercial tree growing into farming systems. This may take the form of smaller-scaled plantations on farms, timber belts, wind breaks, alleys and wide-spaced plantings, and may also include management of native forest for commercial returns on farms.

Farm forestry is increasingly becoming adopted as part of farm management planning and integrated into existing land uses, not only to supply wood but also to provide a range of benefits such as environmental protection and increased agricultural production.

To date, plantation farm forestry has mostly occurred in higher rainfall regions (greater than 600 mm per year) where good growth rates can be achieved and there is an existing timber processing industry. Many farmers have also entered into farm forestry by leasing their land or forming joint venture agreements with large-scale forest management companies.

The baseline area for plantations owned outright by individuals having total estates less than 1,000 ha (i.e. the small-grower sector) was just on 67,000 ha in 2000, or nearly 5% of Australia's total plantation estate (Bureau of Rural Sciences, *Australia's State of the Forests Report, 2003*). In contrast to the wider plantation estate, which mainly comprised softwoods, the farm forest resource comprised over 60% hardwoods.

The management of private native forests is recognised as an important component of farm forestry, as 24% of Australia's total native forest area is in private ownership and a further 46% is on privately managed leasehold land.

## Wood and paper products

Australia's wood and paper products industries are important components of Australia's primary and secondary industry sectors. They are particularly important in providing economic development and employment in many regions of rural Australia. The industries include hardwood and softwood sawmilling, plywood and panels manufacturing, woodchip production and export, and the pulp and paper industries.

In 2002–03 total roundwood removed from forests increased by 15% to 28.6 million cubic metres. The removal of broadleaved wood (primarily from native forests) rose 12% in 2002–03 to 11.8 million cubic metres, while 17% more coniferous wood (mainly from plantations) was removed (ABARE 2004b).

The value of exports of forest products in 2002–03 totalled \$2.1b, of which 38% were woodchips and 34% paper and paperboard products. The value of imports of forest products in 2002–03 was \$4.0b, of which 50% were paper and paperboard products and 13% sawnwood. This indicates a trade deficit in forest products of \$1.9b in 2002–03. Australia produced 88% of its sawn timber needs in 2002–03, of which native forests provide 26%, with 74% coming from softwood plantations. Imported sawn timber is mostly Radiata pine from New Zealand and Douglas fir from North America.

The hardwood and softwood sawmilling industries comprise mills of various sizes which process wood into sawn timber and other products such as veneers, mouldings and floorings. The hardwood mills are generally small scale and scattered. The softwood mills are generally larger and more highly integrated with other wood processing facilities. Australia's production of sawn timber in 2002–03 decreased by 2% to 4,049,000 cubic metres (table 15.3).

Other value-added timber products include plywood, wood-based panels and reconstituted wood products. Australian wood-based panels include particleboard, medium density fibreboard, and hardboard made from softwood or hardwood pulp logs, sawmill residues or thinnings.

Pulp and paper mills use roundwood thinnings, low quality logs, harvesting residues and sawmill waste, recycled paper and paperboard to produce a broad range of pulp and paper products. Some 37% of the paper and paper products consumed domestically in 2002–03 were imported, with 70% of printing and writing paper coming from overseas. The majority of paper products produced domestically were packaging and industrial paper (62%) along with newsprint, printing and writing papers, and tissue paper. Recycled paper now contributes 54% of the fibre used in the production of all paper and paperboard.

Woodchips are mainly used in the production of Australia's paper and paper products. The woodchip export industry uses sawmill residues and timber which is unsuitable for sawmilling and not required by the pulp, paper and reconstituted wood products industries. Before the advent of the woodchip export industry, much of this material was left in the forest after logging. Considerable quantities of sawmill waste material, which would otherwise be burnt, are also chipped

for local pulpwood-using industries and for export. Up until 1990–91 at least 95% of woodchips exported from Australia had been eucalypt, but since then greater quantities of softwood woodchips have become available from pine plantations. In 2002–03, 18% of the total value of woodchips exported was from softwood woodchips.

### 15.3 PRODUCTION OF WOOD AND SELECTED WOOD PRODUCTS

Commodity	Units	1998–99	1999–2000	2000–01	2001–02	2002–03
Sawn Australian grown timber						
Coniferous(a)	'000 m <sup>3</sup>	2 338	2 637	2 351	3 011	2 986
Broadleaved	'000 m <sup>3</sup>	1 267	1 346	1 174	1 108	1 063
Total	'000 m <sup>3</sup>	3 606	3 983	3 525	4 119	4 049
Hardwood woodchips(b)	'000 t	4 856	6 164	6 401	5 912	7 079
Railway sleepers	'000 m <sup>3</sup>	67	40	n.a.	n.a.	n.a.
Plywood	'000 m <sup>3</sup>	169	192	157	192	219
Unlaminated particle board	'000 m <sup>3</sup>	902	978	904	965	1 025
Medium density fibreboard	'000 m <sup>3</sup>	495	621	712	732	786
Wood pulp(b)	'000 t	871	861	895	843	877
Paper and paperboard						
Newsprint(b)	'000 t	405	464	465	395	412
Printing and writing	'000 t	497	535	554	624	564
Household and sanitary	'000 t	187	232	204	198	194
Packaging and industrial	'000 t	1 475	1 605	1 449	1 679	1 892

(a) From July 2000, includes railway sleeper production that can no longer be separately identified. (b) Excludes production of small establishments with fewer than four persons employed, and establishments engaged in non-manufacturing activities but which may carry on, in a minor way, some manufacturing.

Source: *Manufacturing Production, Australia (8301.0)*; ABARE 2004b, 'Australian Forest and Wood Products Statistics'.

## Fishing

### Production, processing, and exports and imports of fisheries products

#### Value of fisheries production

Australia's major commercially accessed species of fisheries products are prawns, rock lobster, abalone, tuna, other finfish, scallops, and edible and pearl oysters. Australian fishing operators concentrate their efforts on estuarine, coastal, pelagic (surface) species and demersal (bottom living) species that occur on the continental shelf.

Table 15.4 shows the quantity (or volume) and table 15.5 the gross value of production of the Australian commercial fishing industry in 2002–03. The gross value of Australian fisheries production (including aquaculture) in 2002–03 decreased by 6% to \$2.3b after remaining steady at \$2.4b in the previous two years (table 15.7). The major species contributing to the total value of production – prawns, rock lobster, abalone and tuna – all showed a decline during 2002–03 while minor

contributors to the total value of production – scallops and oysters, as well as finfish other than tuna – showed a moderate increase in value (table 15.8). In quantity terms, Australian fisheries production increased by 5% during the year to 249,012 tonnes, with the catch of finfish other than tuna (up 8%) being the most significant contributor (table 15.6).

Australian fisheries production covers total production from both Commonwealth and state managed fisheries, including aquaculture. Commonwealth fisheries accounted for 18% of the total gross value of Australian fisheries production in 2002–03 (table 15.5). Commonwealth fisheries are those managed on behalf of the Australian Government by the Australian Fisheries Management Authority. State governments manage inland fisheries and aquaculture, in addition to those salt water fisheries not managed by the Australian Government. The distribution of the management of fisheries between the Australian Government and state governments is determined following consultations held under the Offshore Constitutional Settlement Agreement.

#### 15.4 FISHERIES PRODUCTION, Quantity(a) — 2002–03

	NSW tonnes	Vic. tonnes	Qld tonnes	SA tonnes	WA tonnes	Tas. tonnes	NT tonnes	Cwith(b) tonnes	Aust. tonnes
<b>Fish</b>									
Tuna	31	—	—	9 000	38	—	6	(c)10 920	(d)14 621
Other	11 616	4 661	15 046	25 789	16 434	15 073	5 107	54 511	148 237
<b>Total</b>	<b>11 647</b>	<b>4 661</b>	<b>15 046</b>	<b>34 789</b>	<b>16 472</b>	<b>15 074</b>	<b>5 113</b>	<b>65 431</b>	<b>162 858</b>
<b>Crustaceans</b>									
Prawns	2 077	89	10 554	1 740	3 934	—	—	(e)7 501	25 896
Rock lobster	122	484	628	2 361	11 477	1 409	—	579	17 060
Crab	480	8	3 776	706	1 129	52	547	9	6 707
Other	104	50	74	20	147	—	14	328	736
<b>Total</b>	<b>2 783</b>	<b>631</b>	<b>15 032</b>	<b>4 827</b>	<b>16 687</b>	<b>1 462</b>	<b>561</b>	<b>8 417</b>	<b>50 400</b>
<b>Molluscs</b>									
Abalone	276	1 289	—	917	264	2 389	—	—	5 135
Scallops	—	636	1 536	—	6 794	269	1	435	9 671
Oysters(f)	5 000	—	—	2 364	—	2 491	—	—	9 855
Other	1 183	1 876	189	2 076	1 131	543	326	(g)2 428	9 751
<b>Total</b>	<b>6 459</b>	<b>3 801</b>	<b>1 725</b>	<b>5 357</b>	<b>8 189</b>	<b>5 692</b>	<b>327</b>	<b>2 862</b>	<b>34 413</b>
Other fisheries production	93	—	329	362	118	155	—	284	1 341
<b>Total</b>	<b>20 981</b>	<b>9 093</b>	<b>32 132</b>	<b>45 335</b>	<b>41 466</b>	<b>22 383</b>	<b>6 001</b>	<b>76 995</b>	<b>249 012</b>

(a) Includes estimates of aquaculture production (except NT); excludes hatchery and inland commercial fishery production.

(b) Total includes all fisheries under federal jurisdiction. (c) Includes the Southern bluefin, Eastern tuna and billfish, Southern and Western tuna fisheries. (d) Total has been adjusted so as not to double-count some Southern bluefin tuna caught in the Commonwealth Southern Bluefin Tuna Fishery which was used as input to aquaculture in SA. (e) Includes the Northern prawn, Torres Strait, South East and other fisheries. (f) Excludes pearl oyster production in Qld and WA. (g) Includes squid, octopus and cuttlefish from the South East and Great Australian Bight fisheries, and pearl oyster from the Torres Strait Fishery.

Source: ABARE 2004a, 'Australian Fisheries Statistics, 2003'.

### 15.5 FISHERIES PRODUCTION, Gross value(a) — 2002–03

	NSW	Vic.	Qld	SA	WA	Tas.	NT	Cwth	Aust.
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Fish</b>									
Tuna	113	—	—	255 600	249	1	20	(b)126 135	(c)305 261
Other	39 990	29 186	98 306	37 335	43 485	112 676	24 816	165 787	551 581
<b>Total</b>	<b>40 104</b>	<b>29 186</b>	<b>98 306</b>	<b>292 935</b>	<b>43 734</b>	<b>112 677</b>	<b>24 836</b>	<b>291 922</b>	<b>856 843</b>
<b>Crustaceans</b>									
Prawns	32 131	1 141	141 334	32 447	45 807	—	—	(d)102 038	354 898
Rock lobster	5 441	17 356	7 356	82 666	281 023	51 707	—	14 342	459 891
Crab	5 027	374	25 347	4 445	6 907	1 584	5 035	57	48 776
Other	1 431	375	1 000	381	2 382	—	139	4 067	9 776
<b>Total</b>	<b>44 030</b>	<b>19 246</b>	<b>175 038</b>	<b>119 939</b>	<b>336 119</b>	<b>53 291</b>	<b>5 174</b>	<b>120 504</b>	<b>873 342</b>
<b>Molluscs</b>									
Abalone	10 623	54 034	—	37 038	12 896	97 855	—	—	212 446
Scallops	—	1 215	7 528	—	22 831	452	3	778	32 807
Oysters(e)	34 566	—	680	14 008	175 000	13 169	—	—	237 423
Other	5 061	5 196	945	5 889	15 502	2 491	3 006	2 733	40 823
<b>Total</b>	<b>50 250</b>	<b>60 445</b>	<b>9 153</b>	<b>56 935</b>	<b>226 229</b>	<b>113 967</b>	<b>3 009</b>	<b>(f)3 512</b>	<b>523 499</b>
<b>Other fisheries production</b>	<b>4 808</b>	<b>—</b>	<b>2 817</b>	<b>3 732</b>	<b>1 066</b>	<b>8 289</b>	<b>21 900</b>	<b>1 091</b>	<b>43 703</b>
<b>Total</b>	<b>139 191</b>	<b>108 877</b>	<b>285 313</b>	<b>473 541</b>	<b>607 148</b>	<b>288 225</b>	<b>54 919</b>	<b>(g)417 029</b>	<b>2 297 386</b>

(a) Includes estimates of the value of aquaculture production, but excludes the value of hatchery and inland commercial fishery production. (b) Includes the value of Southern bluefin, Eastern tuna and billfish, Southern and Western tuna fisheries. (c) Total has been adjusted so as not to double-count the value of some Southern bluefin tuna caught in the Commonwealth Southern Bluefin Tuna Fishery which was used as input to aquaculture in SA. (d) Includes the value of Northern prawn, Torres Strait, South East and other fisheries. (e) Includes the value of pearl oyster production. (f) Includes the value of squid, octopus and cuttlefish from the South East and Great Australian Bight fisheries, and pearl oyster from the Torres Strait Fishery. (g) Total includes the value of all fisheries under Commonwealth jurisdiction.

Source: ABARE 2004a, 'Australian Fisheries Statistics, 2003'.

### 15.6 FISHERIES PRODUCTION, Quantity(a)

	2000–01	2001–02	2002–03
	tonnes	tonnes	tonnes
<b>Fish</b>			
Tuna	16 108	15 891	14 621
Other	122 047	137 315	148 237
<b>Total</b>	<b>138 154</b>	<b>153 206</b>	<b>162 858</b>
<b>Crustaceans</b>			
Prawns	30 149	29 419	25 896
Rock lobster	16 835	14 322	17 060
Crab	7 892	7 229	6 707
Other	1 009	919	736
<b>Total</b>	<b>55 884</b>	<b>51 890</b>	<b>50 400</b>
<b>Molluscs</b>			
Abalone	5 673	5 856	5 135
Scallops	9 173	5 607	9 671
Oysters	9 560	10 236	9 855
Other	10 875	8 985	9 751
<b>Total</b>	<b>35 281</b>	<b>30 683</b>	<b>34 413</b>
<b>Other fisheries production</b>	<b>1 994</b>	<b>1 611</b>	<b>1 341</b>
<b>Total</b>	<b>231 313</b>	<b>237 390</b>	<b>249 012</b>

(a) Includes estimates of aquaculture production (except in NT); excludes production of pearl oysters in Qld and WA, and hatchery and inland commercial fishery production.

Source: ABARE 2004a, 'Australian Fisheries Statistics, 2003'.

### 15.7 FISHERIES PRODUCTION, Gross value(a)

	\$m
1982–83	423
1987–88	828
1992–93	1 493
1997–98	1 883
1998–99	2 106
1999–2000	2 344
2000–01	2 439
2001–02	2 431
2002–03	2 297

(a) Includes estimates of the value of pearl oyster production and aquaculture production, but excludes the value of hatchery and inland commercial fishery production.

Source: ABARE 2004a, 'Australian Fisheries Statistics, 2003'.

**15.8 SELECTED FISHERY PRODUCTS,  
Gross value(a)**

	2000-01	2001-02	2002-03
	\$m	\$m	\$m
Prawns	453	429	355
Rock lobster	481	502	460
Tuna	329	323	305
Other finfish	490	546	552
Abalone	276	247	212
Scallops	39	23	33
Oysters	55	57	62
Pearls(b)	150	175	175
Other n.e.i.(c)	165	128	143
<b>Total</b>	<b>2 439</b>	<b>2 431</b>	<b>2 297</b>

(a) Includes estimates of the value of aquaculture production, but excludes the value of hatchery and inland commercial fishery production. (b) Excludes NT. (c) Includes the value of pearl oysters and aquaculture for NT.

Source: ABARE 2004a, 'Australian Fisheries Statistics, 2003'.

**Processing of fish, crustaceans and molluscs**

In Australia very little processing of fish products is undertaken which adds value to the product. Processing establishments vary in size, scope of operations and sophistication of technologies employed. The majority of establishments undertake only the most basic cleaning, filleting, chilling, freezing and packaging processes, but some have the capacity for significant product transformation. Much of the value that is added to the catch is due to correct handling and quick delivery by air to local or overseas markets.

**Exports and imports**

Exports of fisheries products come under Commonwealth jurisdiction, while domestic market activity is the responsibility of the states and territories.

A significant proportion of Australian fisheries production (edible and non-edible) is exported. In 2002-03 the value of exports (including live fish) declined by 12% to \$1.8b (table 15.9). However, Australia still remained a net exporter of fisheries product. Australia's highest earning fisheries export product is rock lobster, which accounted for 25% of total value of fisheries product exports

in 2002-03. Exports of rock lobster fell by 6% to \$463m in 2002-03, continuing its decline of the previous two years. Exports of tuna, the second largest edible fisheries export product, remained at \$319m while the next highest edible fisheries export products, abalone and prawns, fell by 18% and 21% to \$216m and \$208m respectively. The highest value non-edible export earner, pearl, recorded an 18% fall from \$404m in the previous year to \$332m in 2002-03. (For some fisheries categories, the value of exports exceeds the value of production because exports are valued on a free-on-board basis which includes the value of packaging and distribution services to the point of export.)

In 2002-03 Japan continued to be the major destination for Australian exports of fisheries products, accounting for 37% of the total value. The combined value of shipments to the two largest export markets, Japan and Hong Kong, fell \$78m (7%), while shipments to the third largest destination, United States of America, increased by 16% to \$199m.

South Australia remained the highest earning state from edible seafood exports in 2002-03, with income of \$449m accounting for 30% of the total value of Australia's seafood exports of \$1.5b. South Australia earned \$267m (60%) of this income from exporting fresh, chilled or frozen whole fish. Western Australia earned \$421m (28%), most of which (77%) came from sales of rock lobster worth \$325m. Prawns earned Queensland \$108m (38%) out of a total \$281m worth of seafood exported from that state.

The total value of Australian imports of fisheries products in 2002-03 remained steady at an estimated \$1.2b (table 15.10). The major items of imports, in value terms, were canned fish (\$208m), frozen fillets (\$204m) and prawns (\$175m). The two main sources of imported fisheries products were Thailand and New Zealand which together accounted for more than a third of the value of imports. Pearls were again the leading non-edible import at \$163m down 25% from the previous year.

### 15.9 EXPORTS OF FISHERIES PRODUCTS(a)

Country of destination	2000-01		2001-02		2002-03	
	\$m	%	\$m	%	\$m	%
Japan	745	35.0	698	34.0	656	36.5
Hong Kong (SAR of China)	496	23.3	469	22.8	433	24.1
United States of America	192	9.0	172	8.4	199	11.1
Taiwan	180	8.5	147	7.2	93	5.2
China (excl. SARs & Taiwan Prov.)	51	2.4	73	3.5	74	4.1
Singapore	61	2.9	65	3.2	50	2.8
New Zealand	32	1.5	32	1.6	28	1.6
Spain	31	1.4	19	0.9	20	1.1
France	13	0.6	13	0.7	18	1.0
Malaysia	9	0.4	12	0.6	10	0.6
Greece	4	0.2	3	—	10	0.6
Thailand	18	0.8	23	1.1	8	0.4
Other	295	13.9	328	16.0	199	11.1
<b>Total</b>	<b>2 127</b>	<b>100.0</b>	<b>2 053</b>	<b>100.0</b>	<b>1 797</b>	<b>100.0</b>

(a) Includes non-edible products (e.g. marine fats and oils, fishmeal, pearls and ornamental fish). Excludes sea products landed abroad directly from the high seas.

Source: ABS data available on request, International Trade Special Data Service.

### 15.10 IMPORTS OF FISHERIES PRODUCTS(a)

Country of source	2000-01		2001-02		2002-03	
	\$m	%	\$m	%	\$m	%
Thailand	244	21.2	233	19.6	239	20.3
New Zealand	164	14.3	174	14.7	188	16.0
Vietnam	44	3.8	48	4.0	76	6.4
United States of America	75	6.5	61	5.2	52	4.4
Indonesia	40	3.5	40	3.4	50	4.3
India	35	3.1	42	3.5	42	3.6
China (excl. SARs & Taiwan Prov.)	22	1.9	30	2.5	40	3.4
South Africa	37	3.2	39	3.3	38	3.2
Malaysia	36	3.1	35	3.0	26	2.2
Canada	26	2.3	21	1.8	24	2.0
Japan	23	2.0	43	3.6	23	2.0
Taiwan	26	2.3	24	2.0	22	1.8
Other	378	32.8	397	33.4	358	30.4
<b>Total</b>	<b>1 152</b>	<b>100.0</b>	<b>1 187</b>	<b>100.0</b>	<b>1 177</b>	<b>100.0</b>

(a) Includes non-edible products (e.g. marine fats and oils, fishmeal, pearls and ornamental fish).

Source: ABS data available on request, International Trade Special Data Service.

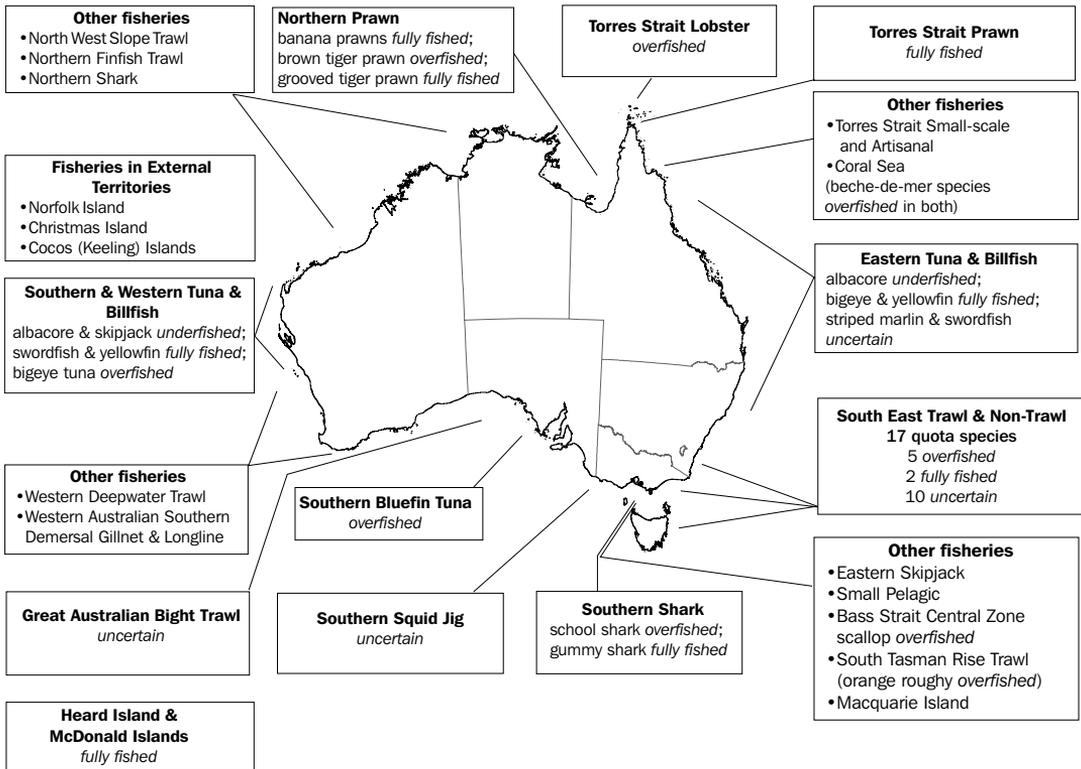
## Fisheries resources

The Australian Fishing Zone (AFZ) covers offshore waters between three miles and two hundred nautical miles seaward of the territorial sea baseline of Australia and its external territories. This area of 8.9 million square kilometres makes it an expanse 16% larger than the Australian land mass and the third largest fishing zone in the world. However, the catch is insignificant by world standards as the waters of the AFZ lack nutrient rich currents, causing low productivity. Map 15.11 shows the status of Australia's Commonwealth managed or jointly managed fisheries resources.

While some species are considered to be over-harvested, fish resources such as albacore and Southern whiting are not being used optimally. There are some 3,000 known species of fish, and at least an equal number of crustaceans and mollusc species inhabiting Australian waters, but only about 600 are commercially fished.

The level of fishing activity has increased over the last decade to the point where almost all the major known fish, crustacean and mollusc resources are fully used. Some major species such as Southern bluefin tuna, gemfish and shark have suffered serious biological depletion.

## 15.11 STATUS OF COMMONWEALTH MANAGED OR JOINTLY MANAGED FISHERIES RESOURCES - 2002



Source: Bureau of Rural Sciences.

### Aquaculture

Aquaculture is an alternative to harvesting the naturally occurring fish stocks, and has considerable potential as a means of ensuring sustainability of harvesting yields. Australia's first experience with aquaculture was the farming of the Sydney rock oyster. More recently, operations to produce tuna, cultured pearls, salmon and prawns have become well established.

Aquaculture operations occur in diverse environmental areas including tropical, subtropical and temperate sectors. The location of aquaculture is dependent on seasonal factors, the type of species being cultivated, the stage of aquatic organisms in their life-cycle and proximity to marine parks. The industry directly employs

about 5,000 people, provides development opportunities in regional Australia and contributes to export growth.

There are many types of systems used in aquaculture employing a variety of management techniques. The main emphasis of the industry is on producing high value species in near-shore or land-based sites within the coastal zone – only about 10% of total production value is from freshwater species. Systems can be open or closed depending on the water flow. Open systems allow water to move through the cages such as in open seas or flowing rivers. In closed systems, the water flow is contained as in a lake or an aquarium.

In 2002–03 the gross value of Australian aquaculture production increased marginally to \$744m (table 15.12). Tuna remained the species contributing the most (\$256m) to total gross value, followed by pearl oysters (\$175m) and salmon (\$109m), although all of them are less than their contributions to total value in 2001–02. Edible oyster, which increased by 10% to \$62.4m, was one of the few products that recorded an increase in contribution to total gross value in 2002–03.

Table 15.13 shows the quantity of Australian aquaculture production for the three years 2000–01 to 2002–03, with the latest year showing a 2% decrease in total production. Except for trout, the production of all other species significant enough to individually identify fell during 2002–03 compared with the previous year. As in previous years, salmon was the major aquaculture product (13,972 tonnes), followed by edible oysters (9,855 tonnes) and tuna (9,000 tonnes).

#### 15.12 AQUACULTURE PRODUCTION, Gross value(a)

	2000–01	2001–02	2002–03
	\$m	\$m	\$m
<b>Fish</b>			
Salmon	99.2	112.1	109.1
Tuna	263.8	260.5	255.6
Trout	12.8	12.9	12.9
Other(b)	17.5	20.2	23.7
<b>Total</b>	<b>393.4</b>	<b>405.7</b>	<b>401.2</b>
<b>Crustaceans</b>			
Prawn	49.5	65.4	56.9
Yabbies	3.4	2.1	1.7
Other(c)	2.5	2.4	2.3
<b>Total</b>	<b>55.4</b>	<b>69.9</b>	<b>60.9</b>
<b>Molluscs</b>			
Pearl oysters	150.5	175.1	175.0
Edible oysters	55.1	56.9	62.4
Other(d)	9.0	10.6	9.0
<b>Total</b>	<b>214.6</b>	<b>242.6</b>	<b>246.4</b>
<b>Other fisheries production(e)</b>	<b>43.3</b>	<b>13.9</b>	<b>35.0</b>
<b>Total</b>	<b>706.8</b>	<b>732.1</b>	<b>743.5</b>

(a) Excludes hatcheries production, crocodiles, microalgae and aquarium worms. (b) Includes eels, aquarium fish and other native fish. (c) Includes marron and redclaw. (d) Includes mussels, scallops, giant clams and abalone. (e) Includes all NT; includes value of species unable to be assigned to a specific category.

Source: ABARE 2004a, 'Australian Fisheries Statistics, 2003'.

#### 15.13 AQUACULTURE PRODUCTION, Quantity(a)

	2000–01	2001–02	2002–03
	tonnes	tonnes	tonnes
<b>Fish</b>			
Salmon	12 724	14 356	13 972
Tuna	9 051	9 245	9 000
Trout	1 950	1 864	1 878
Other(b)	1 471	1 804	2 282
<b>Total</b>	<b>25 195</b>	<b>27 269</b>	<b>27 132</b>
<b>Crustaceans</b>			
Prawn	2 819	3 757	3 403
Yabbies	276	172	125
Other(c)	147	133	130
<b>Total</b>	<b>3 242</b>	<b>4 062</b>	<b>3 658</b>
<b>Molluscs</b>			
Edible oysters	9 560	10 236	9 855
Other(d)	2 567	3 082	2 918
<b>Total</b>	<b>12 126</b>	<b>13 318</b>	<b>12 774</b>
<b>Other fisheries production(e)</b>	<b>480</b>	<b>342</b>	<b>495</b>
<b>Total</b>	<b>41 044</b>	<b>44 992</b>	<b>44 059</b>

(a) Excludes NT; excludes pearl oysters, hatcheries production, crocodiles, microalgae and aquarium worms. (b) Includes eels, aquarium fish and other native fish. (c) Includes marron and redclaw. (d) Includes mussels, scallops, giant clams and abalone. (e) Includes production of species unable to be assigned to a specific category.

Source: ABARE 2004a, 'Australian Fisheries Statistics, 2003'.

## Recreational and Indigenous fishing

### Recreational fishing

Results of a national survey of recreational fishing conducted over a 12-month period during 2000–01 showed 3.4 million Australians (2.3 million males and 1.1 million females) over the age of five years went fishing at least once in the period (DAFF, National Recreational and Indigenous Fishing Survey). In addition, nearly 4% of international tourists visiting Australia were estimated to have engaged in recreational fishing. In the 12-month period, fishers caught and retained a total of 136 million aquatic animals, weighing in excess of 32,000 tonnes.

Just over a third of Australia's recreational fishers reported they went fishing mainly to 'relax and unwind' (37%). Another 18% fished 'for sport', and 15% 'to be with family'. Only 8% of recreational fishers considered catching fish for food as their prime motivation and only 4% were members of fishing clubs.

Most recreational fishing occurred in saltwater with coastal (41%), estuarine (35%) and offshore waters (4%) attracting over three-quarters of the fishing effort. The shore was the preferred location for 57% of fishers and line fishing (85%) easily the most popular fishing method.

Finfish (60.4 million) comprised the largest group of the catch retained by recreational fishers, with the main species being whiting, flathead, herring and salmon. It is also estimated that the 'bagged' catch of recreational fishers included 47.7 million prawns and yabbies, 11.5 million baitfish, and 6.1 million crabs and lobsters (graph 15.14). A total of 60 million aquatic animals were caught and released, with Murray cod, barramundi, wrasse, snapper and mud crab the most likely to be returned to the water.

In 2000–01 Australian recreational fishers spent an estimated \$1.8b on fishing related items – an average of \$552 per person. Fishers reported more than 45 different expenditure items with expenditure on boats and trailers (\$940m) the biggest individual expense. Travel associated with fishing (\$395m) and fishing gear (\$182m) followed in importance. More than 511,000 boats with a capital value of \$3.3b were used for recreational fishing.

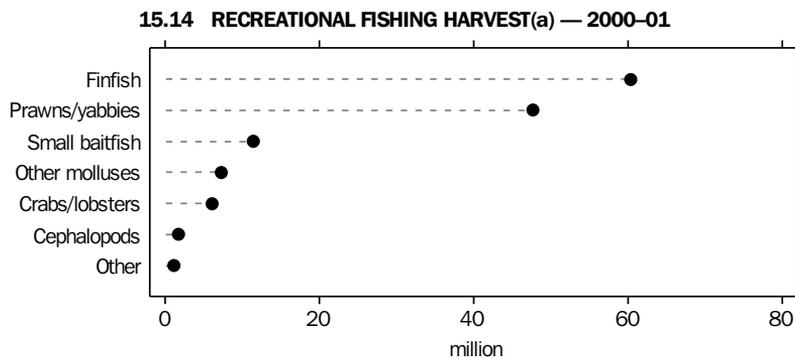
### Indigenous fishing

The National Recreational and Indigenous Fishing Survey undertaken in the period June 2000 to November 2001, covered Indigenous persons aged five years and older and living in 44 coastal

communities across northern Australia from Broome to Cairns. An estimated 37,000 Indigenous persons from these communities fished at least once in the 12-month period prior to interview. This represents a participation rate of almost 92%. They harvested aquatic animals from a range of environments, but inshore waters accounted for more than half the fishing effort. Indigenous fishers used line fishing (53% of the time), hand collection (26%), nets (12%), and spears (9%) as their primary fishing methods.

Indigenous fishers harvested a greater range of non-fish species (crabs, shellfish) than the recreational fishers and these non-fish species formed a greater proportion of the catch. Recreational and Indigenous fishers used similar fishing methods, but a higher proportion of the Indigenous catch was taken with spears and hand collection methods.

Using all methods, Indigenous fishers harvested more than 3.3 million aquatic animals from the waters of northern Australia. The harvest included approximately 910,000 finfish, 1,100,000 shellfish, 655,000 prawns and yabbies, 181,000 crabs and lobsters, and 98,000 small baitfish. The most prominent finfish species in the Indigenous catch were mullet, catfish, sea perch/snappers, bream and barramundi. Most prominent non-fish species were mussels, cherabin, other bivalves, prawns, oysters and mud crabs. As well, Indigenous fishers harvested a number of species groups that have protected status for non-Indigenous people, including crocodiles, turtles and dugong.



(a) Aquatic animals taken by Australian recreational fishers aged five years or older.

Source: Department of Agriculture, Fisheries and Forestry - Australia, National Recreational and Indigenous Fishing Survey.

## Bibliography

### ABS publications

There are no ABS publications devoted to forestry and fishery statistics for Australia as a whole. Some information on forestry products can be obtained from *Manufacturing Production, Australia* (8301.0)

### Other publications

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Australian Government Department of Agriculture, Fisheries and Forestry, last viewed October 2004 <<http://www.daff.gov.au>>

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Commonwealth Scientific and Industrial Research Organisation, Forestry and Forest Products, last viewed October 2004 <<http://www.ffp.csiro.au>>

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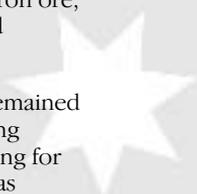


## MINING

Mining broadly relates to the extraction of minerals occurring naturally as solids such as coal and ores, liquids such as crude petroleum, or gases such as natural gas. Activities carried out at or near mine sites as an integral part of mining operations, such as dressing or beneficiation of ores or other minerals, are included. Natural gas absorption and purifying plants are also included. However, the first stage processing of minerals and mineral extracts, while closely related to the mining industry, is included as part of the manufacturing industry.

Australia continues to rank as one of the world's leading mining nations with substantial identified resources of major minerals and fuel close to the surface. In 2002 it had the world's largest economic demonstrated resources of bauxite, lead, mineral sands (ilmenite, rutile and zircon), nickel, silver, tantalum, uranium and zinc. Australia is the largest producer of bauxite and mineral sands in the world. It is also one of the largest producers of iron ore, nickel, uranium and zinc, contributing respectively 17%, 17%, 28% and 16% of world production in 2002.

The contribution of the mining industry to Australia's gross domestic product has remained around 5% over the past ten years. From an industry of origin perspective, the mining industry is the nation's second largest export earner (after manufacturing), accounting for 26% of the total value of exports in 2003-04, principally from the coal, and oil and gas extraction industries.



## Economic contribution of the mining industry

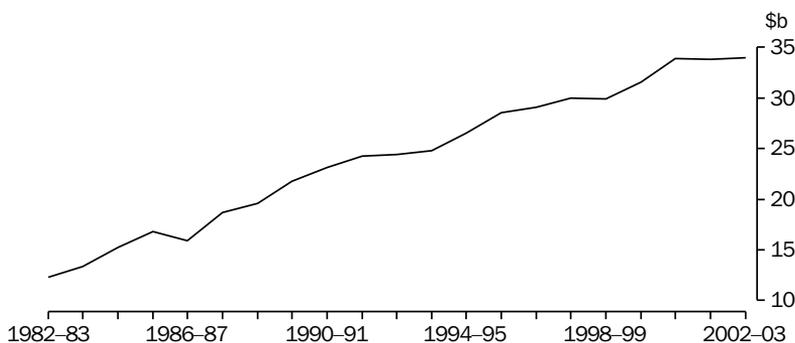
Production can be measured on a net basis, that is the value of goods and services produced less the value of inputs (e.g. labour, capital) used in production. In national accounting terms, the contribution of an industry to the overall production of goods and services in an economy is measured by industry gross value added (GVA). Industry GVA sums the gross value added by each producer in the industry.

Total production of the mining industry measured by industry GVA in chain volume terms (i.e. output adjusted for price changes) remained about the same between 2000–01 and 2002–03 but increased by more than two and half times between 1982–83 and 2002–03 (graph 16.1).

During the period 1982–83 to 2002–03, the largest annual decrease (5.6%) in production was in 1986–87 while the largest annual increase (18%) was in 1987–88. By comparison, total economic production in Australia, as measured by gross domestic product (GDP) was relatively steady with annual change varying from a decrease of 0.1% in 1990–91 to an increase of 5.4% in 1987–88. Overall, mining industry production more than kept pace with the growth in other industries, resulting in an increase in its contribution to GDP from 3.4% in 1982–83 to 4.6% in 2002–03.

Production in the services to mining industry accounts for a small proportion (less than 9%) of total mining production (table 16.2). However, the total value of services to mining may be larger than these figures indicate as some services may have been provided by businesses classified to other industries such as construction or business services.

16.1 MINING PRODUCTION(a)



(a) Industry gross value added. Chain volume measures, reference year is 2001–02.

Source: Australian System of National Accounts, 2002–03 (5204.0).

## 16.2 MINING GROSS VALUE ADDED AND CONTRIBUTION TO GDP, Chain volume measures(a)

	Units	1998–99	1999–2000	2000–01	2001–02	2002–03	Percentage change from 1998–99 to 2002–03
Industry gross value added							
Mining (excl. services to mining)	\$m	27 355	29 340	31 254	31 122	30 987	13.3
Services to mining	\$m	2 563	2 259	2 667	2 700	2 957	15.4
<b>Mining(b)</b>	<b>\$m</b>	<b>29 884</b>	<b>31 572</b>	<b>33 923</b>	<b>33 822</b>	<b>33 944</b>	<b>13.6</b>
Contribution to GDP	%	4.6	4.7	4.9	4.7	4.6	..

(a) Reference year for chain volume measures is 2001–02. (b) Chain volume measures for years other than 2001–02 and 2002–03 are not additive.

Source: Australian System of National Accounts, 2002–03 (5204.0).

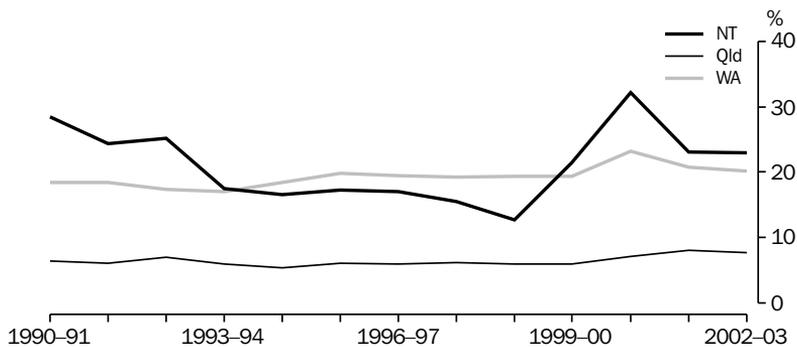
The importance of the mining industry in terms of production as measured by total factor income varies across the states and territories. (Total factor income is a measure of state production. It is the total payments received by labour and owners of capital used in the production of the goods and services.) Mining production was the largest component of total 2002–03 production in Western Australia and the Northern Territory. It was the third largest in Queensland. In other states, manufacturing, and property and business services industries were much larger than mining, and mining was ranked 14th or lower in terms of production.

During the period 1990–91 to 2002–03, the Northern Territory experienced significant changes in the contribution of the mining industry to total state production, varying from 13% in 1998–99 to 32% in 2000–01 (graph 16.3). In all years except 1998–99, the mining industry’s share of total state production was at least 60% larger than the contribution of the next largest industry. In 2002–03 the mining industry accounted for 23% of total production in the Northern Territory with increasing mining activity in the offshore areas in the Timor Sea. The main mining industry is crude oil production which contributed 46% (\$1,272m) of the value of production in the territory in 2002–03 (see the Department of Business Industry and Resource Development, Northern Territory,

<<http://www.dbird.nt.gov.au>>, table ‘Northern Territory Mining Production 2002–03’ last viewed 20 July 2004).

In Western Australia the contribution of the mining industry increased from 18% in 1990–91 to 23% in 2000–01, before falling to 21% in 2001–02 and 20% in 2002–03 (graph 16.3). In the period 1990–91 to 2002–03 the contribution of the mining industry to total state production was significantly higher than the production shares of manufacturing, or property and business services industries, the next largest industries. The oil and gas industry was the main contributor to mining production. In 2002–03 the combined value of production for oil and gas accounted for 38% (\$10,542m) of the total value of production (\$27,861m) in the state including some manufactured and semi-manufactured products like alumina (see the Western Australia Department of Industry and Resources <<http://www.doir.wa.gov.au/statistics>>, publication *Western Australia Mineral and Petroleum Statistics Digest, 2002–03*, last viewed 20 July 2004). Most crude oil and condensate and liquefied natural gas (LNG) are produced in the Carnarvon basin where the North West Shelf Project is located. In 2002–03 Western Australia contributed 63% of the crude oil and condensate and 100% of LNG in terms of quantity produced in Australia. The state also produced 95% of the iron ore and almost all of the diamonds produced in Australia.

**16.3 MINING INDUSTRY CONTRIBUTION TO STATE PRODUCTION(a), Selected states**



(a) State production as measured by total factor income at current prices.

Source: Australian National Accounts: State Accounts (5220.0).

The mining industry's share of Queensland total production varied between 5% to 8% in the period from 1990–91 to 2002–03 (graph 16.3). This was two to six percentage points lower than manufacturing industry's share of state production. The mining industry had the third largest share (8%) of production in Queensland in 2002–03, after manufacturing (10%) and property and business services (9%). Figures released by the Queensland Department of Natural Resources and Mines indicate the value of production of fuel minerals was estimated to be \$8,044m in 2002–03 with black coal accounting for 93% (\$7,452m) of this value (see <<http://www.nrm.qld.gov.au/mines>>, table 'Quantity and Value of Minerals Produced in Queensland 2002–03', last viewed 20 July 2004), making it the largest producer of black coal in the country. In the same year, it also produced copper, lead and zinc valued at \$2,964m.

## Exports

Table 16.4 presents the proportion of exports contributed by the mining industry based on exports by industry of origin.

Between 1993–94 and 2003–04 the value of exports from the mining industry has grown by 95%, or 45 percentage points more than the growth for the manufacturing industry and 26 percentage points more than for all industries. As a consequence, mining's contribution to total goods exported from Australia increased from 22.5% in 1993–94 to 26.1% in 2003–04, while manufacturing's share fell from 64.3% to 57.0%.

## Mineral royalties

Royalties paid by mining businesses are collected by state and Northern Territory governments for mining onshore and up to three nautical miles offshore, and by the Australian Government outside that area. The basis of the mineral royalties varies between states. Some royalties are based on the value of production at mine site, others on sales value, gross proceeds or profit. The rates imposed also vary between commodities.

Onshore and within coastal waters royalties are levied on mineral and petroleum production. State petroleum royalties and Commonwealth crude oil excise apply onshore and in coastal waters. Petroleum produced in offshore areas of Australia (but not including the North West Shelf) is generally subject to an offshore Petroleum Resource Rent Tax levied by the Australian Government. Petroleum royalties and crude oil excise apply to production from the North West Shelf project.

Table 16.5 shows royalties expenses incurred by businesses in the coal, oil and gas extraction, and metal ore mining industries during the period 1990–91 to 2000–01. Royalties paid by businesses in other mining industries are relatively insignificant. Between 1990–91 and 2000–01 businesses engaged in oil and gas extraction consistently accounted for most of these expenses with proportions varying from 51.0% in 1998–99 to 77.0% in 1990–91. Their expenses increased by 39.2% over the ten-year period. In comparison, royalty expenses by businesses in the coal mining industry more than doubled.

### 16.4 VALUE OF EXPORTS(a), By industry of origin

	Mining \$m	Manufacturing \$m	All industries \$m	Share of total exports	
				Mining %	Manufacturing %
1993–94	14 554	41 478	64 548	22.5	64.3
1994–95	14 922	43 795	67 052	22.3	65.3
1995–96	16 476	48 787	76 005	21.7	64.2
1996–97	17 937	48 494	78 932	22.7	61.4
1997–98	21 458	53 301	87 768	24.4	60.7
1998–99	20 171	52 073	85 991	23.5	60.6
1999–2000	23 578	57 982	97 286	24.2	59.6
2000–01	31 912	69 128	119 539	26.7	57.8
2001–02	32 507	69 111	121 108	26.8	57.1
2002–03	31 261	65 810	115 479	27.1	57.0
2003–04	28 368	62 087	108 848	26.1	57.0

(a) On a 'free-on-board' basis.

Source: ABS data available on request, *International Trade*.

### 16.5 ROYALTY EXPENSES, By selected mining industries

	Units	Coal mining	Oil and gas extraction	Metal ore mining	Total
1990–91	\$m	241.3	1 982.7	350.0	2 574.1
1991–92	\$m	270.3	1 626.5	374.4	2 271.2
1992–93	\$m	246.6	1 787.8	325.8	2 360.1
1993–94	\$m	236.1	1 508.0	302.8	2 046.9
1994–95	\$m	262.5	1 277.1	410.8	1 950.4
1995–96	\$m	314.0	1 264.2	422.8	2 001.0
1996–97	\$m	358.1	1 504.1	406.1	2 268.3
1997–98	\$m	461.7	1 514.4	452.6	2 428.7
1998–99	\$m	529.3	1 049.5	479.8	2 058.6
1999–2000	\$m	542.6	1 760.6	485.2	2 788.4
2000–01	\$m	551.2	2 760.7	654.8	3 966.7
Change from 1990–91 to 2000–01	%	128.4	39.2	87.1	54.1

Source: Australian Mining Industry (8414.0); Mining Operations, Australia (8415.0).

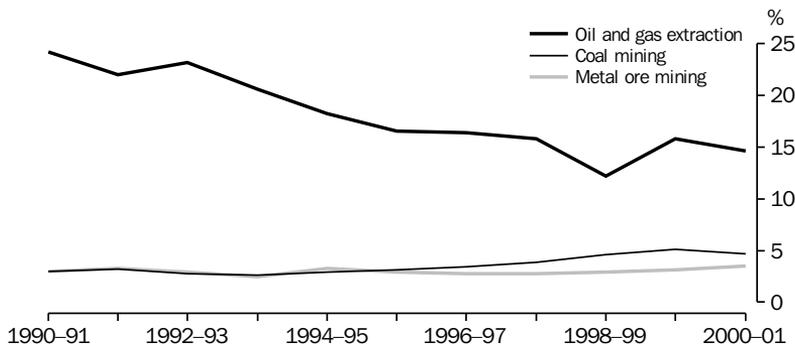
Graph 16.6 shows the amount paid in royalties by mining industries as a proportion of the income received from sales of goods and services. During the period 1990–91 to 2000–01, businesses in the oil and gas extraction industry paid a considerably higher proportion of royalties to sales income compared with those in coal or metal ore mining industries although the difference has been reducing over the years. In 2000–01 the percentage of royalties expenses to sales income paid by the oil and gas extraction industry was 14.6% compared with 4.7% paid by the coal mining industry and 3.5% by the metal ore mining industry.

### Structure and performance of the mining industry

The source for the statistics in this section is the Economic Activity Survey of employing businesses conducted by the Australian Bureau of Statistics (ABS). Businesses in this collection are classified on the basis of their predominant activity, using the 1993 version of the Australian and New Zealand Standard Industrial Classification (ANZSIC). The industry 'Other mining' refers to construction material mining and mining n.e.c. as described in ANZSIC.

At 30 June 2001 mining businesses (including those that provide services to mining) employed 66,677 persons (table 16.7). In 2000–01 those businesses paid \$5,228.9m in wages and salaries, generated \$54,031.5m in sales and service income and \$33,958.2m industry value added.

16.6 PROPORTION OF ROYALTIES EXPENSES TO SALES OF GOODS AND SERVICES, Selected mining industries



Source: Australian Mining Industry (8414.0); Mining Operations, Australia (8415.0).

In 2000–01 the oil and gas extraction industry's share of total mining production, measured in industry value added terms, was the largest of the mining industries. Industry value added represents the value added by an industry to the intermediate inputs used by the industry. Oil and gas extraction businesses accounted for 49.8% of total production (table 16.7) – other industry contributors were metal ore mining (28.3%), coal mining (16.6%), and other mining and services to mining (5.4% combined).

Metal ore mining industries accounted for 34.6% of total mining employment. Coal mining was the next largest industry with 25.9% followed by services to mining with 20.7%. The oil and gas extraction industry accounted for 10.1% of total employment in 2000–01.

Capital expenditure in 2000–01 was largest in the metal ore mining industry (\$1,936.8m). Most of this was spent on plant, machinery and other equipment (56.3%) while a significant amount was

also spent on dwellings, and other buildings and structures (42.2%). The oil and gas extraction industry had the largest expenditure on dwellings, and other buildings and structures (\$1,117.8m) (table 16.8).

Table 16.9 provides the average value of selected labour costs per person employed in each of the coal mining, oil and gas extraction and metal ore mining industries. Selected labour costs are the sum of wages and salaries, superannuation and worker's compensation costs. In 2000–01 selected labour costs per person employed was the highest for the oil and gas extraction industry (\$111,500) when compared with other mining industries. Between 1995–96 and 2000–01 the metal ore mining industry had the greatest percentage increase in selected labour costs per person employed of the three mining industries shown in table 16.9. However, it maintained its position as the lowest of the three in regard to selected labour costs per person employed.

#### 16.7 SUMMARY OF OPERATIONS — 2000–01

Mining industry subdivision	Employment at 30 June(a) no.	Wages and salaries(b) \$m	Sales of goods and services \$m	Operating profit before tax \$m	Inventories		Purchases and selected expenses \$m	Industry value added \$m	Net worth \$m
					Open	Close			
Coal mining	17 256	1 640.7	11 654.2	1 839.7	873.2	689.4	6 151.7	5 624.9	7 755.9
Oil and gas extraction	6 714	709.9	18 886.6	10 787.6	353.4	365.1	2 695.8	16 907.4	21 372.3
Metal ore mining(c)									
Iron ore mining	4 525	412.2	4 791.1	1 847.1	454.8	309.8	1 621.6	3 211.6	4 989.6
Copper ore mining	3 864	289.5	3 295.1	665.0	421.6	444.6	1 908.3	1 526.2	1 643.8
Gold ore mining	8 096	481.1	4 652.5	278.1	554.6	397.8	3 090.3	1 833.2	3 852.4
Mineral sand mining	1 679	76.7	1 031.5	379.3	218.1	214.5	445.2	599.8	832.7
Silver- lead-zinc ore mining	2 265	215.7	2 144.0	45.9	165.1	151.8	1 272.5	911.8	691.5
Other(d)	2 628	221.6	2 931.3	722.0	458.3	462.8	1 481.7	1 518.1	-376.3
Total	23 057	1 696.8	18 845.5	3 937.4	2 272.5	1 981.3	9 819.6	9 600.7	11 633.7
Other mining	5 827	296.2	1 836.9	228.1	248.6	222.3	978.2	891.0	1 344.1
Services to mining	13 823	885.3	2 808.3	-671.9	260.6	237.5	2 180.4	934.2	1 602.3
<b>Total mining</b>	<b>66 677</b>	<b>5 228.9</b>	<b>54 031.5</b>	<b>16 120.9</b>	<b>4 008.3</b>	<b>3 495.6</b>	<b>21 825.7</b>	<b>33 958.2</b>	<b>43 708.7</b>

(a) Includes working proprietors. (b) Excludes the drawings of working proprietors. (c) Excludes bauxite. Data for bauxite mining are not available as this activity is an integral part of businesses producing alumina. The majority of the bauxite mined in Australia is used to produce alumina. Alumina production is classified to manufacturing ANZSIC Class 2721. (d) Includes ANZSIC Classes 1316 (Nickel ore mining) and 1319 (Metal ore mining n.e.c.).

Source: *Mining Operations, Australia, 2000–01 (8415.0)*.

## 16.8 FIXED CAPITAL EXPENDITURE AND DISPOSALS — 2000–01

	Capital expenditure on					
	Land	Dwelling, other buildings and structures	Plant, machinery and equipment	Total acquisitions	Disposal of assets	Net capital expenditure
	\$m	\$m	\$m	\$m	\$m	\$m
Mining industry subdivision						
Coal mining	129.4	178.9	758.9	1 067.2	278.2	788.9
Oil and gas extraction	0.6	1 117.8	591.3	1 709.6	334.1	1 375.6
Metal ore mining(a)						
Iron ore mining	14.4	109.4	149.6	273.4	28.6	244.8
Copper ore mining	0.8	168.3	235.6	404.7	12.0	392.7
Gold ore mining	21.0	298.1	312.3	631.4	126.7	504.7
Mineral sand mining	5.7	15.5	189.3	210.5	13.2	197.3
Silver-lead-zinc ore mining	0.9	160.5	129.6	291.1	8.5	282.5
Other(b)	1.4	54.0	70.2	125.7	25.3	100.4
Total	44.2	805.8	1 086.6	1 936.8	214.3	1 722.4
Other mining	2.7	18.8	141.9	163.4	12.6	150.8
Services to mining	13.6	43.7	235.6	292.9	150.8	142.1
<b>Total mining</b>	<b>190.5</b>	<b>2 165.0</b>	<b>2 814.3</b>	<b>5 169.9</b>	<b>990.0</b>	<b>4 179.8</b>

(a) Excludes bauxite. Data for bauxite mining are not available as this activity is an integral part of businesses producing alumina. The majority of the bauxite mined in Australia is used to produce alumina. Alumina production is classified to manufacturing ANZSIC Class 2721. (b) Includes ANZSIC Classes 1316 (Nickel ore mining) and 1319 (Metal ore mining n.e.c.).

Source: *Mining Operations, Australia, 2000–01* (8415.0).

## 16.9 SELECTED LABOUR COSTS(a) PER PERSON EMPLOYED, Selected mining industries

	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01	Change from 1995–96 to 2000–01
Mining industry subdivision	\$'000/ person employed	%					
Coal mining	87.7	89.5	109.3	105.3	103.7	107.2	22.2
Oil and gas extraction	92.9	101.8	96.8	102.0	108.7	111.5	20.0
Metal ore mining	64.1	67.4	73.0	75.7	76.1	80.6	25.7

(a) Wages and salaries, superannuation and workers' compensation costs.

Source: *Australian Mining Industry* (8414.0); *Mining Operations, Australia* (8415.0).

Operating profit before tax (OPBT) is a measure of profit before extraordinary items are brought to account and prior to the deduction of income tax and appropriations to owners (e.g. dividends paid).

Over the period 1997–98 to 2000–01, OPBT for the mining industry increased by 137% (up \$9,332m). The oil and gas extraction industry was the main contributor to this rise (up 150% or \$6,472m). The metal ore mining industry (up 107% or \$2,037m) and the coal mining industry (up 111% or \$970m) also recorded significant increases over the same period (table 16.10).

The most significant growth in the mining industry occurred in 2000–01 when OPBT increased by 105% to \$16,121m. This increase was

mainly attributed to the oil and gas extraction industry where profit increased by 150%. Profit for the metal ore and coal mining subdivisions also increased significantly (105% and 46% respectively).

## Mineral, oil and gas resources

The statistics of available mineral resources provided in table 16.11 are obtained from the annual publication *Australia's Identified Mineral Resources* produced by Geoscience Australia. They provide an indication of the extent of mineral resources available for extraction with the main focus being on economic demonstrated resources (EDR).

## 16.10 OPERATING PROFIT BEFORE TAX

Mining industry subdivision	1997-98	1998-99	1999-2000	2000-01	Change from 1997-98 to 2000-01
	\$m	\$m	\$m	\$m	%
Coal mining	870	1 885	1 260	1 840	111
Oil and gas extraction	4 316	2 722	4 320	10 788	150
Metal ore mining	1 900	2 496	1 918	3 937	107
Other mining and services to mining	-297	187	355	-444	-49
<b>Total mining</b>	<b>6 789</b>	<b>7 290</b>	<b>7 852</b>	<b>16 121</b>	<b>137</b>

Source: Australian Mining Industry (8414.0); Mining Operations, Australia (8415.0).

## 16.11 ECONOMIC DEMONSTRATED RESOURCES OF MAJOR MINERALS — December 2002

Mineral	Quantity	Australia	World	Australian percentage of World EDR	Australia's ranking in World holdings of EDR
Bauxite	Gt	4.8	22	22	1st
Black coal					
In situ	Gt	57.5	n.a.	n.a.	n.a.
Recoverable	Gt	39.7	(a)784	5	6th
Brown coal					
In situ	Gt	41.8	n.a.	n.a.	n.a.
Recoverable	Gt	37.6	(a)187	20	2nd
Copper(b)	Mt Cu	32.8	480	7	3rd
Diamond					
Gem and near gem(c)	Mc	67.3	n.a.	n.a.	n.a.
Industrial	Mc	70.1	580	12	3rd
Gold(b)	t Au	5 415	42 500	13	3rd
Iron ore	Gt	13.0	145	9	4th
Lead(b)	Mt Pb	17.2	70	27	1st
Lithium(b)	kt Li	171.0	4 110	4	(d)
Manganese ore	Mt	126.8	1 678	8	4th
Mineral sands					
Ilmenite	Mt	198.2	616	32	1st
Rutile	Mt	23.5	51	46	1st
Zircon	Mt	29.0	72	40	1st
Nickel(b)	Mt Ni	22.2	61.2	36	1st
Silver(b)	kt Ag	40.2	310	13	1st
Tantalum(b)	kt Ta	39.2	42	93	1st
Uranium(b)(e)	kt U	689	(f)1 569	44	1st
Vanadium(b)	kt V	(g)0	13 000	0	n.a.
Zinc(b)	Mt Zn	33.2	200	17	1st

(a) Geoscience Australia estimate. (b) Quantity measured in contained metal. (c) Detailed data are not available on world resources of gem/near gem diamond but Australia has one of the largest stocks for this category. (d) According to United States Geological Survey estimates, Chile holds about 88% of the world's lithium resources, followed by Canada with just over 5% and Australia with just under 5%. However, resource data are not available for some important producing countries including Argentina, China and Russia. Lithium brine resources, now the dominant feedstock for lithium carbonate production, are produced dominantly by Chile. Canada and Australia have the most significant resources of lithium minerals. (e) Refer to Australia's Identified Mineral Resources 2003 for comparison of resource categories in the national scheme with those of the international scheme for classifying uranium resources. (f) Source: OECD/NEA & IAEA (2001). Compiled from the most recent data for resources recoverable at <US\$40/kg U. Data for USA is not available for this category. (g) EDR of vanadium were reclassified as paramarginal resources following the closure of the Windimurra mine and processing plant, WA. This accounted for more than 97% of Australia's EDR for vanadium.

Source: Geoscience Australia, 'Australia's Identified Mineral Resources 2003'.

EDR is a measure of the resources that are established, analytically demonstrated or assumed with reasonable certainty to be profitable for extraction or production under defined investment assumptions. Classifying a mineral resource as EDR reflects a high degree of certainty as to the size and quality of the resource and its economic viability.

Australia has the world's largest EDR of bauxite, lead, mineral sands (ilmenite, rutile and zircon), nickel, silver, tantalum, uranium and zinc, and ranks second in the world for recoverable brown coal with a share of 20%. In addition, Australia's EDR for copper, industrial diamonds and gold are rated the third largest in the world. Table 16.11 shows the importance, in a global sense, of the main mineral resources in Australia.

During the 12-month period ended December 2002 significant increases in Australia's EDR were recorded for copper (35.5%) and lithium (12.5%) (table 16.12). The factors contributing to the increase in copper include a recompilation of demonstrated resources at the Olympic Dam site in South Australia and recommenced operations at Telfer, and a proposed restart at Boddington, both in Western Australia. All of Australia's lithium resources occur in Western Australia and all EDR occurs in the Greenbushes deposit, in the

south-west of the state. The lithium increase is due to a reclassification of resources at the Greenbushes deposit.

Over this same period the EDR for diamonds fell by 15.0% due mainly to production from the Argyle mine. The EDR of vanadium was reclassified to zero following the closure of the Windimurra mine and processing plant in Western Australia, which became non-viable. Ore reserves and resources for this deposit, which accounted for 97% of Australia's vanadium EDR, were reclassified as paramarginal resources. Resources within the Yeelirrie uranium-vanadium deposit were also reassessed by Geoscience Australia to be paramarginal.

Australia's oil and gas resources encompass crude oil, condensate, naturally occurring liquefied petroleum gas (LPG) and natural gas. EDR for oil and gas are resources which are judged to be economically extractable and for which the quantity and quality are computed partly from specific measurements, and partly from extrapolation for a reasonable distance on geological evidence. Subeconomic demonstrated resources (SDR) are similar to EDR in terms of certainty of occurrence but are considered to be potentially economic only in the foreseeable future.

## 16.12 ECONOMIC DEMONSTRATED RESOURCES OF SELECTED MINERALS

Mineral	Quantity	Australia			World		
		2001	2002	% change	2001	2002	% change
Bauxite	Gt	4.6	4.8	4.3	24.0	22.0	-8.3
Coal(a)	Gt	78.5	77.3	-1.5	976.0	971.0	-0.5
Copper(b)	Mt Cu	24.2	32.8	35.5	355.0	480.0	35.2
Diamond(c)	Mc	161.6	137.4	-15.0	580.0	580.0	—
Gold(b)	t Au	5 156.0	5 415.0	5.0	50 156.0	42 500.0	-15.3
Iron ore	Gt	12.4	13.0	4.8	133.6	145.0	8.5
Lead(b)	Mt Pb	17.3	17.2	-0.6	64.0	70.0	9.4
Lithium(b)	kt Li	152.0	171.0	12.5	3 403.0	4 110.0	20.8
Manganese ore	Mt	125.0	126.8	1.4	1 878.0	1 678.0	-10.6
Mineral sands(d)	Mt	254.0	250.7	-1.3	759.8	739.0	-2.7
Nickel(b)	Mt Ni	21.9	22.2	1.4	59.9	61.2	2.2
Silver(b)	kt Ag	41.4	40.2	-2.9	280.0	310.0	10.7
Tantalum(b)	kt Ta	40.8	39.2	-3.9	43.8	42.0	-4.1
Uranium(b)	kt U	648.0	689.0	6.3	1 564.0	1 569.0	0.3
Vanadium(b)	kt V	267.0	—	-100.0	10 000.0	13 000.0	30.0
Zinc(b)	Mt Zn	35.1	33.2	-5.4	190.0	200.0	5.3

(a) Includes recoverable black and brown coal. (b) Quantity measured in contained metal. (c) Includes gem and near gem, and industrial. (d) Includes ilmenite, rutile and zircon.

Source: Geoscience Australia, 'Australia's Identified Mineral Resources', 2002 and 2003 issues.

The information presented in table 16.13 is obtained from the annual publication, *Oil and Gas Resources of Australia*, produced by Geoscience Australia. The table shows over 1999 to 2003, EDR for crude oil reserves fell by 28% while reserves for sales gas increased (EDR by 27%, SDR by 75%) due mainly to discoveries of major gas resources off north western Australia. Discoveries of crude oil reserves had not been sufficient to offset the reduction in crude oil reserves through production. Unlike crude oil, discoveries have increased the EDR for condensate by 2% and its SDR has more than doubled over the same period.

## Expenditure on mineral and petroleum exploration

Exploration involves the search for new ore occurrences or undiscovered oil or gas, and/or appraisal intended to delineate or greatly extend

the limits of known deposits of minerals or oil or gas reservoirs by geological, geophysical, geochemical, drilling or other methods. This includes construction of shafts and adits primarily for exploration purposes, but excludes activity of a developmental or production nature.

Expenditure during the past five years on mineral exploration other than for petroleum and water is summarised in table 16.14.

Mineral exploration expenditure in 2002–03 was \$732.8m. This was \$105.0m (12.5%) lower than in 1998–99, but \$92.2m (14.4%) higher than in 2001–02. Western Australia and the Northern Territory, with expenditure lower by \$99.5m (19.0%) and \$15.5m (24.0%) respectively, were the main contributors to the fall between 1998–99 and 2002–03. Western Australia continued to account for the majority (58–62%) of the exploration expenditure over this period, followed by Queensland (11–16%).

### 16.13 OIL AND GAS RESOURCES

	Crude oil		Condensate		LPG		Sales gas	
	gigalitres	million barrels	gigalitres	million barrels	gigalitres	million barrels	billion cubic metres	trillion cubic feet
Economic demonstrated resources								
1 January 1999	243	1 528	273	1 715	243	1 527	1 989	70
1 January 2000	219	1 378	283	1 780	274	1 726	2 105	74
1 January 2001	194	1 222	300	1 889	292	1 835	2 203	78
1 January 2002	206	1 295	289	1 821	293	1 845	2 667	94
1 January 2003	176	1 108	277	1 743	274	1 726	2 528	89
Subeconomic demonstrated resources								
1 January 1999	31	196	54	338	71	447	869	31
1 January 2000	55	345	61	384	75	471	1 173	41
1 January 2001	87	546	119	749	86	540	1 618	57
1 January 2002	68	427	115	724	79	499	1 499	53
1 January 2003	68	428	109	683	79	498	1 518	54

Source: Geoscience Australia, 'Oil and Gas Resources of Australia', 2000, 2001 and 2002 issues.

### 16.14 MINERAL EXPLORATION EXPENDITURE, By state and territory

	1998–99	1999–2000	2000–01	2001–02	2002–03	Change from 1998–99 to 2002–03
	\$m	\$m	\$m	\$m	\$m	%
New South Wales	65.6	56.1	57.2	48.3	58.8	-10.4
Victoria	37.0	33.8	32.7	33.9	46.2	24.9
Queensland	93.8	82.6	83.1	92.7	114.2	21.7
South Australia	41.9	22.6	29.6	32.1	36.7	-12.4
Western Australia	523.1	415.0	424.1	381.1	423.6	-19.0
Tasmania	11.9	8.8	9.2	4.0	4.3	-63.9
Northern Territory	64.5	57.5	47.5	48.4	49.0	-24.0
<b>Australia</b>	<b>837.8</b>	<b>676.3</b>	<b>683.3</b>	<b>640.6</b>	<b>732.8</b>	<b>-12.5</b>

Source: Mineral and Petroleum Exploration, Australia (8412.0).

Most of the expenditure between 1998–99 and 2002–03 was related to exploration for gold (table 16.15). In this period, gold exploration expenditure accounted for 52–58% of total mineral exploration expenditure. Its decline from \$486.1m to \$378.4m (down 22.2%) was the main contributing factor to the fall in mineral exploration expenditure. Expenditure on selected base metals, diamonds and uranium fell by \$34.6m (19.6%), \$11.1m (27.1%) and \$8.5m (55.2%) respectively. The greatest increase recorded for this period was for coal exploration, up \$38.0m (95.2%). Increases were also recorded for mineral sands (up \$8.3m or 43.7%) and iron ore (up \$2.9m or 7.0%).

Table 16.16 shows the overseas exploration expenditure reported in the Minerals Industry Surveys undertaken by the Minerals Council of

Australia for 1998–99 to 2002–03. The surveys cover Australian mining companies, and some overseas controlled companies. Findings from these surveys indicate total overseas exploration expenditure by Australian businesses had been falling after reaching its peak in 1997–98 when \$450.2m was spent. Between 1998–99 and 2002–03 expenditure fell by 59.0%. This mainly reflected the fall in exploration expenditure for gold and platinum which accounted for most of the overseas exploration expenditure in the earlier years. By 2002–03 expenditure overseas on gold and platinum exploration was only 15.7% of the level achieved in 1998–99. Gold and platinum's share of total overseas exploration expenditure declined from 42.5% in 1998–99 to 16.3% in 2002–03, below base metals' share of 45.8%.

### 16.15 MINERAL EXPLORATION EXPENDITURE, By mineral sought

	1998–99	1999–2000	2000–01	2001–02	2002–03	Change from 1998–99 to 2002–03
	\$m	\$m	\$m	\$m	\$m	%
Selected base metals	176.9	156.8	165.4	132.9	142.3	-19.6
Copper	n.a.	28.4	32.8	41.6	39.7	..
Silver, lead-zinc	n.a.	55.4	59.8	37.6	36.6	..
Nickel, cobalt	n.a.	73.0	72.8	53.7	65.9	..
Gold	486.1	374.8	370.2	331.3	378.4	-22.2
Iron ore	41.5	29.7	23.4	25.2	44.4	7.0
Mineral sands	19.0	21.5	23.6	33.2	27.3	43.7
Uranium	15.4	11.7	(a)n.p.	8.8	6.9	-55.2
Coal	39.9	35.4	41.3	50.3	77.9	95.2
Diamonds	40.9	29.8	31.8	35.4	29.8	-27.1
Other(b)	18.0	16.7	(a)n.p.	23.4	25.8	43.3
<b>Australia</b>	<b>837.8</b>	<b>676.3</b>	<b>683.3</b>	<b>640.6</b>	<b>732.8</b>	<b>-12.5</b>

(a) Not available for publication but included in totals where applicable. (b) Includes tin, tungsten, scheelite, wolfram and construction materials.

Source: *Mineral and Petroleum Exploration, Australia (8412.0)*.

### 16.16 OVERSEAS MINERAL EXPLORATION EXPENDITURE, By mineral sought

	1998–99	1999–2000	2000–01	2001–02	2002–03	Change from 1998–99 to 2002–03
	\$m	\$m	\$m	\$m	\$m	%
Gold and platinum	177.8	117.3	77.2	45.3	28.0	-84.3
Base metals	154.0	82.8	61.8	51.5	78.5	-49.0
Mineral sands	3.1	1.8	2.4	2.4	1.0	-67.7
Diamonds	33.8	26.3	33.1	31.1	59.7	76.6
Coal	1.0	11.8	—	—	—	-100.0
Other	48.2	10.0	6.1	3.0	4.2	-91.3
<b>Total</b>	<b>417.9</b>	<b>250.0</b>	<b>180.7</b>	<b>133.3</b>	<b>171.3</b>	<b>-59.0</b>

Source: *Minerals Council of Australia, Minerals Industry Survey Reports, 1999 to 2003*.

The increase of \$38.0m (28.5%) in 2002–03 was the first since 1997–98 and was due to higher exploration expenditure for base metals (up \$27.0m, 52.4%) and diamonds (up \$28.6m, 92.0%). Expenditure for gold and platinum continued to fall (down \$17.3m, 38.2%) in 2002–03.

In the period 1998–99 to 2002–03 expenditure on oil and gas exploration rose by 14.7% (\$127.3m) (table 16.17) due primarily to an increase in offshore expenditure of 17.3% (\$118.3m). Offshore oil and gas exploration expenditure accounts for between 79.0% to 84.3% of total oil and gas exploration expenditure over this period.

## International comparison

Graph 16.18 shows the contribution of the mining industry to GDP for 2001 for selected countries. The Australian mining industry's contribution to

GDP (4.8%), was higher than for Canada, United Kingdom, Brazil and United States but lower than South Africa (6.8%). Diamonds, platinum, gold, and coal were some of the more important minerals in terms of sales value in South Africa, while gold, nickel, potash and copper were the most significant minerals in terms of value of production in Canada.

## Research and development expenditure

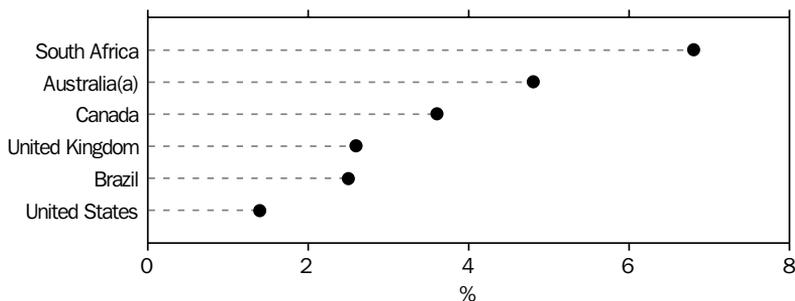
Research and experimental development (R&D) activity, in the business context, is defined as systematic investigation or experimentation involving innovation or technical risk, the outcome of which is new knowledge, with or without a specific practical application or new or improved products, processes, materials, devices or services. R&D activity also extends to modifications to existing products and processes.

### 16.17 OIL AND GAS EXPLORATION EXPENDITURE

	1998–99	1999–2000	2000–01	2001–02	2002–03	Change from 1998–99 to 2002–03
	\$m	\$m	\$m	\$m	\$m	%
Onshore	182.3	110.1	176.9	164.5	191.3	4.9
Offshore	685.4	590.6	847.8	718.1	803.7	17.3
<b>Total</b>	<b>867.7</b>	<b>700.7</b>	<b>1 024.7</b>	<b>882.6</b>	<b>995.0</b>	<b>14.7</b>

Source: *Mineral and Petroleum Exploration, Australia (8412.0)*.

### 16.18 CONTRIBUTION OF MINING INDUSTRY TO GDP, Selected countries — 2001



(a) For 2001–02.

Source: *United Nations Statistics Division, 'National Accounts Statistics: Main Aggregates and Detailed Tables, 2001'; Statistics Canada web site <www.statcan.ca>, 'Gross domestic product at basic prices by industry'.*

Over the period 1993–94 to 2002–03, R&D expenditure by the mining industry increased by 62% from \$331m in 1993–94 to \$536m in 2002–03. R&D expenditure by other industries also increased but more significantly (95%). As a result, the mining industry’s contribution to all industries R&D expenditure fell from 10.6% in 1993–94 to 9.0% in 2002–03. The manufacturing industry’s share of total R&D expenditure continued to be the highest, accounting for 47% in 2002–03.

Graph 16.19 shows the type of R&D expenditure by the mining industry. For the period 1993–94 to 2002–03 current expenditure other than labour costs is the major component of R&D expenditure for the mining industry, accounting for 79% of mining R&D expenditure in 2002–03. This category includes expenses on materials, fuels, rent and hiring, repairs and maintenance and data processing etc. and the proportion of expenses on general services and overheads attributable to R&D activity. In the mining industry, these expenses increased by \$272m (179%) from \$152m in 1993–94 to \$425m in 2002–03. The amount spent on labour increased by \$11m (23%) while capital expenditure fell by \$79m (61%). As a result, labour cost and capital expenditure as a proportion of total R&D expenditure fell to 11% and 9.5% respectively in 2002–03. The proportion for capital expenditure was significantly lower than the proportion of 39% recorded in 1993–94.

In 2002–03 the mining industry funded most of its R&D expenditure with \$526m (98%) sourced from money owned by the mining business (own funds). Most of the remaining expenditure was funded by the Australian Government.

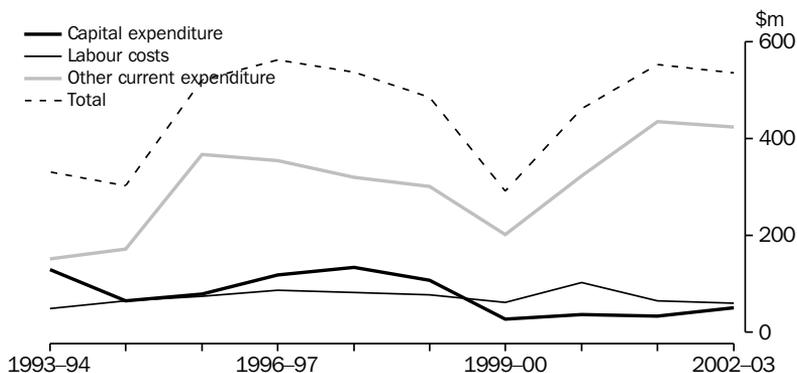
## Production and trade of major minerals, oil, gas and petroleum

### Mineral, oil and gas production

Table 16.20 shows the quantity produced for selected minerals, oil and gas. In the period 1998–99 to 2002–03 the most significant increases in production were for nickel in mine products (65.4%), manganese ore and concentrate (51.7%), uranium (44.4%), zinc ore and concentrate (31.2%) and iron ore (30.1%). The sharp increase in nickel production in 2000–01 was driven by increased production in Western Australia which accounts for all Australian production. Increased production was the result of expanded operations and capacity of existing producers, and the start up of new projects. Production continued to increase in the next two years spurred by the rise in metal prices and strong growth in demand, particularly from China.

Production of diamonds, gold, ilmenite and rutile decreased between 1998–99 and 2002–03 with the largest falls recorded for diamonds and gold, 11.0% and 8.3% respectively. Diamond production changed significantly during the period with an increase of 36.5% in 2001–02 after falling by 17.5% in 1999–2000 and 24.3% in 2000–01.

**16.19 MINING INDUSTRY EXPENDITURE ON R&D, By type**



Source: Research and Experimental Development, Businesses, Australia (8104.0).

## 16.20 VOLUME OF MINERAL, OIL AND GAS PRODUCTION, Selected minerals, oil and gas

	Units	1998-99	1999-2000	2000-01	2001-02	2002-03	Percentage change from 1998-99 to 2002-03
<b>Metallic minerals</b>							
Bauxite	Mt	46	51	55	54	54	17.3
Copper ore and concentrate	'000 t	2 088	2 340	2 577	2 590	2 555	22.4
Gold in mine products(a)	t	303	299	296	265	278	-8.3
Iron ore and concentrate	Mt	153	160	176	185	199	30.1
Lead ore and concentrate	'000 t	963	974	1 000	1 020	970	0.7
Manganese ore and concentrate	'000 t	1 630	1 755	1 948	1 850	2 472	51.7
Nickel in mine products(a)	'000 t	127	141	197	205	210	65.4
Ilmenite	'000 t	2 156	2 134	2 092	1 843	2 069	-4.0
Rutile	'000 t	214	185	209	207	208	-2.8
Synthetic rutile	'000 t	569	566	650	612	673	18.3
Titanium dioxide pigment	'000 t	164	168	181	186	189	15.2
Uranium	t	6 387	8 217	9 549	7 964	9 222	44.4
Zinc ore and concentrates	'000 t	2 139	2 343	2 697	2 715	2 806	31.2
Zircon concentrate	'000 t	385	372	377	389	458	19.0
<b>Coal</b>							
Black coal (saleable)	Mt	225	239	258	273	274	21.8
Brown coal	Mt	67	67	65	68	67	0.0
<b>Other minerals</b>							
Diamonds	'000 ct	35 948	29 672	22 475	30 676	32 006	-11.0
Salt	'000 t	9 203	9 610	9 492	9 213	10 305	12.0
<b>Oil and gas</b>							
Crude oil and condensate	ML	27 897	37 447	38 705	36 100	33 321	19.4
Natural gas	Mm <sup>3</sup>	30 681	31 180	31 524	32 136	33 162	8.1
LPG (naturally occurring)	ML	4 368	4 832	4 056	4 612	4 682	7.2

(a) 'In mine products' relates to the metal content of the mineral.

Source: ABARE, 'Australian Mineral Statistics' for figures on copper ore and concentrate, lead ore and concentrate, zinc ore and concentrate and natural gas; ABARE, 'Australian Commodity Statistics, 2003', for other figures.

### Mineral and oil processing and treatment

As few minerals, oil and gas can be directly used in the form in which they are mined, most of these undergo processing and treatment before use.

Table 16.21 shows the production of the main manufactured products of mineral and oil origin.

### Exports of major minerals, oil and gas

Export earnings of minerals, oil and gas from the Australian resources sector fell to \$54.9b in 2002-03, a decrease of \$1.1b on the previous year.

The resources sector covering minerals and energy production includes some commodities which are processed outside the mining industry (as defined by ANZSIC).

As shown in table 16.22, black coal (including coking and steaming) was the greatest export earner in 2002-03 (\$11.9b), followed by crude oil and other refinery feedstock (\$6.4b), iron ore and pellets (\$5.3b), refined gold (\$5.1b), aluminium (\$3.7b) and alumina (\$3.7b).

### 16.21 PRODUCTION OF PRINCIPAL MANUFACTURED PRODUCTS OF MINERAL AND OIL ORIGIN

	Units	1998-99	1999-2000	2000-01	2001-02	2002-03
<b>METALS</b>						
<b>Non-ferrous</b>						
Alumina	'000 t	14 207	15 307	16 098	16 417	16 413
Refined aluminium	'000 t	1 686	1 742	1 788	1 809	1 855
Refined copper	'000 t	306	477	517	561	537
Lead bullion	'000 t	157	165	153	201	181
Refined lead	'000 t	199	233	215	275	267
Refined zinc	'000 t	323	405	534	572	570
Refined tin	t	595	602	1 039	829	708
<b>Ferrous</b>						
Raw steel	'000 t	8 549	8 053	8 003	8 311	9 399
<b>Precious</b>						
Refined gold	t	419	383	361	346	386
Refined silver	t	410	543	532	616	672
<b>PETROLEUM</b>						
<b>Petroleum products</b>						
Diesel automotive oil	ML	12 968	12 737	13 212	13 064	13 335
Industrial and marine fuel	ML	32	60	98	105	117
Fuel oil	ML	1 634	1 839	1 951	1 684	1 441
Petrol	ML	18 705	18 652	17 887	18 000	17 984
<b>BUILDING MATERIALS</b>						
Clay bricks	m	1 609	1 711	1 436	1 516	1 639
Portland cement	'000 t	7 704	7 937	6 821	7 236	7 517
<b>CHEMICALS</b>						
Superphosphates	'000 t	1 464	1 429	1 379	1 585	1 205

Source: *Manufacturing Production, Australia (8301.0)*; ABARE, 'Australian Mineral Statistics', various issues.

Graph 16.23 shows the value of Australia's four largest mineral and oil exports during the period 1995-96 to 2002-03. The export values of black coal, crude oil and other refinery feedstock, and iron ore and pellets have been growing with crude oil and other refinery feedstock recording the largest increase (282%) followed by iron ore and pellets (87%) and black coal (53%). Black coal export value peaked in 2001-02 mainly as a result

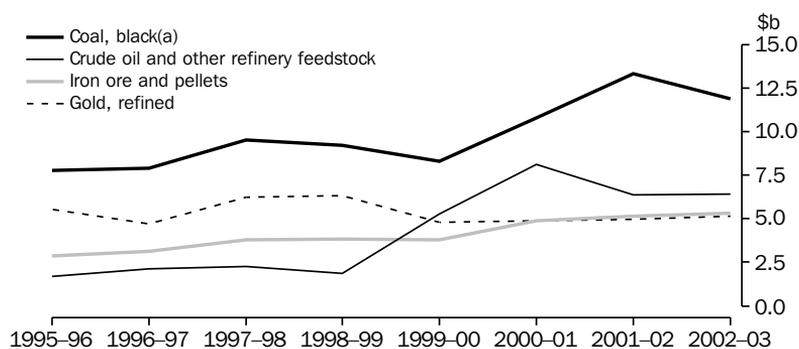
of an increase in unit values of coking and steaming coal exports. A similar peak was observed for the export value of crude oil and other refinery feedstock although it occurred in 2000-01. Since then, the export value of crude oil and other refinery feedstock has remained around \$6.4b in the past two years.

## 16.22 EXPORTS OF MAJOR MINERALS, OIL AND GAS, Value and quantity

	Units		1999-2000		2000-01		2001-02		2002-03	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Alumina	kt	\$m	11 654	3 471	12 721	4 507	13 091	4 114	13 168	3 660
Aluminium (ingot metal)	kt	\$m	1 364	3 302	1 471	4 229	1 490	3 965	1 551	3 696
Coal, black										
Coking	Mt	\$m	97	5 184	106	6 597	106	8 038	108	7 448
Steaming	Mt	\$m	79	3 114	88	4 204	92	5 294	100	4 449
Copper	kt	\$m	582	1 616	694	2 286	749	2 159	689	2 006
Diamonds	'000 ct	\$m	51 095	601	25 513	634	25 811	512	32 274	649
Gold, refined	t	\$m	330	4 803	302	4 887	280	4 950	282	5 133
Iron and steel										
Iron ore and pellets	Mt	\$m	149	3 779	157	4 903	156	5 160	181	5 342
Iron and steel	kt	\$m	2 941	1 265	2 931	1 484	3 297	1 484	3 599	1 853
Lead	kt	\$m	727	607	672	637	731	729	735	660
Magnesia	t	\$m	174 854	45	161 236	53	151 760	56	143 372	52
Manganese ore and concentrate	kt	\$m	1 301	185	1 522	261	1 660	299	1 999	316
Oil and gas										
Crude oil and other refinery feedstock	ML	\$m	20 877	5 292	24 044	8 137	23 936	6 390	20 949	6 402
LNG	Mt	\$m	8	1 949	8	2 671	8	2 613	8	2 607
LPG	ML	\$m	2 857	648	2 785	830	3 211	721	3 194	855
Salt	kt	\$m	8 389	221	8 636	253	8 912	267	10 168	233
Tin	t	\$m	9 934	70	9 660	76	8 026	49	5 963	38
Titanium minerals										
Ilmenite concentrate	kt	\$m	1 133	151	1 012	154	914	138	1 020	135
Rutile concentrate	kt	\$m	179	131	190	161	190	167	193	148
Uranium oxide	t	\$m	8 025	367	9 722	497	7 367	361	9 593	427
Zinc	kt	\$m	1 120	1 233	1 456	1 882	1 488	1 529	1 549	1 424
Zircon concentrate	kt	\$m	374	180	375	228	388	274	445	281

Source: ABARE, 'Australian Commodity Statistics, 2003'.

## 16.23 EXPORTS OF SELECTED MINERALS AND OIL



(a) Includes coking and steaming coal.

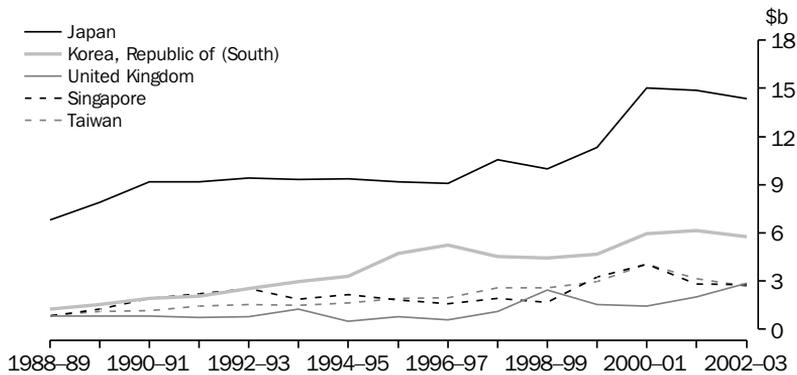
Source: ABARE, 'Australian Commodity Statistics, 2003'.

The major markets for Australian mineral and oil exports are Japan, Republic of (South) Korea, United Kingdom, Singapore and Taiwan (graph 16.24). Asia is the most significant region for exports of Australian minerals and oil, accounting for 66% (\$35b) of all Australian mineral and oil exports in 2002–03. Of the countries in this region, Japan is consistently the main destination for Australian minerals and oil for the period 1988–89 to 2002–03. Its share of total exports of minerals and oil was 27% (\$14b) in 2002–03. The main minerals and oil exported to this country are coal, crude oil and other refinery feedstock, LPG, iron ore and pellets. Of this, coal is the most significant. In 2002–03, 52 Mt of steaming coal and 41 Mt of coking coal were exported to Japan (52% and 38% respectively of total Australian exports for these commodities). In the same year, 3,402 megalitres (ML) of crude oil and other refinery feedstock, 2,786 ML of LPG and 75,747 kilotonne (kt) of iron ore and pellets were also exported to this country. These exports respectively accounted for 16%, 87% and 42% of Australia’s total exports of crude oil and other refinery feedstock, LPG and iron ore and pellets.

After Japan, the Republic of (South) Korea, Singapore and Taiwan are the main export destinations. The Republic of (South) Korea and Taiwan were other main markets for Australia’s black coal. The steaming coal sent to these destinations amounted to 14 Mt (14% of total exported steaming coal) and 11 Mt (11%) respectively in 2002–03. Iron ore and pellets, and crude oil and other refinery feedstock were also exported to the Republic of (South) Korea. Singapore was a major market for Australian crude oil and other refinery stock, importing 6,564 ML from Australia in 2002–03, 30% of the total volume exported.

In the period 1988–89 to 2002–03 exports to United Kingdom had more than doubled. In 2002–03 the exports to this country were valued at \$3b. Gold was the most significant mineral exported and amounted to 116 tonnes, 41% of Australia’s total gold exports.

**16.24 EXPORTS OF MINERALS AND OIL, By country of destination**



Source: ABARE, *Australian Commodity Statistics*, 2003.

## Imports of major minerals and petroleum

Many imported mineral and petroleum commodities have had a certain amount of manufacturing applied to their raw forms. Table 16.25 provides details of the major commodities imported in the period 1998–99 to 2002–03. In terms of value, the largest imports for 2002–03 were for crude oil and other refinery feedstock (\$9b) followed by gold (\$3b). The major sources of Australian imports of crude oil and other refinery feedstock were Indonesia and Vietnam with a combined value of \$4b (or 44% of the total import value for this commodity).

Graph 16.26 shows imports of selected major minerals and petroleum during the period 1996–97 to 2002–03. The imports of crude oil and other refinery feedstock were significantly larger than the imports of other minerals particularly in 2000–01.

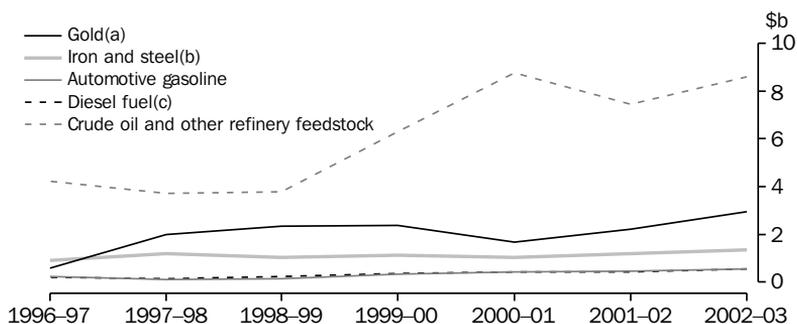
While the volumes of imports of crude oil and other refinery feedstock fluctuated over the period 1997–98 to 2002–03, the large changes in the value of imports between 1998–99 and 2002–03 were mainly due to significant unit value rises in 1999–2000 (up 84%) and 2000–01 (up 42%), and a decline in unit value in 2001–02 (down 18%).

**16.25 IMPORTS OF MAJOR MINERALS AND PETROLEUM, Value and quantity**

	Units		1998–99		1999–2000		2000–01		2001–02		2002–03	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Diamonds	'000 ct	\$m	2 827	162	2 528	210	2 598	249	2 431	255	3 218	302
Gold	n.a.	\$m	n.a.	2 351	n.a.	2 390	n.a.	1 686	n.a.	2 207	n.a.	2 957
Iron and steel												
Iron ore and pellets	kt	\$m	4 429	85	4 460	107	4 658	122	3 880	104	4 667	114
Iron and steel	kt	\$m	1 127	940	1 128	1 034	896	923	1 354	1 099	1 306	1 226
Petroleum												
Crude oil and other refinery feedstock	ML	\$m	29 729	3 794	26 936	6 313	26 343	8 753	27 308	7 458	27 958	8 610
LPG	ML	\$m	496	64	519	108	633	160	588	116	299	76
Automotive gasoline	ML	\$m	890	134	1 065	321	1 189	432	1 436	448	1 673	569
Diesel fuel	ML	\$m	1 435	225	1 400	377	1 129	438	1 280	414	1 627	561
Other refinery products	ML	\$m	581	312	648	325	902	463	n.a.	953	n.a.	1 971
Phosphate rock	kt	\$m	884	64	756	54	823	62	933	72	711	50
Platinum and platinum group metals	kg	\$m	8 329	148	3 199	55	2 158	30	1 652	42	2 319	64

Source: ABARE, 'Australian Commodity Statistics, 2003'.

## 16.26 IMPORTS OF SELECTED MINERALS AND PETROLEUM



(a) Refined and unrefined bullion. (b) Includes iron ore and pellets, and iron and steel.  
(c) Includes automotive diesel oil, and industrial and marine fuel.

Source: ABARE, *Australian Commodity Statistics, 2003*.

## Profile of major minerals, oil and gas

*This section is based on information contributed by Geoscience Australia, the Department of Industry, Tourism and Resources and the Australian Bureau of Agricultural and Resource Economics (ABARE) (August 2004).*

*Note: The Australian EDR information is for December 2003 and therefore may differ from the information in table 16.11. Values are given in Australian currency unless otherwise stated.*

### Minerals

Maps 16.27 and 16.28 show significant mineral mine locations – map 16.27 includes bauxite, coal, iron ore, manganese ore and uranium mine sites; map 16.28 covers metallic minerals and mineral sands sites.

### Bauxite, alumina and aluminium

Bauxite is a heterogeneous naturally occurring material from which alumina and aluminium are produced. The principal minerals in bauxite are gibbsite, boehmite and diaspor (which has the same composition as boehmite but is denser and harder). Bauxite is the ore from which alumina (aluminium oxide) is extracted while aluminium is produced from smelting alumina.

Australia's aluminium industry is a large integrated industry of mining, refining and smelting, which is of major economic importance nationally and globally. Its EDR of bauxite (4.8 Gt) provide a world class resource base for the industry, which

comprises five bauxite mines, six refineries, six primary aluminium smelters, twelve extrusion and four rolled product (sheet, plate and foil) mills. The industry ranks among the world's lowest cost producers of bauxite, alumina and aluminium and is the largest producer of bauxite and the largest producer and exporter of alumina.

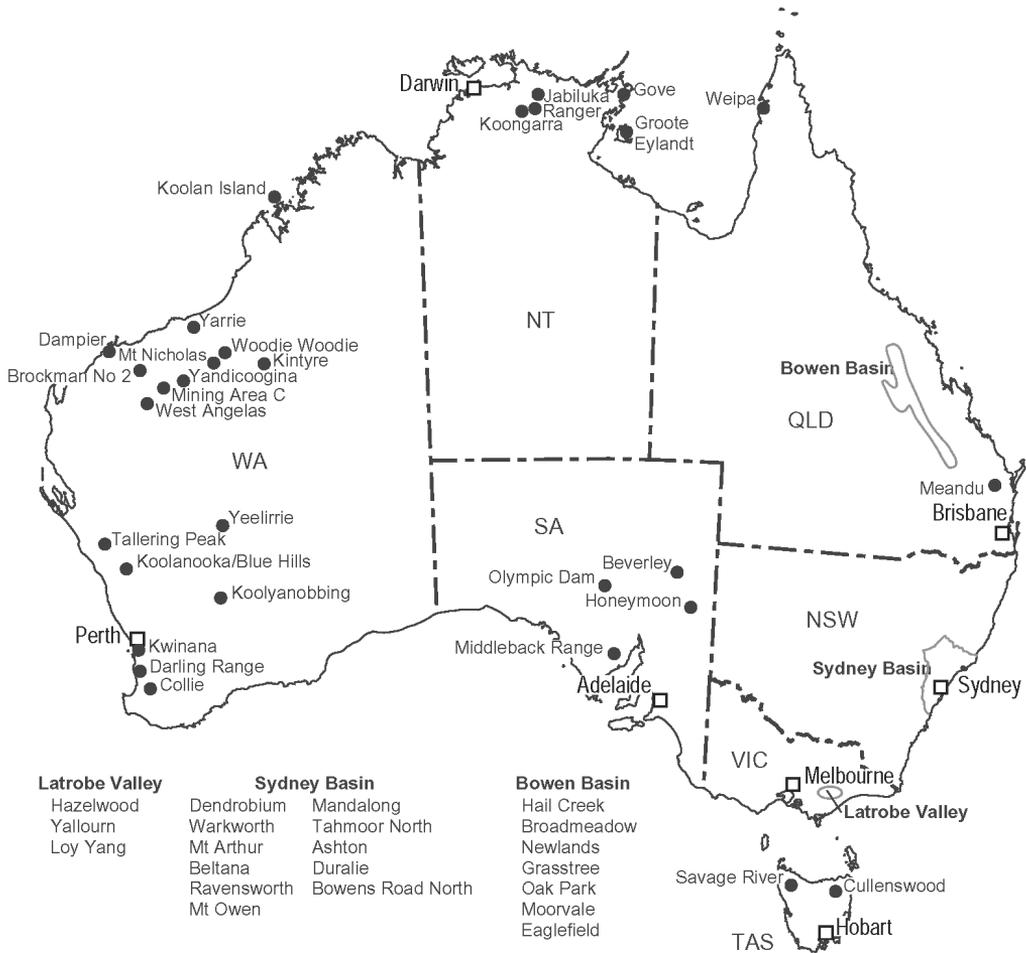
Over 16,000 people are employed directly by the industry in all states and the Northern Territory.

In 2003 production totalled 55.6 Mt of bauxite, 16.5 Mt of alumina and 1.9 Mt of aluminium (ingot metal). Compared with 2002 these represented increases of 2.7%, 0.9% and 1.1% respectively. Australian bauxite exports of \$180m in 2003 were 5% higher than in 2002. Alumina exports rose by 0.7 Mt (5.2%) in 2003 but aluminium exports fell slightly.

Despite the significant increase in alumina exports the value of shipments fell by \$90m (2.4%). The value of aluminium exports also decreased by \$419m (almost 11%) due mainly to a stronger Australian dollar. In total, bauxite, alumina and aluminium exports in 2003 were worth \$7,267m, or 7% of total Australian merchandise export earnings. This placed the aluminium industry behind petroleum and coal as the third-largest export industry.

Development of, and production in, the aluminium industry continued strongly in 2003. Expansion of the Weipa bauxite mine in Queensland is under way and is expected to increase production capacity to 16.5 Mt per year.

**16.27 SELECTED MINE SITES OF BAUXITE, COAL, IRON ORE, MANGANESE ORE AND URANIUM — 2003**



Source: Geoscience Australia.

**Coal**

Black coal is a solid rock formed from brown coal after greater heat and pressure have been applied. Black coals are distinguished by rank and may be sub-bituminous, bituminous or anthracite. Black coal is primarily used for electricity generation and the production of coke, which is integral to the production of iron and steel. Black coal is also used as a source of heat in the manufacture of cement and food processing. Brown coal is a less matured form of coal. It has a high ‘in situ’ moisture content (up to 60%) and a high oxygen content, with a correspondingly low heating value. It is highly susceptible to spontaneous combustion.

Brown coal is used widely for power generation, is made into briquettes, and can be converted to liquid or gaseous fuels.

Although coal mining occurred in all states in 2003, New South Wales and Queensland produced over 96% of all black coal (anthracite, bituminous and sub-bituminous coals) and Victoria produced all the brown coal (lignite). Australia’s EDR of black coal is 39.5 Gt, which is about 5% of total world EDR making Australia’s holdings the sixth largest in the world. EDR of brown coal is 37.5 Gt, which gives Australia the second largest holding in the world and accounts for 20% of world EDR.

**16.28 SELECTED MINE SITES OF BASE AND PRECIOUS METALS, DIAMOND AND MINERAL SANDS — 2003**



Source: Geoscience Australia.

Australia's coal production and exports have risen strongly over the past two decades. Production of black coal increased in 2003. Output of saleable black coal at 280.7 Mt was 2.7% higher than in 2002 and was 7% of world output, making Australia the world's fourth largest producer. Brown coal production reached 67 Mt in 2003, 8% of total world output. Australia was the world's third largest producer of brown coal.

Black coal was Australia's leading mineral export in 2003 generating revenue of \$10.9b – 10% of Australia's total merchandise export revenue. However, this was a fall of 15.5% compared with 2002, despite an increase in tonnage shipped of 14.7 Mt (5.5%), owing to the combined impact of lower prices and the appreciating Australian dollar.

## Copper

Copper occurs in various forms. It can occur naturally in its pure state (native copper) but is principally mined as chalcopyrite. Copper is one of the most important and widely used metals of modern society due to its properties of:

- high electrical and heat conductivity
- ductile and malleable
- resistant to corrosion
- ability to form alloys with other metals.

These properties enable copper to be used in a wide range of applications. The largest use of copper is in the electrical industry where copper wire and cable account for about half of the world's copper production. Other major markets are the motor vehicle and construction sectors. Copper is also an integral part of the expanding information technology sector and is used in the manufacture of computers, mobile phones, fax machines and televisions.

Major Australian copper mining and smelting operations are at Olympic Dam (South Australia) and Mt Isa (Queensland), with smaller projects in New South Wales, Queensland, Western Australia and Tasmania. Australia's EDR of copper is 32.8 Mt giving it the world's third largest holding of copper EDR with 7% of the total.

Mine production of copper in 2003 was 2.5 Mt of copper ores and concentrates which contained 869,000 tonnes of copper. These were 2.6% and 1.6% lower than in 2002. Apart from Olympic Dam and Mt Isa, other significant copper operations are at Northparkes and Cadia-Ridgeway (New South Wales), Golden Grove (Western Australia), Ernest Henry, Osborne and Mt Gordon (Queensland) and Mt Lyell (Tasmania). As a producer, Australia ranks fourth, with 10% of world output, after Chile, the United States of America and Indonesia.

Australia's exports of copper concentrates and refined copper were valued at \$2.02b in 2003, 1.9% of the value of total merchandise exports.

## Diamond

Diamonds are composed of carbon, and are the hardest known substances. They occur naturally but are extremely rare compared with other minerals. Diamonds are formed deep in the earth and are carried to the surface or near surface by volcanic rocks in narrow cylinder-like bodies

called 'pipes'. A large proportion of industrial diamonds are manufactured, and it is also possible to produce synthetic diamonds of gem quality. Uses for diamonds include jewellery, computer chip manufacture, drill bit facing, and stone cutting and polishing.

Australia produced 31.03 Mct of diamond in 2003, making it the world's largest producer of diamond by weight. It is the largest producer of industrial-grade diamond and the second largest producer of gem/near gem diamond. Botswana, a close second in terms of diamond production by weight, is the leading diamond producer by value, with Australia ranked eighth.

Australia's EDR of gem/near gem diamonds is 67.4 Mct and industrial diamonds 70.0 Mct. Australia's EDR of industrial diamond is ranked third in the world, with 16% of world EDR.

The majority of Australian production was from the Argyle mine in the Kimberley region of Western Australia which produced 30.91 Mct of mostly industrial and cheap gem quality diamonds. Argyle production was down nearly 8% on 2002 and reflected the mining of lower grade material in the Northern Bowl and the cessation of mining of alluvial diamonds in late 2002. A total of 9.787 Mt of ore was mined from the Argyle AK1 pipe giving an average grade of 3.16 ct per tonne, comparable with 2002 figures (3.19 ct per tonne).

## Gold

Gold has a range of uses but the two principal applications are as an investment instrument and in the manufacture of jewellery. Secondary uses, in terms of the amount of gold consumed, are in electronic and dental applications.

Gold resources occur and are mined in all Australian states and the Northern Territory. Australia's EDR of gold is 5,415 tonnes, the third largest in the world after South Africa and the United States of America.

Australian gold production reported by ABARE for 2003 was 284 tonnes, similar to output from the United States of America. This level of production makes Australia and the United States the second largest producers in the world after South Africa, with about 11% of world output. The Super Pit at Kalgoorlie in Western Australia was the largest producer with an output of nearly 0.9 million ounces.

## Iron ore

Iron ore is the source of primary iron for the world's steel industries. Over 97% of iron ore production occurs in the Hamersley Basin of Western Australia. Small production also comes from elsewhere in Western Australia, Tasmania and South Australia. Australia's EDR of iron ore is 12.4 Gt which is about 9% of world EDR. Australia has the fourth largest iron ore holding in the world.

Production of iron ore was strong, totalling 212 Mt in 2003, which was 18% of world output, making Australia the world's third largest producer. Australia also produces iron and steel and in 2003 output totalled 9.7 Mt.

Iron ore was a major contributor to Australia's export income in 2003 with 87.3 Mt valued at \$5.1b exported. In addition, Australia exported 3.8 Mt of iron and steel, which generated revenue of \$1.8b. The combined iron ore and iron and steel exports accounted for 6.3% of Australia's total merchandise export revenue.

## Manganese ore

Manganese ore was mined in the Northern Territory and Western Australia in 2003. Production reached 2.55 Mt, 12% of world output, making Australia the third largest producer in the world. Australian production is from two mines – Groote Eylandt in the Northern Territory and Woodie Woodie in Western Australia. Australia's EDR of manganese ore, at 124 Mt, is 13% of world EDR and Australia has the third largest EDR in the world.

In 2003 Australian exports of manganese ore totalled 2.14 Mt valued at \$312m.

## Mineral sands

The three main minerals mined from Australian mineral sands deposits are the titanium-bearing minerals rutile and ilmenite and the zirconium-bearing mineral zircon. Rutile and ilmenite are used mainly in the production of titanium dioxide pigment. A small portion, less than 4% of total titanium mineral production and typically rutile, is used in making titanium sponge metal. Zircon is an opacifier for glazes on ceramic tiles, and is used in refractories and the foundry industry. Production in 2003 was from Western Australia, Queensland and Victoria.

Australia's EDR of ilmenite is 198.2 Mt of which 63% is in Western Australia, 26% in Queensland and the rest in New South Wales and Victoria.

Australia accounts for about 32% (the largest holding) of the world's EDR of ilmenite.

Queensland and Western Australia together hold over 70% of Australia's 23.5 Mt EDR of rutile, which, at 47% of world EDR, is the world's largest.

EDR of zircon is 29.5 Mt, with Western Australia and Queensland holding just over 80%. In world terms, Australia's EDR is 41% of the total and is the largest holding by any country.

Although Australia has substantial EDR of mineral sands, Geoscience Australia estimates that some 18% of ilmenite, 24% of rutile and 28% of zircon EDR is unavailable for mining. They are in areas quarantined from mining that are largely incorporated into national parks. Deposits in this category include Moreton Island, Bribie Island and Fraser Island, Cooloola sand mass, Byfield sand mass and Shoalwater Bay area, all in Queensland, and Yuraygir, Bundjalung, Hat Head and Myall Lakes National Parks in New South Wales.

In 2003 Australia produced 2.01 Mt of ilmenite, 173,000 tonnes of rutile, 58,000 tonnes of leucoxene and 462,000 tonnes of zircon. Almost all Australia's rutile and zircon production is exported, but over half the ilmenite production is upgraded to synthetic rutile. Australia was the world's leading producer of ilmenite (28% of world output), rutile (53%) and zircon (46%) in 2003.

## Nickel

Australia's total resources of nickel are 42 Mt of which EDR is 22.8 Mt. Western Australia has the largest nickel resources, with 90% of total Australian EDR. Australia holds the largest share of the world's EDR, with 36%.

Australian mine production of nickel in 2003 increased by 2.8% to 188,000 tonnes, all from Western Australia. Production of intermediate nickel products (matte and speiss) totalled 107,000 tonnes in 2003 and refined nickel was 130,000 tonnes. The value of all nickel products exported was \$2.7b. Australia was the world's second largest producer, accounting for 15.6% of estimated world nickel output.

## Tantalum

Australia is the world's largest producer of tantalum in the form of tantalum concentrates. Australia also has the world's largest stock of tantalum resources, principally in its deposits at Greenbushes and Wodgina in Western Australia.

Australia has the world's largest EDR of tantalum at 41,000 tonnes, all of which is accessible for mining. This is approximately 93% of world EDR.

Australian production of tantalum, in the form of tantalum pentoxide was about 2.2 Mlb in 2003, 15% lower than in 2002.

## Uranium

Australia has 689,000 tonnes of uranium in Reasonably Assured Resources recoverable at costs of less than US\$40/kg U – this is the world's largest resource and represents 40% of world resources in this category (OECD Nuclear Energy Agency & International Atomic Energy Agency, 2004: 'Uranium 2003 Resources, Production & Demand'). Approximately 97% of Australia's total resources are in six deposits:

- Olympic Dam in South Australia, which is the world's largest uranium deposit
- Ranger, Jabiluka and Koongarra in the Alligator Rivers region in Northern Territory
- Kintyre and Yeelirrie in Western Australia.

Three uranium mines operated in 2003 – Ranger open pit, Olympic Dam underground mine, and the Beverley (South Australia) in situ leach operations. In 2003 Ranger produced 5,065 tonnes of uranium oxide, Olympic Dam 3,176 tonnes and Beverley 689 tonnes for a total of 8,931 tonnes, 10% higher than for 2002. Australia, with approximately 21% of world uranium production in 2003, is the world's second largest producer after Canada (29%).

Exports of uranium oxide in 2003 were 9,612 tonnes, valued at \$398m. Australia has no significant national demand for uranium and all production is exported under very stringent conditions to ensure it is used only for peaceful purposes. These conditions, referred to as 'nuclear safeguards', require customer countries to allow inspectors from the International Atomic Energy Agency to verify that the uranium is not directed into weapons programs. In addition, Australia requires compliance with parallel conditions under treaties it has concluded with end-customer countries.

## Zinc, lead, silver

Zinc is the 23rd most abundant element in the earth's crust. The construction, appliance and vehicle manufacturing industries use large

amounts of zinc, mainly as coatings on steel beams, sheet steel and vehicle panels in the automotive industry.

The widespread occurrence, relatively simple extraction, and combination of desirable properties have made lead useful to humans since at least 5000 BC. In deposits mined today, lead (in the form of galena) is usually associated with zinc, silver and sometimes copper, and is extracted as a co-product of these metals. More than half of the lead used comes from recycling, rather than mining. The largest use is in batteries for vehicles and communications.

The relative scarcity, attractive appearance and malleability of silver has made it suitable for use in jewellery, ornaments and silverware since before Roman times. Its extensive use in coins throughout history has declined over the past 40 years. Silver is mined and produced mainly as a co-product of copper, lead, zinc, and to a lesser extent, gold. Today, photographic paper and film, followed by the electronics and jewellery/tableware industries are the most important users of silver.

Australian EDR of zinc is 35 Mt, with Queensland holding 54%. The Northern Territory, New South Wales and Western Australia also have zinc EDR.

Australia's EDR of 19 Mt of lead is about 34% of total identified resources. Queensland has 53% of total EDR, mainly at Cannington and Mt Isa. Other holdings are in Northern Territory, New South Wales, Western Australia and Tasmania.

EDR for silver is 43,000 tonnes, with Queensland having the largest share at 73%, mainly in the Mt Isa, Cannington, Century and Hilton deposits. Other holdings occur in the Northern Territory, South Australia, New South Wales and Western Australia.

Australia has the world's largest EDR of zinc (17% of the world), lead (25%) and silver (14%).

Mine production of zinc, lead and silver in 2003 was 1.48 Mt, 700,000 tonnes and 1,870 tonnes respectively. These are a slight increase for zinc (up 10,000 tonnes), no change for lead and a slight decrease for silver (down 2,300 tonnes) compared with 2002. In production, Australia ranks first for lead, second for zinc after China and fourth for silver after Mexico, Peru and China. Cannington is the world's largest and lowest cost silver and lead producer and produced almost 233,000 tonnes of lead and 35.5 million ounces of silver in 2003. Century had the largest zinc output at 503,000 tonnes.

## **Oil and gas**

Map 16.29 shows significant locations of oil and gas production and includes oil and gas production locations, oil and gas pipelines and oil refineries.

### **Crude oil and condensate**

In 2002–03 production of total crude oil and condensate from the North West Shelf and the Gippsland Basin accounted for 42% and 22% respectively of total Australian crude oil and condensate production. The North West Shelf was the major producer of condensate during 2002–03 with 76% of total Australian production sourced from that region.

### **Liquefied natural gas (LNG)**

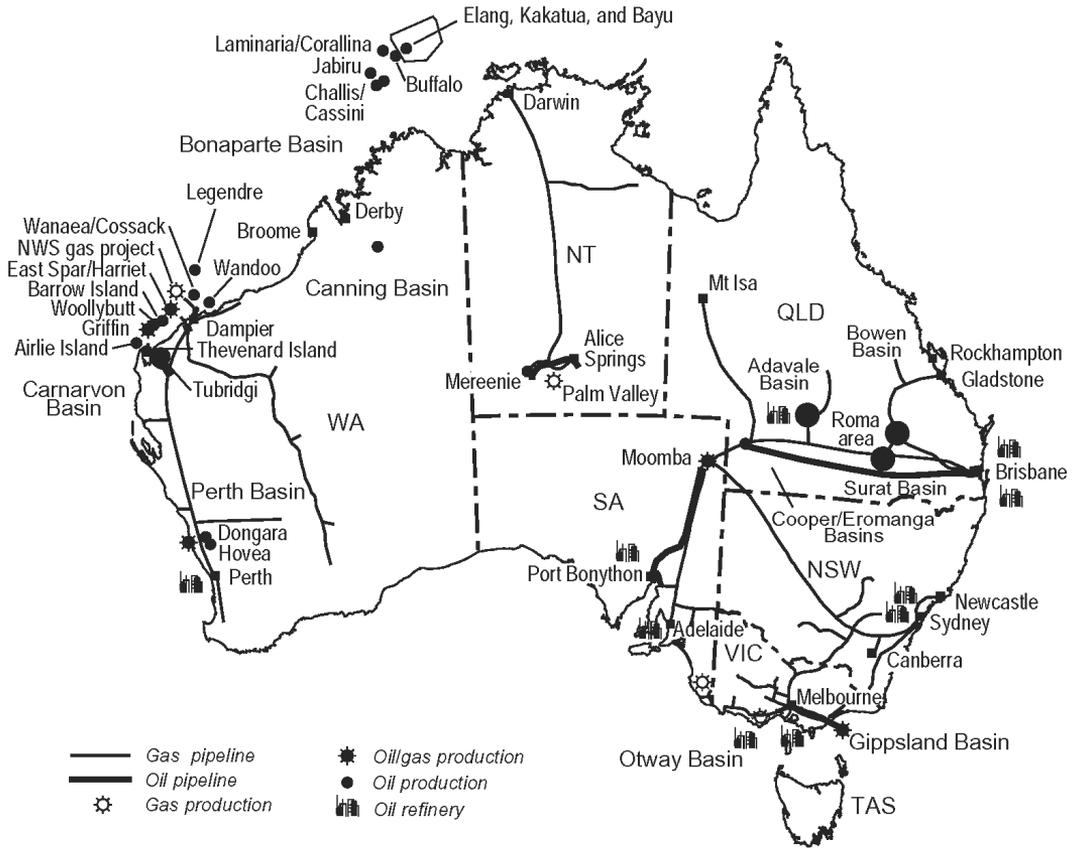
All LNG production comes from the North West Shelf Venture and all is exported. LNG production in 2002–03 was 7.8 Mt. Export earnings from LNG in 2002–03 were \$2.6b, the same as in 2001–02.

### **Liquefied petroleum gas (LPG)**

LPG is a valuable co-product of oil and gas production and petroleum refining. The major constituents of LPG are propane and iso- and normal-butane, which are gaseous at normal temperatures and pressures, and are easily liquefied at moderate pressures or reduced temperatures. Operations involving LPG are expensive in relation to other liquid fuels because LPG has to be refrigerated or pressurised when transported and stored. LPG is an alternative transport fuel for high mileage vehicles in urban areas, as well as a petrochemical feedstock and domestic fuel.

In 2002–03 the major producers were the Gippsland Basin and the North West Shelf accounting for 42% and 41% of total production respectively.

16.29 LOCATIONS OF OIL AND GAS PRODUCTION AND PIPELINES — 2003



Source: Geoscience Australia.

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## ENERGY

Energy is a vital input to all sectors of the economy. As well as supplying the power on which industry and households depend, the production and supply of energy provides employment, investment and export opportunities, all of which contribute substantially to the welfare and standard of living of Australians.

In 2003 the Australian Bureau of Statistics (ABS) undertook an industry-wide survey of energy use. It covered an extensive range of energy and fuel types including electricity, natural gas, petroleum products, coal and renewable energy. The survey also collected data on the production of petroleum products, electricity and natural gas, and the associated conversion, transmission and distribution losses. The results of the survey are the most comprehensive set of Australian energy statistics in almost 20 years.

The supply and use of energy in Australia is summarised in the initial section. Subsequent sections describe Australia's energy resources, the production of these resources, foreign trade in energy products, and an analysis of energy use.

The chapter concludes with an article *A snapshot of the largest energy users*.



## Energy supply and use

An overview of energy supply and use in Australia in 2001–02 is presented in diagram 17.1. Australia's total energy supply comprises primary energy production, plus imports of energy, less stock changes and discrepancies. In 2001–02 Australia produced 14,788 petajoules (PJ) of primary energy products and imported 1,222 PJ of energy products, mainly crude oil.

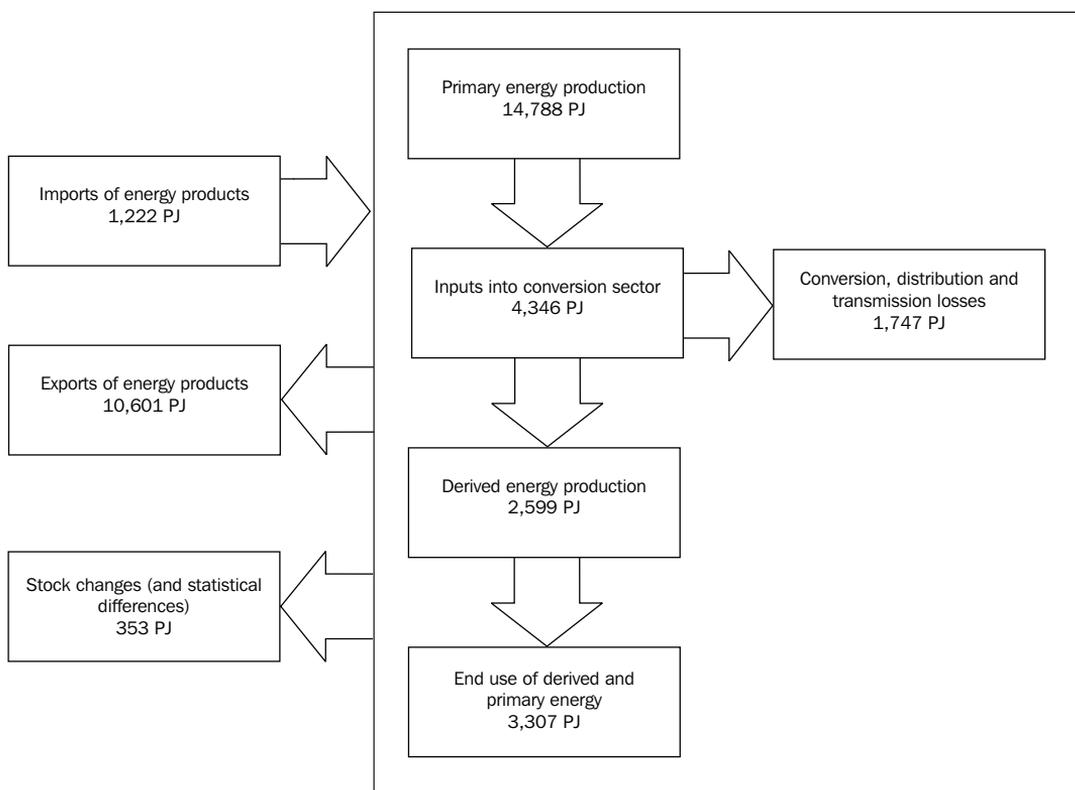
Australia's supply of primary energy products can be exported, converted into other energy products, used by Australian households and industry, or stockpiled for future consumption. Most of the energy produced in Australia is exported (10,601 PJ in 2001–02), the bulk of which is black coal and uranium. In 2001–02, 4,346 PJ of primary energy was transformed into 2,599 PJ of

derived energy products. Conversion, distribution and transmission losses accounted for 1,747 PJ of energy use. Households and industry used 3,307 PJ of energy, about one-fifth of the total energy supply.

## Energy resources

Australia has large identified resources of fossil fuels and uranium. It is ranked in the top six countries in the world for economic demonstrated resources (EDR) of black and brown coal, and has the world's largest EDR of uranium. Australia also has significant reserves of natural gas and crude oil. For a more detailed outline on Australia's energy and mineral resources, see *Chapter 16 Mining*.

### 17.1 ENERGY SUPPLY AND USE — 2001–02



Source: ABARE, electronic datasets, Table A.

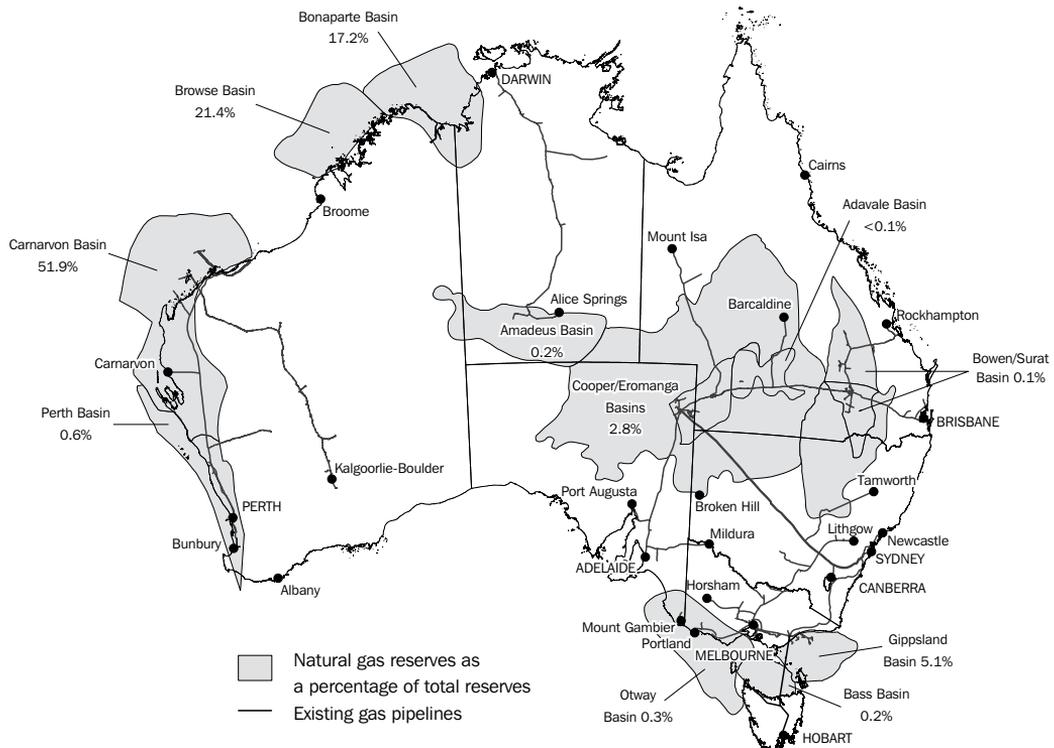
Australia has substantial resources of high quality black coal. Most of these resources are located in New South Wales and Queensland. Small but locally important coal resources occur in Western Australia, South Australia and Tasmania. Brown coal occurs mainly in Victoria with other known resources in Western Australia, South Australia and Tasmania (Geoscience Australia 2002).

Map 17.2 shows the extent of access to gas resources and major transmission pipelines in Australia. At June 2002, EDR of natural gas totalled 2,219 billion cubic metres (bm<sup>3</sup>), with the Carnarvon Basin accounting for over 50% of total reserves. The total length of Australia's

transmission pipeline system has increased from 9,000 kilometres (km) in 1989 to over 20,000 km in 2001 (APIA 2001).

Between 1992 and 2002 the EDR of black coal, brown coal, and crude oil have decreased, whereas the EDR of liquified petroleum gas (LPG), condensate, natural gas and uranium have increased in the period (table 17.3). Changes in EDRs can be due to production activity and discoveries and reclassification of resources due to reassessments (such as with black and brown coal in 1999, when some resources previously considered economic were reclassified as subeconomic).

### 17.2 GAS RESOURCES — 2002



Source: The Australian Gas Association.

### 17.3 ECONOMIC DEMONSTRATED RESOURCES OF PRIMARY ENERGY PRODUCTS(a) — 30 June

Fuel	Units	1992	2002	Percentage change from 1992 to 2002
Black coal	Gt	51.7	40.8	-21.1
Brown coal	Gt	41.4	37.7	-8.9
Crude oil	GL	244	227	-7.0
Condensate	GL	124	282	127.4
LPG	GL	131	262	100.0
Natural gas	bm <sup>3</sup>	950	2219	133.8
Uranium	kt	462	648	40.3

(a) Non-renewable resources only.

Source: Australian System of National Accounts (5204.0).

Another way of considering energy and mineral resources is by using net present value (NPV). The NPV is the expected value of the resource based on current market value, with some modifications based on depletion and economic forces. At June 2002 total subsoil assets had an NPV of \$239b, of which \$176b or 74% was attributed to the NPV of energy assets (table 17.4). The two most significant energy assets were black coal and natural gas which, respectively, accounted for 33% and 37% of the total NPV of energy products. The increase in the value of energy resources between 1992 and 2002 was primarily due to increases in the NPV of black coal and natural gas over this period – the NPV of black coal alone increased seventeen-fold.

### 17.4 NET PRESENT VALUE OF PRIMARY ENERGY PRODUCTS — 30 June

Fuel	1992	2002	Change from 1992 to 2002
	\$m	\$m	%
Black coal	3 282	57 711	1 658
Brown coal	169	705	318
Crude oil	13 385	26 363	97
Condensate	2 575	15 537	503
LPG(a)	1 253	7 399	491
Natural gas	14 770	65 546	344
Uranium	2 187	3 117	42
<b>Total</b>	<b>37 621</b>	<b>176 378</b>	<b>369</b>

(a) Naturally occurring.

Source: Australian System of National Accounts (5204.0).

## Energy production

In examining Australia's energy production it is important to distinguish between primary and derived (or secondary) energy. Primary energy products are forms of energy obtained directly from nature, including non-renewable fuels such as coal, natural gas and crude oil, and renewable fuels such as wood, hydro-electricity and wind.

Derived energy products are fuels produced from another fuel, commonly a primary energy product. Derived energy products include electricity, petroleum products such as petrol and diesel, and coke (Bush et al. 1999).

## Primary energy production

Australia produces primary energy from a range of renewable and non-renewable sources (table 17.5). Non-renewable primary energy products produced in Australia include black coal (273,236 kilotonnes (kt) in 2001–02), brown coal (68,384 kt) and uranium (7 kt of uranium equivalent). Renewable primary energy products produced in 2001–02 include wood (5,678 kt) and hydro-electricity (15,567 gigawatt hours (GWh)).

In 2001–02, 862,635 terajoules (TJ) of natural gas and ethane, 415,404 TJ of liquefied natural gas (LNG) and 4,439 megalitres (ML) of liquefied petroleum gas (LPG), were produced by the gas supply industries in Australia. Losses during the processing of raw gas (such as flaring) amounted to 37,974 TJ.

### 17.5 PRODUCTION OF PRIMARY ENERGY — 2001–02

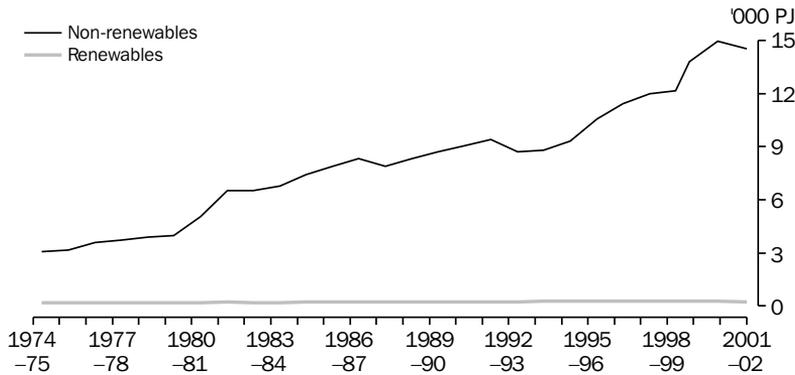
Fuel	Units	Quantity
Black coal	kt	273 236
Brown coal	kt	68 384
Crude oil	ML	28 933
Condensate	ML	7 938
LPG(a)	ML	4 439
Natural gas(b)	TJ	862 635
Uranium	kt	7
Wood	kt	5 678
Bagasse	kt	8 316
Hydro-electricity	GWh	15 567
Wind	GWh	164

(a) Naturally occurring. (b) Including ethane and excluding liquefied natural gas.

Source: Detailed Energy Statistics (4648.0.55.001); ABARE electronic datasets Table H, Australian Petroleum Statistics.

Graph 17.6 shows the production of non-renewable and renewable energy sources from 1974–75 to 2001–02. During this period, the production of non-renewable fuels has shown an upward trend. In contrast, there has been little growth in the combined production of primary renewable energy sources (wood, bagasse, hydro-electricity and solar). Although production of renewable energy products increased from 204 PJ in 1974–75 to 241 PJ in 2001–02, its share of total primary energy production fell from around 6% to less than 2% over this period (ABARE 2004).

## 17.6 PRODUCTION OF PRIMARY FUELS



Source: ABARE, electronic datasets, Table A.

### Derived energy production

Australia produces a variety of derived (or secondary) energy products. In 2001–02 petroleum refineries converted 44,907 ML of crude oil and other refinery feedstocks into petroleum fuels and non-fuel products, including 18,727 ML of petrol, 13,503 ML of diesel, and 5,212 ML of aviation turbine fuel. Operators of coke ovens and blast furnaces, typically part of the metal product manufacturing industry, converted 4,219 kt of black coal into 3,370 kt of coke (table 17.7).

In 2001–02 electricity generation was primarily undertaken by the electricity supply industry, but electricity was also generated by individual businesses. These businesses either directly use the electricity (called own-use) or sell the electricity to other users (called secondary generation). Total electricity generated in 2001–02 was 216,316 GWh. Of this 205,407 GWh (or 95%) was generated by the electricity supply industry and by secondary generators for sale, and 10,909 GWh (5%) was generated by other businesses for their own-use (table 17.7). Further statistics on the supply and use of electricity are provided in the section *Energy use*.

The electricity supply industry has undergone substantial structural change over the last decade. The 1991 decision to introduce a national electricity market has resulted in the replacement of the traditional state-owned vertically integrated monopolies with businesses that compete within the same marketplace. Employment, sales and turnover continue to be affected by the changes caused by industry restructuring. Employment

increased by 551 persons (2%) to 33,435 persons in 2000–01 (table 17.8). Turnover in the electricity supply industry increased nationally by \$2.0b (8%) to \$27.4b. The majority of this increase was accounted for by a growth in the value of sales of goods and services of \$1.5b (6%) to \$25.4b although much of the increase was due to the statistical effects of industry restructuring rather than real growth.

### 17.7 PRODUCTION OF DERIVED ENERGY — 2001–02

Fuel	Units	Quantity
<b>Coal products</b>		
Coke	kt	3 370
Coke oven gas	kt	790
Blast furnace gas	kt	9 737
Other coal by-products	TJ	5 174
<b>Petroleum products</b>		
Petrol(a)	ML	18 727
Aviation gasoline	ML	142
Aviation turbine fuel	ML	5 212
LPG	ML	2 271
Fuel oil	ML	2 059
Diesel(b)	ML	13 503
Heating oil and kerosene	TJ	7 725
Other petroleum products	TJ	50 868
Liquefied natural gas	TJ	415 404
<b>Electricity</b>		
Generated for sale	GWh	205 407
Generated for own-use	GWh	10 909

(a) Includes unleaded and leaded. (b) Includes automotive diesel oil and industrial and marine diesel fuel.

Source: Detailed Energy Statistics, Australia, 2001–02 (4648.0.55.001).

## 17.8 SUMMARY OF OPERATIONS, ELECTRICITY INDUSTRY

	Units	1998-99	1999-2000	2000-01
Employment at 30 June	no.	33 022	32 884	33 435
Sales of goods and services	\$m	23 029.6	23 919.2	25 438.5
Turnover	\$m	24 426.9	25 476.5	27 448.3

Source: Electricity, Gas, Water and Sewerage Operations, Australia (8226.0).

## International trade in energy products

Australia is a net exporter of coal, LPG, natural gas and uranium. In 2001-02 a total of 10,601 PJ of Australian energy products were exported, comprising 10,474 PJ of primary energy and 127 PJ of derived energy (table 17.9). In terms of energy content, the largest contributors were black coal

(53% of total energy exports) and uranium (33%). Crude oil and natural gas contributed 8% and 4%, respectively. Total energy exports (primary plus derived) increased by 63% from 1991-92 to 2001-02. In this period exports of primary energy products grew rapidly, particularly uranium (up 56%) and black coal (up 61%). The major derived energy products exported in 2001-02 were aviation turbine fuel (20.2 PJ), diesel (36.6 PJ) and automotive gasoline (40.6 PJ).

In contrast, imports of energy products are small (1,223 in 2001-02). Australia is a net importer of crude oil, importing over 1,000 PJ in 2001-02, up 78% since 1991-92. Graph 17.10 shows the sharp contrast between exports of energy products from and imports of these products into Australia over the past 25 years. The decrease in total exports of energy products between 2000-01 and 2001-02 is largely due to a fall in uranium exports.

## 17.9 ENERGY PRODUCTS, Volume of exports and imports

	Exports			Imports		
	1991-92 PJ	1996-97 PJ	2001-02 PJ	1991-92 PJ	1996-97 PJ	2001-02 PJ
<b>Primary energy products</b>						
Black coal	3 502.2	4 147.2	5 630.3	—	—	—
Crude oil and ORF(a)	332.0	458.8	885.6	593.3	958.5	1 056.8
LPG	41.6	64.1	82.5	1.2	14.9	15.1
Liquified natural gas	253.5	407.2	413.4	—	—	—
Uranium	2 222.6	2 679.5	3 462.5	—	—	—
<i>Total</i>	6 351.9	7 756.8	10 474.3	594.5	973.4	1 071.9
<b>Derived energy products</b>						
Automotive gasoline	23.7	43.6	40.6	7.0	36.7	49.1
Aviation gasoline	5.2	2.3	2.3	—	—	0.2
Aviation turbine fuel	9.1	25.7	20.2	3.8	11.0	8.3
ADO and IDF(b)	32.1	52.6	36.6	15.0	36.8	49.4
Fuel oil and kerosene	46.8	38.2	11.7	37.4	32.1	22.7
Other petroleum products(c)	28.4	35.9	13.2	19.1	19.1	21.7
Briquettes	1.8	2.1	—	—	—	—
Coke	19.6	8.9	2.2	—	—	—
<i>Total</i>	166.7	209.3	126.8	82.3	135.7	151.4
<b>Total</b>	<b>6 518.6</b>	<b>7 966.1</b>	<b>10 601.1</b>	<b>676.8</b>	<b>1 109.1</b>	<b>1 223.4</b>

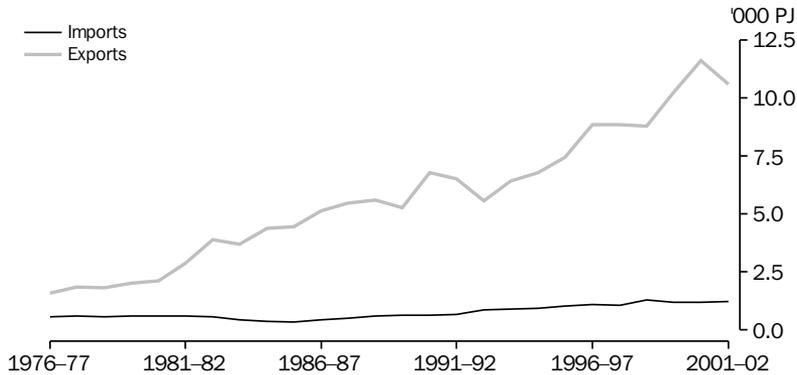
(a) Other refinery feedstock (ORF). (b) Automotive diesel oil (ADO) and industrial diesel fuel (IDF). (c) Also includes lubricants and greases, bitumen and other bituminous products, solvents, waste oils and diesel.

Source: ABARE, electronic datasets, Table J.

Table 17.11 shows energy products contributed significantly to Australia's export earnings. In 2001–02 the export of energy products contributed about 20% towards Australia's total merchandise export earnings, up from 16% in 1996–97. Black coal accounts for the largest share of the total value of energy exports (54% in 2001–02), followed by crude oil (26%) and LNG (11%). While accounting for a third of all exports by energy content, the value of uranium exports

contributed only 1.5% of the total value of energy exports in 2001–02. Imports of energy products (mainly crude oil) accounted for 8% of the total value of imports in 2001–02. Although the quantity of energy exports (by energy content) has increased by 33% from 1996–97 to 2001–02, the value of energy exports increased by 85%, partly due to the decline of the Australian dollar relative to the US dollar in that period.

### 17.10 EXPORTS AND IMPORTS OF ENERGY PRODUCTS



Source: ABARE, electronic datasets, Table J.

### 17.11 ENERGY PRODUCTS, Value of exports and imports

	Exports		Imports	
	1996-97	2001-02	1996-97	2001-02
Fuel	\$m	\$m	\$m	\$m
Black coal(a)	7 932	13 332	—	—
Crude oil and ORF(b)	2 119	6 390	4 233	7 458
Liquified petroleum gas	356	721	87	116
Liquified natural gas	1 537	2 613	—	—
Uranium oxide	245	361	—	—
Refinery products	1 147	1 234	867	1 815
<b>Total</b>	<b>13 336</b>	<b>24 651</b>	<b>5 187</b>	<b>9 389</b>
Total merchandise trade	(c)84 842	121 176	(c)83 445	119 681

(a) Coking plus steaming. (b) Other refinery feedstock (ORF). (c) Year ended December 1997.

Source: International Merchandise Trade, Australia (5422.0); ABARE 2003.

## Energy use

### Total energy use

In 2001–02 total energy use in Australia, comprising both primary and derived energy, was 5,055 PJ, of which around two-thirds (3,307 PJ) was delivered to end-users and the remaining third (1,747 PJ) was lost in conversion processes, transmission and distribution (diagram 17.1).

### Energy conversion and supply losses

The energy conversion sectors represent an intermediate stage in the energy supply chain. These sectors transform primary energy products into more useful, higher value-added secondary (derived) energy products. Petroleum refiners, for example, transform crude oil into petroleum products such as petrol and diesel.

The main energy conversion sectors, comprising electricity generators, gas manufacturers, petroleum refiners, and operators of coke ovens and blast furnaces, are significant users of primary energy products. Of the conversion sectors, the petroleum refining and electricity generation sectors are the two main users of energy (ABARE 2004).

In Australia most electricity is generated from non-renewable energy sources. By energy content coal, coke and coal by-products accounted for 83% of all inputs used to generate electricity in 2001–02, natural gas accounted for 12%, and petroleum products accounted for 1% (graph 17.12). Renewable energy sources, which accounted for 4% of fuels used to generate electricity, included hydro, wind and solar (which

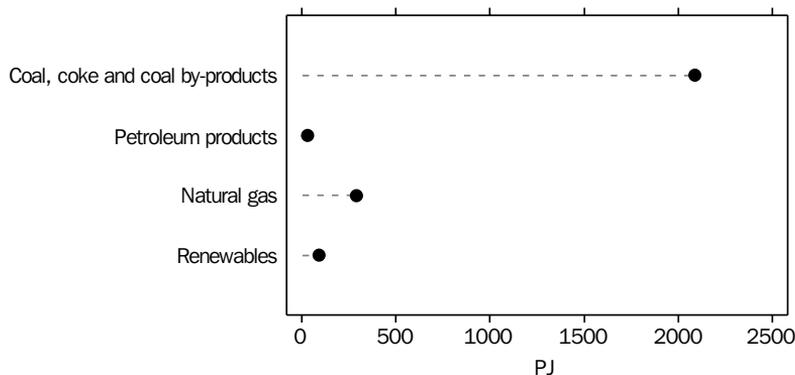
by energy accounting definitions are considered a primary fuels), bagasse (sugar cane residue), wood, and biogas (graph 17.13).

Electricity is lost during its supply from power stations to homes and businesses – these losses are called supply losses. Initial losses occur when electricity generators use electricity in their generation processes. Further losses occur along transmission and distribution networks. In 2001–02, 26,907 GWh was used by generators or lost during supply of electricity to users (diagram 17.14), representing around 13.1% of total electricity for generated for sale (i.e. excluding electricity generated for own-use).

Electricity was generally supplied to households and industry by distributors. However, high-voltage transmission companies and the generating businesses themselves can supply electricity directly to businesses. In 2001–02, according to electricity supply businesses, 127,095 GWh of electricity were supplied to industrial and commercial customers and 53,309 GWh were supplied to residential customers. Of the 127,095 GWh supplied to industry, 97,835 GWh (77%) were supplied from distributors, 24,993 GWh (20%) were supplied from transmitters, and 4,267 GWh (3%) were supplied direct from generators (diagram 17.14).

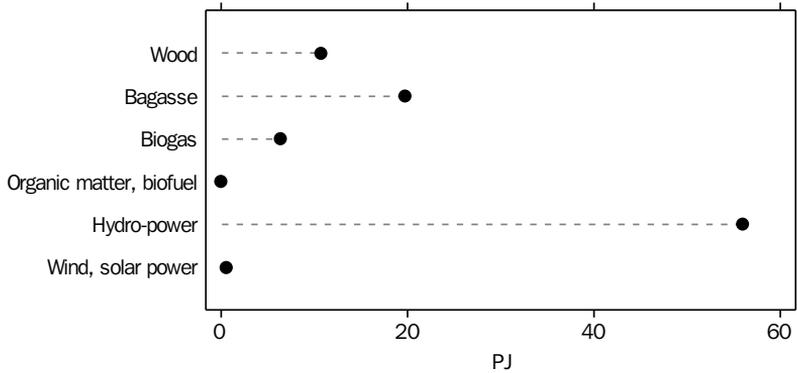
Transmission and distribution pipelines transport natural gas to end-users. As with electricity, this transportation can lead to losses. Total supply losses in 2001–02 were 12,093 TJ, comprising 905 TJ of pipeline losses and 11,188 TJ of distribution losses. This represents around 1.5 % of all pipelined natural gas.

**17.12 FUEL SHARES IN ELECTRICITY GENERATION — 2001–02**



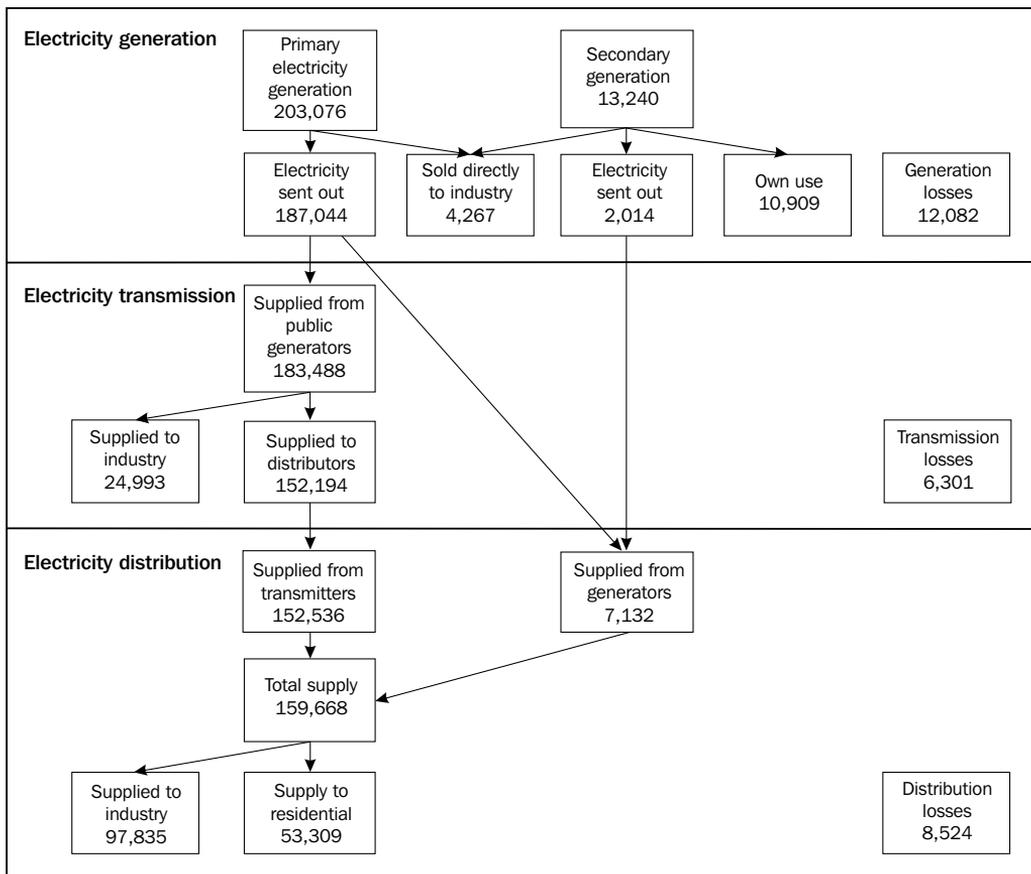
Source: Detailed Energy Statistics, Australia, 2001–02 (4648.0.55.001).

### 17.13 RENEWABLE ENERGY USED TO GENERATE ELECTRICITY — 2001-02



Source: Detailed Energy Statistics, Australia, 2001-02 (4648.0.55.001).

### 17.14 ELECTRICITY SUPPLY(a) — 2001-02



(a) Figures are gigawatt hours. Totals do not always equal the sum of components.

Source: Detailed Energy Statistics, Australia, 2001-02 (4648.0.55.001).

## Energy end – use by sector

Australia's end-users of energy comprise households and industry (excluding the conversion sectors). End-use by industry included 136,499 GWh of electricity, 378,576 TJ of natural gas, and 4,205 kt of black coal (table 17.15). Additionally, industry end-users consumed 9,711 ML of diesel, 4,469 ML of petrol and 1,115 ML of LPG. Of the renewable energy sources, 7,408 kt of bagasse and 1,153 kt of wood and woodwaste were consumed by industry for end-use activities.

Each state and territory used different proportions of fuel types for end-use purposes (table 17.16). In 2001–02 New South Wales used more electricity, petrol, and diesel than any other state. Queensland (1,996 kt) and Western Australia (1,148 kt) together accounted for three-quarters of end-use consumption of black coal. Western Australia used 36% of Australia's natural gas (136,408 TJ).

### 17.15 END-USE FUEL CONSUMPTION, By industry — 2001–02

	Electricity GWh	Natural gas TJ	Petrol ML	Diesel ML	LPG ML	Black coal kt	Bagasse kt	Wood, woodwaste kt
Agricultural services, forestry, fishing(a)	^ 417	*98	^ 59	^ 374	*12	—	—	—
Mining	14 118	52 126	^ 36	2 124	29	377	—	—
Manufacturing	64 506	268 966	624	^ 563	238	3 775	7 408	^ 1 131
Electricity, gas and water supply	^ 3 866	*1 449	65	^ 81	4	—	—	**8
Construction	^ 1 717	**2 686	794	^ 1 047	^ 91	—	—	**1
Wholesale and retail trade	12 811	*6 737	1 122	^ 326	^ 138	—	—	**1
Transport and storage(b)	3 532	10 484	232	4 207	^ 323	*39	—	**1
Communication services	1 531	304	^ 109	*81	**53	—	—	**1
Finance, insurance, property and business services	6 924	^ 3 414	693	*315	^ 42	—	—	—
Government administration and defence(c)	4 552	2 302	140	392	17	*1	—	—
Education	^ 4 731	4 739	^ 53	*22	*21	2	—	**9
Health and community services	^ 4 214	^ 9 766	^ 264	*43	*32	12	—	—
Other services(d)	^ 13 580	^ 15 505	277	^ 137	^ 117	—	—	**2
<b>Total</b>	<b>136 499</b>	<b>378 576</b>	<b>4 469</b>	<b>9 711</b>	<b>1 115</b>	<b>4 205</b>	<b>7 408</b>	<b>^ 1 153</b>

(a) Excludes agriculture (ANZSIC Subdivision 01). (b) Excludes water, air and space transport (ANZSIC Subdivisions 63 and 64). (c) Excludes foreign government representatives. (d) Includes accommodation, cafes and restaurants (ANZSIC Division H), cultural and recreational services (ANZSIC Division P), and personal and other services (ANZSIC Division Q).

Source: Detailed Energy Statistics, Australia, 2001–02 (4648.0.55.001).

### 17.16 END-USE FUEL CONSUMPTION, By state and territory — 2001–02

	Electricity GWh	Natural Gas TJ	Petrol ML	Diesel ML	LPG ML	Black coal kt	Bagasse kt	Wood, woodwaste kt
New South Wales	39 727	^ 66 015	1 588	2 932	^ 302	641	—	*573
Victoria	31 697	79 361	1 150	1 599	^ 337	—	—	n.p.
Queensland	28 856	52 861	827	2 507	^ 228	1 996	7 408	282
South Australia	7 468	39 673	^ 302	556	*104	n.p.	—	162
Western Australia	17 329	136 408	^ 426	1 608	^ 88	1 148	—	**2
Tasmania	7 967	—	^ 86	^ 221	*21	352	—	n.p.
Northern Territory	^ 2 159	2 878	*32	167	**21	n.p.	—	—
Australian Capital Territory	1 296	^ 1 382	^ 57	121	*14	—	—	—
<b>Australia</b>	<b>136 499</b>	<b>378 576</b>	<b>4 469</b>	<b>9 711</b>	<b>1 115</b>	<b>4 205</b>	<b>7 408</b>	<b>^ 1 153</b>

Source: Detailed Energy Statistics, Australia, 2001–02 (4648.0.55.001).

In 2001–02 households used 393 PJ of energy for end-use purposes excluding transport, an increase of 17% from 1991–92 (ABARE 2004).

Australia has a very high level of motorisation and a high level of total personal travel – only United States of America and Italy are more motorised than Australia (OECD/IEA 2001). Table 17.17 shows, as a proportion of persons who work or study aged 18 years and over, the number of people driving to work or study has remained about the same between 1996 (70.1%) and 2003 (70.3%).

The 1970s and 1980s saw a significant increase in the level of indoor comfort and amenities in Australian homes for space comfort, water heating

and electric appliances. Natural gas and electricity are the key sources of space heating (table 17.18). In 2002 natural gas was the main heating source for 34% of residences (up from 31% in 1994); electricity provided 31% and wood 14%. Over 19% of households did not have space heating. As comfort standards have increased and pipeline gas became more widely available, whole house heating rather than ‘spot’ heating has increased (OECD/IEA 2001). Electricity is the major source of energy for both heating water (about 61% in 2002) and cooking (about 57% in 2002).

### 17.17 TYPE OF TRANSPORT TAKEN TO WORK OR STUDY, Proportion of number of persons travelling

	1996	2000	2003
	%	%	%
Car/truck/van as driver	70.1	72.2	70.3
Car/truck/van as passenger	5.0	5.1	4.2
Motorbike/motorscooter	1.0	0.7	0.6
Train	6.3	6.9	6.7
Bus	4.3	4.0	4.3
Tram/light rail	0.4	0.6	0.8
Ferry/boat	0.2	0.2	0.2
Taxi	0.2	0.1	*0.1
Bicycle	1.8	1.1	1.2
Walk	4.3	4.2	3.9
Other	0.3	0.3	*0.1
Do not travel (work/study at home)	6.2	4.8	7.5

Source: *Environmental Issues: People's Views and Practices (4602.0)*.

### 17.18 PRINCIPAL FUEL TYPES USED IN DWELLINGS, Number of dwellings by purpose

	Room heating			Water heating			Cooking(a)	
	1994	1999	2002	1994	1999	2002	1999	2002
	'000	'000	'000	'000	'000	'000	'000	'000
Electricity	1 906.4	1 997.3	2 309.2	3 999.3	4 253.8	4 588.0	4 181.1	4 270.0
Gas	2 044.3	2 349.6	2 555.0	2 153.8	2 526.7	2 810.1	2 887.0	3 169.1
Wood	1 130.4	1 118.3	1 024.2	(b)	73.9	44.9	51.4	34.6
Solar	3.8	*0.8	*1.0	317.1	344.7	322.4	—	—
Oil	200.0	156.3	92.6	(b)	2.2	*1.9	0.9	—
Coal/coke	(b)	*2.7	*1.3	(b)	—	*0.6	—	—
Other	90.6	44.5	31.6	141.9	12.4	15.3	14.8	—
Don't know	(b)	*7.5	—	(b)	36.9	117.6	—	—
None	1 039.1	1 458.1	1 458.7	—	—	—	—	—
<b>Total</b>	<b>6 414.5</b>	<b>7 135.2</b>	<b>7 473.7</b>	<b>6 612.1</b>	<b>7 250.6</b>	<b>7 473.7</b>	<b>7 135.2</b>	<b>7 473.7</b>

(a) Not collected in 1994. (b) Included in Other.

Source: *Environmental Issues: People's Views and Practices (4602.0)*.

## Indicators of energy use

Australia's total energy consumption increased by 6% from 1997–98 to 2001–02. In this period the population increased by 5%, and gross domestic product (GDP) by almost 16%. Consequently,

there has been a continuing decline in Australia's aggregate energy intensity, that is, energy consumed per unit of GDP over the five-year period. While electricity use marginally outgrew population growth over the period, it broadly matched growth in GDP (table 17.19).

### 17.19 SELECTED ENERGY INDICATORS

	Energy consumption(a) PJ	Electricity use(b) PJ	Population '000	GDP(b) \$m	Energy use per person GJ/person	Electricity use per person GJ/person	Energy use/GDP GJ/\$m	Electricity use/GDP GJ/\$m
1997–98	4 777.6	703.6	18 711.3	616 805	255.3	37.6	7 746	1 141
1998–99	4 884.3	734.3	18 925.9	649 550	258.1	38.8	7 520	1 130
1999–2000	4 971.0	756.8	19 153.4	673 944	259.6	39.5	7 376	1 123
2000–01	5 004.4	779.9	19 413.2	687 720	257.8	40.2	7 277	1 134
2001–02	5 054.7	808.2	19 641.0	714 370	257.4	41.1	7 076	1 131

(a) Primary plus derived energy. (b) Chain volume measures, reference year is 2001–02.

Source: *Australian Demographic Statistics (3101.0)*; *Australian System of National Accounts (5204.0)*; *Detailed Energy Statistics, Australia, 2001–02 (4648.0.55.001)*; *ABARE, electronic datasets, Tables A and F*.

## A snapshot of the largest energy users

The results of the industry-wide 2001–02 Energy Survey, conducted for the first time by the ABS in 2003, show the contribution of large end-users of energy to Australia's total end-use of energy.

During 2001–02 Australian industry end-users other than those engaged in agriculture, water and air transport, consumed 1,960.2 PJ of energy. Of this, the top 250 businesses accounted for 62.2% (or 1,219.4 PJ) and the top 1,000 businesses 70.7% (1,386.1 PJ) (table 17.20). Graph 17.22 shows the cumulative total energy end-use of the top 1,000 businesses.

While the largest end-users of energy are drawn from a range of industries, most are from the mining and manufacturing industries (table 17.21).

### 17.20 CONTRIBUTION BY TOP END-USERS OF ENERGY TO TOTAL INDUSTRY ENERGY USE — 2001–02

Businesses	Energy use	Proportion of total industry energy use
	PJ	%
Top 100	1 081.9	55.2
Top 250	1 219.4	62.2
Top 1,000	1 386.1	70.7
Top 5,000	1 548.4	79.0
All businesses(a)	1 960.2	100.0

(a) Excludes agriculture (ANZSIC Subdivision 01), water, air and space transport (ANZSIC Subdivisions 63, 64), and foreign government representation (ANZSIC Group 813).

Source: ABS data available on request, Energy Survey 2001–02.

Of the largest 250 energy users, 47.2% are in the manufacturing industry, 20.6% are in the mining industry, and 10.4% are from the transport industry. Of the largest 1,000 energy users, 132 (or 13.2%) are in the mining industry and 367 (or 36.7%) are in the manufacturing industry.

Of all energy used by industry for end-use purposes in 2001–02 the mining industry accounted for 10.3%, the manufacturing industry accounted for 53.6%, transport and storage (excluding air and sea transport) accounted for 10.5%, and other industries (excluding agriculture) accounted for 25.6%.

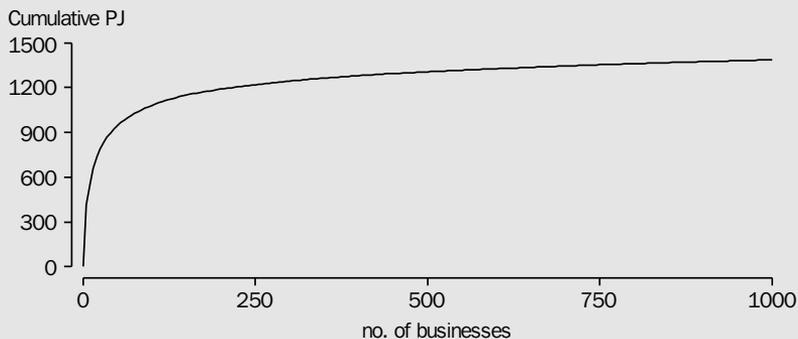
### 17.21 INDUSTRIES CONTRIBUTING TO LARGEST END-USERS OF ENERGY — 2001–02

	Proportion of top 250 end-users of energy	Proportion of top 1,000 end-users of energy
	%	%
Mining	20.6	13.2
Manufacturing	47.2	36.7
Transport and storage(a)	10.4	15.3
Other(b)	21.8	34.8

(a) Excludes water, air and space transport (ANZSIC Subdivisions 63, 64). (b) Excludes agriculture (ANZSIC Subdivision 01) and foreign government representation (ANZSIC Group 813).

Source: ABS data available on request, Energy Survey 2001–02.

### 17.22 CUMULATIVE ENERGY END-USE OF LARGEST 1,000 USERS(a) — 2001–02



Source: ABS data available on request, Energy Survey 2001–02.

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*Australian System of National Accounts* (5204.0)

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The following organisations also produce energy and greenhouse gas statistics:

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Australian Gas Association

Australian Industry Group (e.g. *Outcomes of the Australian Industry Group National Energy Market Survey 2001* contains data on the national energy market from a consumer viewpoint)

Australian Institute of Petroleum

Coal services Pty Ltd

### Web sites

ABARE, last viewed October 2004 <<http://www.abare.gov.au>>

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<<http://www.oecd.org>>

Sustainable Energy Development Authority (NSW), last viewed October 2004  
<<http://www.seda.nsw.gov.au>>



## MANUFACTURING

Manufacturing broadly relates to the physical or chemical transformation of materials or components into new products, whether the work is performed by power-driven machinery or by hand. Manufacturing covers a range of production techniques ranging from computer-assisted production using robots to production of fine jewellery by hand.

The manufacturing industry contributed around 11% to Australia's gross domestic product in 2002–03. Although the value of the manufacturing industry's gross value added has grown by more than 30% over the past 20 years, the industry's share of the total production of goods and services in the economy has fallen from around 18% to its current level over the period.

In May 2004 there were almost 1.1 million people working in the manufacturing industry (including both full-time and part-time workers). This represented 11% of total employed persons. The majority of those employed within the manufacturing industry were full-time (88%) and male (74%).

The manufacturing industry also dominates Australia's merchandise exports, accounting for 57% of the value of exports by industry of origin in 2003–04.

This chapter contains an article *Australia's automotive industry*.



## Economic contribution of the manufacturing industry

Production can be measured on a net basis, that is, the value of goods and services produced less the value of inputs (e.g. labour, capital) used in production. In national accounting terms, the contribution of an industry to the overall production of goods and services in an economy is measured by industry gross value added (GVA). Industry GVA sums the gross value added by each producer in the industry.

Total production of the manufacturing industry measured by industry GVA in chain volume terms (i.e. output adjusted for price changes) increased in most years from 1982–83 to 2002–03 (graph 18.1). Production increased by 52.3% between 1982–83 and 2002–03.

Table 18.2 shows the industry GVA of the broad subdivisions within manufacturing as defined in the Australian and New Zealand Standard Industrial Classification (ANZSIC). The table also shows the contribution the manufacturing industry made to Australia's gross domestic product (GDP). During the period 1998–99 to 2002–03, manufacturing industry GVA rose by 9.4% and its contribution to GDP declined marginally from 11.1% to 10.8%.

Although industry GVA rose steadily over the period for the manufacturing sector as a whole, a closer look at individual manufacturing industry subdivisions shows some volatility. Food, beverage and tobacco manufacturing increased by 6%

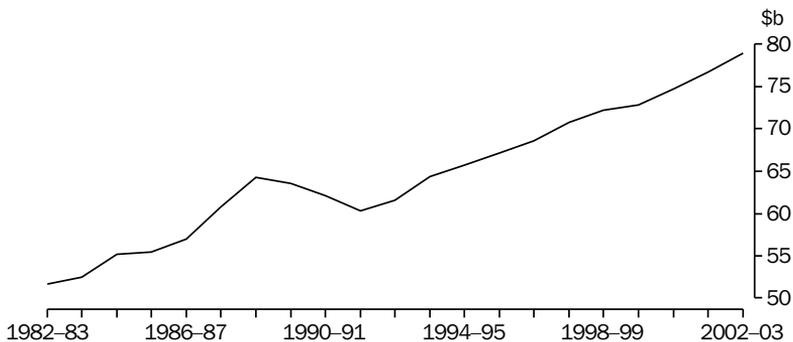
between 1998–99 and 2000–01, then fell 3% over the next two years, reflecting the impact of the recent drought. Two of the largest manufacturing subdivisions – petroleum, coal, chemical and associated product manufacturing, and machinery and equipment manufacturing – rose strongly over the period, recording 19.0% and 12.7% growth in industry GVA respectively. Industry GVA for textiles, clothing, footwear and leather manufacturing decreased by 28.5% – the only industry subdivision in manufacturing to record a decrease every year over the period.

## Structure and performance of the manufacturing industry

The major source for the statistics in this section is the Economic Activity Survey (EAS) of employing businesses conducted by the Australian Bureau of Statistics (ABS). Businesses in this collection are classified on the basis of their predominant activity, using the 1993 edition of ANZSIC.

Production of an industry can be measured in terms of industry value added (IVA), in much the same way as industry GVA. However, unlike industry GVA (the national accounts concept of production), IVA is not adjusted for a number of national accounting conventions, as the information to make these adjustments cannot be collected in the EAS. The advantage of IVA, however, is the availability of more detailed industry and state estimates.

**18.1 MANUFACTURING PRODUCTION(a)**



(a) Industry gross value added. Chain volume measures, reference year is 2001–02.

Source: Australian System of National Accounts, 2002–03 (5204.0).

## 18.2 MANUFACTURING GROSS VALUE ADDED AND CONTRIBUTION TO GDP, Chain volume measures(a)

Industry subdivision	Units	1998-99	1999-2000	2000-01	2001-02	2002-03	Percentage change from 1998-99 to 2002-03
<b>Industry gross value added</b>							
Food, beverage and tobacco manufacturing	\$m	14 163	14 370	15 007	14 874	14 499	2.4
Textile, clothing, footwear and leather manufacturing	\$m	3 095	2 981	2 752	2 403	2 213	-28.5
Wood and paper product manufacturing	\$m	4 052	4 377	4 268	4 514	4 899	20.9
Printing, publishing and recorded media	\$m	8 178	8 424	8 878	9 012	8 700	6.4
Petroleum, coal, chemical and associated product manufacturing	\$m	11 442	11 829	12 105	12 480	13 619	19.0
Non-metallic mineral product manufacturing	\$m	3 184	3 365	3 451	3 712	4 032	26.6
Metal product manufacturing	\$m	10 474	10 023	9 979	10 586	10 787	3.0
Machinery and equipment manufacturing	\$m	14 640	14 544	15 273	15 596	16 502	12.7
Other manufacturing	\$m	2 900	2 951	3 070	3 509	3 706	27.8
<b>Manufacturing(b)</b>	<b>\$m</b>	<b>72 198</b>	<b>72 835</b>	<b>74 739</b>	<b>76 686</b>	<b>78 958</b>	<b>9.4</b>
<b>Contribution to GDP</b>	<b>%</b>	<b>11.1</b>	<b>10.8</b>	<b>10.9</b>	<b>10.7</b>	<b>10.8</b>	<b>..</b>

(a) Reference year for chain volume measures is 2001-02. (b) Chain volume measures for years other than 2001-02 and 2002-03 are not additive.

Source: Australian System of National Accounts, 2002-03 (5204.0).

### Summary of operations in 2000-01

At 30 June 2001 manufacturing businesses employed 945,900 persons. This includes full-time and part-time employees, but does not include directors who are not paid a salary or self-employed persons such as contractors, owner drivers, consultants or persons paid solely by commission without a retainer. In 2000-01 manufacturing businesses paid \$42,920m in labour costs, generated \$251,759m of sales of goods and services income, and \$71,945m of IVA (table 18.3).

The manufacturing industry subdivisions with the most persons employed at 30 June 2001 were: machinery and equipment manufacturing (202,200); food, beverage and tobacco manufacturing (189,600); and metal product manufacturing (147,000). The non-metallic mineral product manufacturing industry was the smallest employer, accounting for only 37,200 (or 3.9%) of persons employed in the manufacturing industry.

### 18.3 SUMMARY OF OPERATIONS — 2000-01

Manufacturing industry subdivision	Employment at 30 June '000	Labour costs(a) \$m	Sales of goods and services income \$m	Industry value added \$m
Food, beverage and tobacco manufacturing	189.6	8 173	56 626	14 709
Textile, clothing, footwear and leather manufacturing	57.8	1 951	9 111	2 583
Wood and paper product manufacturing	65.0	2 751	15 077	4 929
Printing, publishing and recorded media	91.6	4 213	15 929	6 599
Petroleum, coal, chemical and associated product manufacturing	101.3	5 537	47 115	9 960
Non-metallic mineral product manufacturing	37.2	1 903	9 777	3 606
Metal product manufacturing	147.0	6 999	40 517	13 655
Machinery and equipment manufacturing	202.2	9 621	50 645	13 487
Other manufacturing	54.2	1 772	6 963	2 417
<b>Total manufacturing</b>	<b>945.9</b>	<b>42 920</b>	<b>251 759</b>	<b>71 945</b>

(a) Includes wages and salaries, payroll tax, fringe benefits taxes, workers compensation costs and employers contributions to superannuation.

Source: Manufacturing Industry, Australia, 2000-2001 (8221.0).

Food, beverage and tobacco manufacturing was the largest contributor to total manufacturing sales and service income and total manufacturing IVA. This industry's sales and service income of \$56,626m was 22% of the total for manufacturing, and its IVA of \$14,709m accounted for 20%. Other industry subdivisions making major contributions were: machinery and equipment manufacturing (20% of sales and service income and 19% of IVA); petroleum, coal, chemical and associated product manufacturing (19% and 14%); and metal product manufacturing (16% and 19%).

The generally close relationship between share of employment and contribution to IVA is indicated in graph 18.4. The three largest industry subdivisions for both employment and IVA – machinery and equipment manufacturing; food, beverage and tobacco manufacturing; and metal product manufacturing – employed 57% of the manufacturing workforce in 2000–01 and contributed 58% of IVA.

### State distribution of activity

In 2000–01 New South Wales and Victoria continued to be the largest contributors to manufacturing IVA, each accounting for 32% of total manufacturing IVA (table 18.5). New South Wales contributed 40% of the total IVA of the printing, publishing and recorded media industry and between 26% and 33% of the total IVA of the remaining manufacturing industries. Victoria contributed 50% of the total IVA of the textile, clothing, footwear and leather manufacturing industry, 39% of the total IVA of the machinery

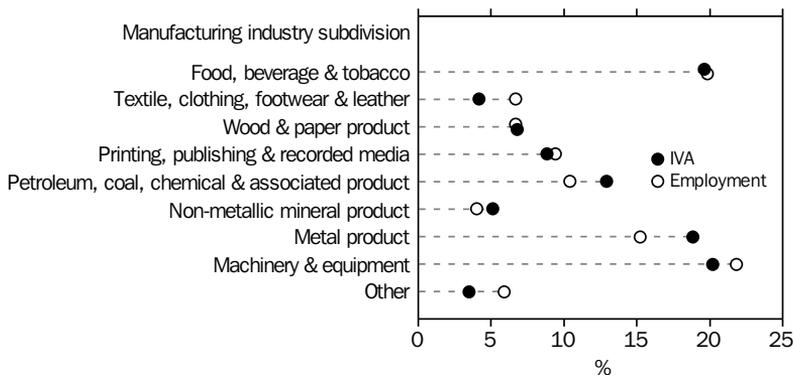
and equipment manufacturing industry and between 24% and 37% of the total IVA of the remaining manufacturing industries.

Although Queensland accounted for 14% of overall manufacturing IVA, it contributed 17% for both metal product manufacturing and food, beverage and tobacco manufacturing. The contributions of South Australia and Western Australia to total manufacturing IVA were similar at 8.6% and 9.4% respectively, although the structure of the manufacturing industry was very different. Machinery and equipment manufacturing was the largest manufacturing industry in South Australia, accounting for 29% of state production and 13% of the total IVA for the industry. South Australia also contributed between 5.9% and 11% of the total IVA of the remaining manufacturing industries. Western Australia contributed 17% of total IVA for metal product manufacturing and 13% of non-metallic mineral product manufacturing. Metal product manufacturing was the largest manufacturing industry in the state, accounting for 34% of state production.

Manufacturing was not as significant for the remaining state and territories. Tasmania, which accounted for 2.4% of total manufacturing IVA, contributed 6.6% of total IVA for wood and paper product manufacturing. The shares of national production for the Northern Territory and the Australian Capital Territory were each less than 1%.

Graph 18.6 shows relative contributions to overall manufacturing production by states and territories in 2000–01. Victoria and New South Wales contributed approximately two-thirds of total manufacturing production between them.

**18.4 INDUSTRY VALUE ADDED AND EMPLOYMENT — 2000–01**



Source: *Manufacturing Industry, Australia, 2000–2001* (8221.0).

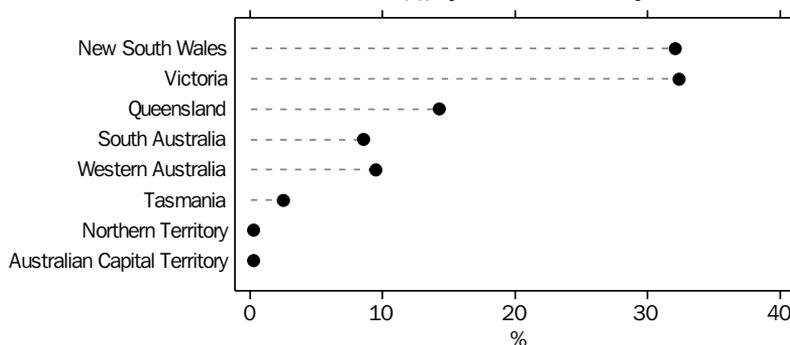
### 18.5 INDUSTRY VALUE ADDED — 2000–01

Manufacturing industry subdivision	NSW \$m	Vic. \$m	Qld \$m	SA \$m	WA \$m	Tas. \$m	NT \$m	ACT \$m	Aust. \$m
Food, beverage and tobacco manufacturing	4 681	4 571	2 559	1 492	934	409	34	29	14 709
Textile, clothing, footwear and leather manufacturing	681	1 302	211	177	150	58	(a)n.p.	(a)n.p.	2 583
Wood and paper product manufacturing	1 511	1 405	807	540	324	323	5	15	4 929
Printing, publishing and recorded media	2 668	1 976	799	390	540	76	32	119	6 599
Petroleum, coal, chemical and associated product manufacturing	3 105	3 688	1 199	580	1 237	140	8	3	9 960
Non-metallic mineral product manufacturing	1 176	934	602	291	451	103	27	23	3 606
Metal product manufacturing	4 340	3 273	2 362	764	2 269	470	(a)n.p.	(a)n.p.	13 655
Machinery and equipment manufacturing	4 115	5 311	1 368	1 798	651	162	34	49	13 487
Other manufacturing	791	793	417	162	225	15	(a)n.p.	(a)n.p.	2 417
<b>Total manufacturing</b>	<b>23 067</b>	<b>23 251</b>	<b>10 323</b>	<b>6 192</b>	<b>6 780</b>	<b>1 757</b>	<b>301</b>	<b>274</b>	<b>71 945</b>

(a) Not separately published, included in totals.

Source: *Manufacturing Industry, Australia, 2000–2001* (8221.0).

### 18.6 MANUFACTURING PRODUCTION(a), By state and territory — 2000–01



(a) Production is measured by industry value added.

Source: *Manufacturing Industry, Australia, 2000–2001* (8221.0).

Table 18.7 shows the manufacturing industry's contribution to state production. The trend for the manufacturing industry's share of total production in all states has generally been decreasing, even though Australian manufacturing production grew by more than 34% at current prices between 1994–95 and 2002–03. This is because the growth in manufacturing production has been at a slightly slower rate than the growth in other industries.

Table 18.8 shows the IVA and employment of the manufacturing industry in each state and territory. Victoria and New South Wales were the major contributors to manufacturing employment, accounting for 32% and 31% respectively of total manufacturing employment. Together they accounted for almost two-thirds of total manufacturing employment at 30 June 2001. In all manufacturing industries, either New South Wales or Victoria was the largest employing state.

The proportions contributed by Victoria to persons employed in the various industries ranged from 26% for metal product manufacturing to 47% for textile, clothing, footwear and leather manufacturing while New South Wales' contributions varied from 26% for textile, clothing, footwear and leather manufacturing to 39% for printing, publishing and recorded media manufacturing.

Machinery and equipment manufacturing was the largest manufacturing employer in New South Wales (where it accounted for 20% of the state's manufacturing employment), Victoria (23%) and South Australia (33%). The largest industry employers in the other states and territories were food, beverage and tobacco manufacturing in Queensland (27%) and Tasmania (31%); metal product manufacturing in Western Australia (21%) and Northern Territory (36%); and printing, publishing and recorded media in the Australian Capital Territory (39%).

Total manufacturing IVA per person employed ranged from \$67,000 in the Australian Capital Territory and South Australia to \$91,000 in the Northern Territory and Western Australia (table 18.8). This difference could be attributed to the industry mix within each state or territory. For instance, the relatively capital intensive petroleum, coal, chemical and associated product manufacturing, which made up a significant proportion of Western Australia's manufacturing production, had a much higher IVA per person than textile, clothing, footwear and leather manufacturing, which was a relatively small industry in Western Australia.

## Employment

The number of full-time and part-time workers in each manufacturing subdivision is provided in table 18.9. The number of employed persons shown in table 18.9 differs from the employment figures in tables 18.3 and 18.8 mainly because it includes directors who are not paid a salary and self-employed persons such as contractors, owner/drivers, consultants and persons paid solely

by commission without a retainer. These categories are excluded from the employment figures in tables 18.3 and 18.8.

In May 2004 the manufacturing industry employed 11% of total persons employed. Males outnumbered females by a ratio of almost 3:1 (74% males and 26% females). The majority of people employed in the manufacturing industry were employed full time (94% of males and 70% of females), which is higher than the proportion of people employed full time in all industries (85% of males and 54% of females).

The largest employers of males were machinery and equipment manufacturing (193,500) and metal product manufacturing (133,000). The largest employers of females were food, beverage and tobacco manufacturing (56,100) and machinery and equipment manufacturing (47,600).

Further information on employed wage and salary earners and the characteristics of the manufacturing labour force is provided in *Chapter 6 Labour*.

### 18.7 MANUFACTURING INDUSTRY'S CONTRIBUTION TO STATE PRODUCTION(a)

	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03
	%	%	%	%	%	%	%	%	%
New South Wales	14.3	14.1	13.5	13.8	13.3	12.7	12.0	11.8	11.7
Victoria	17.5	17.4	17.2	17.2	16.1	15.5	15.0	14.6	14.5
Queensland	11.4	11.4	11.0	11.3	10.8	10.1	10.2	10.1	9.9
South Australia	16.8	16.7	16.6	17.1	15.5	14.9	14.2	14.2	14.7
Western Australia	9.1	9.3	9.3	9.4	8.9	8.3	8.6	8.6	9.0
Tasmania	14.8	14.9	14.5	14.7	14.9	14.7	14.5	14.1	13.7
Northern Territory	4.7	4.9	4.4	4.6	3.9	3.9	3.3	4.0	3.6
Australian Capital Territory	2.3	2.3	2.2	1.9	1.7	1.8	1.7	1.8	1.7

(a) State production as measured by total factor income at current prices.

Source: Australian National Accounts: State Accounts, 2002-03 (5220.0).

### 18.8 MANUFACTURING INDUSTRY VALUE ADDED AND EMPLOYMENT — 2000-01

	Industry value added	Employment at 30 June	Industry value added per person employed
	\$m	'000	\$'000
New South Wales	23 067	296	78
Victoria	23 251	302	77
Queensland	10 323	153	68
South Australia	6 192	93	67
Western Australia	6 780	74	91
Tasmania	1 757	21	85
Northern Territory	301	3	91
Australian Capital Territory	274	4	67

Source: Manufacturing Industry, Australia, 2000-2001 (8221.0).

## 18.9 PERSONS EMPLOYED IN MANUFACTURING INDUSTRY — May 2004

	Males			Females			Persons		
	Full-time '000	Part-time '000	Total '000	Full-time '000	Part-time '000	Total '000	Full-time '000	Part-time '000	Total '000
Manufacturing industry subdivision	112.7	9.7	122.4	39.7	16.3	56.1	152.4	26.1	178.5
Food, beverage and tobacco manufacturing									
Textile, clothing, footwear and leather manufacturing	19.5	1.5	21.0	27.4	10.8	38.3	46.9	12.4	59.2
Wood and paper product manufacturing	60.6	4.3	64.9	8.0	2.8	10.9	68.6	7.1	75.8
Printing, publishing and recorded media	58.6	8.2	66.8	30.0	14.3	44.3	88.6	22.5	111.1
Petroleum, coal, chemical and associated product manufacturing	66.9	2.9	69.8	24.0	7.0	31.0	90.9	9.9	100.8
Non-metallic mineral product manufacturing	31.6	2.4	34.0	5.3	4.3	9.5	36.8	6.7	43.5
Metal product manufacturing	127.2	5.8	133.0	10.4	5.0	15.4	137.7	10.8	148.5
Machinery and equipment manufacturing	186.3	7.2	193.5	34.9	12.7	47.6	221.2	19.9	241.1
Other manufacturing	55.8	6.1	61.9	12.1	7.1	19.2	68.0	13.1	81.1
<b>Total manufacturing(a)</b>	<b>755.6</b>	<b>49.6</b>	<b>805.1</b>	<b>203.2</b>	<b>85.2</b>	<b>288.3</b>	<b>958.7</b>	<b>134.8</b>	<b>1 093.5</b>

(a) Includes 47,700 persons employed full time and 6,200 persons employed part time not classified to an industry subdivision.

Source: Labour Force Australia, Detailed - Electronic Delivery (6291.0.55.001).

Table 18.10 presents information on average weekly earnings (i.e. ordinary time earnings plus overtime earnings) of employees in the manufacturing industry and all industries. Between May 1984 and May 2004 the average earnings of full-time employees increased by 169% in the manufacturing industry, which was slightly higher than the increase of 157% for all industries. The earnings of both male and female full-time employees in manufacturing increased but the

increase for female employees was 21 percentage points more than the increase for male employees, although female earnings came from a lower base and are still well below average male earnings. In the manufacturing industry the average weekly earnings for male full-time employees at May 2004 was higher by 29% than female full-time employees. In May 1984 male full-time employees were earning 39% more than female full-time employees.

### 18.10 AVERAGE WEEKLY EARNINGS(a)

	All employees			Full-time employees			
	May 1984	May 2004	Change from May 1984 to May 2004	May 1984	May 2004	Change from May 1984 to May 2004	
	\$	\$	%	\$	\$	%	
<b>Males</b>							
Manufacturing	376.60	978.90	159.9	395.30	1 041.40	163.5	
All industries	383.80	891.20	156.3	415.70	1 065.30	156.3	
<b>Females</b>							
Manufacturing	261.60	688.30	163.1	284.70	810.20	184.6	
All industries	257.10	588.50	128.9	324.20	866.30	167.2	
<b>Persons</b>							
Manufacturing	347.20	907.40	161.4	368.70	993.40	169.4	
All industries	333.40	746.30	123.9	386.30	993.60	157.2	

(a) Derived by dividing estimates of weekly total earnings (including overtime) by estimates of number of employees. Changes in average weekly earnings may be affected not only by changes in the level of earnings of employees but also by changes in the overall composition of the wage and salary earner segment of the labour force.

Source: Average Weekly Earnings, Australia (6302.0).

## Operating profit before tax

The operating profit before tax (OPBT) earned by all manufacturing businesses. Industry subdivisions contributing most to manufacturing industry profits for 2000–01 were: metal product manufacturing (\$3,842m or 25% of total manufacturing OPBT); food, beverage and tobacco manufacturing (24%); petroleum, coal, chemical and associated product manufacturing (14%); and machinery and equipment manufacturing (12%) (table 18.11).

Profits for five industry subdivisions were higher in 2000–01 than they were for 1995–96, although there were some significant movements in profits in the intervening years. Metal product manufacturing profits were much higher in 2000–01 than in 1995–96, but actually fell in 1996–97 and 1998–99 before recovering strongly in 1999–2000 (up 24%) and then even more strongly in 2000–01 (up 33%). Printing, publishing and recorded media profits, at \$1,387m in 2000–01, were very similar to the \$1,266m profit in 1995–96, but were 32% lower than the \$2,044m profit for the manufacturing subdivision in 1999–2000.

## Contribution by size of business

In this section, the performance of manufacturing businesses is examined in relation to the size of those businesses. Employing businesses have been classified as small, medium or large according to the number of people employed by the business at 30 June 2001. Businesses employing fewer than 20 persons have been classified as small, those employing at least 20 but

less than 100 persons have been classified as medium, and those employing 100 or more persons have been classified as large businesses.

Large businesses employed more than 50% of the people working in the manufacturing industry, and their share of economic activity, as measured by income, profits and capital outlays, was around 75% (graph 18.12). Small businesses employed 24% of the manufacturing work force, but their share of manufacturing activity was much less significant, at around 11%.

## Capital expenditure

The manufacturing industry was responsible for \$11.0b of capital expenditure in 2000–01, which accounted for 14% of capital expenditure by businesses in all industries. Within manufacturing, the industry subdivisions with largest capital expenditure were: food, beverage and tobacco manufacturing (23% of total manufacturing capital expenditure); petroleum, coal, chemical and associated product manufacturing (20%); metal product manufacturing (18%); and machinery and equipment manufacturing (15%).

Capital expenditure by the manufacturing industry decreased by 5.4% over the period 1995–96 to 2000–01 (table 18.13).

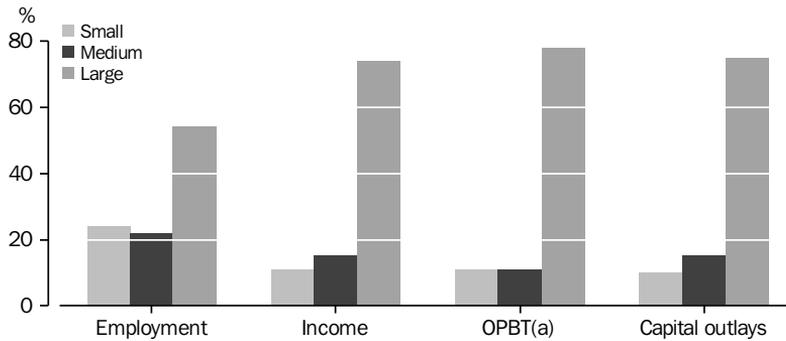
A majority of manufacturing industry subdivisions recorded increases in capital expenditure over the 1995–96 to 2000–01 period – the largest increase was in printing, publishing and recorded media (up 72% or \$387m). However, the increases were offset by decreases in expenditure mainly in metal product manufacturing (down 33% or \$1.0b), and wood and paper product manufacturing (down 36% or \$324m).

### 18.11 OPERATING PROFIT BEFORE TAX

Manufacturing industry subdivision	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
	\$m	\$m	\$m	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	2 321	2 479	2 946	2 966	3 379	3 780
Textile, clothing, footwear and leather manufacturing	435	404	381	354	409	107
Wood and paper products manufacturing	872	790	845	1 078	1 275	1 031
Printing, publishing and recorded media	1 266	1 174	1 459	1 519	2 044	1 387
Petroleum, coal, chemical and associated product manufacturing	2 179	2 351	2 068	1 865	2 603	2 231
Non-metallic mineral product manufacturing	917	811	829	924	1 123	914
Metal product manufacturing	2 685	2 292	2 515	2 342	2 898	3 842
Machinery and equipment manufacturing	2 621	2 471	2 213	1 832	1 942	1 853
Other manufacturing	397	300	343	266	371	365
<b>Total manufacturing</b>	<b>13 693</b>	<b>13 072</b>	<b>13 601</b>	<b>13 146</b>	<b>16 042</b>	<b>15 509</b>

Source: Summary of Industry Performance, Australia, Data Report - Electronic Delivery (8140.0.55.002).

### 18.12 SHARE OF MANUFACTURING ACTIVITY, By size of business — 2001



(a) Operating profit before tax.

Source: ABS data available on request, Manufacturing Survey, 2000–01.

### 18.13 CAPITAL EXPENDITURE

Manufacturing industry subdivision	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01	Change from 1995–96 to 2000–01
	\$m	\$m	\$m	\$m	\$m	\$m	%
Food, beverage and tobacco manufacturing	2 402	2 400	2 915	2 822	2 189	2 537	5.6
Textile, clothing, footwear and leather manufacturing	253	421	465	290	257	278	9.9
Wood and paper product manufacturing	907	1 048	734	988	900	583	-35.7
Printing, publishing and recorded media	538	595	859	807	933	925	71.9
Petroleum, coal, chemical and associated product manufacturing	2 010	2 109	1 918	1 943	1 942	2 181	8.5
Non-metallic mineral product manufacturing	677	710	792	573	616	593	-12.4
Metal product manufacturing	3 031	1 575	3 034	3 099	1 949	2 020	-33.4
Machinery and equipment manufacturing	1 656	1 455	2 072	1 589	1 347	1 682	1.6
Other manufacturing	188	200	220	293	245	232	23.4
<b>Total manufacturing</b>	<b>11 664</b>	<b>10 513</b>	<b>13 007</b>	<b>12 404</b>	<b>10 379</b>	<b>11 031</b>	<b>-5.4</b>

Source: Summary of Industry Performance, Australia, Data Report - Electronic Delivery (8140.0.55.002).

## International trade by industry of origin

### Exports by industry of origin

The manufacturing industry dominates Australia's value of exports by industry of origin, accounting for 57% of total exports in 2003–04 (table 18.14). The value of manufacturing exports is 42% higher in 2003–04 than it was in 1993–94. However, the share of total value of exports of the manufacturing industry has been trending down each year since the high of 65% in 1994–95.

Graph 18.15 shows the five main destinations for manufacturing commodities exported from Australia, during the period 1998–99 to 2003–04. The United States of America was the major destination of Australian manufacturing exports in terms of value, with \$7.3b worth exported for 2003–04, down from \$9.1b in 2001–02. Japan has moved from Australia's largest destination of manufactured goods in 1999–2000 to be about equal with New Zealand in 2002–03 and 2003–04, and behind the United States of America. The value of manufacturing exports to New Zealand rose from \$5.2b in 1998–99 to \$6.9b, in 2003–04.

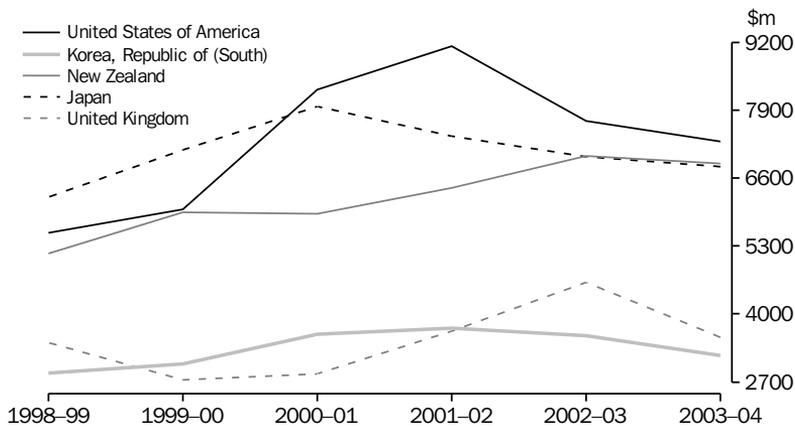
### 18.14 VALUE OF MERCHANDISE EXPORTS, By industry of origin(a)

	Manufacturing	All industries	Manufacturing share of total exports
	\$m	\$m	%
1994-95	43 795	67 052	65.3
1995-96	48 787	76 005	64.2
1996-97	48 494	78 932	61.4
1997-98	53 301	87 768	60.7
1998-99	52 073	85 991	60.6
1999-2000	57 982	97 286	59.6
2000-01	69 128	119 539	57.8
2001-02	69 111	121 108	57.1
2002-03	65 810	115 479	57.0
2003-04	62 224	108 906	57.1

(a) On a free-on-board basis.

Source: ABS data available on request, *International Trade*.

### 18.15 MANUFACTURING EXPORTS, Main destinations



Source: ABS data available on request, *International Trade*.

### Imports by industry of origin

The manufacturing industry accounted for 94% of Australia's value of imports by industry of origin during the period 1994-95 to 2003-04 (table 18.16). The value of Australia's imports of manufactured goods was 74% more in 2003-04 than in 1994-95.

Graph 18.17 shows the five main countries for value of manufacturing commodities imported to Australia, in the period 1998-99 to 2003-04. In each year of this period, Australia imported more manufactured goods from the United States of America than from any other country. The value of manufactured goods imported from China grew 150% from \$6.0b in 1998-99 to \$14.9b in 2003-04.

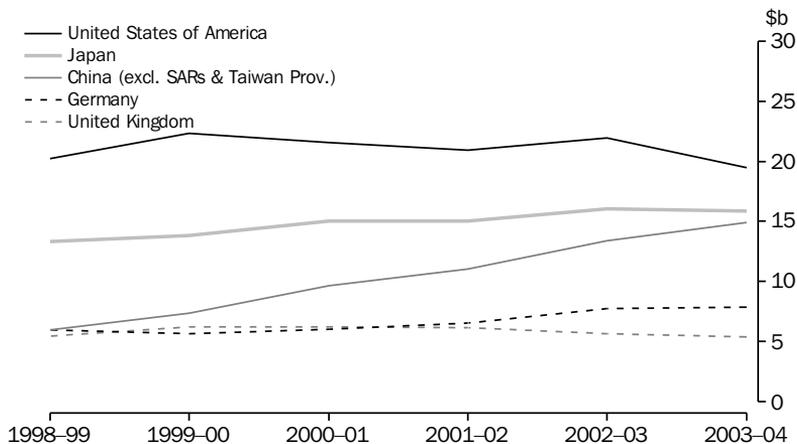
### 18.16 VALUE OF MERCHANDISE IMPORTS, By industry of origin(a)

	Manufacturing	All industries	Manufacturing share of total imports
	\$m	\$m	%
1994–95	70 733	74 619	94.8
1995–96	73 545	77 792	94.5
1996–97	73 747	78 998	93.4
1997–98	85 746	90 684	94.6
1998–99	92 437	97 611	94.7
1999–2000	102 382	110 078	93.0
2000–01	108 331	118 317	91.6
2001–02	111 162	119 649	92.9
2002–03	123 041	133 129	92.4
2003–04	122 867	131 020	93.8

(a) Customs value.

Source: ABS data available on request, *International Trade*.

### 18.17 MANUFACTURING IMPORTS(a), Selected countries



(a) Customs value.

Source: ABS data available on request, *International Trade*.

## Australia's automotive industry

*This article was contributed by the Automotive Research and Trade Section, Australian Government Department of Industry, Tourism and Resources (September 2004).*

The automotive industry is one of Australia's key manufacturing sectors and an important source of employment, and research and development. The increasing exposure of the Australian automotive industry to international competition has seen it develop to where it is now competing successfully in global markets. There is also a

strong inter-dependence between the car makers and their suppliers, and strong linkages with the rest of the economy.

The Australian automotive industry consists of four motor vehicle producers – Ford, Holden, Mitsubishi and Toyota – which produce large

passenger motor vehicles (PMV) and variants, light commercial vehicles and sports utility vehicles. There are also over 200 motor vehicle component manufacturers. The four motor vehicle producers are based in Victoria and South Australia.

Domestically produced vehicles account for over 99% of large PMV domestic sales. Other segments of the domestic motor vehicle market are less dominated by domestic producers, who account for 35% of total PMV domestic sales, and 22% of all vehicle domestic sales. The Australian market has shown strong demand for vehicles, with total sales of all vehicles reaching a record 909,811 units in 2003.<sup>1</sup>

Australian vehicle production is supported by a supply chain with the capacity to design and manufacture the full range of parts and components. Australia has sophisticated production capacity in areas such as engines, panels, braking and clutch systems, suspension systems, exhausts, transmissions and rear axles, air conditioning, occupant safety, vehicle instrumentation and electronics, lighting and mirrors, and wheels and tyres. There are over 200 automobile component firms, around 500 small firms providing tooling to vehicle and component producers, and a number of other firms that provide specialist automobile services.

Businesses engaged in component production are highly internationalised. Many firms are wholly or partially foreign owned and components are exported to many countries. Major exports of Australian components include:

- engines to Republic of (South) Korea
- braking systems to the United States of America
- mirrors to North America and Japan
- anti-theft systems worldwide
- propeller shafts to the United States of America
- heating, ventilation and air conditioning products to North America and China.

There were 13.2 million motor vehicles, including motor cycles, registered in Australia at 31 March 2003.<sup>2</sup> The average age of the total Australian fleet was 10.4 years, with 64% manufactured after 1990. The average age of PMVs was 10.1 years, with 66% of these vehicles manufactured after 1990.

Petrol is the predominant fuel source, powering over 88% of the Australian vehicle fleet. This is followed by diesel (9.3%) and LPG/Dual fuel/other (2.5%). Around 95% of all registered PMVs are powered by petrol, while nearly 86% of all rigid and articulated trucks are diesel-powered. Nearly 27% of all registered light commercial vehicles are powered by LPG/Dual fuel/other.<sup>3</sup>

## Automotive policy

Over the years the Australian Government has played a key role in establishing a viable automotive industry. Several policy measures have been implemented with a view to assisting the industry to operate efficiently and competitively in both domestic and international markets.

From 1965 specification of minimum levels of local content, import quotas and considerable tariffs on imported vehicles were used to ensure Australian vehicle manufacturers were protected to a large degree from external competition.

High levels of protection proved ineffective in promoting the competitiveness of the industry. The domestic market was small in international terms, with short production runs and lack of scale economies. Consequently, production costs of domestically produced parts were high in comparison with their imported counterparts. Higher levels of Australian content in vehicles resulted in them being less competitive against imports. By the early-1980s it was recognised that protectionist policies were counterproductive to the industry and they were phased out in recognition of the increasing importance of producers attaining competitiveness from a global perspective. Import quotas were phased down from 20% in 1984 and abolished completely in 1988. Tariffs, which peaked at 57% in 1984, were reduced by 2.5 percentage points per year from 1990 until they reached 15% in 2000.

The Automotive Competitiveness and Investment Scheme (ACIS) commenced in 2001. It is designed to provide transitional assistance to encourage competitive investment and innovation in the Australian automotive industry in the context of trade liberalisation. ACIS is expected to deliver an estimated \$2.8b to the Australian automotive industry over the period 2001–2005.

On 13 December 2002 the Government announced its post-2005 assistance package for the Australian automotive industry. This package will deliver an estimated \$4.2b to the industry through ACIS over the period 2006–2015. This assistance package was timed to coincide with, and help the automotive industry adjust to, a decline in the general automotive tariff from 15% to 10% on 1 January 2005 and then to 5% on 1 January 2010.

The ACIS Motor Vehicle Producer Research and Development (MVP R&D) Scheme will run for the duration of ACIS Stage 2 (2005–2010 inclusive). It is expected to cost \$150m and aims to increase the amount of research and development undertaken by motor vehicle producers in Australia. All motor vehicle producers registered as ACIS participants (Ford, Holden, Mitsubishi and Toyota) are eligible to take part in the MVP R&D Scheme.

## Economic contribution

### Industry value added

The automotive sector's industry value added (IVA) was nearly \$4.7b in 2000–01, accounting for over 6% of total manufacturing activity and nearly 0.7% of total economic activity.<sup>4</sup> Value added in the industry increased 20% on the previous year. The economy as a whole grew by 2% for the same period.<sup>5</sup>

The automotive sector is composed of four industry sector classifications:

- motor vehicle manufacturing
- motor vehicle body manufacturing
- automotive electrical and instrument manufacturing
- automotive component manufacturing.

Of these, the largest industry sector is motor vehicle manufacturing, which accounts for 47% of the automotive sector's IVA. It is closely followed by the automotive component classification (36% of IVA).<sup>6</sup>

### Employment

There were 62,661 people employed in the automotive sector at 30 June 2001, accounting for 6.6% of total manufacturing employment<sup>7</sup> and 1.2% of total employment.<sup>8</sup> Employment in the automotive sector at 30 June 2001 had increased by 15% on the previous year, and by an average of 3% per year since 30 June 1997. The automotive

component manufacturing classification is the highest employer, with 24,424 employees at 30 June 2001, followed closely by motor vehicle manufacturing with 23,243 employees.

In 2000–01, IVA per employee was \$74,324.<sup>9</sup> IVA per person is highest in motor vehicle manufacturing,<sup>10</sup> reflecting in part its high capital-intensive nature.

## Innovation

Innovation is a key driver of growth in the economy, and in the Australian automotive industry. Research and development (R&D) expenditure in the motor vehicle, parts and other transport manufacturing sector<sup>11</sup> was \$553m in 2001–02, a 17% increase from the previous year.<sup>12</sup> This represents 23% of total manufacturing R&D and 10% of total business expenditure on R&D.

In 2001–02 there were 3,427 employees in the motor vehicle and part, and other transport equipment sector engaged in work relating to R&D. As with expenditure, it is the largest R&D employer within manufacturing, and accounts for approximately 10% of total R&D employment.<sup>13</sup>

## International trade

### Exports

The Australian automotive sector has become an export success. Much of the growth that contributed to this occurred between 1998–99 and 2000–01, when exports grew by an average of almost 22% per year.<sup>14</sup> While exports have since plateaued, the automotive sector remains Australia's leading exporter of manufactured goods and Australia's sixth largest export performer overall. Automotive exports exceed more traditional exports such as wheat, wool and wine.

In 2002–03 exports of vehicles were nearly \$3b, and exports of components and parts were nearly \$2b. Major export markets for vehicles were Saudi Arabia, the United States of America and New Zealand, and major markets for components were the United States of America, South Korea and New Zealand.<sup>15</sup>

### Imports

In 2002–03 imports of vehicles were \$14b and imports of components and parts were nearly \$6b. Major import sources for both vehicles and components were Japan, the United States of America and Germany. Imports have experienced strong growth over the last five years, with an average annual growth of 10%.<sup>16</sup>

## Productivity

Productivity growth in the transport equipment sector has been high in recent years, in contrast to the varied productivity levels in many manufacturing industries<sup>17</sup>. Labour productivity growth (on an hours worked basis) in the transport equipment sector averaged 3.3% per year from 1993–94 to 2000–01, compared with 1.8% per year in the combined manufacturing industries.

Multifactor productivity growth in the transport equipment sector has been similarly strong, averaging 3.0% per year from 1993–94 to 2000–01. This is in contrast to average yearly growth in total manufacturing of 0.6% in the same period.

Transport equipment has the highest labour and multifactor productivity figures of any manufacturing industry sector in this period.

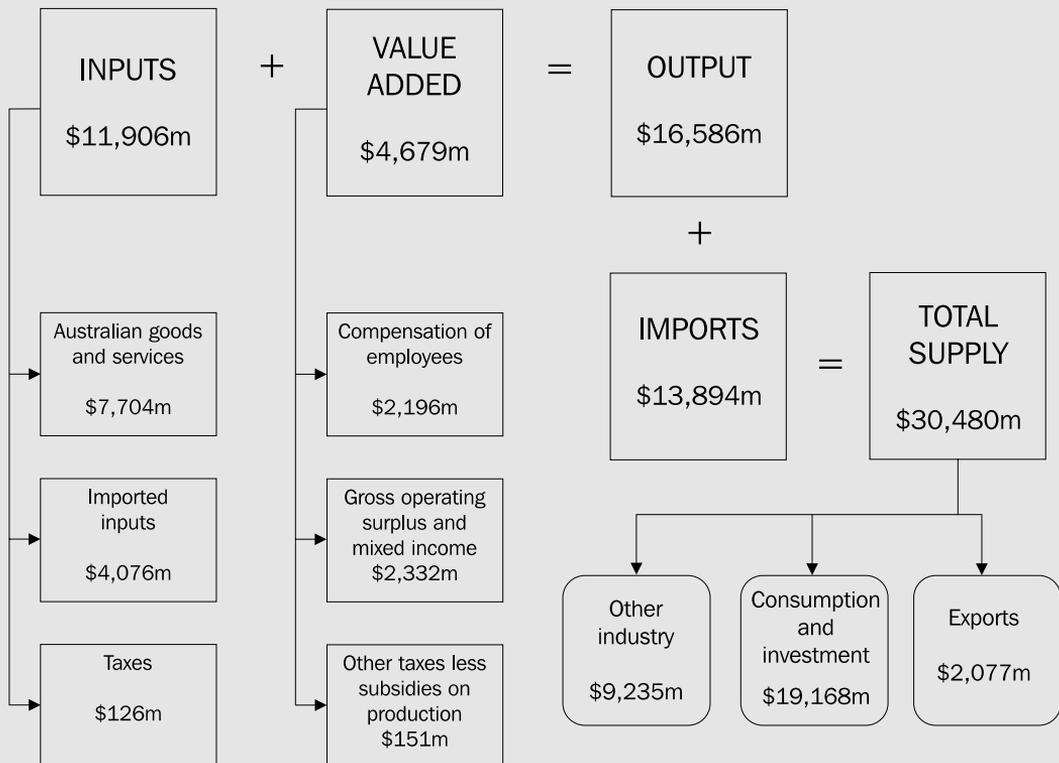
## Prices

Nominal prices of transport equipment (including motor vehicles) are rising at a slower rate than the consumer price index (CPI), indicating a fall in 'real' prices. Over the five years prior to 2000–01, transport equipment prices grew by 7%,<sup>18</sup> whereas the CPI increased by more than 11%.<sup>19</sup> In addition, average weekly earnings increased by over 17% over the same time period, indicating that vehicles are becoming more affordable.<sup>20</sup>

## Automotive value chain

In addition to the direct contribution of the automotive industry to the economy, it has both upstream and downstream linkages, as reflected in diagram 18.18, which is based on information for 1998–99.<sup>21, 22</sup>

**18.18 AUTOMOTIVE VALUE CHAIN — 1998–99**



Source: Automotive Research and Trade Section, Department of Industry, Tourism and Resources.

This chart shows that goods and services from other Australian industries represent 65% of inputs to domestic automotive production. Principal material inputs are iron and steel, rubber products, basic non-ferrous metal and paints. Major service inputs include property services, mechanical repairs, wholesale trade and business services. The remaining 35% of inputs are imported, the majority of which are components and parts. Around half of imported components are sourced from Japan and the United States of America, the home countries of the four Australian car producers.<sup>23</sup>

The value added by the automotive industry is just under 30% of production. Around half of the value added of the industry is contributed by capital (as shown by gross operating surplus), with the balance being provided by labour (compensation of employees).

Australian production contributes around 55% to total automotive supply. The high proportion of imports in total supply highlights the high level of import penetration in the Australian market. Household consumption and private sector investment provide the primary sources of domestic demand for total automotive output.

## Endnotes

- 1 Federal Chamber of Automotive Industries, VFACTS Database.
- 2 *Motor Vehicle Census, Australia, 31 March 2003* (9309.0).
- 3 Ibid.
- 4 *Manufacturing Industry, Australia, 2000–2001* (8221.0).
- 5 *Australian System of National Accounts, 2002–03* (5204.0).
- 6 *Manufacturing Industry, Australia, 2000–2001* (8221.0).
- 7 *Manufacturing Industry, Australia, 2000–01* (8221.0).
- 8 *Labour Force, Australia, September 2001* (6203.0).
- 9 Ibid.
- 10 *Manufacturing Industry Australia, 2000–2001* (8221.0).
- 11 This data combines the automotive industry (motor vehicle and part manufacturing) with other transport equipment manufacturing. However, an inference can be drawn as to the extent of R&D in the automotive industry alone as it comprises 76% of IVA of the combined industries, with the remaining transport equipment industries accounting for only 24%.
- 12 *Research and Experimental Development, Businesses, Australia, 2001–02* (8104.0).
- 13 Ibid.
- 14 Department of Foreign Affairs and Trade STARS Database, 2002–03. The commodities in this database are classified according to Standard International Trade Classification Revision 2.
- 15 Ibid.
- 16 Ibid.
- 17 Productivity Commission 2003, *Trends in Australian Manufacturing*, Commission Research Paper, AusInfo, Canberra.
- 18 *Producer Price Indexes, Australia, March 2004* (6427.0).
- 19 *Consumer Price Index, Australia, March 2004* (6401.0).
- 20 *Average Weekly Earnings, Australia, February 2004* (6302.0).
- 21 *Australian National Accounts: Input-Output Tables - Electronic Publication, 1998 to 1999* (5209.0.55.001).
- 22 The statistics in this chart differ from those cited above as they are compiled using a different methodology.
- 23 Department of Foreign Affairs and Trade *STARS Database, 2002–03*.

## Leading producers in selected industries

The United Nations Industrial Development Organization (UNIDO) provides a range of statistical indicators to facilitate international comparisons relating to the manufacturing industry.

Table 18.19 lists the world's leading producers, excluding China, the former USSR and eastern Europe, in selected manufacturing industries in 2002. Globally, many manufacturing industries were dominated by the United States of America. Of the countries included in the UNIDO statistics, Australia was the eleventh largest producer of food products and beverages in 2002, accounting for 1.9% of measured world production. Australia was ranked ninth in the manufacture of basic metals, producing 2.5% of world production in 2002. In printing and publishing, Australia was ranked tenth. Other industries in which Australia was ranked in the top 15 producers in the countries included in the UNIDO statistics are listed in table 18.19.

Graph 18.20 shows the manufacturing value added (MVA) for 2001 of selected countries. MVA is a measure of the contribution to GDP the manufacturing industry makes. Australian MVA, contributing 12% to GDP, is lower than many other industrialised countries.

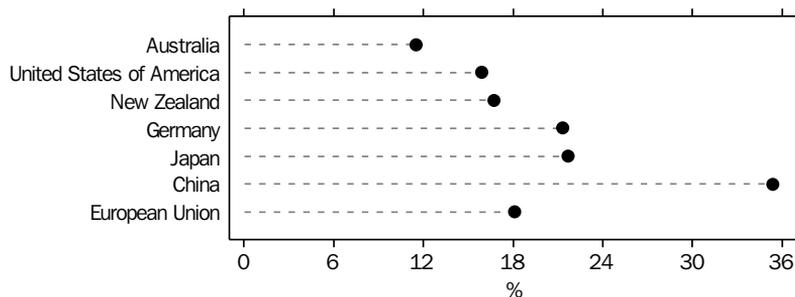
**18.19 LEADING PRODUCERS IN SELECTED INDUSTRIES — 2002**

Country or area	Rank	Percentage(a)
<b>FOOD PRODUCTS AND BEVERAGES</b>		
Japan	1	18.4
United States of America	2	17.6
Germany	3	6.7
Australia	11	1.9
<b>WOOD AND CORK PRODUCTS</b>		
United States of America	1	36.3
Germany	2	7.4
Japan	3	7.2
Australia	11	1.8
<b>PRINTING AND PUBLISHING</b>		
United States of America	1	28.0
Japan	2	20.1
Germany	3	10.0
Australia	10	1.6
<b>BASIC METALS</b>		
Japan	1	24.8
United States of America	2	16.9
Germany	3	7.7
Australia	9	2.5
<b>METAL PRODUCTS</b>		
United States of America	1	25.5
Japan	2	13.6
Germany	3	13.0
Australia	not in top 15	n.a.
<b>TRANSPORT EQUIPMENT</b>		
United States of America	1	26.9
Japan	2	19.5
Germany	3	11.8
Australia	15	0.9

(a) In world total value added (excluding eastern Europe, the former USSR, and China (but including Hong Kong and Taiwan)) at constant 1995 prices.

Source: United Nations Industrial Development Organization, 'International Yearbook of Industrial Statistics, 2004'.

**18.20 SHARE OF MANUFACTURING VALUE ADDED(a) IN GDP, Selected countries — 2001**



(a) Manufacturing value added, at current prices.

Source: United Nations Industrial Development Organization, 'International Yearbook of Industrial Statistics, 2004'.

## Manufactured commodities

Table 18.21 shows the production of selected manufactured commodities for the period 1999–2000 to 2002–03.

Volumes of unfortified wine, which includes red, white and rose wines, decreased by 11% in 2002–03 from volumes produced the previous

year, but were still around 31% higher than production levels in 1999–2000. Beer production, on the other hand, has remained at approximately the same level over the 1999–2000 to 2002–03 period. Similarly, production of red meat has remained steady throughout the period while production of chicken meat has increased each year to be 15% higher in 2002–03 than in 1999–2000.

### 18.21 MANUFACTURING PRODUCTION, Selected commodities

	Units	1999–2000	2000–01	2001–02	2002–03	Percentage change from 1999–2000 to 2002–03
<b>Selected vehicles</b>						
Cars and station wagons for fewer than 10 persons	no.	314 475	340 099	318 951	358 286	13.9
Semi-trailers	no.	3 934	3 755	4 053	5 214	32.5
<b>Selected food products and beverages</b>						
Brandy	'000 L	676	640	417	302	-55.3
Grape spirit	'000 L	6 106	4 456	6 731	n.p.	n.a.
Unfortified wine	'000 L	779 149	1 016 306	1 150 854	1 019 393	30.8
Red meat	'000 t	3 031	3 200	3 067	3 090	1.9
Chicken meat	'000 t	597	620	667	689	15.4
Milk	ML	10 847	10 545	11 271	10 322	-4.8
Cheese	'000 t	369	361	413	368	-0.4
Butter	'000 t	170	160	164	149	-12.7
Beer	ML	1 768	1 745	1 744	1 727	-2.3
Sugar	'000 t	5 448	4 162	4 987	5 461	0.2
Tobacco and cigarettes	t	20 688	19 124	18 367	19 561	-5.4
<b>Selected textiles</b>						
Scoured and carbonised wool	t	118 558	124 679	99 924	88 663	-25.2
Wool and man-made fibre tops	t	55 335	61 315	53 828	38 903	-29.7
Wool yarn	t	19 020	14 894	15 815	14 546	-23.5
Cotton yarn	t	33 368	33 203	26 926	17 902	-46.3
<b>Selected petroleum and metal products</b>						
Automotive gasoline	ML	18 652	17 887	18 000	17 984	-3.6
Fuel oil	ML	1 839	1 951	1 684	1 441	-21.6
Automotive diesel oil	ML	12 737	13 212	13 065	13 335	4.7
Aviation turbine fuel	ML	5 538	5 836	5 390	5 149	-7.0
Alumina	'000 t	15 037	16 099	16 417	16 407	9.1
Pig iron	'000 t	6 489	6 096	6 154	6 634	2.2
Raw steel	'000 t	8 053	8 003	8 311	9 399	16.7
<b>Selected paper and wood products</b>						
Newsprint	'000 t	381	391	398	407	6.8
Wood pulp	'000 t	861	895	843	877	1.9
Undressed sawn timber	'000 m <sup>3</sup>	3 984	3 525	4 120	4 049	1.6
Hardwood woodchips	'000 t	6 164	6 401	5 912	7 079	14.8
<b>Selected building materials</b>						
Portland cement	'000 t	7 937	6 821	7 236	7 517	-5.3
Clay bricks	m	1 711	1 436	1 516	1 639	-4.2
Ready mixed concrete	'000 m <sup>3</sup>	20 633	17 251	19 447	21 003	1.8

Source: Australian Wine and Grape Industry (1329.0); Manufacturing Production, Australia (8301.0); ABS data available on request, Manufacturing Production Survey; ABARE, 'Australian Commodity Statistics, 2003'.

Production levels of major textiles commodities have decreased substantially over the period, with production of cotton yarns in 2002–03 more than 46% lower than in 1999–2000.

Production of selected building materials, including ready mixed concrete, fluctuated over the 1999–2000 to 2002–03 period. Production of all selected building materials fell in 2000–01, from record highs in 1999–2000 with production levels rising again in 2001–02 and 2002–03.

## International trade in manufactured commodities

### Principal commodities exported

Table 18.22 shows the value of the main 20 manufacturing commodities exported from Australia, in the period 1999–2000 to 2003–04. Manufactured commodities made up 57% of the value of all merchandise exports in 2003–04.

**18.22 EXPORTS OF SELECTED MANUFACTURED COMMODITIES**

Commodities as defined by the Standard International Trade Classification (SITC)	1999–2000	2000–01	2001–02	2002–03	2003–04	Change from 1999–00 to 2003–04	Change from 2002–03 to 2003–04	Share of total exports 2003–04
	\$m	\$m	\$m	\$m	\$m	%	%	%
Non-ferrous metals	7 395	9 404	8 854	7 881	6 804	-8.0	-13.7	6.3
Petroleum, petroleum products and related materials	7 145	10 858	8 369	8 351	6 632	-7.2	-20.6	6.1
Meat and meat preparations	4 467	5 796	6 249	5 657	5 722	28.1	1.1	5.3
Gold, non-monetary (excl. gold ores and concentrates)	5 031	5 110	5 129	5 584	5 651	12.3	1.2	5.2
Cereals and cereal preparations	4 940	5 936	6 482	4 487	5 086	3.0	13.4	4.7
Road vehicles (incl. air-cushion vehicles)	2 808	3 840	4 293	4 185	4 160	48.2	-0.6	3.8
Textile fibres and their wastes (not manufactured into yarn or fabric)	4 299	5 600	4 983	4 489	3 499	-18.6	-22.0	3.2
Beverages	1 515	1 931	2 287	2 605	2 614	72.6	0.3	2.4
Medicinal and pharmaceutical products	1 715	2 230	2 262	2 006	2 431	41.7	21.2	2.2
Dairy products and birds' eggs	2 383	2 971	3 156	2 373	2 161	-9.3	-8.9	2.0
Electrical machinery, apparatus, appliances, parts (incl. non-elec. counterparts of electrical domestic equip)	1 322	1 720	1 680	1 672	1 456	10.1	-12.9	1.3
Fish (not marine mammals), crustaceans, molluscs and aquatic invertebrates, and preparations thereof	1 538	1 718	1 663	1 486	1 317	-14.3	-11.4	1.2
General industrial machinery and equipment, n.e.s. and machine parts, n.e.s.	1 040	1 221	1 290	1 308	1 219	17.3	-6.8	1.1
Professional, scientific and controlling instruments and apparatus, n.e.s.	1 061	1 254	1 344	1 241	1 210	14.1	-2.5	1.1
Office machines and automatic data processing machines	1 312	1 564	1 657	1 483	1 203	-8.3	-18.8	1.1
Machinery specialised for particular industries	1 112	1 344	1 398	1 270	1 142	2.7	-10.0	1.0
Transport equipment (excl. road vehicles)	1 672	1 200	1 860	2 013	998	-40.3	-50.4	0.9
Cork and wood	777	886	882	994	995	28.0	0.1	0.9
Non-metallic mineral manufactures, n.e.s.	966	1 025	956	885	833	-13.7	-5.9	0.8
Telecommunications and sound recording and reproducing apparatus and equipment	1 183	1 454	1 083	810	758	-35.9	-6.4	0.7

Source: ABS data available on request, International Trade.

In 2003–04 five manufacturing commodities contributed 27.6% of the total value of exports – non-ferrous metals (6.3%); petroleum, petroleum products and related materials (6.1%); meat and meat preparations (5.3%); non-monetary gold (5.2%); and cereals and cereal preparations (4.7%). The value of exports of road vehicles increased by 48% from 1999–2000 to \$4.2b in 2003–04, and represented 3.8% of the total value of Australian exports.

The value of exports of cereals and cereal preparations fell by 31% in 2002–03 from 2001–02 at a time of drought, before recovering by 13% in 2003–04.

### **Principal commodities imported**

Table 18.23 shows the value of the 20 main manufactured commodities imported into Australia during the period 1999–2000 to 2003–04. Manufactured commodities comprised 94% of the value of all merchandise imports in 2003–04.

The major commodity imported into Australia during the period was road vehicles, which represented 13.6% of the total value of imports in 2003–04. Petroleum, petroleum products and related materials made up 7.6% of imports in 2003–04, and was one of the few large imported commodities which was not machinery of one type or another.

In comparing the list of largest manufactured commodities Australia exports with the list of imports in terms of value, it is apparent many of Australia's manufactured exports are simply transformed manufactured commodities such as food products and metals, while the majority of manufactured imports are elaborately transformed commodities such as machinery and equipment.

## **Price indexes**

The ABS compiles two price indexes relating to the manufacturing industry – the Price Index of Materials Used in Manufacturing Industries, and the Price Index of Articles Produced by Manufacturing Industries. These indexes measure movements in the prices of materials used, and articles produced, by establishments classified to the Manufacturing Division ANZSIC (1993 edition). The Price Index of Materials Used in Manufacturing Industries consists of two broad components, materials used in manufacturing that are sourced domestically and materials used in manufacturing that are imported and these contribute approximately 65% and 35%, respectively, to the total index. More information on the concepts underlying these indexes and other price indexes produced by the ABS is provided in *Chapter 28 Prices*.

Tables 18.24 and 18.25 set out index numbers for selected components of the two price indexes.

The Price Index of Materials Used in Manufacturing increased by 25% between 1998–99 and 2000–01, then fell in 2002–03 and 2003–04. The decline of 0.4% in 2002–03 was the result of the fall in the price of imported materials (3.8%) partly offset by an increase in the price of domestic materials (1.9%). In 2003–04 the price of imported materials fell 8.1% while the price of domestic materials fell 1.9% giving an overall decline of 4.5%. The main reason for the large falls in the price of imported materials over this period was the appreciation of the Australian dollar against most major currencies which has a downward impact on the price of imported materials.

### 18.23 IMPORTS OF SELECTED MANUFACTURED COMMODITIES(a)

Commodities as defined by the Standard International Trade Classification (SITC)	1999–	2000–	2001–	2002–	2003–	Change	Change	Share of total imports 2003–04
	2000	01	02	03	04	from 1999–00 to 2003–04	from 2002–03 to 2003–04	
	\$m	\$m	\$m	\$m	\$m	%	%	%
Road vehicles (incl. air-cushion vehicles)	12 784	14 346	14 895	16 826	17 839	39.5	6.0	13.6
Petroleum, petroleum products and related materials	7 516	10 369	8 893	10 502	9 899	31.7	-5.7	7.6
Office machines and automatic data processing machines	7 589	8 319	7 965	7 732	7 738	2.0	0.1	5.9
Telecommunications and sound recording and reproducing apparatus and equipment	6 773	7 930	6 862	7 003	7 479	10.4	6.8	5.7
General industrial machinery and equipment, n.e.s. and machine parts, n.e.s.	5 398	5 726	6 221	7 062	7 034	30.3	-0.4	5.4
Electrical machinery, apparatus, appliances, parts (incl. non-elec. counterparts of electrical domestic equip)	6 213	6 791	6 629	6 958	7 022	13.0	0.9	5.4
Medicinal and pharmaceutical products	3 520	4 370	5 009	5 285	5 907	67.8	11.8	4.5
Machinery specialised for particular industries	4 153	3 835	4 050	4 543	5 040	21.3	10.9	3.8
Transport equipment (excl. road vehicles)	5 432	3 409	3 468	6 454	4 630	-14.8	-28.3	3.5
Articles of apparel and clothing accessories	2 794	3 187	3 215	3 419	3 369	20.6	-1.5	2.6
Professional, scientific and controlling instruments and apparatus, n.e.s.	2 593	2 742	2 998	3 059	3 213	23.9	5.0	2.5
Manufactures of metals, n.e.s.	2 522	2 710	2 790	3 133	3 190	26.5	1.8	2.4
Power generating machinery and equipment	2 655	2 700	3 034	3 210	2 962	11.6	-7.7	2.3
Gold, non-monetary (excl. gold ores and concentrates)	2 397	1 688	2 219	2 959	2 544	6.1	-14.0	1.9
Textile yarn, fabrics, made-up articles, n.e.s. and related products	2 632	2 607	2 562	2 723	2 458	-6.6	-9.7	1.9
Paper, paperboard, and articles of paper pulp, of paper or of paperboard	2 329	2 444	2 363	2 497	2 450	5.2	-1.9	1.9
Organic chemicals	2 874	2 854	2 501	2 445	2 363	-17.8	-3.3	1.8
Non-metallic mineral manufactures, n.e.s.	1 878	1 871	1 970	2 116	2 100	11.8	-0.8	1.6
Iron and steel	1 505	1 430	1 764	1 961	2 027	34.6	3.4	1.5
Rubber manufactures, n.e.s.	1 255	1 412	1 607	1 753	1 712	36.4	-2.3	1.3

(a) Customs value.

Source: ABS data available on request, International Trade.

### 18.24 PRICE INDEXES(a)(b), Materials used in manufacturing industries

Industry	1988-99	1999-2000	2000-01	2001-02	2002-03	2003-04
Food, beverages and tobacco	110.5	110.8	121.0	137.8	136.0	136.5
Textiles and textile products	94.0	91.6	102.3	106.9	110.3	100.5
Knitting mills and clothing	106.4	102.6	106.5	109.2	107.6	103.2
Footwear	110.3	107.4	120.3	130.3	130.6	124.1
Leather and leather products	93.5	97.8	107.2	102.7	100.3	86.0
Log sawmilling and other wood products	119.8	123.0	132.8	136.1	130.0	125.2
Paper and paper products	97.6	99.8	110.0	109.7	104.8	103.1
Printing, publishing and recorded media	108.1	107.7	116.5	119.3	116.9	110.3
Petroleum and coal products	94.4	157.8	217.7	175.9	188.3	164.0
Chemicals	111.4	114.0	126.3	121.0	118.3	116.9
Rubber and plastics	110.1	110.8	123.9	121.6	123.5	117.5
Non-metallic mineral products	111.3	110.7	111.5	115.4	123.1	128.8
Basic metal products	91.7	92.5	101.7	106.0	104.6	102.0
Fabricated metal products	106.2	106.1	111.7	110.6	111.0	114.0
Transport equipment and parts	116.8	120.5	125.2	124.6	124.8	120.4
Electronic equipment and other machinery	103.7	103.4	108.0	107.2	107.5	107.1
Other manufacturing	115.3	118.8	125.6	124.4	124.0	120.9
<b>All materials</b>	<b>105.9</b>	<b>115.8</b>	<b>132.4</b>	<b>132.4</b>	<b>131.9</b>	<b>125.9</b>

(a) Reference base of index: 1989-90 = 100.0. (b) The index is on a net basis and relates in concept only to transactions in materials used in the industry that are produced from other industries or from overseas.

Source: *Producer Price Indexes, Australia (6427.0)*.

### 18.25 PRICE INDEXES(a)(b), Articles produced in manufacturing industries

Industry	1988-99	1999-2000	2000-01	2001-02	2002-03	2003-04
Food, beverages and tobacco	122.6	125.1	131.4	139.9	139.9	139.9
Textiles and textile products	102.9	103.8	108.6	111.8	120.3	116.7
Knitting mills, clothing, footwear and leather	117.9	119.5	120.7	122.3	124.8	124.2
Log sawmilling and other wood products	121.0	126.0	130.7	132.4	135.1	139.1
Paper and paper products	110.4	111.3	114.9	115.9	117.9	117.8
Printing, publishing and recorded media	143.6	148.9	152.4	155.5	155.2	155.7
Petroleum and coal products	86.8	137.5	190.2	158.5	172.6	173.3
Chemicals	110.8	111.8	115.8	113.9	115.1	114.5
Rubber and plastics	114.0	114.9	119.1	123.9	124.5	124.7
Non-metallic mineral products	117.1	117.5	117.8	118.7	125.8	129.2
Basic metal products	98.7	104.8	115.4	107.9	104.8	106.7
Fabricated metal products	113.6	115.2	116.7	118.6	122.2	125.3
Transport equipment and parts	117.8	119.6	124.1	128.5	129.4	127.0
Electronic equipment and other machinery	109.1	109.9	112.3	114.2	113.8	113.1
Other manufacturing	121.4	123.9	128.8	131.0	127.9	127.8
<b>All articles</b>	<b>115.6</b>	<b>120.6</b>	<b>128.5</b>	<b>128.8</b>	<b>130.3</b>	<b>130.4</b>

(a) Reference base of index: 1989-90 = 100.0. (b) The index is on a net basis and relates in concept only to transactions in articles produced that are sold outside the Australian manufacturing industry.

Source: *Producer Price Indexes, Australia (6427.0)*.

## Research and development expenditure

Research and experimental development (R&D) activity, in the business context, is defined as systematic investigation or experimentation involving innovation or technical risk, the outcome of which is new knowledge, with or without a specific practical application or new or improved products, processes, materials, devices or services. R&D activity also extends to modifications to existing products and processes. ABS surveys of R&D are based on a complete enumeration of businesses identified by the ABS as likely R&D performers. Businesses mainly engaged in agriculture, forestry and fishing are excluded.

Total R&D expenditure by the manufacturing industry increased by \$301m (12%) in 2002–03 (table 18.26). Industries contributing the most to manufacturing R&D expenditure in 2002–03 were:

motor vehicle and part and other transport equipment manufacturing (26%); petroleum, coal, chemical and associated product manufacturing (17%); metal product manufacturing (12%); and electronic and electrical equipment and appliance manufacturing (12%). Together, these industries accounted for 67% of total R&D expenditure by the manufacturing industry and 32% of the total R&D expenditure by all industries.

Of manufacturing industry total R&D expenditure in 2002–03, 7% was on capital expenditure, 45% on labour costs and 48% on other current expenditure (table 18.27). The motor vehicle and part and other transport equipment manufacturing industry contributed the largest expenditure on R&D by the manufacturing industry for each of capital expenditure (29%), labour costs (26%), and other current expenditure (25%). Manufacturing accounted for 45% of the capital expenditure, 48% of the labour costs, and 47% of other current expenditure on R&D by all industries.

### 18.26 EXPENDITURE ON RESEARCH AND DEVELOPMENT

	2000–01	2001–02	2002–03
Manufacturing industry subdivision	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	202	231	234
Textile, clothing, footwear and leather manufacturing	27	22	28
Wood and paper product manufacturing	100	84	98
Printing, publishing and recorded media	17	16	15
Petroleum, coal, chemical and associated product manufacturing	395	430	492
Non-metallic mineral product manufacturing	41	74	86
Metal product manufacturing	221	257	343
Motor vehicle and part and other transport equipment manufacturing	473	555	731
Photographic and scientific equipment manufacturing	220	279	304
Electronic and electrical equipment and appliance manufacturing	430	423	329
Industrial machinery and equipment manufacturing	108	134	150
Other manufacturing	21	22	20
<b>Total manufacturing</b>	<b>2 255</b>	<b>2 528</b>	<b>2 829</b>

Source: Research and Experimental Development, Businesses, Australia (8104.0).

### 18.27 TYPE OF EXPENDITURE ON RESEARCH AND DEVELOPMENT — 2002-03

	Capital expenditure	Labour costs(a)	Other current expenditure	Total
	\$m	\$m	\$m	\$m
Manufacturing industry subdivision				
Food, beverage and tobacco manufacturing	19	122	93	234
Textile, clothing, footwear and leather manufacturing	6	13	9	28
Wood and paper product manufacturing	4	26	68	98
Printing, publishing and recorded media	1	8	5	15
Petroleum, coal, chemical and associated product manufacturing	36	192	265	492
Non-metallic mineral product manufacturing	15	33	38	86
Metal product manufacturing	20	113	211	343
Motor vehicle and part and other transport equipment manufacturing	61	333	337	731
Photographic and scientific equipment manufacturing	14	162	128	304
Electronic and electrical equipment and appliance manufacturing	21	181	126	329
Industrial machinery and equipment manufacturing	10	75	65	150
Other manufacturing	2	11	8	20
<b>Total manufacturing</b>	<b>208</b>	<b>1 269</b>	<b>1 353</b>	<b>2 829</b>

(a) Includes wages and salaries, payroll tax, payments to contract staff on the payroll, fringe benefits tax and workers' compensation, holiday pay, long-service leave payments, sick pay, and employer contributions to superannuation and pension schemes.

Source: *Research and Experimental Development, Businesses, Australia, 2002-03 (8104.0)*.

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## CONSTRUCTION

The construction industry plays an important role in the Australian economy. Construction provides homes, places for people to work, and recreation facilities. It provides essential facilities and infrastructure such as schools, hospitals, roads, water and electricity supply and telecommunications.

The construction industry, and its activities, have important linkages to other parts of the Australian economy such as manufacturing, wholesale, retail trade, and finance and insurance industries. In addition, architectural and engineering professions are closely linked with the industry.

In 2002–03 the construction industry contributed 6.3% to Australia's gross domestic product. This compares with 5.5% in 2001–02.

In 2002–03 the construction industry employed an average of 715,300 persons. Employed persons include employees, employers and own-account workers. This represented approximately 8% of all employed persons. The majority of those employed in the construction industry were full time (85%) and male (87%).

The construction industry engages in three broad areas of activity:

- residential building (e.g. houses, flats, etc.)
- non-residential building (e.g. offices, shops, hotels, etc.)
- engineering construction (e.g. roads, bridges, water, sewerage, etc.).

Both the private and public sectors undertake construction activity within Australia. The private sector operates in all three areas of activity, with a major role in residential and non-residential building activity. The public sector has a major role in initiating and undertaking engineering construction. In addition it has a role in non-residential building activity, in particular for the health and education industries, building hospitals and schools.

The chapter includes an article *Australian home size is growing*.

## Economic contribution of the construction industry

The construction industry plays a significant part in the Australian economy. The demand for, and supply of construction is influenced by a variety of factors including interest rates, tax reforms and changes in populations. Gross value added (GVA) is the preferred national accounts measure of industry production as it excludes taxes and subsidies on products.

In 2002–03 construction was Australia’s fourth largest industry contributing 6.3% of gross domestic product (GDP) (table 19.1).

Graph 19.2 shows total production of the construction industry measured by industry GVA in chain volume terms (i.e. output adjusted for price changes). Production in the construction industry generally increased from 1991–92 to 1999–2000. The peak in 1999–2000 was followed by a sharp decline, coinciding with the introduction of The New Tax System in July 2000. Production has since steadily increased and in 2002–03 reached \$45,977m.

## Employment in the construction industry

Average annual employment in the construction industry has been increasing since 2000–01 and in 2003–04 employed an average of 769,700 persons. This includes employees, employers and own-account workers. This was 8% higher than average employment in 2002–03 and 12% higher than in 1999–2000. Although the number of employers and own account workers has only increased slightly since 2002–03, the number of employees has increased by 11%.

The majority of those employed in the construction industry were employed in construction trade services (68%) (table 19.3). Construction trade services include those engaged in services such as earthmoving, concreting, bricklaying, roofing, plumbing, electrical, carpentry, painting, glazing and landscaping. Average annual employment in construction trade services has continued to increase since 2000–01, with 525,400 persons employed in 2003–04. Employment in general construction, which includes the construction of houses, buildings and structures, is more volatile. In 2003–04 average annual employment increased by 5% to 244,300 persons after a decrease in 2002–03.

### 19.1 CONSTRUCTION GROSS VALUE ADDED AND CONTRIBUTION TO GDP, Chain volume measures(a)

	Units	1998–99	1999–2000	2000–01	2001–02	2002–03
Industry gross value added	\$m	38 639	41 014	35 335	39 540	45 977
Industry contribution to GDP	%	5.9%	6.1%	5.1%	5.5%	6.3%

(a) Reference year for chain volume measures is 2001–02.

Source: Australian System of National Accounts, 2002–03 (5204.0).

### 19.2 CONSTRUCTION PRODUCTION(a)



(a) Industry gross value added. Chain volume measures, reference year is 2001–02.

Source: Australian System of National Accounts (5204.0).

### 19.3 CONSTRUCTION INDUSTRY EMPLOYMENT(a)

Employment status	1999–2000	2000–01	2001–02	2002–03	2003–04
	'000	'000	'000	'000	'000
<b>General construction(a)</b>					
Employee	187.6	180.7	199.5	180.7	194.5
Employer	11.7	11.5	11.3	6.9	10.9
Own account worker(b)	44.0	42.5	48.0	44.7	38.2
Total(c)	246.2	237.4	259.9	233.4	244.3
<b>Construction trade services</b>					
Employee	270.9	245.9	249.8	281.4	316.5
Employer	37.2	34.7	34.4	37.7	35.9
Own account worker(b)	128.3	145.9	145.0	159.8	169.7
Total	440.9	431.3	432.6	481.9	525.4
<b>Total construction(d)</b>					
Employee	458.6	426.6	449.3	462.1	510.9
Employer	48.9	46.2	45.7	44.5	46.8
Own account worker(b)	172.3	188.4	192.9	204.5	207.8
Total	687.1	667.7	692.5	715.3	769.7

(a) Annual average of quarterly data. (b) A worker that hires no employees (this category was formerly titled Self employed). (c) Total includes contributing family worker. (d) Includes categories General construction and Construction trade services.

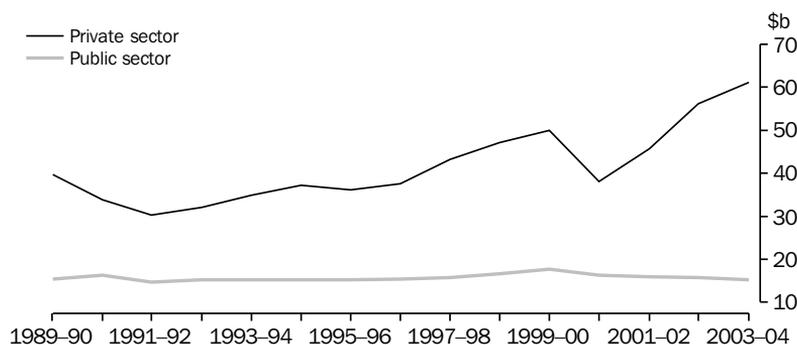
Source: Labour Force, Australia, Detailed - Electronic Delivery (6291.0.55.001).

## Trends in construction activity

Construction activity is carried out by both private and public sectors. Over the past ten years, public sector construction has remained relatively constant, maintaining an annual value of work done of around \$15,000m (graph 19.4). Private sector construction on the other hand has been more volatile. Private sector construction experienced a sharp decline in 2000–01 after the introduction of The New Tax System in July 2000. It exceeded 1999–2000 levels for the first time in 2002–03, and in 2003–04 increased by 9% to \$61,144m.

Construction industry activity occurs in the three broad areas of activity – residential building, non-residential building, and engineering construction. The pattern of construction activity by area of activity has changed substantially over time (graph 19.5). Before 1991–92 the value of non-residential building activity was greater than engineering construction activity. However, since 1991–92, engineering construction activity has consistently exceeded non-residential building activity.

### 19.4 CONSTRUCTION ACTIVITY(a), By sector



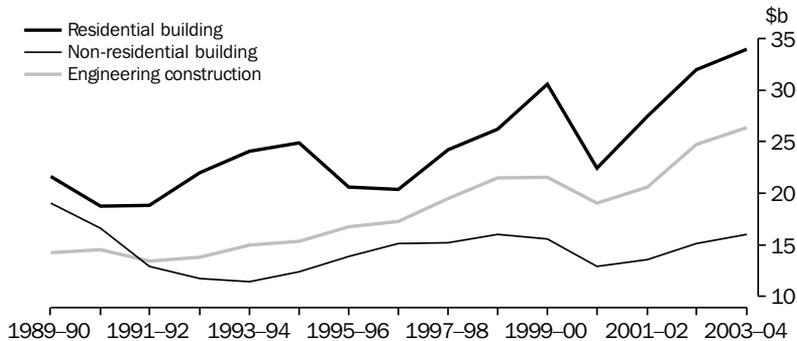
(a) Chain volume measures, reference year is 2002–03.

Source: Construction Work Done, Australia, Preliminary (8755.0).

Graph 19.5 also shows the acceleration in residential building activity to record levels prior to the introduction of The New Tax System in July 2000 followed by a substantial downturn in 2000–01. Residential building and engineering construction surpassed 1999–2000 levels for the first time in 2002–03, with non-residential building surpassing these levels in 2003–04.

Table 19.6 shows in 2003–04 residential building accounted for 44% of the value of total construction work done, engineering construction accounted for 35% and non-residential building accounted for 21%. In 2003–04 the value of total construction work done increased by 5% to \$76,308m. Each of the three areas of activity exhibited an increase, with engineering construction recording the largest increase of 6.5%.

**19.5 CONSTRUCTION ACTIVITY(a), By type of activity**



(a) Chain volume measures, reference year is 2002–03.

Source: *Construction Work Done, Australia, Preliminary (8755.0)*.

**19.6 VALUE OF CONSTRUCTION WORK DONE(a), By type of activity**

	Residential building \$m	Non-residential building \$m	Engineering construction \$m	Total construction(b) \$m
1997–98	24 197	15 229	19 485	59 009
1998–99	26 219	15 980	21 459	63 759
1999–2000	30 596	15 590	21 571	67 515
2000–01	22 428	12 900	19 009	54 358
2001–02	27 480	13 582	20 610	61 670
2002–03	31 987	15 098	24 730	71 814
2003–04	33 951	16 031	26 326	76 308

(a) Chain volume measures, reference year is 2002–03. (b) Chain volume measures for years other than 2002–03 and 2003–04 are not additive.

Source: *Construction Work Done, Australia, Preliminary (8755.0)*.

## Australian home size is growing

Over time the typical house in Australia has evolved from having three bedrooms, one bathroom and separate living areas into a more open plan, including a fourth bedroom and ensuite facilities. Popular extras, such as rumpus rooms, walk-in wardrobes, walk-in kitchen pantries and the like, may add to the overall size of modern homes. This has resulted in an increase in the size of new residential buildings.

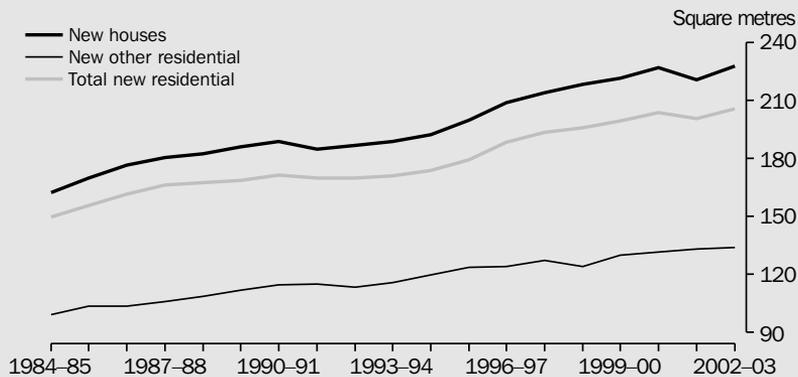
Residential buildings, both houses and other dwellings (such as flats, units, semi-detached houses and townhouses) have increased in size over the past 18 years. The percentage increase was higher for houses than for other dwellings.

The growth in the average floor area<sup>1</sup> of new residential buildings<sup>2</sup> during the period 1984–85 to 2002–03 is shown in graph 19.7.

The average floor area of new residential buildings increased by 37.4% (from 149.7 m<sup>2</sup> to 205.7 m<sup>2</sup>) between 1984–95 and 2002–03. New houses increased by 40.3% (from 162.2 m<sup>2</sup> to 227.6 m<sup>2</sup>) while new other residential buildings increased in average size by 35.2% (from 99.2 m<sup>2</sup> to 134.0 m<sup>2</sup>) (table 19.8).

The average floor area of new houses increased in all states and territories over the past 18 years. The largest increases were in New South Wales (53.8%), the Australian Capital Territory (53.1%) and Queensland (50.2%) (table 19.9).

**19.7 AVERAGE FLOOR AREA OF NEW RESIDENTIAL BUILDINGS**



Source: ABS data available on request, Building Activity Survey.

**19.8 AVERAGE FLOOR AREA OF NEW RESIDENTIAL BUILDINGS**

	1984–85	1993–94	2002–03	Change from 1984–85 to 2002–03	Change from 1993–94 to 2002–03
	m <sup>2</sup>	m <sup>2</sup>	m <sup>2</sup>	%	%
New houses	162.2	188.7	227.6	40.3	20.6
New other residential buildings	99.2	115.9	134.0	35.2	15.6
All new residential buildings	149.7	171.1	205.7	37.4	20.2

Source: ABS data available on request, Building Activity Survey.

The average floor area of new houses built in 2002–03 was largest in New South Wales (244.9 m<sup>2</sup>) and Queensland (232.8 m<sup>2</sup>), while the smallest were in Tasmania (177.6 m<sup>2</sup>) and the Northern Territory (182.9 m<sup>2</sup>).

The average floor area of new other residential dwellings (such as flats, units, semi-detached houses and townhouses) also increased in all states and territories in the past 18 years. The

greatest increases were in the Northern Territory (47.3%), Tasmania (42.6%) and South Australia (42.5%) (table 19.10).

The average floor area of new other residential buildings built in 2002–03 was largest in South Australia (143.6 m<sup>2</sup>) and Victoria (140.1 m<sup>2</sup>), while the smallest were in New South Wales (127.1 m<sup>2</sup>) and the Australian Capital Territory (129.4 m<sup>2</sup>).

### 19.9 AVERAGE FLOOR AREA OF NEW HOUSES

	1984–85 m <sup>2</sup>	1993–94 m <sup>2</sup>	2002–03 m <sup>2</sup>	Change from 1984–85 to 2002–03 %	Change from 1993–94 to 2002–03 %
New South Wales	159.3	191.4	244.9	53.8	27.9
Victoria	163.6	177.4	222.4	36.0	25.4
Queensland	154.9	191.6	232.8	50.2	21.5
South Australia	160.4	181.7	196.6	22.6	8.2
Western Australia	185.4	204.2	229.4	23.7	12.3
Tasmania	149.9	167.9	177.6	18.5	5.7
Northern Territory	135.4	177.4	182.9	35.2	3.1
Australian Capital Territory	149.4	181.7	228.7	53.1	25.9
<b>Australia</b>	<b>162.2</b>	<b>188.7</b>	<b>227.6</b>	<b>40.3</b>	<b>20.6</b>

Source: ABS data available on request, Building Activity Survey.

### 19.10 AVERAGE FLOOR AREA OF NEW OTHER RESIDENTIAL BUILDINGS

	1984–85 m <sup>2</sup>	1993–94 m <sup>2</sup>	2002–03 m <sup>2</sup>	Change from 1984–85 to 2002–03 %	Change from 1993–94 to 2002–03 %
New South Wales	96.6	117.6	127.1	31.6	8.1
Victoria	100.7	115.3	140.1	39.2	21.5
Queensland	97.7	111.7	137.5	40.8	23.1
South Australia	100.8	115.4	143.6	42.5	24.4
Western Australia	107.0	127.3	134.4	25.6	5.6
Tasmania	87.2	94.1	124.3	42.6	32.1
Northern Territory	89.4	110.8	131.7	47.3	18.9
Australian Capital Territory	98.3	112.4	129.4	31.7	15.1
<b>Australia</b>	<b>99.2</b>	<b>115.9</b>	<b>134.0</b>	<b>35.2</b>	<b>15.7</b>

Source: ABS data available on request, Building Activity Survey.

## Endnotes

- 1 The 'floor area' of a building is a measure of the amount of areal space in a building (and its attachments) and is measured in square metres (m<sup>2</sup>). The boundary of the recorded floor area of a building is delineated by the external perimeter of the external walls of the building. If a building has an unenclosed verandah, carport, etc., attached outside an external wall of one or more storeys, then the area under the verandah is excluded.
- 2 The floor area data used in the analyses was obtained from ABS Building Activity collections and is a measure of the floor area of a building at the final stage of its construction. Average floor area data was not stated for about 10% of all dwellings and, therefore, these were excluded from the analyses. Average floor area was calculated using the formula: Total floor area of all completed dwellings in the year/Number of completed dwellings in the year.

## Residential building

Residential building involves the construction of dwelling units, including new houses, new other residential buildings (flats, apartments, villa units, townhouses, duplexes, etc.), and dwellings created as part of alterations and additions to existing buildings (including conversions to dwelling units). Building approvals are used as a key indicator of future activity, as nearly all building activity must be approved by local and/or other authorities.

### Residential building approvals

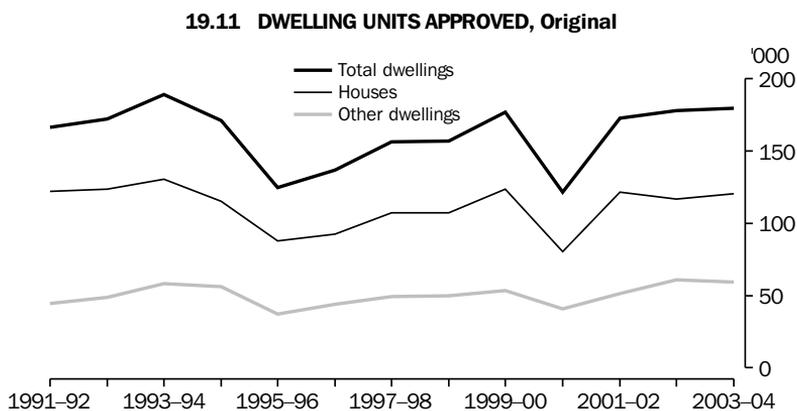
Graph 19.11 shows total dwelling unit approvals between 1995–96 and 1998–99 experienced relatively stable growth. Activity brought forward ahead of the introduction of The New Tax System in July 2000 contributed to the increase and decrease between early-1999 and late-2000. In 2003–04 total number of dwelling unit approvals slightly increased to 179,690.

The major component of dwelling unit approvals is new houses, as shown in table 19.12. New house approvals accounted for 67% of total dwelling unit approvals in 2003–04, up from 65.6% in 2002–03. New other residential dwelling units and conversions both experienced a decrease in number of approvals in 2003–04, of 2.2% and 34.1% respectively.

### New other residential building approvals

Other residential building refers to structures other than houses, which are built for accommodation purposes. This includes buildings such as blocks of flats, units and apartments, and semi-detached houses and townhouses.

Prior to 1996–97 approvals for semi-detached houses/townhouses and the like were greater than for flats, units and apartments. From 1996–97 the number of approvals for flats, units and apartments has consistently exceeded approvals for semi-detached houses/row/terrace/townhouses and the like.



Source: *Building Approvals, Australia (8731.0)*.

**19.12 DWELLING UNITS APPROVED**

	New houses	New other residential dwelling units	Conversions	Total dwelling units(a)
1999–2000	123 191	50 244	1 911	176 758
2000–01	80 095	37 959	2 225	121 304
2001–02	121 516	48 533	1 909	172 818
2002–03	116 543	58 163	1 841	177 759
2003–04	120 442	56 898	1 213	179 690

(a) The total includes non-residential buildings and alterations and additions to residential buildings.

Source: *Building Approvals, Australia (8731.0)*.

In 2003–04 the number of approvals for flats, units and apartments decreased by 9.4% following increases in 2001–02 and 2002–03. It is still the major component of new other residential approvals contributing 60% of all approvals. Approvals for semi-detached houses/row/terrace/townhouses and the like increased by 10% in 2003–04 (graph 19.13).

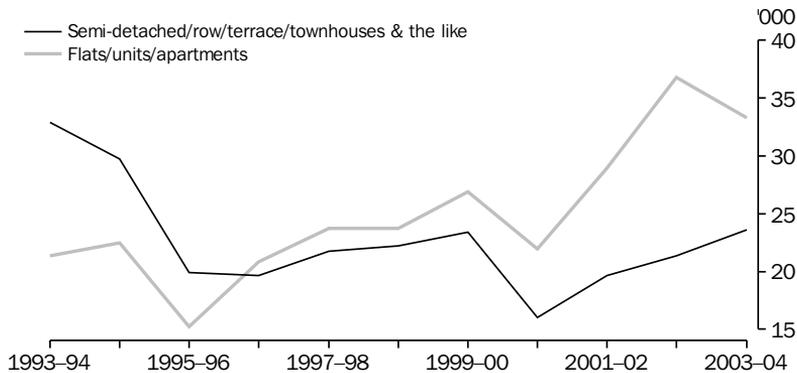
Table 19.14 provides more details of the types of other residential dwelling units approved. In 2002–03 new semi detached, row or terrace houses, townhouses and the like, showed increases in both one storey (12%) and two or more storeys (9%) approvals. New flats, units or apartments building approvals, despite decreasing overall in 2002–03, increased for one or two storeys by 21%. Approvals for new flats, units or apartments with four storeys or more, accounted for 42% of new other residential building approvals in 2003–04, down from 48% in 2002–03.

## Residential building work done

In 2003–04 the value of total building work done increased by \$2,898m (6.2%) to \$49,982m, with both total new residential buildings and non-residential buildings increasing by \$1,420m (5.2%) and \$933m (6.2%) respectively (table 19.15).

Estimates of alterations and additions to residential buildings include all approved building activity carried out on existing residential buildings, valued at \$10,000 or more. Although the value of alterations and additions to residential buildings is small compared with the value of new residential buildings, work done on alterations and additions to residential buildings was valued at \$5,306m in 2003–04, an increase of 11% from 2002–03.

### 19.13 NEW OTHER RESIDENTIAL DWELLING UNITS APPROVED



Source: Building Approvals, Australia (8731.0).

### 19.14 NEW OTHER RESIDENTIAL DWELLING UNITS APPROVED

	1999–2000	2000–01	2001–02	2002–03	2003–04
<b>New semi-detached, row or terrace houses, townhouses and the like</b>					
One storey	10 455	7 420	9 063	9 477	10 601
Two or more storeys	12 916	8 578	10 567	11 905	12 990
<b>Total</b>	<b>23 371</b>	<b>15 998</b>	<b>19 630</b>	<b>21 382</b>	<b>23 591</b>
<b>New flats, units or apartments in a building</b>					
One or two storeys	5 400	2 876	3 455	3 572	4 313
Three storeys	4 846	4 188	5 000	5 366	5 193
Four or more storeys	16 627	14 897	20 448	27 843	23 801
<b>Total</b>	<b>26 873</b>	<b>21 961</b>	<b>28 903</b>	<b>36 781</b>	<b>33 307</b>
<b>Total</b>	<b>50 244</b>	<b>37 959</b>	<b>48 533</b>	<b>58 163</b>	<b>56 898</b>

Source: Building Approvals, Australia (8731.0).

### 19.15 VALUE OF BUILDING WORK DONE(a), By type of activity

	New residential building					
	Houses	Other residential buildings	Total(b)	Alterations and additions to residential buildings	Non-residential building	Total building(b)
	\$m	\$m	\$m	\$m	\$m	\$m
1997-98	14 517	5 774	20 283	3 915	15 229	39 587
1998-99	15 416	6 653	22 067	4 152	15 980	42 331
1999-2000	18 501	7 408	25 893	4 702	15 590	46 061
2000-01	12 853	5 973	18 831	3 597	12 900	35 352
2001-02	16 161	7 038	23 202	4 278	13 582	41 065
2002-03	18 381	8 844	27 225	4 762	15 098	47 084
2003-04	19 016	9 630	28 645	5 306	16 031	49 982

(a) Chain volume measures, reference year is 2002-03. (b) Chain volume measures for years other than 2002-03 and 2003-04 are not additive.

Source: *Construction Work Done, Australia, Preliminary (8755.0)*.

### Non-residential building

The value of non-residential building work approved increased 24% in 2002-03 to \$17,107m (table 19.16). Over the same period the types of non-residential buildings which experienced the largest relative increases in approvals were retail/wholesale trade (58%), accommodation (45%), and entertainment and recreation (42%). Those that experienced a decline in approvals were religious (44%) and health (21%) building work.

The total value of non-residential building work done rose 2% to \$15,098m in 2002-03. The largest percentage increases in value of non-residential work done occurred in the commercial category and were experienced by transport (32%), retail/wholesale (27%) and offices (20%). Declines in work done for non-residential building work occurred in religious (17%) and education (4%).

### 19.16 VALUE OF NON-RESIDENTIAL BUILDING WORK(a)

	Approved		Work done	
	2001-02	2002-03	2001-02	2002-03
	\$m	\$m	\$m	\$m
<b>Commercial</b>				
Retail/wholesale trade	2 031	3 213	2 335	2 975
Transport	314	398	237	313
Offices	2 982	3 660	2 388	2 877
Other commercial n.e.c.	157	159	116	204
<i>Total commercial</i>	5 483	7 429	5 074	6 369
<b>Industrial</b>				
Factories	782	930	831	835
Warehouses	1 190	1 473	1 234	1 289
Agricultural/aquacultural	151	157	167	167
Other industrial n.e.c.	150	139	166	167
<i>Total industrial</i>	2 273	2 700	2 397	2 459
<b>Other non-residential</b>				
Educational	1 921	1 977	1 981	1 907
Religious	137	77	107	89
Aged care facilities	652	828	666	663
Health	1 022	812	984	980
Entertainment and recreation	1 126	1 597	1 266	1 315
Accommodation	589	855	642	694
Other non-residential n.e.c.	537	831	576	622
<i>Total other non-residential</i>	5 986	6 978	6 223	6 271
<b>Total non-residential building work</b>	<b>13 741</b>	<b>17 107</b>	<b>14 730</b>	<b>15 098</b>

(a) Valued at \$50,000 or more.

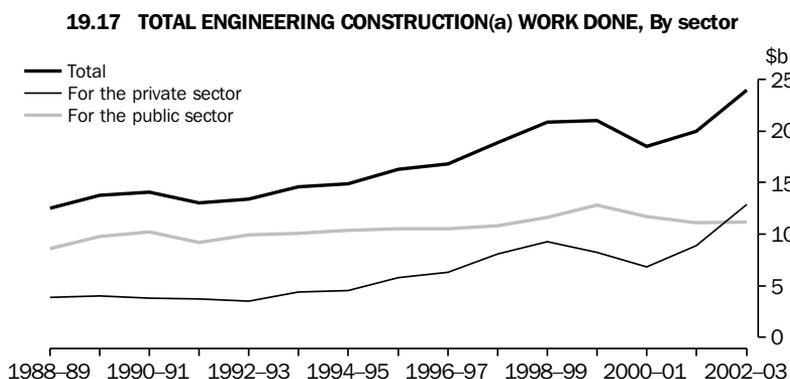
Source: *Building Activity, Australia (8752.0)*; *Building Approvals, Australia (8731.0)*.

## Engineering construction

The total value of engineering construction work done across the different sectors during the past 15 years is shown in graph 19.17. The value of public sector engineering construction work done has shown a slight decline over the past three years. Since 2000–01 the value of engineering construction work done by the private sector has increased substantially and by 2002–03 was of greater value than work done by the public sector.

Table 19.18 shows in more detail the contribution of public and private sectors to engineering construction work done. In 2002–03 the private sector increased its share of the total engineering construction work done to 54%.

Roads, highways and subdivisions accounted for 26% of the total value of engineering construction work done in 2002–03. Traditionally a public sector activity, the private sector has increased its share of construction work done of roads, highways and subdivisions to 39% in 2002–03 up from 30% in 2001–02. Oil, gas, coal and other minerals, a mainly private sector activity increased 79% to \$5,635m and now accounts for 23% of the total value of engineering construction work done in 2002–03.



(a) Chain volume measures, reference year is 2001–02.

Source: *Engineering Construction Activity, Australia (8762.0)*.

## 19.18 VALUE OF ENGINEERING CONSTRUCTION WORK DONE

	2001–02			2002–03		
	For the private sector	For the public sector	Total	For the private sector	For the public sector	Total
	\$m	\$m	\$m	\$m	\$m	\$m
Roads, highways and subdivisions	1 545	3 635	5 180	2 457	3 867	6 324
Bridges	33	294	326	74	238	312
Railways	270	598	867	524	763	1 287
Harbours	103	217	320	138	161	299
Water storage and supply	141	452	593	163	470	633
Sewerage and drainage	156	574	730	280	694	974
Electricity generation, transmission and distribution	1 349	1 772	3 121	1 317	1 977	3 294
Pipelines	500	48	548	907	32	939
Recreation	780	362	1 141	1 007	374	1 381
Telecommunications	362	3 105	3 467	354	2 808	3 161
Oil, gas, coal and other minerals	3 106	34	3 140	5 610	25	5 635
Other heavy industry	365	1	366	225	6	230
Other	191	42	232	227	33	260
<b>Total</b>	<b>8 899</b>	<b>11 132</b>	<b>20 031</b>	<b>13 283</b>	<b>11 446</b>	<b>24 729</b>

Source: *Engineering Construction Activity, Australia (8762.0)*.

## Price indexes for construction

Price indexes provide summary measures of the movements in various categories of prices, and are used extensively to analyse and monitor price behaviour. A more detailed explanation of price indexes is contained in *Chapter 28 Prices*.

### Output of the general construction industry

In 2003–04 the price indexes for output of the building construction and the non-building construction components of the general construction industry have increased by 7.8% and 4.1% respectively (table 19.19). The rate of increase during the 12 months ended June 2004 for the building construction component (7.8%) was the largest since the beginning of the series.

## Price index of materials used in house building

The price index of materials used in house building rose 2.9% in 2003–04. Table 19.20 shows there were rises in 2003–04 in all capital cities, with Hobart experiencing the largest increase (4.3%).

### Price index of materials used in building other than house building

In 2003–04 the price index for materials used in building other than house building grew by 3.3% (table 19.21). Perth experienced the largest increase (4.0%) followed by Brisbane (3.4%) and Sydney (3.3%).

**19.19 PRICE INDEX OF THE OUTPUT OF THE GENERAL CONSTRUCTION INDUSTRY(a)(b)**

	1998–99	1999–2000	2000–01	2001–02	2002–03	2003–04
Building construction	100.0	105.0	106.0	107.8	112.4	121.2
House construction	100.0	107.2	109.1	112.0	116.5	123.7
Residential building construction n.e.c.	100.0	104.7	104.2	105.1	110.4	121.0
Non-residential building construction	100.0	103.3	103.9	105.1	109.6	119.5
Non-building construction(c)	100.0	103.7	107.9	109.7	116.0	120.8
<b>Output of the general construction industry</b>	<b>100.0</b>	<b>104.9</b>	<b>106.1</b>	<b>107.9</b>	<b>112.7</b>	<b>121.1</b>

(a) Reference base of each index is 1998–99 = 100.0. (b) Excludes ANZSIC subdivision Construction Trade Services. (c) Road and bridge construction is the sole contributor to the Non-building construction.

Source: *Producer Price Indexes, Australia (6427.0)*.

**19.20 PRICE INDEX OF MATERIALS USED IN HOUSE BUILDING(a)(b)**

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Weighted average of six state capital cities
1998–99	121.6	118.0	118.2	125.0	116.1	122.2	119.5
1999–2000	126.8	121.7	120.8	127.2	117.7	123.8	122.8
2000–01	130.0	123.1	120.6	129.6	118.8	126.0	124.4
2001–02	132.0	125.0	122.0	130.6	119.4	128.4	126.0
2002–03	137.2	128.4	127.6	135.7	123.0	133.7	130.5
2003–04	142.3	131.1	132.1	138.4	125.8	139.4	134.3

(a) Reference base year is 1989–90 = 100.0. (b) The separate city indexes measure price movements within each city individually. They do not compare price levels between cities.

Source: *Producer Price Indexes, Australia (6427.0)*.

## 19.21 PRICE INDEX OF MATERIALS USED IN BUILDING OTHER THAN HOUSE BUILDING(a)(b)

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Weighted average of six state capital cities
1998–99	115.2	113.2	118.4	115.5	114.1	118.5	115.2
1999–2000	116.0	114.4	119.3	116.1	115.4	119.0	116.1
2000–01	116.1	115.4	119.1	116.8	115.6	119.3	116.4
2001–02	118.2	117.8	120.8	118.8	117.7	121.3	118.6
2002–03	123.0	122.7	126.9	123.5	122.8	124.2	123.6
2003–04	127.1	126.7	131.2	126.8	127.7	127.0	127.7

(a) Reference base year is 1989–90 = 100.0. (b) The separate city indexes measure price movements within each city individually. They do not compare price levels between cities.

Source: *Producer Price Indexes, Australia* (6427.0).

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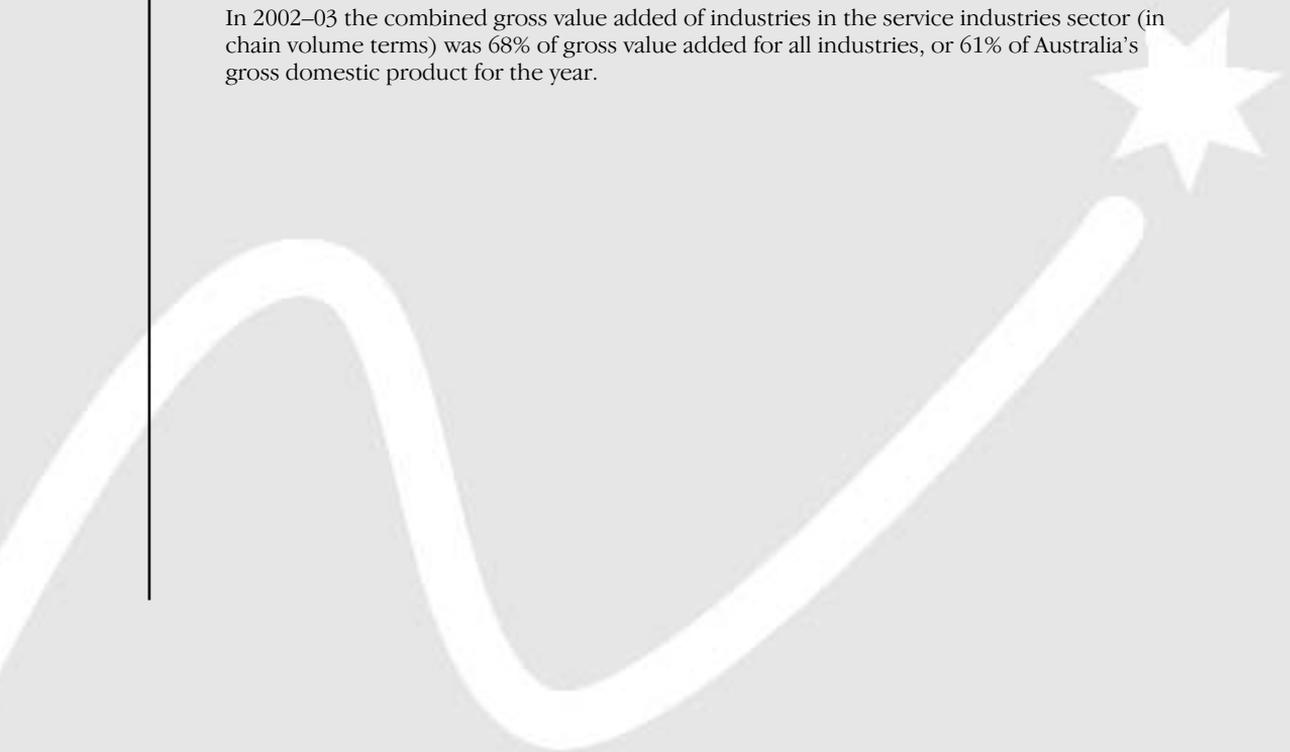
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## SERVICE INDUSTRIES

This chapter presents an overview of the service industries sector and provides a range of statistical information for a selection of service industries, with a focus on those that have recently been surveyed as part of the Australian Bureau of Statistics (ABS) rotating program of service industries collections.

For the purposes of this chapter, the service industries sector has been defined as all industries other than the goods-producing industries (agriculture, mining, manufacturing, electricity, construction, and gas and water supply). The service industries sector encompasses the following industries: wholesale trade; retail trade; accommodation, cafes and restaurants; transport and storage; communication services; finance and insurance; property and business services; government administration and defence; education; health and community services; cultural and recreational services; and personal and other services.

In 2002–03 the combined gross value added of industries in the service industries sector (in chain volume terms) was 68% of gross value added for all industries, or 61% of Australia's gross domestic product for the year.



## Economic contribution of the service industries sector

The service industries sector is the largest component of the Australian economy in terms of number of businesses, employment and gross value added (GVA).

The service industries sector accounted for 68% of the total GVA of all goods-producing and service industries in 2002–03. The sector also showed the greater increase in output in chain volume terms (i.e. output adjusted for price changes), with an overall increase of 22% over the period 1997–98 to 2002–03 (table 20.1). In comparison, the total GVA of goods-producing industries recorded an increase of 12% over the five-year period.

The largest contributor to the service industries sector in 2002–03 was the property and business services industry, which accounted for 18% of the total GVA of industries in the sector and 12% of

the total GVA of all industries. The next largest contributor within the service industries sector was finance and insurance services, which accounted for 13% of the total GVA of the sector.

In the period 1997–98 to 2002–03 the total GVA of industries in the services sector (in chain volume terms) increased by an average annual rate of 4%, while that of industries in the goods-producing sector recorded an average annual growth rate of 2%.

Within the service industries sector, the finance and insurance services industry recorded the largest percentage increase in GVA over the period 1997–98 to 2002–03 (31%), or an average annual growth rate of 6%. The next largest growth rate was recorded by the communications industry, with a 29% increase over the period, or an average annual growth rate of 6%. The smallest growth in industry GVA in the service industries sector over the five-year period was that of the education industry, with an increase of 9%.

### 20.1 GROSS VALUE ADDED(a), Chain volume measures(b)

Industries	1997–98	2002–03	Change from 1997–98 to 2002–03
	\$m	\$m	%
<b>Goods-producing</b>			
Agriculture, forestry and fishing	22 399	20 206	-10
Mining	30 010	33 944	13
Manufacturing	70 795	78 958	12
Electricity, gas and water	15 333	16 145	5
Construction	35 498	45 977	30
Total	174 035	195 230	12
<b>Service</b>			
Wholesale trade	32 442	37 919	17
Retail trade	30 644	37 689	23
Accommodation, cafes and restaurants	12 591	15 206	21
Transport and storage	29 814	36 382	22
Communication services	15 858	20 378	29
Finance and insurance services	40 409	53 073	31
Property and business services	58 613	75 091	28
Government administration and defence	24 123	28 353	18
Education	29 137	31 619	9
Health and community services	34 888	42 725	22
Cultural and recreational services	10 907	12 327	13
Personal and other services	13 892	16 081	16
Total	333 318	406 843	22
<b>Total(c)(d)</b>	<b>507 353</b>	<b>602 073</b>	<b>19</b>

(a) At basic prices, which include subsidies, but are before any taxes on products. (b) Reference year is 2001–02. (c) Excludes ownership of dwellings. (d) Sum of chain volume measures of GVA for individual goods-producing and service industries.

Source: Australian System of National Accounts (5204.0).

In terms of employment, the service industries sector accounted for 75% of total employment for all industries in 2003–04 (table 20.2). Total employment in the service industries sector in 2003–04 was 7,135,000 persons.

In the period 1998–99 to 2003–04, employment in the service industries increased by 772,100 persons or 12%, representing an average annual growth rate of 2%. In the same period the goods-producing industries recorded an increase in employment of 114,400 persons. This represented an increase of 5% and an average annual growth rate of just over 1%.

Within the service industries sector, the major employing industry was retail trade with employment in 2003–04 of 1,439,200 persons,

accounting for 15% of all employment and 20% of total employment in the sector. Other large employing service industries were property and business services (1,119,800 persons), health and community services (955,300 persons), and education (698,400 persons).

The service industries showing the greatest employment growth in the five-year period since 1998–99 were government administration and defence, with a 29% increase from 346,400 persons to 445,300 persons, property and business services with an increase of 18% in the period, and health and community services with an increase of 17%. The transport and storage sector showed the smallest increase over the period of 6%, while the wholesale trade sector recorded a decrease of 12%.

## 20.2 EMPLOYED PERSONS(a)

Industries	1998–99 '000	2003–04 '000	Change from 1998–99 to 2003–04 %
<b>Goods-producing</b>			
Agriculture, forestry and fishing	421.7	374.5	-11
Mining	80.0	96.6	21
Manufacturing	1 079.6	1 070.2	-1
Electricity, gas and water	64.8	75.0	16
Construction	632.4	776.7	23
<i>Total</i>	2 278.6	2 393.0	5
<b>Service</b>			
Wholesale trade	505.7	445.5	-12
Retail trade	1 297.9	1 439.2	11
Accommodation, cafes and restaurants	412.7	470.3	14
Transport and storage	409.0	432.5	6
Communication services	151.4	174.0	15
Finance and insurance	320.3	346.4	8
Property and business services	947.8	1 119.8	18
Government administration and defence	346.4	445.3	29
Education	604.3	698.4	16
Health and community services	819.1	955.3	17
Cultural and recreational services	209.7	239.0	14
Personal and other services	338.5	369.1	9
<i>Total</i>	6 362.9	7 135.0	12
<b>Total</b>	<b>8 641.5</b>	<b>9 528.0</b>	<b>10</b>

(a) Annual average of quarterly data.

Source: *Labour Force, Australia, Detailed - Electronic delivery (6291.0.55.001)*.

## Selected service industries

The remainder of the chapter presents statistics for a selection of service industries. The information provided is based primarily on the rotating program of service industries collections conducted by the ABS. The exceptions are the retail trade and wholesale trade industries where information has been drawn from the monthly and quarterly surveys of businesses.

The rotating program of service industries collections includes specific industry surveys each year. The main focus of these surveys is the size and structure of individual service industries in terms of detailed financial information and employment.

This chapter includes statistics from the 2001–02 survey of private medical practices and 2002–03 surveys of real estate services, waste management services, hire services, television, film and video production, and performing arts.

## Retail trade

The retail trade industry comprises businesses primarily engaged in the sale of new or used goods to final consumers for personal or household consumption, or in selected repair activities such as repair of household equipment or motor vehicles.

Retail turnover includes the value of turnover for retailing (such as supermarkets, clothing and department stores, etc.) and hospitality and selected

service industries (such as cafes and restaurants, hotels and licensed clubs, etc.), but excludes motor vehicle retailing and services. In order to measure the actual value paid by consumers from 1 July 2000, retail turnover is recorded inclusive of the goods and services tax.

Table 20.3 presents annual chain volume measures of turnover of retail industries for the period 1992–93 to 2003–04. Total retail turnover (in chain volume terms) increased by 54% between 1992–93 and 2003–04, representing an average annual growth rate of 4%. The industry group representing the largest component of retail turnover in 2003–04 was food retailing with 39% of total turnover. The next largest industry was hospitality and services with a 17% share of total turnover in 2003–04, followed by household good retailing with a 15% share of total turnover.

A comparison of the share of retail turnover held by the industry groups in 1992–93 and 2003–04 shows two industry groups increased their shares – household good retailing (up by 6.5 percentage points) and other retailing (by 2.3 percentage points). In contrast, five industry groups decreased their shares – food retailing (down by 6.2 percentage points), hospitality and services (by 1.6 percentage points), department stores (by 1.3 percentage points), recreational goods (by 1.1 percentage points) and clothing and soft good retailing (by 0.4 percentage points).

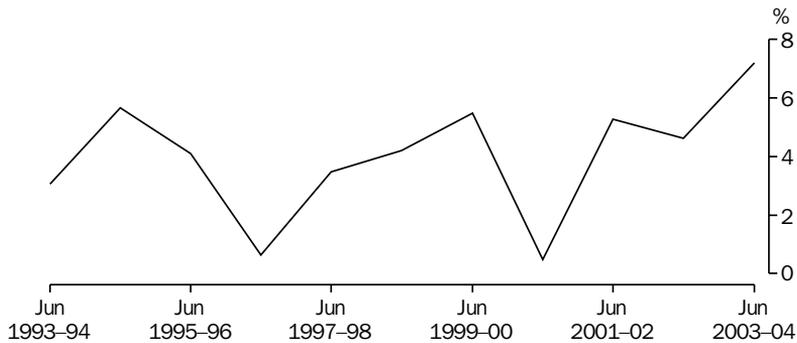
**20.3 RETAIL TURNOVER, Chain volume measures(a)**

	Industry group							
	Food retailing \$m	Department stores \$m	Clothing and soft good retailing \$m	Household good retailing \$m	Recreational good retailing \$m	Other retailing \$m	Hospitality and services \$m	Retail turnover(b) \$m
1992–93	55 126	11 760	8 336	9 994	6 438	9 898	22 081	121 499
1993–94	55 664	11 847	8 352	10 827	6 669	10 745	22 905	125 213
1994–95	58 575	12 219	8 581	11 750	7 030	11 275	24 684	132 305
1995–96	61 259	12 551	8 741	12 646	7 401	11 769	25 034	137 724
1996–97	61 755	12 475	8 602	13 983	7 027	12 183	23 576	138 582
1997–98	63 991	12 833	8 767	14 542	7 159	13 214	23 867	143 403
1998–99	65 415	13 242	9 802	14 997	7 247	13 813	25 908	149 435
1999–2000	66 562	14 031	10 506	17 735	7 326	14 822	27 123	157 628
2000–01	66 696	13 390	9 942	18 744	7 005	15 700	27 243	158 377
2001–02	68 522	13 976	10 689	21 723	7 028	16 942	27 936	166 727
2002–03	70 414	14 750	11 297	24 050	7 210	17 733	28 973	174 428
2003–04	73 178	15 712	12 024	27 548	7 925	19 599	30 984	186 971

(a) Based on original quarterly data. Reference year is 2002–03. (b) Chain volume measures are not additive for years other than 2002–03 and 2003–04.

Source: ABS data available on request, Retail Business Survey.

## 20.4 CHANGE IN RETAIL TURNOVER, Chain volume measures(a)



(a) Reference year is 2002-03.

Source: Retail Trade, Australia (8501.0).

Graph 20.4 presents annual growth rates for total retail turnover (in chain volume terms) from 1993-94 to 2003-04. During this period the four years with the strongest annual growth were 2003-04 (7.2%), 1994-95 (5.7%), 1999-2000 (5.5%) and 2001-02 (5.3%). The two years of weakest growth occurred in 1996-97 (0.6%) and 2000-01 (0.5%). Growth in 2000-01 was affected by the unusual increase in the volume of goods sold prior to the introduction of The New Tax System on 1 July 2000 and the subsequent decline in the volume of goods sold.

In 2002-03 retail trade industry gross value added (in chain volume terms) was \$37,689m, or 5.1% of gross domestic product (GDP) for the year.

### Wholesale trade

The wholesale trade industry covers those businesses involved in the sale of new or used goods to businesses or to institutional (including government) users.

Table 20.5 presents annual chain volume measures of total wholesale sales for the period 1992-93 to 2003-04. Total wholesale sales more than doubled (in chain volume terms) between 1992-93 and 2003-04, representing an average annual growth rate of almost 7%.

In 2002-03 wholesale trade industry gross value added (in chain volume terms) was \$37,919m, or 5.2% of GDP for the year.

## 20.5 WHOLESALE SALES, Chain volume measures(a)

	\$m
1992-93	127 080
1993-94	136 326
1994-95	155 607
1995-96	158 516
1996-97	165 834
1997-98	184 006
1998-99	200 603
1999-2000(b)	226 130
2000-01	228 741
2001-02	244 728
2002-03	258 014
2003-04	280 876

(a) Based on original quarterly data. Reference year is 2002-03. (b) A break in series occurred between June and September 1999 quarters.

Source: Business Indicators, Australia (5676.0).

### Private medical practices

The ABS conducted a survey of private medical practices in respect of 2001-02.

At the end of June 2002 there were 19,464 general and specialist medical practices in operation. There were also 50 pathology laboratory businesses. In total, these practices and businesses had employment of 116,491 people.

The private general and specialist practices generated income of \$10,335m in 2001-02. While fee-for-service income was the main income source for these practices, bulk billing was 59% of fee-for-service income for general practices and 27% of fee-for-service income for specialist practices.

The industry value added for private general and specialist practices in 2002–03 was \$7,393m, which represented 1.1% of GDP for the year. This was a similar level to the legal profession (1%) and the accounting profession (0.8%).

### General practices

For the purposes of this survey, a general practitioner (GP) practice was defined as a business that primarily provided general practice medical services, and any associated administrative service businesses.

Table 20.6 shows at the end of June 2002 there were 9,600 private GP practices in operation with total employment of 56,911 persons.

GP medical practices generated income of \$4,424m in 2001–02. The majority of this income (87%) was fee-for-service medical income (\$3,845m). Total expenditure by GP practices in the same period was \$3,146m with labour costs of \$1,793m (57%) being the major expense. Rent, leasing and hiring were the next highest recorded expenses accounting for 9% (\$290m) of total expenditure.

Operating profit before tax for GP practices was \$1,107m, representing an operating profit margin of 26.4%. This was similar to the operating profit margin in 1994–95 of 27.6%. The total return

accruing to practitioners as profits or wages and salaries in 2001–02 averaged \$101,100 for each full-time equivalent (FTE) practitioner working in GP practices.

### Specialist practices

A specialist medical practice was defined as a business that primarily provided specialist medical services and any associated administrative service business. These specialist practices included anaesthesia, dermatology, diagnostic imaging, internal medicine, obstetrics and gynaecology, ophthalmology, paediatrics, psychiatry and surgery.

Table 20.7 shows there were 9,864 private specialist practices in operation at the end of June 2002. Total employment for specialist practices at the end of June 2002 was 45,046, down 13% from 51,477 in 1994–95.

Specialist practices generated income of \$5,911m in 2001–02 with the majority of this income (88%) being fee-for-service medical income (\$5,208m). Total expenditure of specialist practices was \$3,973m. Operating profit before tax for specialist practices was \$1,653m which represented an operating profit margin of 28.1% up from 24.6% in 1994–95. The average return accruing to practitioners as profits or wages and salaries in 2001–02 was \$183,300 for each FTE practitioner.

#### 20.6 GENERAL PRACTICES

	Units	1994–95	2001–02
Medical practices at end June	no.	10 349	9 600
Medical practice locations at end June	no.	n.a.	12 091
Employment at end June	no.	54 657	56 911
Income			
Fee-for-service medical income	\$m	2 601.5	3 845.3
Other	\$m	234.8	578.3
<b>Total</b>	<b>\$m</b>	<b>2 836.3</b>	<b>4 423.6</b>
Expenses			
Labour costs	\$m	1 243.5	1 792.6
Rent, leasing and hiring expenses	\$m	226.1	289.8
Other	\$m	588.5	1 063.8
<b>Total</b>	<b>\$m</b>	<b>2 058.1</b>	<b>3 146.2</b>
Operating profit before tax	\$m	778.2	1 107.1
Operating profit margin	%	27.6	26.4
Return per FTE(a) practitioner	\$'000	n.a.	101.1
Industry value added	\$m	n.a.	3 142.1

(a) Full-time equivalent.

Source: *Private Medical Practices, Australia, 2001–02* (8685.0).

#### 20.7 SPECIALIST PRACTICES

	Units	1994–95	2001–02
Medical practices at end June	no.	9 583	9 864
Medical practice locations at end June	no.	n.a.	16 585
Employment at end June	no.	51 477	45 046
Income			
Fee-for-service medical income	\$m	3 960.2	5 208.4
Other	\$m	444.4	702.7
<b>Total</b>	<b>\$m</b>	<b>4 404.6</b>	<b>5 911.1</b>
Expenses			
Labour costs	\$m	1 768.4	2 090.9
Rent, leasing and hiring expenses	\$m	326.9	321.5
Other	\$m	1 237.2	1 560.3
<b>Total</b>	<b>\$m</b>	<b>3 332.5</b>	<b>3 972.7</b>
Operating profit before tax	\$m	1 072.1	1 653.0
Operating profit margin	%	24.6	28.1
Return per FTE(a) practitioner	\$'000	n.a.	183.3
Industry value added	\$m	n.a.	4 250.4

(a) Full-time equivalent.

Source: *Private Medical Practices, Australia, 2001–02* (8685.0).

## Real estate services

At the end of June 2003 there were 10,001 real estate services businesses in operation. Table 20.8 shows these businesses had employment of 76,599 people, an increase of 47% from 52,079 people in June 1999.

During 2002–03 these businesses generated income of \$7,525m. Property sales and leasing commissions accounted for 71% (\$5,353m) of the total income of real estate agents during 2002–03 with property management commissions being a further 17% (\$1,271m). Expenses of \$6,635m contributed to an operating profit before tax of \$879m. This represented an operating profit margin of 11.7% which was relatively unchanged from 1998–99. The industry value added for these real estate businesses in 2002–03 was \$4,784m, or 0.6% of GDP for the year.

### 20.8 REAL ESTATE SERVICES

	Units	1998–99	2002–03
Businesses at end June	no.	7 589	10 001
Offices/locations at end June			
Capital city and suburbs	no.	6 102	8 257
Other	no.	2 559	3 465
Total	no.	8 661	11 722
Employment at end June	no.	52 079	76 599
Income			
Property sales and leasing commissions	\$m	2 502.8	5 353.4
Property management commissions	\$m	925.0	1 271.4
Other	\$m	475.0	900.0
Total	\$m	3 902.7	7 524.7
Expenses			
Labour costs	\$m	1 847.5	3 625.2
Other	\$m	1 590.2	3 009.3
Total	\$m	3 437.7	6 634.6
Operating profit before tax	\$m	465.0	878.7
Operating profit margin	%	12.0	11.7
Industry value added	\$m	2 442.4	4 784.1

Source: *Real Estate Services, Australia, 2002–03* (8663.0).

## Waste management services

At the end of June 2003 there were 1,092 private and public trading businesses mainly providing waste management services. These businesses had employment of 14,386 people, an increase of 58% since 1996–97.

During 2002–03 income generated by these businesses was \$2,684m, of which 59% (\$1,595m) was for the collection and transport of waste. Business expenses incurred during this period were \$2,458m. The operating profit before tax for these businesses was \$227m, which represented an operating margin of 8.5%. The industry value added in 2002–03 was \$1,248m, or 0.2% of the GDP for the year.

### 20.9 WASTE MANAGEMENT SERVICES

	Units	1996–97	2002–03
Businesses at end June	no.	894	1 092
Employment at end June	no.	9 107	14 386
Income			
Collection and transport of waste	\$m	871.1	1 595.4
Treatment/processing and/or disposal of waste	\$m	379.8	534.1
Other	\$m	177.8	554.7
Total	\$m	1 428.7	2 684.2
Expenses			
Wages and salaries	\$m	309.9	611.5
Contract and subcontract expenses for waste management services	\$m	135.7	269.8
Fees for the treatment/disposal of waste	\$m	164.6	304.6
Other	\$m	680.7	1 272.4
Total	\$m	1 291.0	2 458.2
Operating profit before tax	\$m	137.7	226.6
Operating profit margin	%	9.7	8.5
Industry value added	\$m	686.7	1 248.1
Owner/drivers at end June	no.	565	948

Source: *Waste Management Services, Australia, 2002–03* (8698.0).

## Hire services

Surveys of businesses which hired/leased plant and equipment, personal and household goods, and motor vehicles were conducted in respect of 2002–03.

### Plant and equipment hire

Table 20.10 shows at the end of June 2003 there were 1,152 plant and equipment hire businesses with employment of 13,738 people. By comparison, there were 923 businesses with 13,235 people at the end of June 2000 in the industry.

Plant and equipment hire businesses generated income of \$2,620m in 2002–03. Total expenses were \$2,273m of which labour costs was \$722m and depreciation was \$325m. The operating profit before tax of these businesses was \$351m, which represented an operating profit margin of 13.5%. The total industry value added in 2002–03 was \$1,506m, or 0.2% to GDP for the year.

#### 20.10 HIRE SERVICES, Plant and equipment

	Units	1999 –2000	2002–03
Businesses at end June	no.	923	1 152
Premises at end June			
Capital city	no.	1 120	1 228
Other	no.	420	534
Total	no.	1 540	1 762
Employment at end June	no.	13 235	13 738
Income			
Hire/lease services	\$m	1 890.0	2 216.6
Other	\$m	355.7	403.0
Total	\$m	2 245.7	2 619.5
Expenses			
Labour costs	\$m	629.9	721.6
Depreciation and amortisation	\$m	270.2	324.6
Other	\$m	1 086.3	1 227.0
Total	\$m	1 986.4	2 273.2
Operating profit before tax	\$m	224.5	350.9
Operating profit margin	%	10.4	13.5
Industry value added	\$m	1 336.6	1 505.8

Source: Hire Services, Australia, 2002–03 (8567.0).

## Personal and household goods hire

Table 20.11 shows there were 495 personal and household goods hire businesses with employment of 4,222 people at end of June 2003.

These businesses generated income of \$359m and incurred \$340m in expenses during 2002–03. The operating profit before tax of these businesses was \$20m, which represented an operating profit margin of 5.5%, down from 7.2% in 1999–2000. The total industry value added in 2002–03 was \$203m, or 0.03% of GDP for the year.

#### 20.11 HIRE SERVICES, Personal and household goods

	Units	1999 –2000	2002–03
Businesses at end June	no.	409	495
Premises at end June			
Capital city	no.	422	508
Other	no.	162	215
Total	no.	584	723
Employment at end June	no.	3 493	4 222
Income			
Hire services	\$m	333.2	323.7
Other	\$m	27.1	35.2
Total	\$m	360.3	359.0
Expenses			
Labour costs	\$m	102.1	126.9
Depreciation and amortisation	\$m	64.6	41.6
Other	\$m	160.6	171.9
Total	\$m	327.3	340.4
Operating profit before tax	\$m	24.9	19.6
Operating profit margin	%	7.2	5.5
Industry value added	\$m	232.8	203.2

Source: Hire Services, Australia, 2002–03 (8567.0).

## Motor vehicles hire

Table 20.12 shows at the end of June 2003 there were 375 motor vehicle hire businesses with employment of 6,796 people and 61,097 rental fleet vehicles.

These businesses generated income of \$2,004m and incurred \$1,837m in expenses during 2002–03. Their operating profit before tax was \$169m which represented an operating profit margin of 8.8%. The total industry value added in 2002–03 was \$1,223m, or 0.2% of GDP for the year.

### 20.12 HIRE SERVICES, Motor vehicles

	Units	2002–03
Businesses at end June	no.	375
Locations at end June		
Capital city	no.	535
Other	no.	514
Total	no.	1 049
Employment at end June	no.	6 796
Income		
Hire/rental services	\$m	938.6
Other	\$m	1 065.2
Total	\$m	2 003.8
Expenses		
Labour costs	\$m	251.3
Depreciation and amortisation	\$m	539.2
Other	\$m	1 046.7
Total	\$m	1 837.2
Operating profit before tax	\$m	168.8
Operating profit margin	%	8.8
Industry value added	\$m	1 223.3
Vehicles in rental fleet at end June	no.	61 097

Source: Hire Services, Australia, 2002–03 (8567.0).

## Television, film and video production

The 2002–03 Television, Film and Video Production Survey was conducted to provide a detailed measure of the performance and structure of television broadcasting, and film and video production services businesses operating in Australia. The main focus was on understanding the composition of the income generated by these businesses, details of expenses incurred, and the characteristics of television, film and video productions.

### Film and video production services

Table 20.13 shows at the end of June 2003 there were 2,174 film and video production services businesses with employment of 16,427 persons.

These businesses generated income of \$1,597m. The main components of this income were production of TV programs (\$394m),

post-production/film laboratory services to other businesses (\$361m), production services to other businesses (\$351m) and production of commercials (\$228m). While income from post-production/film laboratory services to other businesses and income from production services to other businesses have increased by 51% and 37% respectively since 1999–2000, income from the production of television programs has decreased by 17% in the same period.

Total expenses of \$1,505m resulted in an operating profit before tax of \$92m, which represented an operating profit margin of 5.9%. The total industry value added in 2002–03 by film and video production businesses was \$668m, or 0.1% of GDP for the year.

### 20.13 FILM AND VIDEO PRODUCTION SERVICES

	Units	1999–2000	2002–03
Businesses at end June	no.	1 975	2 174
Employment at end June	no.	15 195	16 427
Income			
Production of television programs	\$m	472.2	393.6
Production of commercials	\$m	186.2	228.4
Production of other completed works	\$m	191.5	156.7
Provision of production services to other businesses	\$m	233.1	350.9
Provision of post-production/film lab services to other businesses	\$m	262.6	360.5
Other	\$m	128.2	106.5
Total	\$m	1 473.8	1 596.6
Expenses			
Labour costs	\$m	426.6	466.3
Payments to other businesses for production services	\$m	250.8	215.8
Payments to other businesses for post-production/film lab services	\$m	88.3	89.5
Other	\$m	632.2	733.1
Total	\$m	1 397.9	1 504.8
Operating profit before tax	\$m	76.5	91.7
Operating profit margin	%	5.4	5.9
Industry value added	\$m	606.8	668.2

Source: Television, Film and Video Production, Australia, 2002–03 (8679.0).

## Television services

Table 20.14 shows there were 9,094 employees working for 27 commercial free-to-air and 6 subscription television businesses at the end of June 2003. These businesses generated \$5,159m in income and incurred \$4,991m in expenses during 2002–03. Operating profit before tax was \$207m, which represented an operating profit margin of 4.1%. The total industry value added by commercial free-to-air and subscription television broadcasting businesses in 2002–03 was \$1,460m, or 0.2% of GDP for the year.

### 20.14 TELEVISION SERVICES

	Units	2002–03
Businesses at end June	no.	33
Employees at end June	no.	9 094
<b>Income</b>		
Gross income from the sale of airtime(a)	\$m	2 817.8
Subscription and membership fees	\$m	1 158.7
Other	\$m	1 182.2
<i>Total</i>	\$m	5 158.8
<b>Expenses</b>		
Labour costs	\$m	755.4
Program rights used/payments to channel providers	\$m	1 279.4
Depreciation and amortisation	\$m	665.8
Other	\$m	2 290.7
<i>Total</i>	\$m	4 991.3
Operating profit before tax	\$m	207.4
Operating profit margin	%	4.1
<b>Industry value added</b>	\$m	<b>1 460.2</b>

(a) Excludes sale of airtime for subscription TV broadcasters.

Source: *Television, Film and Video Production, Australia, 2002–03 (8679.0)*.

## Television, film and video production costs

Table 20.15 shows during 2002–03 production activity undertaken by commercial free-to-air, public and subscription television businesses, and film and video production businesses incurred \$1,503m in production costs. Productions made specifically for television comprised most of these costs (76% or \$1,141m). Production of commercials, stations promotions and interstitials accounted for 15% (\$219m) and productions made other than for television accounted for 10% (\$142m). Production costs included all costs relating to development, pre-production shoots and post-production of films and programs during 2002–03.

### 20.15 TELEVISION, FILM AND VIDEO PRODUCTION COSTS

	1999–2000	2002–03
	\$m	\$m
<b>Productions made specifically for television</b>		
By television broadcasters	799.3	812.4
By other businesses	516.0	328.4
<i>Total</i>	1 315.4	1 140.7
<b>Production of commercials, station promotions and interstitials</b>		
By television broadcasters	48.0	38.3
By other businesses	194.9	181.0
<i>Total</i>	243.0	219.3
<b>Productions other than for television</b>		
Feature films	148.6	73.5
Other	84.8	68.9
<i>Total</i>	233.4	142.4
<b>Total</b>	<b>1 791.7</b>	<b>1 502.5</b>

Source: *Television, Film and Video Production, Australia, 2002–03 (8679.0)*.

## Performing arts

The 2002–03 survey of the performing arts industry had two components – music and theatre production, and performing arts festivals.

### Music and theatre production

At the end of June 2003 there were 865 businesses mainly involved in music and theatre production. Table 20.16 shows this represented an increase of 23% since June 2000. Income generated from music and theatre production activities was \$622m with box office takings being 53% (\$332m) of the total income. Government funding accounted for 22% (\$134m) of income.

Operating profit/surplus before tax was \$47m, which represented an operating profit margin of 10.7%.

During 2002–03 these music and theatre production businesses gave 53,241 paid performances with 14.2 million paid attendances.

## 20.16 MUSIC AND THEATRE PRODUCTION

	Units	1999 –2000	2002–03
Businesses/ organisations at end June	no.	705	865
Employment at end June			
Working proprietors and partners	no.	144	282
Permanent full-time	no.	2 904	3 101
Permanent part-time	no.	825	728
Casual/temporary	no.	3 188	3 732
Total	no.	7 060	7 842
Volunteers	no.	3 034	2 548
Income			
Box office takings	\$m	233.1	331.6
Government funding	\$m	116.7	134.4
Other	\$m	155.5	156.0
Total	\$m	505.4	622.1
Expenses			
Labour costs	\$m	192.9	213.9
Contract payments to performers/artists and artistic support	\$m	46.8	47.3
Rent, leasing and hiring	\$m	47.2	62.8
Other	\$m	190.7	251.6
Total	\$m	477.6	575.6
Operating profit/surplus before tax	\$m	27.8	46.5
Operating profit/surplus margin	%	8.0	10.7
Industry value added	\$m	206.9	261.6
Productions with paid performances			
Paid performances	no.	47 083	53 241
Paid attendances	'000	13 268.6	14 230

Source: *Performing Arts, Australia, 2002–03* (8697.0).

## Performing arts festivals

Table 20.17 shows there were 176 performing arts festivals (of greater than two days duration) conducted during the year ended June 2003. There were 29,707 performances at these festivals, attended by 7,539,000 people, of which 80% (6,031,000) were free of charge. The majority (90%) of performances carried out were by Australian artists while 21% (6,569) of all performances were provided free of charge.

The bulk of labour provided at these festivals was by volunteers; 15,728 (93%) out of a total of 17,000.

## 20.17 PERFORMING ARTS FESTIVALS

	Units	2002–03
Performing arts festivals conducted during year ended June 2003	no.	176
Employees/volunteers		
Employees working at festivals	no.	1 272
Volunteers at festivals	no.	15 728
Total	no.	17 000
Income		
Fund-raising income	\$m	27.5
Income from ticket sales	\$m	27.2
Other income	\$m	33.8
Total	\$m	88.5
Total expenses	\$m	82.8
Attendances		
Paid	'000	1 508
Free	'000	6 031
Total	'000	7 539
Performances during festivals		
By Australian artists	no.	26 738
By overseas artists	no.	2 969
Total	no.	29 707
Free performances during festivals	no.	6 569

Source: *Performing Arts, Australia, 2002–03* (8697.0).

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*Waste Management Services, Australia, 2002–03* (8698.0)

## TOURISM

Tourism encompasses most short-term travel away from the normal place of work and residence.

It is defined by the World Tourism Organisation as 'the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes'.

This identifies 'tourism' as being more than just leisure travel. It also encompasses travel for business, health, education, religious and other reasons.

Tourism comprises both domestic and international travel. As it involves the consumption or purchase by tourists – or 'visitors' in the World Tourism Organisation terminology – of any good or service, its economic impact is felt across many sectors of the economy. In Australia the industries most affected by direct tourism demand are transport, accommodation, cafes, restaurants, takeaway food outlets and other retail trade. Indirectly, tourism affects a wide range of other industries. When a visitor buys a meal, for example, tourism indirectly creates demand in the food manufacturing, transportation and electricity industries in order to produce the inputs required to make the meal.

Tourism also draws on services provided by the Australian Government, state and territory governments, and local government organisations without direct charge to tourists. These include: the construction and maintenance of roads, airports, harbours, railways and national parks; tourism promotion; immigration and customs services; information services; and the provision of a large number of recreational facilities.

While tourism has long been an economic factor in Australia, in recent times it has grown to the extent that it is now recognised as a major contributor to total economic activity. In 2002–03 tourism contributed 4.2% to Australia's gross domestic product.

Australia's island status and distance from most of its international source markets mean that tourism in Australia will continue to be dominated by domestic tourism for the foreseeable future. International tourism only accounts for around a quarter of total tourism consumption.

The chapter contains an article *Rugby World Cup 2003 – the short-term impact on the Australia economy*.

## The economic contribution of tourism

Tourism is important to the Australian economy, underpinning a wide range of industries. These industries range from accommodation to hiring cars to air transport.

Tourism is not an 'industry' in the traditional sense. Industries are classified in accordance with the goods and services they produce, whereas tourism depends on the status of the customer (visitor). For example, consumption of a restaurant meal by a visitor is defined as 'tourism'. When the meal is consumed by a local resident, the consumption is not 'tourism'.

The Tourism Satellite Account (TSA) creates a broad picture of tourism, which allows it to be compared with conventional industries like agriculture, manufacturing and retail trade. In 2002–03 the TSA reported more than \$73b worth of tourism goods and services were consumed and tourism gross value added was \$26b.

### The value of tourism

Gross value added (GVA) is the preferred national accounts measure of industry production as it excludes taxes and subsidies on products. Estimates of tourism GVA relate to the direct impact of tourism activity. This means only the value added where there is a direct economic or physical relationship between the visitor and the

producer of a good or service is included. Tourism gross domestic product (GDP) equates to tourism GVA plus taxes paid less subsidies received on tourism related products (net taxes on tourism products).

In 2002–03 tourism GVA was \$25,875m and tourism GDP was \$31,985m which contributed 4.2% to total GDP. Since 1997–98 tourism GVA has increased \$3,981m and tourism GDP increased \$7,043m. As a share of total GDP tourism reached a peak of 4.6% in 2000–01 and fell to 4.2% in 2002–03 (table 21.1).

The industries which accounted for the largest shares of tourism GVA were air and water transport (14%); accommodation (11%); cafes, restaurants and takeaway food outlets (10%); and the other retail trade industry (8%).

When compared with traditional industries (which are classified by the Australian Bureau of Statistics using Australian and New Zealand Standard Industrial Classification (ANZSIC)) the gross value added of the tourism industry ranks 12th out of the 17 ANZSIC industry divisions. In 2002–03 tourism gross value added (\$25,875m in current prices) exceeded that of agriculture, forestry and fishing (\$20,059m); communication services (\$19,994m); personal and other services (\$17,553m); electricity, gas and water supply (\$16,906m); accommodation, cafes and restaurants (\$15,158m); and cultural and recreational services (\$13,201m).

#### 21.1 TOURISM SHARE OF GROSS DOMESTIC PRODUCT

	Units	1997–98	1998–99	1999–2000	2000–01	2001–02	2002–03
<b>Tourism characteristic industries GVA(a)</b>							
Travel agency and tour operator services	\$m	835	869	895	992	966	975
Taxi transport	\$m	174	195	197	218	207	210
Air and water transport	\$m	3 211	3 309	3 430	3 727	3 592	3 590
Motor vehicle hiring	\$m	231	259	280	284	287	298
Accommodation	\$m	2 400	2 551	2 644	2 775	2 855	2 917
Cafes, restaurants and food outlets	\$m	2 209	2 362	2 454	2 501	2 601	2 689
<i>Total GVA of tourism characteristic industries(a)</i>	<i>\$m</i>	<i>9 059</i>	<i>9 546</i>	<i>9 901</i>	<i>10 498</i>	<i>10 509</i>	<i>10 679</i>
GVA of tourism connected industries(b)	\$m	10 268	10 795	11 139	11 572	11 748	12 100
GVA of all other industries(c)	\$m	2 567	2 714	2 955	2 974	2 972	3 096
Tourism GVA	\$m	21 894	23 054	23 994	25 044	25 229	25 875
Net taxes on tourism products	\$m	3 048	3 213	3 321	5 817	5 637	6 110
Tourism GDP	\$m	24 942	26 267	27 316	30 861	30 865	31 985
Tourism share of total GDP	%	4.4	4.4	4.4	4.6	4.3	4.2

(a) Tourism characteristic industries have at least 25% of their output consumed by visitors. (b) Tourism connected industries are those industries not classified as characteristic that have products which are consumed by visitors in volumes which are significant. (c) GVA of all other industries includes the share of GVA of all industries that provide outputs to tourism not included in characteristic or connected industries.

Source: Australian National Accounts: Tourism Satellite Account (5249.0).

## International trade in tourism

Tourism makes an important contribution to Australia's export earnings. In 2002–03 international visitors consumed \$16.7b worth of goods and services produced by the Australian economy (tourism exports). This represented 11% of the total exports of goods and services (table 21.2).

## Employment

Tourism employment estimates include employment generated where visitors have a direct relationship with the producer of the good or service.

In 2002–03 tourism directly generated 540,700 jobs, a marginal increase on 2001–02 (533,700 jobs) (table 21.3). The tourism industry's share of total employment fell slightly in 2002–03 to 5.7%, following a consistent 5.9% share from 1997–98 to 2000–01.

Retail trade generated the most direct tourism employment (140,400 persons) in 2002–03. Retail trade, accommodation, and cafes and restaurants accounted for more than half of the employment generated by tourism (54%).

## International inbound tourism

### Characteristics

There were 4.7 million inbound international visitors in 2003, down 2% from 2002 (table 21.4).

The average annual growth rate for inbound visitors between 1993 and 2003 was 5%. The level of international inbound visitors to Australia increased by 1.7 million (58%) in the decade beginning 1993. Annual growth rates of inbound visitors were strongly positive for most of this period. It is likely events such as the terrorist attacks in the United States of America (September 2001) and Bali (October 2002), Severe Acute Respiratory Syndrome and the war in Iraq affected the annual growth rates from 2001 to 2003 and the Asian economic crisis impacted on that for 1998.

### 21.2 EXPORTS OF TOURISM GOODS AND SERVICES

	Units	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03
Tourism exports	\$m	12 792	13 445	14 610	17 140	17 081	16 666
Total exports	\$m	113 744	112 025	126 222	153 854	153 340	148 530
Tourism share of exports	%	11.2	12.0	11.6	11.1	11.1	11.2
Growth in tourism exports	%	n.a.	5.1	8.7	17.3	-0.3	-2.4
Growth in total exports	%	n.a.	-1.5	12.7	21.9	-0.3	-3.1

Source: Australian National Accounts: Tourism Satellite Account (5249.0).

### 21.3 PEOPLE EMPLOYED IN TOURISM

	Units	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03
Tourism characteristic and connected industries(a)	'000	466.5	470.4	480.7	497.8	493.3	499.3
All other industries	'000	42.4	42.5	44.0	39.9	40.5	41.5
Total tourism industry	'000	508.8	512.9	524.7	537.7	533.7	540.7
Total employed persons	'000	8 574.6	8 638.4	8 886.6	9 074.3	9 207.4	9 441.4
Tourism share of total employment	%	5.9	5.9	5.9	5.9	5.8	5.7

(a) Tourism characteristic and connected industries are those industries that have products which are consumed by visitors in volumes which are significant.

Source: Australian National Accounts: Tourism Satellite Account (5249.0).

## 21.4 INBOUND VISITORS

	Visitors	Change(a)
	'000	%
1993	2 996.2	15.1
1994	3 361.7	12.2
1995	3 725.8	10.8
1996	4 164.8	11.8
1997	4 317.9	3.7
1998	4 167.2	-3.5
1999	4 459.5	7.0
2000	4 931.4	10.6
2001	4 855.7	-1.5
2002	4 841.2	-0.3
2003	4 745.9	-2.0

(a) From previous year.

Source: Overseas Arrivals and Departures, Australia (3401.0).

In 2003 New Zealand was Australia's largest source of international visitors, accounting for 18% of total inbound visitors, followed by the United Kingdom (14%) and Japan (13%). 'Holiday' was the main purpose of visit with over two-thirds (71%) of the international visitors. New Zealand was also the main source of visitors for business purposes (26%), while the United Kingdom accounted for 22% of all visitors arriving for employment. Visitors from Asian countries accounted for two-fifths (40%) of all international visitors. They also accounted for just under two-thirds (62%) of all visitors arriving in Australia for 'education' purposes (table 21.5).

## 21.5 INBOUND VISITORS, By country/region of residence and main purpose of trip — 2003

Country/region of residence	Main purpose of trip					Total visitors '000	Change from 2002 %
	Business(a) '000	Holiday(b) '000	Employment '000	Education '000	Other and not stated '000		
New Zealand	155.8	580.5	12.4	6.8	83.6	839.1	6.2
Other Oceania	13.8	72.2	1.2	3.6	26.6	117.4	2.2
Germany	11.8	104.5	2.2	7.1	12.2	137.9	2.3
United Kingdom	45.3	557.5	18.4	5.5	46.2	672.8	4.7
Other Europe	41.9	282.4	10.4	22.3	44.2	401.3	-0.4
Indonesia	8.6	53.7	1.9	12.9	13.1	90.3	0.9
Malaysia	13.5	113.5	1.3	13.6	13.7	155.6	-2.1
Singapore	34.0	172.3	3.1	14.5	29.5	253.4	-11.7
Hong Kong (SAR of China)	15.4	91.7	0.9	10.7	10.7	129.3	-14.3
Japan	38.7	525.6	3.0	20.4	40.0	627.7	-12.3
Korea, Republic of (South)	14.3	152.3	1.3	18.6	20.7	207.3	9.3
Taiwan	4.8	67.6	0.4	5.9	9.0	87.7	-9.9
Other Asia	73.1	191.2	7.7	42.5	51.0	365.5	-6.1
United States of America	87.5	247.2	15.3	29.3	42.8	422.1	-2.8
Other America	14.8	79.7	2.4	6.9	11.6	115.4	-5.2
Middle East and North Africa	5.7	36.1	0.6	2.5	7.7	52.7	2.2
Other Africa	10.8	43.8	1.3	2.5	10.7	69.2	2.8
Not stated	0.2	0.9	—	0.1	0.1	1.3	-50.5
<b>Total</b>	<b>590.0</b>	<b>3 372.8</b>	<b>83.9</b>	<b>225.7</b>	<b>473.5</b>	<b>4 745.9</b>	<b>-2.0</b>

(a) Includes those visitors attending a convention or conference. (b) Includes those visitors whose main purpose is visiting friends and relatives.

Source: ABS data available on request, Overseas Arrivals and Departures Collection, 2003.

In 2003 over half (56%) of international visitors to Australia stayed for less than two weeks. Visitors arriving for 'education' purposes tended to stay relatively long periods (86% of these visitors stayed for a minimum of two weeks and 47% for six months or more in 2003) but their absolute numbers were relatively small. Over three-quarters (76%) of international visitors arriving for business stayed less than two weeks (table 21.6).

December 2003 accounted for the highest number of visitors (12% of total arrivals) in 2003 and May accounted for the lowest (5% of total arrivals). These were also the months that showed the

highest and lowest number of 'holiday' visitors respectively. November had the highest number of 'business' visitors while April had the lowest (table 21.7).

In 2003, 35% of all nights spent in Australia by international visitors were spent in New South Wales. Queensland was the next most popular state, accounting for 22%. Tasmania and the Australian Capital Territory were the least popular destinations, accounting for 1% and 2% respectively of international visitor nights in 2003 (table 21.8).

### 21.6 INBOUND VISITORS, By intended length of stay and main purpose of trip — 2003

Intended length of stay	Main purpose of trip					Total '000	Proportion of total %
	Business(a) '000	Holiday(b) '000	Employment '000	Education '000	Other and not stated '000		
Under 1 week	274.3	929.8	7.3	8.0	100.5	1 320.0	27.8
1 week and under 2 weeks	175.9	921.4	11.9	22.7	215.9	1 347.9	28.4
2 weeks and under 1 month	72.0	845.2	6.3	18.0	66.9	1 008.4	21.2
1 month and under 2 months	25.2	340.7	5.0	14.4	30.7	416.0	8.8
2 months and under 3 months	12.1	106.9	4.6	13.0	11.9	148.6	3.1
3 months and under 6 months	16.6	135.2	15.1	43.6	19.5	229.9	4.8
6 months and under 12 months	13.9	93.5	33.6	105.9	28.2	275.1	5.8
<b>Total</b>	<b>590.0</b>	<b>3 372.8</b>	<b>83.9</b>	<b>225.7</b>	<b>473.5</b>	<b>4 745.9</b>	<b>100.0</b>

(a) Includes those visitors attending a convention or conference. (b) Includes those visitors whose main purpose is visiting friends and relatives.

Source: ABS data available on request, Overseas Arrivals and Departures Collection, 2003.

### 21.7 INBOUND VISITORS, By month and main purpose of trip — 2003

	Main purpose of trip					Total visitors '000	Proportion of total %
	Business(a) '000	Holiday(b) '000	Employment '000	Education '000	Other and not stated '000		
January	37.9	273.5	7.4	30.0	47.9	396.6	8.4
February	50.1	282.7	5.9	45.4	43.4	427.5	9.0
March	51.8	273.9	5.0	17.3	44.5	392.5	8.3
April	35.5	236.8	4.2	9.8	35.2	321.5	6.8
May	48.7	172.0	4.3	7.9	28.0	260.9	5.5
June	40.8	216.4	5.5	12.5	33.2	308.3	6.5
July	53.9	269.2	8.1	42.0	42.3	415.5	8.8
August	53.1	254.7	8.1	14.0	32.4	362.2	7.6
September	58.7	269.1	8.6	12.9	36.3	385.6	8.1
October	57.6	309.9	9.7	16.0	42.2	435.3	9.2
November	63.0	349.7	8.6	9.7	42.3	473.3	10.0
December	38.9	465.1	8.5	8.1	45.9	566.6	11.9
<b>Total</b>	<b>590.0</b>	<b>3 372.8</b>	<b>83.9</b>	<b>225.6</b>	<b>473.5</b>	<b>4 745.9</b>	<b>100.0</b>

(a) Includes those visitors attending a convention or conference. (b) Includes those visitors whose main purpose is visiting friends and relatives.

Source: Overseas Arrivals and Departures, Australia (3401.0).

## 21.8 INBOUND VISITOR NIGHTS(a), By state/territory and main purpose of trip — 2003

	Main purpose of trip				Total '000	Proportion of total %
	Business	Visiting friends/ relatives	Holiday	All other reasons		
	'000	'000	'000	'000		
New South Wales	2 444	6 497	15 975	17 342	42 272	35.5
Victoria	1 917	4 908	6 201	12 968	25 998	21.8
Queensland	950	5 273	14 286	6 169	26 757	22.5
South Australia	244	1 039	1 552	1 678	4 512	3.8
Western Australia	515	2 979	5 348	3 947	12 790	10.7
Tasmania	34	313	504	480	1 330	1.1
Northern Territory	135	271	1 761	427	2 593	2.2
Australian Capital Territory	148	218	292	1 711	2 369	2.0
Transit in Australia	9	34	348	78	469	0.0
<b>Australia</b>	<b>6 396</b>	<b>21 533</b>	<b>46 265</b>	<b>44 799</b>	<b>119 093</b>	<b>100.0</b>

(a) All visitors aged 15 years and over.

Source: *Tourism Research Australia, 'International Visitor Survey', 2003.*

### Expenditure

In 2003 international visitors to Australia spent an average of \$4,490 on each trip. Visitors from all other European countries (Other Europe) spent the most, averaging \$6,650, followed by those from Germany (\$6,412) and the United Kingdom (\$5,884). The lowest average expenditure, \$2,025 per visitor, was by visitors from New Zealand (table 21.9).

The top three expenditure items for the average visitor expenditure of all countries combined were: prepaid international airfares; food, drink and accommodation; and package tours.

Education fees accounted for a relatively large proportion of total expenditure for visitors from most of the Asian countries in 2003. Education fees was among the top three expenditure items for visitors from:

- Indonesia (24% of expenditure)
- China (18% of expenditure)
- Thailand (22% of expenditure)
- Malaysia (26% of expenditure)
- Hong Kong (16% of expenditure)
- Singapore (20% of expenditure)
- Other Asia (16% of expenditure).

International visitors whose main purpose of trip was education or employment had the highest average expenditure in 2003 (\$12,898 and \$9,549 respectively) (table 21.10).

## 21.9 AVERAGE VISITOR EXPENDITURE — 2003

Country/region of residence	Items of expenditure								Total
	Package tours	Prepaid international airfares	Transport(a)	Food, drink and accommodation	Shopping	Entertainment and gambling	Education fees	Other(b)	
	\$	\$	\$	\$	\$	\$	\$	\$	\$
New Zealand	230	477	190	597	355	77	7	91	2 025
Germany	1 172	1 820	919	1 620	423	98	234	126	6 412
United Kingdom	975	1 845	646	1 579	464	148	38	189	5 884
Other Europe	952	1 982	799	1 745	485	144	331	212	6 650
Indonesia	162	669	312	1 316	613	195	1 122	380	4 767
Malaysia	295	605	270	869	443	111	959	193	3 746
Singapore	237	634	269	938	420	135	714	264	3 612
Hong Kong (SAR of China)	428	749	349	1 066	475	200	717	423	4 407
Japan	1 627	480	266	579	462	91	194	61	3 761
Korea, Republic of (South)	1 076	613	295	979	586	147	618	183	4 496
Taiwan	824	614	269	713	601	128	660	80	3 890
Thailand	320	801	266	1 296	570	219	1 008	146	4 626
China (excl. SARs & Taiwan Prov.)	938	751	401	1 369	724	225	1 035	339	5 781
Other Asia	378	903	320	962	422	91	642	183	3 901
United States of America	1 486	1 559	481	1 155	454	104	299	93	5 631
Canada	842	1 668	613	1 397	383	125	214	183	5 423
Other countries	389	1 384	327	943	586	136	301	348	4 414
<b>All countries</b>	<b>836</b>	<b>1 074</b>	<b>415</b>	<b>1 071</b>	<b>468</b>	<b>124</b>	<b>331</b>	<b>171</b>	<b>4 490</b>

(a) Includes: organised tours; international airfares bought in Australia; domestic airfares; other transport fares; self-drive cars, rent-a-cars, campervans; petrol and oil for self-drive cars or other vehicles; and motor vehicles. (b) Includes: phone, Internet, fax and postage; convention registration fees; medical expenses; and other expenses not elsewhere specified.

Source: Tourism Research Australia, 'International Visitor Survey', 2003.

## 21.10 AVERAGE VISITOR EXPENDITURE, By expenditure item and main purpose of trip — 2003

Expenditure item	Main purpose of trip						Total(a)
	Business	Visiting friends and relatives	Holiday	Education	Employment	All other reasons	
	\$	\$	\$	\$	\$	\$	\$
Package tours	420	182	1 237	822	276	534	836
Prepaid international airfares	1 441	1 342	869	999	949	1 246	1 074
Transport(b)	250	264	446	1 023	1 150	219	415
Food, drink and accommodation	1 067	632	898	3 649	4 259	776	1 071
Shopping	390	456	448	857	1 221	246	468
Entertainment and gambling	110	101	112	322	408	71	124
Education fees	20	61	55	4 577	70	181	331
Other(c)	200	140	94	650	1 216	216	171
<b>All items</b>	<b>3 898</b>	<b>3 178</b>	<b>4 158</b>	<b>12 898</b>	<b>9 549</b>	<b>3 489</b>	<b>4 490</b>

(a) Includes when passenger card not completed (main purpose not defined). (b) Includes: organised tours; international airfares bought in Australia; domestic airfares; other transport fares; self-drive cars, rent-a-cars, campervans; petrol and oil for self-drive cars or other vehicles; and motor vehicles. (c) Includes: phone, Internet, fax and postage; convention registration fees; medical expenses; and other expenses not elsewhere specified.

Source: Tourism Research Australia, 'International Visitor Survey', 2003.

## International outbound tourism

In 2003 there were over 1.35 million more international visitors to Australia than Australians travelling abroad (tables 21.4 and 21.11). Consequently, the net contribution of the travel item to Australia's balance on current account was positive in 2002–03 (table 30.26, *Chapter 30 International accounts and trade*, the difference between travel services exports and imports).

Australians visit a wide variety of destinations abroad. During 2003 the most popular destination was New Zealand, accounting for 20% of Australians travelling abroad. The next most popular destinations were the United Kingdom and the United States of America, accounting for approximately 9% each (table 21.12).

'Holiday' (which includes visiting friends and relatives) was the main purpose of trip for over two-thirds (69%) of Australians travelling to all destinations in 2003.

Australians travelling for 'business' reasons accounted for 20% of outbound travellers. Their main destinations were New Zealand and the United States of America.

### 21.11 AUSTRALIANS TRAVELLING ABROAD

	Departures	Change(a)
	'000	%
1993	2 267.1	-0.4
1994	2 354.3	3.8
1995	2 518.6	7.0
1996	2 732.0	8.5
1997	2 932.8	7.3
1998	3 161.1	7.8
1999	3 210.0	1.5
2000	3 498.2	9.0
2001	3 442.6	-1.6
2002	3 461.0	0.5
2003	3 388.0	-2.1

(a) From previous year.

Source: *Overseas Arrivals and Departures, Australia (3401.0)*.

### 21.12 AUSTRALIANS TRAVELLING ABROAD, By country/region of main destination and main purpose of trip — 2003

Country/region of main destination	Main purpose of trip					Total '000	Change from 2002 %
	Business(a) '000	Holiday(b) '000	Employment '000	Education '000	Other and not stated '000		
Fiji	12.6	123.4	1.3	0.5	7.4	145.2	13.2
New Zealand	143.3	465.8	6.5	4.7	42.5	662.8	11.0
Other Oceania	25.0	101.2	13.1	2.4	9.9	151.6	8.0
Italy	9.2	53.9	0.5	2.1	5.2	70.9	-5.5
United Kingdom	40.4	235.3	13.3	4.3	19.7	312.9	-1.7
Other Europe	53.0	227.4	4.3	6.2	23.5	314.4	-2.2
Indonesia	23.7	147.5	3.5	1.0	10.7	186.4	-22.9
Malaysia	27.4	63.4	3.6	1.1	5.5	100.9	-7.9
Philippines	7.6	45.7	0.3	0.2	5.6	59.6	-1.3
Singapore	46.2	61.0	6.6	1.6	8.8	124.3	-16.7
Thailand	21.8	95.9	1.9	1.0	7.6	128.2	-24.1
China (excl. SARs & Taiwan Prov.)	40.5	60.8	2.8	2.1	7.9	114.2	-16.6
Hong Kong (SAR of China)	33.6	67.8	5.8	1.1	6.7	115.0	-18.2
Other Asia	69.8	222.4	15.4	7.4	24.1	339.1	4.7
United States of America	97.7	166.6	8.6	6.1	17.3	296.3	-1.0
Other America	14.7	82.4	2.1	2.0	7.5	108.7	6.3
Middle East and North Africa	9.8	62.0	6.4	0.9	8.6	87.8	5.2
Other Africa	15.2	43.5	3.2	0.9	5.0	67.9	9.2
Not stated	0.4	1.2	0.3	0.0	0.0	1.9	-17.7
<b>Total</b>	<b>692.1</b>	<b>2 327.1</b>	<b>99.6</b>	<b>45.8</b>	<b>223.4</b>	<b>3 388.0</b>	<b>-2.1</b>

(a) Includes those attending a convention or conference. (b) Includes those whose main purpose is visiting friends and relatives.

Source: ABS data available on request, *Overseas Arrivals and Departures Collection, 2003*.

In 2003, 12% of Australians travelling abroad stayed less than a week (predominantly business travellers), while almost a third (32%) stayed away for at least a month. Of the people staying away for more than a month nearly three-quarters (73%) were on 'holiday' (table 21.13).

The highest proportion (12%) of Australian resident departures in 2003 was in December (table 21.14). December 2003 was also the month in which most inbound visitors arrived (table 21.7). February 2003 recorded the lowest number of Australian resident departures (6%) for abroad.

### 21.13 AUSTRALIANS TRAVELLING ABROAD, By intended length of stay and main purpose of trip — 2003

Intended length of stay	Main purpose of trip					Total '000	Proportion of total %
	Business(a) '000	Holiday(b) '000	Employment '000	Education '000	Other and not stated '000		
Under 1 week	233.4	156.6	3.9	2.8	17.7	414.4	12.2
1 week and under 2 weeks	207.7	626.3	8.8	8.3	79.9	930.9	27.5
2 weeks and under 1 month	140.9	745.5	10.3	10.6	45.5	952.9	28.1
1 month and under 2 months	47.5	460.9	12.0	4.6	30.1	555.1	16.4
2 months and under 3 months	21.2	143.6	8.7	2.5	12.2	188.0	5.6
3 months and under 6 months	20.6	115.3	17.0	5.5	14.6	173.1	5.1
6 months and under 12 months	20.9	78.9	38.9	11.5	23.3	173.6	5.1
<b>Total</b>	<b>692.1</b>	<b>2 327.1</b>	<b>99.6</b>	<b>45.8</b>	<b>223.4</b>	<b>3 388.0</b>	<b>100.0</b>

(a) Includes those attending a convention or conference. (b) Includes those whose main purpose is visiting friends and relatives.

Source: ABS data available on request, Overseas Arrivals and Departures Collection, 2003.

### 21.14 AUSTRALIANS TRAVELLING ABROAD, By month of departure and main purpose of trip — 2003

	Main purpose of trip					Total '000	Proportion of total %
	Business(a) '000	Holiday(b) '000	Employment '000	Education '000	Other and not stated '000		
January	47.1	161.9	12.2	5.0	22.9	249.1	7.4
February	55.5	133.1	8.5	1.8	17.5	216.4	6.4
March	60.5	154.4	7.8	2.4	20.4	245.5	7.2
April	41.8	160.9	7.6	3.8	18.0	232.1	6.9
May	54.9	153.4	8.2	2.3	17.4	236.3	7.0
June	60.5	187.7	8.0	3.3	16.1	275.6	8.1
July	59.5	209.6	7.9	3.8	15.7	296.5	8.8
August	62.7	201.4	9.1	5.9	17.9	296.9	8.8
September	69.4	250.2	7.5	7.8	19.5	354.3	10.5
October	72.7	177.8	8.3	3.0	16.0	277.9	8.2
November	72.9	186.0	7.6	3.3	17.4	287.2	8.5
December	34.6	350.7	7.0	3.3	24.6	420.2	12.4
<b>Total</b>	<b>692.1</b>	<b>2 327.1</b>	<b>99.6</b>	<b>45.8</b>	<b>223.4</b>	<b>3 388.0</b>	<b>100.0</b>

(a) Includes those attending a convention or conference. (b) Includes those whose main purpose is visiting friends and relatives.

Source: ABS data available on request, Overseas Arrivals and Departures Collection, 2003.

## Domestic tourism

Australian residents aged 15 years and over spent an estimated 294.1 million nights visiting other parts of the country in 2003 (table 21.15). Each trip took an average of 4.0 nights and each person in the population (aged 15 years and over) made an average of 4.7 trips during 2003. Residents of the Australian Capital Territory were the most frequent travellers (averaging 6.7 trips per person), while residents of the Northern Territory tended to stay away for the longest period (averaging 7.2 nights per trip).

Domestic visitor nights refer to the number of nights Australian residents aged 15 years and over spent away from home in association with individual visits.

The total number of domestic visitor nights fell 2% in 2003. New South Wales, Victoria, Northern Territory, and the Australian Capital Territory each recorded declines (down 5%, 3%, 18% and 3% respectively). Tasmania showed the strongest growth (10%) in 2003, following negative growth prior to 2001 (table 21.16).

Although the number of visitor nights has fluctuated since 1999, the average annual growth rate between 1999 and 2003 was approximately zero. Tasmania had the highest average annual growth rate (3%) between 1999 and 2003. The Australian Capital Territory had the lowest average annual growth rate (–3%) between 1999 and 2003.

### 21.15 PERSON TRIPS AND NIGHTS AWAY(a), By state/territory of origin — 2003

Origin	Estimated resident population at 30 June 2003(b)	Person trips	Average trips per person	Total nights away	Average nights away per person trip
	'000	'000		'000	
New South Wales	5 353	25 304	4.7	95 965	3.8
Victoria	3 959	18 672	4.7	73 046	3.9
Queensland	3 007	14 161	4.7	57 413	4.1
South Australia	1 239	5 122	4.1	22 313	4.4
Western Australia	1 554	6 208	4.0	27 484	4.4
Tasmania	380	1 774	4.7	7 028	4.0
Northern Territory	148	634	4.3	4 572	7.2
Australian Capital Territory	259	1 747	6.7	6 289	3.6
<b>Australia</b>	<b>(c)15 681</b>	<b>73 621</b>	<b>4.7</b>	<b>294 112</b>	<b>4.0</b>

(a) Australian residents aged 15 years and over. (b) 'Australian Demographic Statistics, June Quarter 2003' (3101.0). (c) Includes Other territories.

Source: Tourism Research Australia, 'National Visitor Survey', 2003.

### 21.16 VISITOR NIGHTS(a), By state/territory of destination

	Destination								Aust.(b)
	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	
	'000	'000	'000	'000	'000	'000	'000	'000	'000
1999	93 866	52 565	78 083	19 272	29 219	8 517	6 430	5 963	294 266
2000	92 559	54 039	74 087	21 251	28 857	8 139	7 914	6 467	293 384
2001	89 447	55 747	75 002	19 508	28 068	7 970	7 174	5 749	289 644
2002	93 269	56 684	76 342	20 424	29 748	8 775	7 518	5 382	298 658
2003	88 188	54 892	78 839	21 146	29 997	9 647	6 141	5 235	294 112

(a) Australian residents aged 15 years and over. (b) Includes unspecified and offshore visits that could not be allocated to a state/territory.

Source: Tourism Research Australia, 'National Visitor Survey'.

'Holiday/leisure' was the main purpose of 46% of domestic visitor nights in 2003. 'Holiday/leisure' accounted for the largest proportion of visitor nights in almost every state and territory. The exception was the Australian Capital Territory, where 'visiting friends/relatives' accounted for the largest share of visitor nights in 2003 (table 21.17).

New South Wales was the most popular destination in 2003, accounting for almost a third of all visitor nights (30%). Queensland was the next most popular destination, with over a quarter of all visitor nights (27%).

In 2003 the most frequently used accommodation by domestic travellers was the property of friends or relatives (40% of visitor nights), followed by hotels, resorts, motels and motor inns (25%) (table 21.18).

Intrastate visits accounted for 54% of domestic tourism visitor nights in 2003. Intrastate visits were particularly important in Western Australia, New South Wales and Victoria. In these states 67%, 61% and 59% respectively of domestic visitor nights spent in the state were by residents of the state (table 21.19).

In terms of numbers of visitor nights, net beneficiaries from domestic tourism (i.e. where inbound interstate visitor nights are greater than outbound interstate visitor nights) in 2003 were Queensland, Western Australia, Tasmania and Northern Territory. Queensland benefited most from tourism in relative terms, with over twice as many inbound visitor nights as outbound visitor nights. Victoria contributed the most to tourism in relative terms, with the number of outbound visitor nights approximately 1.8 times that of inbound visitor nights.

### 21.17 VISITOR NIGHTS(a), By state/territory of destination and main purpose of visit — 2003

	Business '000	Holiday/leisure '000	Visiting friends/relatives '000	Other '000	Total(b) '000
New South Wales	12 925	39 771	31 042	3 502	88 188
Victoria	7 496	24 872	19 923	1 923	54 892
Queensland	9 683	39 759	24 484	3 660	78 839
South Australia	3 705	8 645	7 046	1 070	21 146
Western Australia	5 086	13 226	8 824	1 175	29 997
Tasmania	1 207	4 829	2 605	488	9 647
Northern Territory	1 448	2 635	1 056	338	6 141
Australian Capital Territory	1 239	1 153	2 566	252	5 235
<b>Australia(c)</b>	<b>42 805</b>	<b>134 900</b>	<b>97 544</b>	<b>12 409</b>	<b>294 112</b>

(a) Australian residents aged 15 years and over. (b) Includes visitor nights where purpose of visit was not stated. (c) Components may not add to total as total includes unspecified and offshore visits that could not be allocated to a state or territory.

Source: Tourism Research Australia, 'National Visitor Survey', 2003.

### 21.18 VISITOR NIGHTS(a), Type of accommodation used and state/territory of destination — 2003

	NSW '000	Vic. '000	Qld '000	SA '000	WA '000	Tas. '000	NT '000	ACT '000	Aust.(b) '000
Hotel, resort, motel, motor inn	22 124	12 298	21 195	4 803	6 548	2 655	1 611	1 792	73 026
Guest house/B&B	910	853	283	339	149	268	10	8	2 819
Self-catering cottage/apartment	7 790	4 172	11 391	1 477	2 619	717	182	286	28 634
Caravan park or commercial camping ground	10 109	5 418	7 725	2 619	3 385	597	678	101	30 643
Caravan or camping on private property	3 530	2 013	2 889	1 203	1 828	627	873	103	13 066
Friends' or relatives' property	36 882	25 134	29 831	8 241	10 966	3 564	1 467	2 675	118 760
Own property (e.g. holiday house)	3 169	2 530	1 865	898	922	403	28	4	9 819
Other/not stated(c)	2 726	1 794	2 406	887	1 894	298	627	240	10 888
<b>Total(d)</b>	<b>88 188</b>	<b>54 892</b>	<b>78 839</b>	<b>21 146</b>	<b>29 997</b>	<b>9 647</b>	<b>6 141</b>	<b>5 235</b>	<b>294 112</b>

(a) Australian residents aged 15 years and over. (b) Components may not add to total as total includes unspecified and offshore visits that could not be allocated to a state or territory. (c) Other accommodation includes backpacker/hostel, university/school dormitory/college, hospital/hospital-related accommodation for relatives, and privately owned boat/yacht etc. (d) Includes visitor nights where accommodation type was not stated.

Source: Tourism Research Australia, 'National Visitor Survey', 2003.

## 21.19 VISITOR NIGHTS(a), By state/territory of destination and origin — 2003

Destination	Origin								
	NSW '000	Vic. '000	Qld '000	SA '000	WA '000	Tas. '000	NT '000	ACT '000	Aust. '000
New South Wales	53 551	14 080	11 153	2 524	1 771	712	581	3 816	88 188
Victoria	10 186	32 170	4 377	3 896	1 686	1 388	322	867	54 892
Queensland	20 692	13 644	36 819	3 137	1 634	745	1 120	1 049	78 839
South Australia	3 019	3 949	1 443	10 358	1 400	326	480	171	21 146
Western Australia	2 948	3 301	1 475	1 077	20 121	410	471	193	29 997
Tasmania	1 426	3 039	1 234	310	175	3 228	94	141	9 647
Northern Territory	1 293	1 359	546	780	556	131	1 438	38	6 141
Australian Capital Territory	2 850	1 505	365	231	131	85	52	14	5 235
<b>Total(b)</b>	<b>95 965</b>	<b>73 046</b>	<b>57 413</b>	<b>22 313</b>	<b>27 484</b>	<b>7 028</b>	<b>4 572</b>	<b>6 289</b>	<b>294 112</b>

(a) Australian residents aged 15 years and over. (b) Includes other and not stated.

Source: *Tourism Research Australia, 'National Visitor Survey', 2003.*

### Tourist accommodation

At 31 December 2003 there were nearly 204,500 rooms available in hotels, motels, guest houses and serviced apartments having 15 or more rooms or units (table 21.20). This represented an increase of 4% in total available accommodation capacity when compared with that at 31 December 2002. All forms of accommodation showed increases in the number of guest rooms available with serviced apartments showing the largest increase (14%).

Takings from hotels, motels and guest houses and serviced apartments with 15 or more rooms or units increased 8% in 2003. Takings from serviced apartments increased 18% in 2003 compared with 2002. Takings from licensed hotels and from motels and guest houses also rose (approximately 6% each).

The number of holiday flats, units and houses available to let declined by 6% between December quarter 2000 and December quarter 2003. Takings increased by 24% between 2000 and 2003 (table 21.21).

The number of caravan parks increased by 1% between the December quarter 2000 and December quarter 2003 while the number of sites, cabins, flats and villas available declined by 1%. Takings increased by 26% between 2000 and 2003 (table 21.22).

The number of visitor hostels and the number of bed spaces they provide increased by 6% and 20% respectively between December quarter 2000 and December quarter 2003. Takings increased by 34% between 2000 and 2003 (table 21.23).

## 21.20 HOTELS, MOTELS AND SERVICED APARTMENTS(a)(b)

	Units	1999	2000	2001	2002	2003
<b>LICENSED HOTELS WITH FACILITIES(c)</b>						
Establishments(d)	no.	766	780	781	777	796
Guest rooms(d)	no.	73 416	76 783	78 574	77 516	78 720
Bed spaces(d)	no.	196 329	204 109	206 592	203 238	202 962
Room occupancy rates(e)	%	63.1	63.5	61.6	62.6	64.6
Bed occupancy rates(e)	%	38.5	38.8	38.8	39.7	40.7
Takings from accommodation(e)	\$m	2 103.6	2 459.1	2 446.9	2 442.9	2 599.4
<b>MOTELS AND GUEST HOUSES WITH FACILITIES(c)</b>						
Establishments(d)	no.	2 413	2 402	2 400	2 382	2 415
Guest rooms(d)	no.	86 019	84 722	84 430	83 565	85 390
Bed spaces(d)	no.	255 588	250 170	247 776	244 156	246 107
Room occupancy rates(e)	%	54.4	53.0	52.0	52.8	53.7
Bed occupancy rates(e)	%	32.2	31.4	31.2	31.9	32.6
Takings from accommodation(e)	\$m	1 342.7	1 424.5	1 403.4	1 433.2	1 514.0
<b>SERVICED APARTMENTS(c)</b>						
Establishments(d)	no.	600	646	657	675	781
Guest rooms(d)	no.	30 644	33 421	35 129	35 350	40 351
Bed spaces(d)	no.	107 748	113 267	117 192	116 385	131 183
Room occupancy rates(e)	%	60.4	59.3	60.7	63.9	65.3
Bed occupancy rates(e)	%	37.2	37.9	39.9	42.2	44.2
Takings from accommodation(e)	\$m	693.3	841.4	915.2	988.9	1 163.6
<b>TOTAL HOTELS, MOTELS AND SERVICED APARTMENTS(c)</b>						
Establishments(d)	no.	3 779	3 828	3 838	3 834	3 992
Guest rooms(d)	no.	190 079	194 926	198 133	196 431	204 461
Bed spaces(d)	no.	559 665	567 546	571 560	563 779	580 252
Room occupancy rates(e)	%	58.7	58.1	57.3	58.7	60.1
Bed occupancy rates(e)	%	35.3	35.3	35.7	36.8	38.1
Room nights occupied(e)	'000	39 822.2	41 079.6	41 176.3	42 148.5	44 244.0
Takings from accommodation(e)	\$m	4 139.6	4 725.0	4 765.5	4 865.0	5 277.0

(a) Comprising establishments with 15 or more rooms or units. (b) Break in time series between the March and June quarters 2003. See 'Tourist Accommodation, Australia' (8635.0) December Quarter 2003 Appendix 1 for details. (c) For definitions see the source below. (d) At 31 December. (e) 12 months ended December.

Source: *Tourist Accommodation, Australia* (8635.0).

## 21.21 HOLIDAY FLATS, UNITS AND HOUSES(a)

	Units	December 2000	December 2003
Flats, units and houses available(b)	no.	29 835	28 010
Unit nights occupied(c)	'000	5 111	5 170
Takings from accommodation(c)	\$'000	405 163	502 325

(a) Holiday flats, units and houses of letting entities with 15 or more rooms or units and should be mainly self-contained.

(b) At 31 December. (c) 12 months ended December.

Source: *Tourist Accommodation, Australia, Expanded Scope Collection, Australia* (8635.0.55.001).

## 21.22 CARAVAN PARKS(a)

	Units	December 2000	December 2003
Establishments(b)	no.	1 800	1 825
Sites, cabins, flats, units and villas available(b)	no.	244 905	242 178
Site nights occupied(c)	'000	44 344	45 358
Site occupancy rate(c)	%	49.5	51.8
Takings from accommodation(c)	\$'000	598 750	754 218

(a) Establishments with 40 or more powered sites and cabins and provide toilet, shower and laundry facilities for guests.

(b) At 31 December. (c) 12 months ended December.

Source: *Tourist Accommodation, Australia, Expanded Scope Collection, Australia* (8635.0.55.001).

### 21.23 VISITOR HOSTELS(a)

	Units	December 2000	December 2003
Establishments(b)	no.	466	494
Bed spaces available(b)	no.	40 659	48 588
Guest nights(c)	'000	7 155	8 256
Bed occupancy rate(c)	%	49.0	46.4
Takings from accommodation(c)	\$'000	130 898	175 910

(a) Establishments with 25 or more bed spaces which provide accommodation to visitors on a bed basis rather than by room. Does not include charity type accommodation or hotels.  
(b) At 31 December. (c) 12 months ended December.

Source: *Tourist Accommodation, Australia, Expanded Scope Collection, Australia (8635.0.55.001)*.

## Rugby World Cup 2003 – the short-term impact on the Australia economy

*This article re-presents findings of a report of the private sector consultancy firm URS Finance and Economics, produced for the Australian Government Department of Industry, Tourism and Resources (June 2004).*

### Overview

The Rugby World Cup (RWC) was held in Australia from 10 October to 22 November 2003. The tournament has been described as the largest international sporting event of 2003 and the largest sporting event to be held in Australia since the Sydney 2000 Olympic Games. The tournament was the fifth RWC and the second staged in Australia.

In the tournament 20 teams competed in a total of 48 matches including 40 pool matches and eight finals. These matches were spread across 11 venues in 10 cities around Australia.

Based on the data collected from various key RWC stakeholders, the key short-term economic impact results indicate that:

- 1.8 million spectators attended matches.
- 65,000 international visitors visited Australia primarily as a result of the RWC.
- Nearly \$200m in ticket sales were generated.
- \$494m in additional industry sales were generated, particularly in trade and hotels, finance and business services and recreational

services industries. New South Wales, Victoria and Queensland gained the majority of RWC industry sales.

- Almost 4,500 additional full and part-time jobs were created, primarily in trade and hotels, finance and business services and recreational services industries. New South Wales, Victoria and Queensland also gained the majority share of these short-term full and part-time jobs.
- \$55m in additional Commonwealth government revenue was provided (before grants paid to state governments).
- \$289m in additional gross domestic product was contributed to the Australian economy with New South Wales, Victoria and Queensland gaining the majority of this additional economic activity.

### International visitors and expenditure

#### Number of visitors

As a result of Australia hosting the RWC, it was estimated that 65,000 international visitors visited Australia. This number was estimated to consist of 60,000 rugby supporters, 2,500 media

personnel and 2,500 corporate visitors – predominantly business executives employed by global RWC commercial partners/sponsors.

A number of visitors associated with the RWC teams and international rugby organisations also came to the event. Based on Australian Rugby Union (ARU) information these include:

- players and associated staff totalling almost 800 persons (42 per team with the Australian team excluded);
- match officials totalling 25 from overseas; and
- VIP overseas rugby guests totalling 250.

The ARU indicated that the majority of international visitors were from the United Kingdom and Europe. Table 21.24 provides a break down of international rugby tour visitors, media and corporate visitors. In terms of the corporate visitors, the ARU was of the view that the majority of these would be from the United Kingdom/Europe through the RWC commercial partners/sponsors.

### Expenditure of international visitors

Table 21.25 shows the average international expenditure data on a per trip basis including airfares and expenditure while in Australia by region. Visitors from United Kingdom/Europe were estimated to have the highest expenditure and the longest average length of stay of all

visitors at \$8,302 and 36 nights. Next highest were visitors from the Americas spending on average \$6,741, Africa \$6,260 and New Zealand/Asia Pacific \$3,153. This provided for a total trip expenditure for all visitors of \$400.4m.

Major spending items of international visitors tended to be accommodation, food and drink along with airfares, packaged tours and retail shopping.

### Interstate visitors and expenditure

New South Wales received the most interstate visitors (49,948) followed by Victoria (43,284), Queensland (42,153) and Australian Capital Territory (25,760). Ticket purchases for interstate visitors were predominantly for games in New South Wales, Queensland and Victoria (66,916, 64,316 and 61,271 respectively), where the majority of preliminary games and the finals were played (table 21.26).

Interstate visitor expenditure in New South Wales was estimated at \$47.8m, followed by Victoria (\$41.4m), Queensland (\$28.4m), Western Australia (\$12.8m), South Australia (\$7.5m), Australian Capital Territory (\$3.8m) and Tasmania (\$1m). Average expenditure per visit was also the greatest in New South Wales (\$1,015) followed by South Australia (\$1,007) and Victoria (\$1,005).

For interstate visits the key items of expenditure were accommodation, food and drink.

#### 21.24 INTERNATIONAL VISITORS, By origin

Region	Key countries	Rugby supporters	Media	Corporate	Total
United Kingdom/Europe	England, Ireland, Scotland, France, Italy and Wales	28 200	1 094	2 500	31 794
New Zealand/Asia Pacific(a)	New Zealand, Japan, Fiji, Tonga, Hong Kong and Singapore	18 600	813	—	19 413
Africa	South Africa and Namibia	10 200	438	—	10 638
Americas	Canada, USA and Argentina	3 000	155	—	3 155
<b>Total</b>		<b>(b)60 000</b>	<b>2 500</b>	<b>2 500</b>	<b>65 000</b>

(a) Based on information provided by the Qantas and the ARU, visitors from New Zealand/Asia Pacific were estimated at approximately 15,000 and visitors from Japan, Hong Kong and Singapore 4,413. (b) Of the 60,000 rugby supporters, it was assumed that approximately 40,000 of these travelled to Australia via 'RWC packages' while the remaining 20,000 were able to obtain tickets from family and friends in Australia and to a lesser extent obtain flights and RWC tickets only.

Source: URS Finance and Economics 2004.

### 21.25 AVERAGE TRIP EXPENDITURE BY INTERNATIONAL VISITORS(a)

Region	Total visitors no.	Average expenditure per visit 2003 \$	Average length of stay nights	Average total daily expenditure \$	Total trip expenditure \$m
United Kingdom/Europe	31 794	8 302	36	230	256.1
New Zealand/Asia Pacific	19 413	3 153	15	210	59.2
Africa	10 638	6 260	24	260	64.5
Americas	3 155	6 741	22	306	20.6
<b>Total</b>	<b>65 000</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>400.4</b>

(a) URS has incorporated the assumption of some international visitors reducing expenditure in relation to visitors staying with family and friends totalling \$12.2m. In addition, URS has also assumed a BTR average length of stay to calculate total average trip expenditure.

Source: URS Finance and Economics 2004.

### 21.26 INTERSTATE TICKET PURCHASES, VISITORS AND EXPENDITURE

Game location	Tickets purchased(a) no.	Interstate visitors(b) no.	Average expenditure per visit(c) \$	Interstate visitor expenditure \$'000
New South Wales	66 916	49 948	1 015	47 785
Victoria	61 271	43 284	1 005	41 439
Queensland	64 216	42 153	705	28 352
South Australia	14 797	7 789	1 007	7 483
Western Australia	19 856	9 261	1 446	12 789
Tasmania	1 535	1 535	698	1 014
Australian Capital Territory	27 218	25 760	566	3 764
<b>Total</b>	<b>255 808</b>	<b>179 730</b>	<b>—</b>	<b>142 625</b>

(a) To remove domestic ticket purchases made for international visitors an estimate provided by an ARU survey of approximately 9% was deducted. (b) Number of visitors was calculated using the number of tickets and adjusting it for 'double headers' where people attended a number of games in the same weekend. (c) NSW people attending RWC matches in the ACT were assumed to spend \$188 per trip.

Source: URS Finance and Economics 2004.

## Impact on industry, employment and government finances

An additional \$494m was generated in industry sales by the RWC, particularly in the trade and hotels industry, finance and business services and recreational services. New South Wales, Victoria and Queensland gained the majority of RWC industry sales (\$411m, \$48m and \$22m respectively). Tasmania and Northern Territory were adversely affected, declining \$5m and \$2m respectively (table 21.27).

The RWC created an additional 4,500 short-term full and part-time positions mainly in the trade and hotels industry, finance and business services and recreational services. New South Wales,

Victoria and Queensland benefited most from the RWC with 3,595, 428 and 303 jobs respectively being created.

The RWC provided an additional \$55m to Commonwealth revenue before Commonwealth grants were paid to the State governments. The New South Wales government received the highest additional revenue of \$19m including grants paid by the Australian (Commonwealth) Government and had the greatest expenditure at \$34m. In aggregate, the states' budgetary position was estimated to have worsened by \$14m (total revenue minus total expenditure).

## 21.27 ESTIMATED IMPACT ON INDUSTRY SALES, EMPLOYMENT AND GOVERNMENT FINANCES

State/Government	Impact on industry sales \$m	Employment(a) no.	Government finances	
			Revenue(b) \$m	Expenditure(c) \$m
New South Wales	411	3 595	19	34
Victoria	48	428	8	7
Queensland	22	303	6	8
South Australia	—	27	3	1
Western Australia	4	65	3	2
Tasmania	-5	-46	1	—
Northern Territory	-2	-16	1	—
Australian Capital Territory	16	121	—	3
Commonwealth Government	—	—	55	(b)55
<b>Total</b>	<b>494</b>	<b>4 476</b>	<b>96</b>	<b>110</b>

(a) Estimates of employment are in terms of full and part time jobs and should be treated with some caution. (b) Includes Commonwealth grants to the states. (c) Includes state subsidies paid to RWC.

Source: URS Finance and Economics 2004.

### References

Australian Rugby Union, <<http://www.rugby.com.au>>.

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*International Visitor Survey*

*National Visitor Survey*

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## TRANSPORT

Transport activity involves the movement of goods or people from an origin to a destination.

Transport is a fundamental element of developed economies, connecting businesses to markets and to supplies of inputs. For example, building construction is reliant on transport to get materials and labour to sites. Retailers rely on transport to bring items from suppliers, and to bring customers to their shops. Complex and specialised transport services, such as those used for perishable foods, may cross several countries and include corridors of road, rail, sea and air journeys. A substantial part of people's time and income is used for travel to work, school, recreation, and other activities.

Transport has considerable economic, social and environmental impacts. Effective transport systems contribute to economic prosperity, as well as to the social achievements of the community that arise through access to an enlarged range of employment and residential options, and to an increased range of holiday and entertainment options. Information about numerous aspects of transport activity is used by governments, local authorities and industry, to support planning and investment decisions.

In 2002–03 the transport and storage industry – those businesses whose predominant income was from transport and storage activities – contributed 5% to Australia's gross domestic product.

This chapter contains data on Australia's domestic and international transportation of people and freight, describing the volume of activity undertaken by road, rail, sea and air transport modes. Statistics describe the incidence of accidents, injuries and fatalities, as well as describing the capital infrastructure upon which transport activity is reliant. Data are drawn from the Australian Bureau of Statistics (ABS) and other sources.

The chapter includes three articles; *Completion of the Adelaide to Darwin railway line*, *Use of urban public transport in Australia* and *Road fatalities and fatality rates – 1925 to 2003*.

## Economic contribution of the transport and storage industry

Transport and storage is vital to the Australian economy, underpinning a diverse range of industries and activities. These range from transporting and storing freight, to the movement of people by private and public transport, to vehicle hire and even the use of pipelines.

Transport and storage is not an 'industry' in the traditional sense. Industries are classified in accordance with the goods they produce, whereas transport and storage depends on the services and infrastructure provided to customers to enable the activity of carrying goods and passengers.

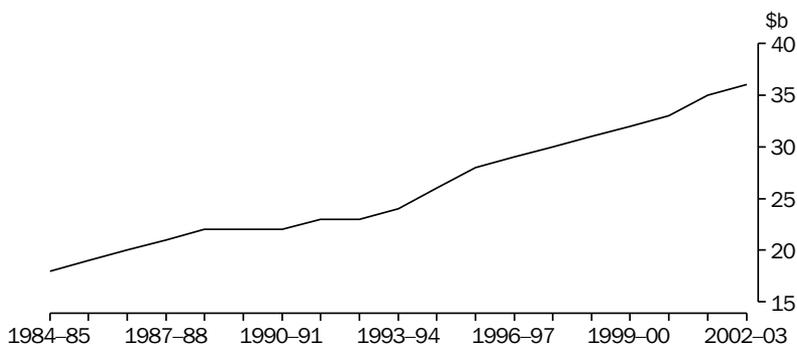
In national accounting terms, the contribution of an industry to the overall production of goods and services in an economy is measured by industry gross value added (GVA). Industry GVA sums the gross value added by each producer in the industry.

Graph 22.1 shows total production of the transport and storage industry measured by industry GVA in chain volume terms (i.e. output adjusted for price changes) has doubled between 1984–85 and 2002–03.

Table 22.2 shows the industry GVA of each of the sectors (or industry subdivisions) which the ABS uses to describe the transport and storage industry. The table also shows the contribution the transport and storage industry made to Australia's gross domestic product (GDP). During the period 1998–99 to 2002–03, total transport and storage industry GVA rose by 18.9%. This was greater than the overall growth rate of the economy. The transport industry increased its contribution to GDP from 4.7% in 1998–99 to 5.0% in 2002–03.

All sectors within the transport and storage industry had larger increases in GVA between 1998–99 and 2002–03 than the increase in GDP over the same period. Within the industry the road transport sector had the greatest increase in GVA (23.9%), followed by rail, pipeline and other transport (20.1%), and transport services and storage (which includes water transport) (15.9%). The smallest increase in GVA in the four-year period was in the air and space transport sector of the industry (13.8%).

**22.1 TRANSPORT AND STORAGE GROSS VALUE ADDED(a)**



(a) Industry gross value added. Chain volume measures, reference year is 2001–02.

Source: Australian System of National Accounts, 2002–03 (5204.0).

**22.2 TRANSPORT AND STORAGE GROSS VALUE ADDED AND CONTRIBUTION TO GDP,  
Chain volume measures(a)**

Industry subdivision	Units	1998–99	1999–2000	2000–01	2001–02	2002–03	Percentage change from 1998–99 to 2002–03
<b>Industry gross value added</b>							
Road transport	\$m	10 010	10 457	10 909	11 639	12 400	23.9
Air and space transport	\$m	4 747	5 095	5 508	5 196	5 400	13.8
Rail, pipeline and other transport	\$m	3 811	3 897	3 955	4 212	4 578	20.1
Transport services and storage(b)	\$m	12 081	12 438	13 108	13 671	14 003	15.9
<b>Transport and storage(c)</b>	<b>\$m</b>	<b>30 602</b>	<b>31 849</b>	<b>33 447</b>	<b>34 718</b>	<b>36 382</b>	<b>18.9</b>
<b>Contribution to GDP</b>	<b>%</b>	<b>4.7</b>	<b>4.7</b>	<b>4.9</b>	<b>4.9</b>	<b>5.0</b>	<b>..</b>

(a) Reference year for chain volume measures is 2001–02. (b) Includes water transport. (c) Chain volume measures for years other than 2001–02 and 2002–03 are not additive.

Source: Australian System of National Accounts, 2002–03 (5204.0).

## Structure and performance of the transport and storage industry

The major source for the statistics in this section is the Economic Activity Survey of employing businesses conducted by the ABS. Businesses in this collection are classified on the basis of their predominant activity, using the 1993 version of the Australian and New Zealand Standard Industrial Classification (ANZSIC).

In 2000–01 the transport and storage industry employed 325,575 persons in 29,526 operating businesses (table 22.3). These businesses generated \$60,379m in goods and services sales, and had a net worth of \$26,686m. Capital expenditure for the period was \$5,759m.

The road transport sector accounted for 44% (143,631 people) of total transport and storage industry employment, followed by services to transport with 24%. Rail transport accounted for 10% of total employment in 2000–01. Road transport had the highest number of operating businesses (21,808), while the rail transport sector had the largest net worth (\$8,432m). Other transport and storage (which includes pipelines, grain storage, and transport and storage n.e.c.) had the highest amount of sales of goods and services (\$21,557m) and the largest capital expenditure (\$2,352m).

Total operating income for the transport and storage industry in 2000–01 was \$72,622m (table 22.4). Total operating expenses were \$69,573m, while operating profit before tax was \$3,048m. Road transport was the largest component with 33% of the industry's total operating income, 32% of total operating expenses, and 54% of operating profit before tax.

The free-on-board value of passenger motor vehicle exports grew from \$1,919m for the 12 months ended June 2000 to \$2,932m for the corresponding period in 2004 (table 22.5). The value of all road vehicle exports rose from \$2,809m for the 12 months ended June 2000 to \$4,161m in 2004. In the 12 months ended June 2004 the value of railway vehicle exports was \$34m, while aircraft exports totalled \$277m. After reaching \$1,323m for the 12 months ended June 2002, shipping exports fell to \$687m (a decrease of 48%) for the 12 months ended June 2004.

In 2002 the average number of vehicles produced per employee in Australia was 16.8 (table 22.6). This compares with 15.8 in 1995. The highest level of productivity per employee occurred in 2000, with 17.7 vehicles being produced per employee. The highest average production value per employee occurred in 2001 with a value of \$422,051 per employee.

### 22.3 TRANSPORT AND STORAGE INDUSTRY, Selected indicators(a) — 2000–01

Industry	Number of operating businesses no.	Employment no.	Sales of goods and services \$m	Net worth \$m	Capital expenditure \$m
Road transport	21 808	143 631	20 699	3 501	1 289
Rail transport	49	31 213	4 152	8 432	1 046
Services to transport	5 416	76 534	13 970	7 872	1 073
Other transport and storage	2 254	74 196	21 557	6 883	2 352
<b>Total</b>	<b>29 526</b>	<b>325 575</b>	<b>60 379</b>	<b>26 686</b>	<b>5 759</b>

(a) Excludes non-employed businesses.

Source: *Business Operations and Industry Performance, Australia, 2000–2001 (8140.0)*.

### 22.4 TRANSPORT AND STORAGE INDUSTRY, Summary of industry performance(a) — 2000–01

Selected indicators	Units	ANZSIC subdivision							Total
		Road transport	Rail transport	Water transport	Air and space transport	Other transport	Services to transport	Storage	
Total operating income	\$m	24 094	6 245	3 210	n.p.	1 301	18 494	n.p.	72 622
Total operating expenses	\$m	22 450	6 080	3 125	n.p.	1 076	17 856	n.p.	69 573
Operating profit before tax	\$m	1 644	165	85	n.p.	225	638	n.p.	3 048

(a) Estimates are obtained using a combination of data from the Economic Activity Survey and business income tax data for non-employed businesses provided to the Australian Taxation Office.

Source: *Australian Industry, 2000–01 (8155.0)*.

### 22.5 VALUE OF MERCHANDISE EXPORTS(a) — 12 months ended June

	Passenger motor vehicles(b)	All road vehicles	Railway vehicles(c)	Ships(d)	Aircraft(e)
	\$m	\$m	\$m	\$m	\$m
2000	1 919	2 809	33	587	1 051
2001	2 737	3 841	42	611	546
2002	2 996	4 293	50	1 323	487
2003	2 796	4 180	33	1 269	711
2004	2 932	4 161	34	687	277

(a) The value of goods measured on a free-on-board basis includes all production and other costs incurred up until the goods are placed on board the international carrier for export. The values exclude international insurance and transport costs. They include the value of the outside packaging in which the product is wrapped, but do not include the value of the international freight containers used for transporting the goods. (b) Vehicles principally designed to transport people. Excludes public transport-type vehicles. Includes racing cars. (c) Includes associated equipment and hovertrains. (d) Includes boats, hovercraft and floating structures. (e) Includes associated equipment, spacecraft and spacecraft launch vehicles, and satellites.

Source: *International Trade in Goods and Services, Australia (5368.0)*.

### 22.6 LOCAL VEHICLE PRODUCER LABOUR PRODUCTIVITY

	Production volume(a)	Production value(b)	Employment(c)	Average vehicles produced per employee	Average production value per employee
	Units	\$b	no.	no.	\$
1995	312 908	7.10	19 754	15.8	359 168
1996	325 631	7.11	20 213	16.1	351 818
1997	319 266	7.23	20 540	15.5	351 753
1998(d)	353 892	8.18	22 371	15.8	365 563
1999	347 823	8.18	21 394	16.3	382 116
2000	359 686	7.74	20 378	17.7	379 939
2001	347 174	7.97	19 975	17.5	422 051
2002	359 751	7.99	20 914	16.8	390 177

(a) Production volumes include completely knocked down vehicles for export. (b) Production values are in nominal prices.

(c) Includes production and non-production employees. (d) Employees of the former Holden Engine Company are included from 1998 onwards.

Source: *Department of Industry, Tourism and Resources*.

## Transport activity

### General transport activity

#### Road transport activity

Motor vehicles travelled an estimated total distance of 192,209 million kilometres (km) in the year ended 31 October 2002, at an average of 15,600 km per vehicle (table 22.7). Business use accounted for an estimated 35% of aggregate distance travelled, while people's journeys to and from work accounted for a further 22%. Private use made up the remaining 43%.

The localities in which motor vehicles travelled are described in table 22.8. Only 5% of total distance travelled represented interstate trips,

while 55% of trips were within the capital city of the state or territory in which the vehicle was registered.

#### Domestic airline activity

The total hours flown and the number of aircraft departures by the major domestic and regional airlines are shown in table 22.9. Hours flown in 2003 were 4% more than in 2002, while aircraft departures were marginally lower compared with 2002.

In addition to the scheduled services of domestic and regional airlines, the range of activities undertaken by the general aviation industry includes business flying, aerial agriculture, charter, training and private flying (table 22.10).

### 22.7 BUSINESS AND PRIVATE VEHICLE USE — Year ended 31 October 2002

Type of vehicle	Business			To and from work	Private	Total
	Laden	Unladen	Total(a)			
<b>TOTAL KILOMETRES TRAVELLED (million)</b>						
Passenger vehicles	n.a.	n.a.	33 712	36 151	74 813	144 676
Motor cycles	n.a.	n.a.	*321	*540	*819	1 681
Light commercial vehicles	14 054	5 624	19 677	5 527	6 145	31 349
Rigid trucks	4 830	2 049	6 879	*156	*45	7 080
Articulated trucks	4 012	1 405	5 417	*5	*2	5 425
Non-freight carrying trucks	n.a.	n.a.	221	**2	**2	224
Buses	n.a.	n.a.	1 641	*28	*106	1 775
<b>Total</b>	<b>22 896</b>	<b>9 077</b>	<b>67 868</b>	<b>42 410</b>	<b>81 932</b>	<b>192 209</b>
<b>AVERAGE KILOMETRES TRAVELLED(b) ('000)</b>						
Passenger vehicles	—	—	11.6	7.1	8.5	14.7
Motor cycles	—	—	*6.5	*6.1	3.8	6.0
Light commercial vehicles	14.0	8.8	17.9	8.1	7.2	18.0
Rigid trucks	16.2	8.7	22.9	*5.4	*2.4	22.4
Articulated trucks	70.4	28.7	94.2	*4.8	*2.5	93.6
Non-freight carrying trucks	—	—	14.2	*3.3	**3.0	14.4
Buses	—	—	33.2	*7.1	*12.7	32.0
<b>Total</b>	<b>16.8</b>	<b>9.9</b>	<b>15.2</b>	<b>7.2</b>	<b>8.3</b>	<b>15.6</b>

(a) Includes business travel of non-freight carrying vehicles. (b) Average distance travelled for registered vehicles which were used.

Source: Survey of Motor Vehicle Use, Australia, 12 months ended 31 October 2002 (9208.0).

## 22.8 AREA OF OPERATION — Year ended 31 October 2002

Type of vehicle	Within state/territory of registration					
	Capital city	Provincial urban	Other areas of state/territory	Total	Interstate	Australia
<b>TOTAL KILOMETRES TRAVELLED (million)</b>						
Passenger vehicles	86 304	18 716	33 181	138 201	6 475	144 676
Motor cycles	846	285	424	1 554	126	1 681
Light commercial vehicles	13 601	4 518	11 702	29 822	1 528	31 349
Rigid trucks	3 767	980	2 089	6 835	244	7 080
Articulated trucks	1 007	396	2 524	3 927	1 497	5 425
Non-freight carrying trucks	118	44	54	216	8	224
Buses	832	314	544	1 689	86	1 775
<b>Total</b>	<b>106 475</b>	<b>25 253</b>	<b>50 517</b>	<b>182 245</b>	<b>9 964</b>	<b>192 209</b>
<b>AVERAGE KILOMETRES TRAVELLED(a) ('000)</b>						
Passenger vehicles	11.9	6.6	9.5	14.1	6.9	14.7
Motor cycles	6.0	4.3	3.7	5.8	4.7	6.0
Light commercial vehicles	15.7	9.7	13.9	17.3	14.6	18.0
Rigid trucks	23.4	14.3	14.2	21.8	15.3	22.4
Articulated trucks	32.0	19.6	61.0	69.8	83.2	93.6
Non-freight carrying trucks	17.8	11.7	6.9	13.7	7.6	14.1
Buses	26.6	21.0	23.5	30.7	16.4	32.0
<b>Total</b>	<b>12.5</b>	<b>7.3</b>	<b>10.8</b>	<b>14.9</b>	<b>9.0</b>	<b>15.6</b>

(a) Average distance travelled for registered vehicles which were used.

Source: Survey of Motor Vehicle Use, Australia, 12 months ended 31 October 2002 (9208.0).

## 22.9 DOMESTIC AIRLINE ACTIVITY, Major and regional airlines

	1998	1999	2000	2001	2002	2003
	'000	'000	'000	'000	'000	'000
Hours flown	749	751	788	759	667	693
Aircraft departures	585	588	606	564	479	477

Source: Department of Transport and Regional Services.

## 22.10 GENERAL AVIATION ACTIVITY, Hours flown

	1997	1998	1999	2000	2001	2002	2003
	'000	'000	'000	'000	'000	'000	'000
Charter	487	498	508	480	469	446	438
Agricultural	137	147	135	124	114	71	60
Flying training	455	484	454	419	411	411	424
Other aerial work	315	319	314	304	300	327	331
Private/business	446	430	432	388	409	412	386
<b>Total</b>	<b>1 839</b>	<b>1 878</b>	<b>1 842</b>	<b>1 715</b>	<b>1 703</b>	<b>1 667</b>	<b>1 639</b>

Source: Department of Transport and Regional Services.

## 22.11 SCHEDULED INTERNATIONAL AIRLINE TRAFFIC TO AND FROM AUSTRALIA(a)(b)(c)

	1999	2000	2001	2002	2003
TRAFFIC TO AUSTRALIA					
Qantas Airways Limited	12 675	13 751	14 702	(d)13 953	12 995
Ansett International(e)	1 640	1 450	1 046	—	—
Australian Airlines(f)	—	—	—	—	1 262
Other airlines	27 219	30 633	30 536	29 863	31 894
<b>All airlines</b>	<b>41 534</b>	<b>45 834</b>	<b>46 284</b>	<b>43 816</b>	<b>46 151</b>
TRAFFIC FROM AUSTRALIA					
Qantas Airways Limited	12 733	13 817	14 714	(d)13 989	12 996
Ansett International(e)	1 646	1 454	1 048	—	—
Australian Airlines(f)	—	—	—	—	1 263
Other airlines	26 713	30 083	30 101	29 609	31 758
<b>All airlines</b>	<b>41 092</b>	<b>45 354</b>	<b>45 863</b>	<b>43 598</b>	<b>46 017</b>

(a) Includes Norfolk Island. (b) Includes Qantas flights using aircraft leased from other airlines and vice versa. (c) The difference between to and from numbers arises because some outward flights are operated as non-scheduled, and so are not counted in the table. (d) Includes Australian Airlines, a wholly owned subsidiary of Qantas Airways Ltd. (e) Ansett International ceased operations on 14 September 2001. (f) Services commenced in October 2002.

Source: Department of Transport and Regional Services.

### International airline activity

The number of flights into and out of Australia rose in 2003 compared with 2002 (table 22.11). The share of total scheduled international airline traffic that was provided by Australian-owned airlines – Qantas and Australian Airlines – declined marginally from 32% in 2002 to 31% in 2003.

### Domestic freight activity

Freight movement within Australia is a significant transport task. Goods are moved across vast distances because of the size of the country and the dispersed locations of agricultural, mining, production and population centres. Key freight transport task measures are tonnes carried and tonne-kilometres (which represents the summation of mass multiplied by the distance travelled by individual freight cargoes).

The following sections provide information on the domestic freight task performed by each of the transport modes.

### Road freight activity

In the 12 months ended 31 March 2001, the 62,000 articulated vehicles in Australia lifted an estimated 614 million tonnes of freight (table 22.12), and conducted over 88 billion tonne-kilometres of freight travel. Freight originating in New South Wales accounted for 30% of both the total tonne-kilometres travelled (26,440 million) and of the total tonnes carried by road (184 million).

Australia's 332 thousand rigid trucks provided 25 billion tonne-kilometres of freight travel, in the year to 31 March 2001.

## 22.12 ROAD FREIGHT, By articulated vehicles — Year ended 31 March 2001

State/territory of origin	million tonne-kilometres	million tonnes
New South Wales	26 440	184
Victoria	18 746	121
Queensland	19 174	127
South Australia	9 286	46
Western Australia	11 281	105
Tasmania	1 504	21
Northern Territory	1 728	8
Australian Capital Territory	216	1
<b>Australia</b>	<b>88 374</b>	<b>614</b>

Source: Freight Movements, Australia, Summary, Year ended 31 March 2001 (9220.0).

The major commodities moved by road, in the 12 months to 31 March 2001, are shown in table 22.13. Food accounted for 22% of the total tonne-kilometres travelled and 14% of the total tonnes carried by road. Stone, sand and gravel represented 14% of the tonnage carried by road transport, yet because of the typically shorter trip distances, this commodity group only accounted for 4% of the total tonne-kilometres travelled.

## 22.13 MAJOR COMMODITIES MOVED BY ROAD(a) — Year ended 31 March 2001

	Tonne-kilometres		Tonnes	
	million	% of total	million	% of total
Food (for human and animal consumption)	19 326	21.9	89	14.4
General freight(b)	15 408	17.4	46	7.5
Other manufactured goods	7 276	8.2	38	6.2
Petroleum and petroleum products	4 807	5.4	30	4.8
Machinery and transport equipment	4 207	4.8	22	3.5
Cork and wood	4 093	4.6	35	5.8
Cereal grains	4 031	4.6	42	6.9
Crude materials	3 895	4.4	35	5.7
Stone, sand and gravel	3 373	3.8	86	14.0

(a) Articulated vehicles only. (b) Consignments not classified by commodity.

Source: *Freight Movements, Australia, Summary, Year ended 31 March 2001 (9220.0)*.

### Rail freight activity

Rail freight travelled 164.4 billion tonne-kilometres in 2002–03, an increase of 7% over the 153.1 billion tonne-kilometres travelled in 2001–02 (table 22.14).

In 2002–03, 598.6 million tonnes of freight was carried by rail, an increase of 6% on the 566.3 million tonnes carried in 2001–02.

#### 22.14 RAIL FREIGHT, Tonne-kilometres and tonnes carried

	2001–02	2002–03	Change from 2001–02 to 2002–03
	million	million	%
Tonne-kilometres	153 146	164 437	7.4
Tonnes	566.3	598.6	5.7

Source: *Rail Freight Movements, Australia, Summary - Electronic Delivery (9220.0.55.001)*.

The two commodity groups of Crude materials, inedible, except fuels, and Mineral fuels, lubricants and related materials combined accounted for 89% (506.1 million) of tonnes carried in 2001–02 and 91% (543.0 million) in 2002–03 (table 22.15).

The tonnes carried for the commodity group Crude materials, inedible, except fuels increased by 13% (33.1 million) between 2001–02 and 2002–03. This commodity accounted for 49.5% (296.5 million) of the total tonnes carried in 2002–03 and 46.5% (263.5 million) in 2001–02.

Mineral fuels, lubricants and related materials showed a small increase of 2% over the two periods rising from 242.6 million tonnes to 246.4 million tonnes carried.

The tonnage of Food and live animals carried fell 28% (7.8 million) from 27.8 million tonnes to 20.0 million tonnes between 2001–02 and 2002–03.

In 2002–03 a total of 164.4 billion tonne-kilometres of freight was moved by rail, compared with 153.1 billion in 2001–02. Solid bulk as a method of freight transport accounted for a total of 123.1 billion tonne-kilometres in 2001–02 and 130.5 billion tonne-kilometres in 2002–03 (table 22.16). This represented approximately 80% of the total tonne-kilometres travelled in each of these periods.

Freight in containers accounted for 14.5% (22.2 billion) of all tonne-kilometres travelled in 2001–02 and 15.9% (26.2 billion) in 2002–03. This represents an increase of 18% between the two periods.

For 2002–03, 562 million tonnes of freight was moved as solid bulk (table 22.17). This represents an increase of 5% on the 533 million tonnes carried by this method in 2001–02. Approximately 94% of all tonnes carried in both reference periods was in the form of solid bulk.

Freight in containers was the method of transport for approximately 4% of all the tonnes carried in both periods. The tonnage of freight transported in containers increased 5% between the two periods from 22 million tonnes to 23 million tonnes.

## 22.15 COMMODITIES MOVED BY RAIL, Tonnes carried

Commodity group	2001-02		2002-03	
	'000 tonnes	% of total	'000 tonnes	% of total
Food and live animals	27 793	4.9	20 019	3.3
Beverages and tobacco	56	—	72	—
Crude materials, inedible, except fuels	263 509	46.5	296 588	49.5
Mineral fuels, lubricants and related materials	242 559	42.8	246 404	41.2
Animal and vegetable oils, fats and waxes	—	—	—	—
Chemical and related products n.e.s.	(a)n.p.	(a)n.p.	(a)n.p.	(a)n.p.
Manufactured goods classified chiefly by materials	11 089	2.0	12 313	2.1
Machinery and transport equipment	60	—	(a)n.p.	(a)n.p.
Miscellaneous manufactured articles	(a)n.p.	(a)n.p.	(a)n.p.	(a)n.p.
Commodities and transactions n.e.s.	18 355	3.2	19 919	3.3
<b>Total</b>	<b>566 284</b>	<b>100.0</b>	<b>598 593</b>	<b>100.0</b>

(a) Not available for publication, included in total.

Source: Rail Freight Movements, Australia, Summary - Electronic Delivery (9220.0.55.001).

## 22.16 METHOD OF RAIL TRANSPORT, Tonne-kilometres

	2001-02		2002-03	
	million tonne-kilometres	% of total	million tonne-kilometres	% of total
Solid bulk	123 116	80.4	130 503	79.4
Liquid bulk	(a)n.p.	(a)n.p.	(a)n.p.	(a)n.p.
Freight in containers	22 179	14.5	26 2247	15.9
Other freight	(a)n.p.	(a)n.p.	(a)n.p.	(a)n.p.
<b>Total</b>	<b>153 146</b>	<b>100.0</b>	<b>164 437</b>	<b>100.0</b>

(a) Not available for publication, included in total.

Source: Rail Freight Movements, Australia, Summary - Electronic Delivery (9220.0.55.001).

## 22.17 METHOD OF RAIL TRANSPORT, Tonnes

	2001-02		2002-03	
	'000 tonnes	% of total	'000 tonnes	% of total
Solid bulk	532 790	94.1	561 519	93.8
Liquid bulk	2 663	0.5	3 331	0.6
Freight in containers	22 387	4.0	23 450	3.9
Other freight	8 444	1.5	10 293	1.7
<b>Total</b>	<b>566 284</b>	<b>100.0</b>	<b>598 593</b>	<b>100.0</b>

Source: Rail Freight Movements, Australia, Summary - Electronic Delivery (9220.0.55.001).

## Sea freight activity (domestic)

In the 12 months ended 31 March 2001, there were 47 million tonnes of sea freight carried between Australian ports (table 22.18). This domestic sea freight task amounted to 97.3 billion tonne-kilometres, representing 30% of the aggregate of freight tonne-kilometres travelled within Australia by all transport modes.

## 22.18 DOMESTIC SEA FREIGHT — Year ended 31 March 2001

State/territory of origin	million tonne-kilometres	million tonnes
New South Wales	6 808	5
Victoria	8 342	7
Queensland	31 736	16
South Australia	10 184	7
Western Australia	33 691	7
Tasmania	4 283	5
Northern Territory	2 307	1
Australian Capital Territory	—	—
<b>Australia</b>	<b>97 349</b>	<b>47</b>

Source: Freight Movements, Australia, Summary, Year ended 31 March 2001 (9220.0).

## 22.19 MAJOR COMMODITIES MOVED BY SEA (DOMESTIC) — Year ended 31 March 2001

	Tonne-kilometres		Tonnes	
	million	% of total	million	% of total
Metalliferous ores and metal scrap	61 118	62.8	20	42.5
Petroleum and petroleum products	16 159	16.6	11	22.9
Crude materials	4 272	4.4	4	8.0
Cement	3 131	3.2	3	5.5
Coal	3 013	3.1	3	5.3
Iron and steel	1 929	2.0	2	3.5
Food (for human and animal consumption)	1 923	2.0	1	2.8

Source: *Freight Movements, Australia, Summary, Year ended 31 March 2001 (9220.0)*.

Metalliferous ores and metal scrap accounted for the highest share of tonnes carried (42%), and of freight tonne-kilometres travelled (63%), by sea in the 12 months ended 31 March 2001 (table 22.19).

### Air freight activity (domestic)

Air freight accounted for less than 1% of the total domestic freight task in the year ended 31 March 2001. Freight originating from New South Wales and Victoria, together, accounted for over half (54%) of total air freight tonne-kilometres (table 22.20).

## 22.20 DOMESTIC AIR FREIGHT — Year ended 31 March 2001

State/territory of origin	million tonne-kilometres	million tonnes
New South Wales	74	0.1
Victoria	74	0.1
Queensland	48	—
South Australia	14	—
Western Australia	46	—
Tasmania	9	—
Northern Territory	10	—
Australian Capital Territory	2	—
<b>Australia</b>	<b>276</b>	<b>0.2</b>

Source: *Freight Movements, Australia, Summary, Year ended 31 March 2001 (9220.0)*.

## International freight activity

### Sea freight activity (international)

The nature of Australia's foreign trade means that the weight of exports (including coal, iron ore, and agricultural products) far exceeds the weight of the imports. Most of the tonnage of exports and imports is shipped by bulk carriers or tankers.

The weight of exports was 563 million tonnes in 2003–04, a 4% increase on the previous year, and 30% above the level in 1998–99 (table 22.21).

Tonnages of food and live animal exports rose every year between 1998–99 and 2001–02, before falling by 26% to 23 million tonnes in 2002–03. The food and live animals tonnage recovered in 2003–04. The export of mineral fuels, lubricants and related materials has risen from 187 million tonnes in 1998–99 to 238 million tonnes in 2003–04.

The commodity group Crude materials, inedible, except fuels, which includes iron ore, alumina, zinc ores and wool, accounted for the greatest proportion of total exports by weight in 2003–04 (47%). Mineral fuels, lubricants and related materials which includes coal and petroleum, accounted for 42%. Beverages and tobacco export tonnage increased every year between 1998–99 and 2002–03, then dropped by 10% in 2003–04.

The weight of total imports increased by 13% between 1998–99 and 2003–04, from 56 million tonnes to 63 million tonnes. Over this period the commodity group Manufactured goods classified chiefly by material rose by 57%.

### Air freight activity (international)

The total air cargo tonnage coming into Australia in 2003 was 3% more than in 2002 (table 22.22). Tonnage of incoming freight exceeded outgoing freight by 5%.

The total tonnage of mail moved out of Australia in 2003 was almost identical to the tonnage of incoming mail. The two operating Australian airlines carried 22% of total incoming cargo and 27% of total outgoing cargo in 2003.

### 22.21 INTERNATIONAL SEA FREIGHT, By commodity group

	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
	'000	'000	'000	'000	'000	'000
	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
<b>EXPORTS</b>						
Food and live animals	28 920	29 910	30 369	30 925	22 763	30 236
Beverages and tobacco	432	576	805	890	1 593	1 432
Crude materials, inedible, except fuels	192 479	207 784	222 897	221 755	251 545	266 031
Mineral fuels, lubricants and related materials	186 903	198 148	218 191	223 429	230 785	237 541
Animal and vegetable oils, fats and waxes	474	455	484	690	487	528
Chemicals and related products n.e.c.	1 336	1 423	1 949	1 718	2 086	2 036
Manufactured goods classified chiefly by material	7 891	7 702	6 836	12 073	15 606	8 310
Machinery and transport equipment	573	629	941	801	848	963
Miscellaneous manufactured articles	152	202	301	297	593	213
Commodities and transactions not classified elsewhere in the SITC(a)	13 392	15 861	13 431	13 739	15 166	15 414
<b>Total</b>	<b>432 552</b>	<b>462 690</b>	<b>496 204</b>	<b>506 316</b>	<b>541 474</b>	<b>562 704</b>
<b>IMPORTS</b>						
Food and live animals	1 362	1 443	1 565	1 798	2 708	2 176
Beverages and tobacco	198	243	311	289	348	345
Crude materials, inedible, except fuels	8 163	8 045	7 863	8 078	8 366	8 155
Mineral fuels, lubricants and related materials	28 917	26 952	26 369	27 294	28 661	29 225
Animal and vegetable oils, fats and waxes	208	225	233	244	282	290
Chemicals and related products n.e.c.	8 289	9 196	8 929	9 209	9 213	9 436
Manufactured goods classified chiefly by material	5 406	6 327	5 640	6 480	7 519	8 496
Machinery and transport equipment	2 352	2 654	2 372	2 512	2 893	3 321
Miscellaneous manufactured articles	1 090	1 204	1 221	1 391	1 611	1 810
Commodities and transactions not classified elsewhere in the SITC(a)	246	73	77	746	823	200
<b>Total</b>	<b>56 232</b>	<b>56 361</b>	<b>54 579</b>	<b>58 041</b>	<b>62 422</b>	<b>63 455</b>

(a) Standard International Trade Classification.

Source: ABS data available on request, International Trade Special Data Service.

### 22.22 SCHEDULED INTERNATIONAL AIRLINE TRAFFIC TO AND FROM AUSTRALIA(a)

	2002			2003		
	Freight tonnes	Mail tonnes	Total cargo tonnes	Freight tonnes	Mail tonnes	Total cargo tonnes
<b>INCOMING TRAFFIC</b>						
Qantas Airways Limited	66 226	5 724	71 950	63 987	5 243	69 230
Australian Airlines(b)	263	—	263	3 447	16	3 463
Other airlines	238 606	8 354	246 960	246 185	8 890	255 075
<b>All airlines</b>	<b>305 095</b>	<b>14 078</b>	<b>319 173</b>	<b>313 619</b>	<b>14 149</b>	<b>327 768</b>
<b>OUTGOING TRAFFIC</b>						
Qantas Airways Limited	80 084	13 621	93 705	66 263	12 843	79 106
Australian Airlines(b)	1 230	—	1 230	5 551	36	5 587
Other airlines	259 517	1 013	260 530	225 735	1 286	227 021
<b>All airlines</b>	<b>340 831</b>	<b>14 634</b>	<b>355 465</b>	<b>297 549</b>	<b>14 165</b>	<b>311 714</b>

(a) Includes Norfolk Island. (b) Services commenced in October 2002.

Source: Department of Transport and Regional Services.

**22.23 INTERNATIONAL FREIGHT CARRIED (EXCLUDING MAIL), By city pairs(a)**

	1998	1999	2000	2001	2002	2003
	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
Auckland/Sydney	54 849	54 047	50 090	49 142	47 930	51 466
Singapore/Melbourne	34 935	51 096	48 574	48 457	51 012	51 210
Singapore/Sydney	38 758	43 689	46 313	48 164	48 540	43 279
Hong Kong/Sydney	36 789	34 252	33 976	30 658	30 170	29 970
Los Angeles/Sydney	26 500	36 061	32 721	27 672	27 753	22 218
Auckland/Melbourne	32 199	34 722	29 559	30 355	32 961	32 668
Singapore/Perth	26 160	27 436	27 822	30 073	25 436	26 129
Hong Kong/Melbourne	23 821	26 031	25 879	23 632	23 929	23 817
Seoul/Sydney	11 399	12 316	18 792	16 973	—	—
Kuala Lumpur/Melbourne	—	—	—	12 943	21 121	19 976
Singapore/Brisbane	11 823	14 988	18 337	18 293	18 734	18 633
Other city pairs	334 674	346 878	347 887	320 734	318 340	291 802
<b>All city pairs</b>	<b>631 908</b>	<b>681 515</b>	<b>679 948</b>	<b>640 121</b>	<b>645 926</b>	<b>611 168</b>

(a) The table does not necessarily show the final origin/destination of freight. For example, all freight going to or coming from Europe would require a stopover, generally in Asia.

Source: Department of Transport and Regional Services.

The combined tonnage of incoming and outgoing air freight (excluding mail) fell by 5% between 2002 and 2003. Table 22.23 shows the main origin/destination pairs for freight moving into and out of Australia. The Auckland/Sydney route was the busiest, accounting for 8% of the total freight carried. The Los Angeles/Sydney and Singapore/Sydney routes recorded the largest decreases in freight carried between 2002 and 2003 (20% and 11% respectively).

### Domestic road, rail and air passenger activity

Personal travel occurs for many reasons, including school, business, recreation and travel to and from work. While road transport accounts for the majority of domestic passenger trips undertaken, rail services are used by a considerable number of urban commuters. Air services provide for a large proportion of long distance passenger travel.

#### Road passenger vehicle activity

In the year ending 31 October 2002 Australia's 10.2 million passenger vehicles travelled an estimated 144.7 billion km (table 22.24), each

averaging 14,200 km per year. Just over 367,000 motor cycles travelled 1.7 billion km, while the fleet of almost 57,000 buses travelled 1.8 billion km.

#### Rail passenger activity

The passenger operations of rail operators are shown in table 22.25. The number of urban passengers increased by 28% over the period 1992–93 to 2001–02, but fell to 586 million in 2002–03. Total rail passengers also fell from 648 million in 2001–02 to 595 million in 2002–03. Heavy rail has consistently accounted for more than three-quarters of urban rail passenger operations.

#### Air passenger activity

At 30 June 2003 there were two major domestic airlines operating in Australia – Qantas and Virgin Blue – providing scheduled services to the 34 major airports. Another carrier, Jetstar Airways, commenced operation in May 2004. Regional airlines provided connecting services to an additional 133 regional airports.

## 22.24 MOTOR VEHICLE USE, By state/territory of registration — 2002

	Passenger vehicles	Motor cycles	Buses
TOTAL KILOMETRES TRAVELLED (million)			
New South Wales	46 263	601	565
Victoria	40 273	323	329
Queensland	25 320	479	363
South Australia	11 802	72	144
Western Australia	14 183	114	226
Tasmania	3 123	32	46
Northern Territory	1 077	*20	71
Australian Capital Territory	2 635	39	31
<b>Australia</b>	<b>144 676</b>	<b>1 681</b>	<b>1 775</b>
NUMBER OF VEHICLES(a)			
New South Wales	3 124 190	95 196	16 424
Victoria	2 795 305	100 702	11 703
Queensland	1 854 506	79 586	13 084
South Australia	859 417	26 793	3 783
Western Australia	1 068 105	46 435	7 000
Tasmania	246 632	8 131	1 794
Northern Territory	69 044	3 511	2 206
Australian Capital Territory	177 436	6 902	759
<b>Australia</b>	<b>10 194 637</b>	<b>367 258</b>	<b>56 754</b>

(a) The average number of vehicles registered for the 12 months. Includes registered vehicles that did not travel during the reference period.

Source: Survey of Motor Vehicle Use, Australia, 12 months ended 31 October 2002 (9208.0).

## 22.25 RAIL PASSENGER OPERATIONS(a)

	Urban			Non-urban million persons	Total million persons
	Heavy rail million persons	Tram and light rail million persons	Total million persons		
1992–93	396	103	498	7	505
1993–94	402	106	507	8	516
1994–95	420	111	530	9	539
1995–96	441	116	556	9	566
1996–97	456	118	574	10	584
1997–98	457	121	578	10	588
1998–99	463	123	585	10	595
1999–2000	482	137	619	11	629
2000–01	498	137	634	12	646
2001–02	493	143	636	12	648
2002–03	466	120	586	9	595

(a) Excludes tourist services.

Source: Australasian Railway Association Inc.

Passenger departures were 10% higher in 2003, compared with 2002 (table 22.26), while the percentage of vacant seat kilometres fell. In 2003 the major domestic airlines accounted for 87% of total Australian domestic passenger departures. The regional airlines share of passenger departures has decreased from 17% in 1998 to 13% in 2003.

The number of domestic passengers boarding airlines at the principal airports is shown in table 22.27. In 2003 all principal airports recorded increases in passenger movements compared with 2002. The strongest growth was recorded in Hobart (16%), followed by Perth (15%), Townsville (14%), and Coolangatta (12%). Darwin recorded the lowest level of growth (3%).

## 22.26 DOMESTIC AIRLINE ACTIVITY

	Units	1998	1999	2000(a)	2001(a)	2002(a)	2003(a)
Passenger departures(b)							
Domestic airlines	'000	23 575	24 392	25 660	26 152	25 808	28 949
Regional airlines	'000	4 851	5 039	5 929	5 668	4 354	4 165
Total	'000	28 426	29 431	31 590	31 820	30 162	33 114
Other activity (domestic airlines only)							
Passenger kilometres performed(c)	million	26 774	27 853	29 601	30 410	30 565	34 643
Seat kilometres available(d)	million	35 467	36 119	38 232	39 739	38 640	43 202
Percentage of vacant seat kilometres	%	24.5	22.9	22.6	23.5	20.9	19.8

(a) Includes estimates for regional airlines data. (b) The unit of measurement is traffic on board (which includes transit traffic). Includes revenue passengers only. (c) The sum for all flights of the number of passengers on each flight multiplied by the distance travelled. (d) The sum for all flights of the number of seats on a flight multiplied by distance travelled.

Source: Department of Transport and Regional Services.

## 22.27 DOMESTIC PASSENGER MOVEMENTS(a)

Principal airport	1998 '000	1999 '000	2000 '000	2001 '000	2002 '000	2003 '000
Sydney	(b)14 276	(b)14 882	16 241	(b)16 565	(b)15 195	(b)16 546
Melbourne	11 429	(b)11 901	12 934	(b)13 266	(b)12 883	(b)14 021
Brisbane	(b)7 438	(b)7 833	8 811	(b)9 946	(b)9 164	(b)10 105
Adelaide	(b)3 789	(b)3 861	3 963	(b)4 182	(b)3 994	(b)4 384
Perth	3 236	3 258	3 463	3 342	3 371	3 893
Canberra	1 805	1 901	2 041	(b)1 973	(b)1 886	(b)2 074
Hobart	(b)856	(b)878	928	(b)996	(b)948	(b)1 102
Darwin	854	(b)879	907	(b)848	(b)894	(b)924
Cairns	1 916	(b)2 023	2 133	(b)2 025	(b)2 088	(b)2 245
Coolangatta	1 889	(b)1 938	1 918	(b)1 832	(b)1 912	(b)2 143
Townsville	(b)704	(b)740	772	(b)806	(b)781	(b)889
Launceston	536	(b)545	532	(b)509	(b)570	(b)608

(a) The number of passengers on board arriving at or departing from each airport. Includes passengers in transit who are counted as both arrivals and departures at airports through which they transit. (b) Includes estimates for unreported data.

Source: Department of Transport and Regional Services.

## International passenger activity

Passengers arriving, or departing, Australia, primarily travel by air.

Of total international passengers (16.4 million) carried to and from Australia in 2003 (table 22.28), 3.9 million travelled between Australia and New Zealand and 2.9 million travelled between Australia and Singapore.

Table 22.29 shows the number of international passengers who travelled through each of Australia's international airports. Sydney's share of total international passenger traffic was 48% in 2003, followed by Melbourne with 19%, and Brisbane with 15%. In 2003 the Gold Coast/Coolangatta's international passenger numbers were 23% higher than in the previous year. International passenger numbers at Darwin airport were 25% lower in 2003 compared with 2002.

## 22.28 SCHEDULED INTERNATIONAL PASSENGER TRAFFIC TO AND FROM AUSTRALIA — 2003

Country to/from	Inbound '000	Outbound '000	Total '000
Argentina	14.5	14.8	29.2
Austria	78.4	83.1	161.5
Bahrain	3.0	4.9	7.9
Brunei	47.1	50.7	97.8
Canada	44.0	49.1	93.1
China (excl. SARs & Taiwan Prov.)	125.2	119.4	244.6
Fiji	190.3	189.4	379.7
France	9.6	7.0	16.6
Germany	42.9	38.5	81.4
Guam	12.4	12.8	25.2
Hong Kong (SAR of China)	518.6	487.9	1 006.5
Indonesia	252.6	264.3	516.9
Italy	8.2	5.8	14.0
Japan	771.8	773.0	1 544.8
Korea, Republic of (South)	201.6	190.1	391.7
Malaysia	466.6	442.3	908.9
Mauritius	14.7	14.7	29.4
Nauru	5.7	5.3	11.0
New Caledonia	57.9	56.7	114.6
New Zealand	1 913.5	1 956.7	3 870.2
Papua New Guinea	63.0	64.2	127.1
Philippines	69.4	68.1	137.5
Singapore	1 513.1	1 440.5	2 953.6
Solomon Islands	9.0	9.1	18.1
South Africa	117.9	104.0	221.9
Tahiti	—	0.4	0.4
Taiwan	87.8	87.3	175.1
Thailand	387.0	388.7	775.7
Tonga	2.1	2.3	4.4
United Kingdom	291.3	294.3	585.6
United Arab Emirates	217.7	211.7	429.4
United States of America	651.7	655.1	1 306.8
Vanuatu	28.5	28.3	56.8
Vietnam	22.2	36.7	58.9
Western Samoa	5.1	6.1	11.2
<b>Total</b>	<b>8 263.1</b>	<b>8 182.4</b>	<b>16 445.5</b>

Source: Department of Transport and Regional Services.

## 22.29 INTERNATIONAL PASSENGER TRAFFIC THROUGH AUSTRALIAN INTERNATIONAL AIRPORTS

Airport	2001 '000 passengers	2002 '000 passengers	2003 '000 passengers
Sydney	8 229	8 007	7 925
Melbourne	3 316	3 314	3 199
Brisbane	2 548	2 493	2 549
Perth	1 587	1 636	1 587
Cairns	665	766	747
Adelaide	242	224	207
Darwin	152	103	77.7
Gold Coast/Coolangatta	41.6	113.1	138.9
Norfolk Island	16.4	15.9	15.3
Newcastle(a)	1.1	9.5	—
Broome(b)	2.3	—	—
Townsville(c)	0.1	—	—
<b>Total</b>	<b>16 799.7</b>	<b>16 682.4</b>	<b>16 445.5</b>

(a) International operations commenced December 2001 and ceased September 2002. (b) International operations recommenced April 2000 and ceased again in July 2001. (c) International operations recommenced October 2001 and ceased again in March 2002.

Source: Department of Transport and Regional Services.

## Completion of the Adelaide to Darwin railway line

*This article is based on a paper by Jane Munday (published on the AustralAsia Railway Corporation web site) and information provided by Great Southern Railway and Flinders Ranges Research.*

On 15 January 2004 the first freight train departed from Adelaide for the inaugural two-day journey to Darwin. Running on a transcontinental rail link that had been the dream of many people since the mid-19th century, the AustralAsia Railway completed the final link in Australia's railway network, and created a new transport system for the export and import of goods between Australia and the economies of Asia and beyond.

The time-line (table 22.30) provides a summary of the key events and dates in the 150-year history on the Adelaide to Darwin railway.

Table 22.31 provides a summary of the key construction statistics for the Alice Springs to Darwin railway.

### 22.30 ADELAIDE TO DARWIN RAILWAY — KEY EVENTS

Event	Date
First suggestion of a transcontinental railway line between Adelaide and the tropical north by J Roberston, a Melbourne businessman.	1858
A vote in the South Australian Parliament to build a railway line by land grant is narrowly defeated.	1872
A Bill authorises a railway from Port Augusta to Government Gums (later Farina) (the Southern Line).	1876
Work begins on the Southern Line.	1878
The Southern Line reaches Farina. The South Australian Government introduces the Palmerston and Pine Creek Railway Bill (the Northern Line). Palmerston is the former name of Darwin.	1883
The Northern Line reaches Pine Creek (1888) and is opened (1889).	1888–1889
The Southern Line is extended to reach Oodnadatta.	1891
A promise to complete the transcontinental line forms part of the 1910 <i>Acceptance Act</i> .	1910
Work begins on extending the Northern Line to Emungalen, on the banks of the Katherine River.	End of World War I
The first train crosses the Katherine River, Emungalen closes, and the town of Katherine grows on a new site across the river.	1926
Although the Northern Line is meant to continue on to Daly Waters, funds run out during the Depression and it terminates at Birdum, 509 km south of Darwin.	1929
The Southern Line is extended to Alice Springs.	1929
First Ghan passenger train leaves Adelaide for Alice Springs.	4 August 1929
The need to move troops and supplies leads to suggestions of closing the 1,000 km gap between Birdum and Alice Springs. Instead, the Stuart Highway is sealed between Alice Springs and Darwin. Larrimah, 9 km north of Birdum, becomes the effective railhead.	World War II
Over time, the Northern Line loses patrons and is eventually closed in 1976. Rails and sleepers are dismantled and sold off or donated, rail wagons go to Port Augusta, redundant staff are given priority for other public service jobs, and the operator (National Rail Australia) becomes a freight agency for road trains.	World War II – 1976
The Bureau of Transport Economics investigates the potential of the north-south line and recommends instead that the highway be upgraded.	1977
A new standard gauge line opens from Tarcoola in South Australia (instead of Oodnadatta) to Alice Springs along a less flood-prone route.	1980
The Northern Territory government signs a Memorandum of Understanding with South Australia, providing the joint South Australia/Northern Territory approach to creating the AustralAsia railway.	1995
The AustralAsia Railway Corporation is established by the South Australian and Northern Territory governments.	1997
The Asia Pacific Transport Consortium is selected to build and operate the railway.	June 1999
Prime Minister John Howard, South Australian Premier John Olsen and Northern Territory Chief Minister Denis Burke turn the first sod for the project at a ceremony in Alice Springs.	July 2001
The line south from Katherine and north from Tennant Creek is completed.	December 2002
Tracklaying north from Katherine to Darwin, and south from Tennant Creek to Alice Springs, is completed.	September 2003
The first freight train leaves Adelaide for Darwin.	15 January 2004
The inaugural journey of the passenger service (The Ghan) leaves Adelaide for Darwin arriving 47 hours later after a journey of 2,970 km.	1 February 2004

Source: AustralAsia Railway Corporation; Flinders Ranges Research.

### 22.31 ALICE SPRINGS TO DARWIN RAILWAY — KEY CONSTRUCTION STATISTICS

	Units	no.
Total earthworks	cubic metres	15 000 000
Rail tracklaying, clearing and embankment	km	1 420
Rail delivery	tonnes	146 000
Type of rail (AS1085.1)	kg	50
Track gauge (Standard)	mm	1 435
Flash Butt Welds	no.	110 000
Sleepers	million	2
Sleeper spacing	mm	700/720
Sleeper fastenings	million	8
Ballast	million tonnes	2.835
Bridges	no.	90
Culverts	No. of sites	1 500
Maximum design speed	km/h	115
Axle load	tonnes	23
Maximum grade	%	1.2
People employed at peak period	no.	1 500
Cost	\$b	1.2

Source: AustralAsia Railway Corporation.

## Use of urban public transport in Australia

*This article is based on the results of research undertaken by the Bureau of Transport and Regional Economics.*

Over the past century, Australia has seen a marked change in the nature of urban passenger transport. This article discusses some of these changes.

In the 50 years since the end of World War II, Australian cities have been transformed from fairly tight knit 'core-and-spoke' configurations, to sprawling suburban low-density configurations.

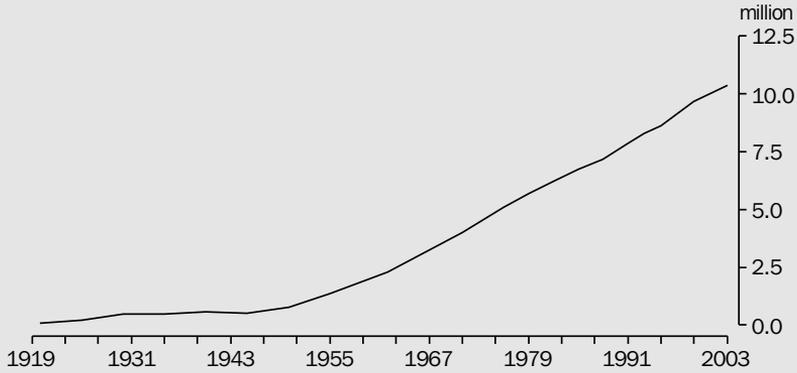
The transformation of urban land use has been accompanied and made possible by a rapid improvement and spread of the road system, and an even more rapid expansion in car ownership. For urban commuters, private vehicles (i.e. cars, trucks, vans, and motorbikes) offer a convenient, reliable and fast means of transport. The number of motor vehicles registered is increasing, and urban design tends to encourage their use with the construction of freeways and dispersed housing.

Since the 1950s the number of private cars has risen dramatically, and continues to do so (graph 22.32). In 2003 there were 10.4 million registered cars and station wagons, compared with 769,000 in 1950 and 76,000 in 1920. This dramatic rise in private car ownership has been accompanied by a corresponding shift away from the use of urban public transport.

Total passenger travel in the urban areas of Australia has grown remarkably – almost nine-fold over the past 50 years, to some 180 billion passenger km (graph 22.33). Almost all that growth came from cars and 'other' road vehicles (mostly light commercial vehicles used for private travel, and motorcycles).

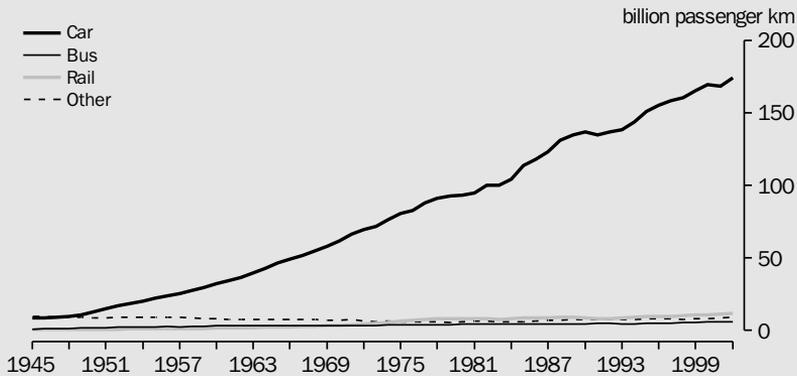
In 1995 private road vehicles represented about 93% of city passenger transport. Urban public transport is a minor component of city transport.

### 22.32 NUMBER OF REGISTERED CARS AND STATION WAGONS



Source: Motor Vehicle Census, Australia (9309.0).

### 22.33 URBAN PASSENGER TRANSPORT TASK



Source: Bureau of Transport Economics - Working Paper 38.

Graph 22.34 shows the decline that occurred in urban rail passenger transport in the period 1945 to 1980. Since 1980 all three modes of transport (bus, rail and other) have shown steady increases.

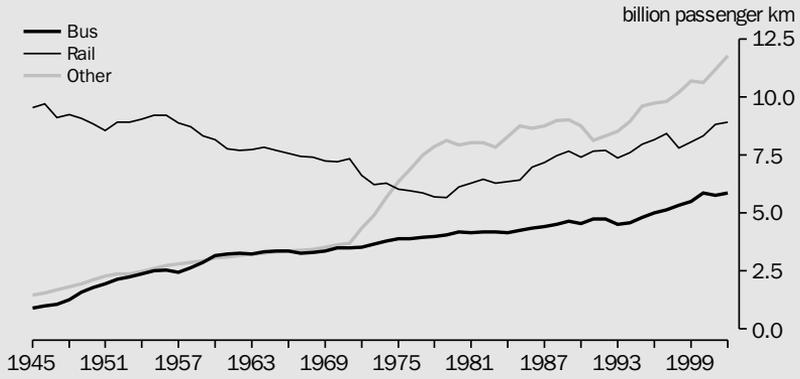
Since 1975, rail has been moving fewer passengers than the 'other' category of urban passenger transport (mostly light commercial vehicles used for private travel, as well as motorcycles).

Graph 22.35 shows the long-run pattern of urban public transport passenger journeys, in Sydney and Melbourne since 1900 and in Brisbane since 1920. It shows the number of passenger journeys

on public transport reached a peak in Sydney, Melbourne and Brisbane just after World War II. However, after the war the growth shifted to car ownership, and urban public transport declined until the early-1980s. The early-1980s saw the end of this downward trend. Rising petrol prices and increasing traffic congestion are thought to have been factors contributing to renewed growth in use of urban public transport in the 1980s.

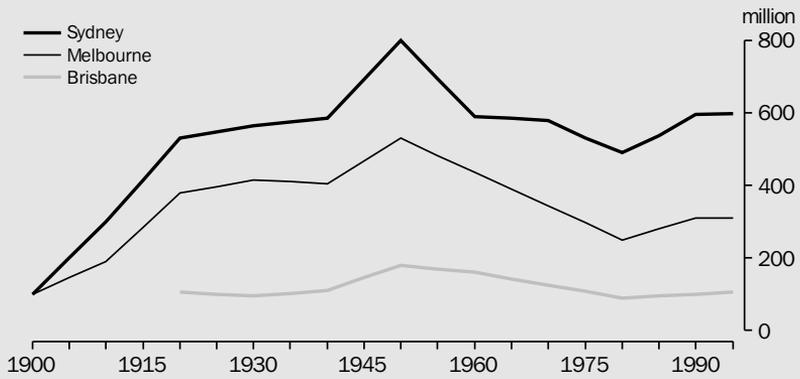
However, the use of urban public transport is still only a small component of total passenger transport, the largest component being travel by private car.

### 22.34 URBAN PASSENGER TRANSPORT, Rail, bus and other



Source: Bureau of Transport Economics - Working Paper 38.

### 22.35 URBAN PUBLIC TRANSPORT PASSENGERS



Source: Gargett 1990; Bureau of Transport Economics estimates.

## Accidents, injuries and fatalities

Accident costs include loss of life or injury to persons, and the destruction of, and damage to equipment and infrastructure. Table 22.36 shows the number of transport-related deaths for each of the transport modes for the six years to 2002. Transport-related deaths fell from 2,038 in 1997 to 1,908 in 2002. The majority of deaths (71% in 2002) were associated with motor vehicles driven on public roads.

### Road traffic crashes

#### Crashes involving fatalities

The number of road traffic crashes involving deaths in 2003 (1,457) was 4% below the number in the previous year (table 22.37). The majority of this decrease was due to a significant reduction in

fatal crashes in Victoria (down 19%). All other states and territories recorded either relatively small decreases or increases.

The number of road deaths was also lower in 2003 compared with 2002, declining by 5%. The number of people killed from road traffic crashes in 2003 (1,633) was the lowest since 1949.

#### Road traffic fatalities

The number of deaths from road traffic crashes per 100,000 people fell from 8.7 in 2002 to 8.2 in 2003, continuing the decline since 1970, when the rate was 30.4. Road deaths per 100,000 in the Northern Territory in 2003 (26.2) were significantly higher than the national rate (table 22.38). The Northern Territory also had the highest number of fatalities per 10,000 registered vehicles (5.0). The Australian Capital Territory had the lowest rate of road deaths (3.4 per 100,000 people) in 2003. Victoria recorded the greatest drop in road deaths per 100,000 people, from 8.2 in 2002 to 6.7 in 2003 (a fall of 18%).

**22.36 DEATHS(a) FROM TRANSPORT ACCIDENTS**

Mode(b)	1997	1998	1999	2000	2001	2002
Motor vehicles(c)	1 296	1 287	1 319	1 427	1 382	1 346
Pedestrians	388	369	373	359	352	308
Pedal cyclists	56	44	44	27	45	39
Rail	3	8	10	4	5	5
Water	50	39	57	51	49	49
Air	48	63	50	43	61	32
Other(d)	197	176	158	104	110	129
<b>Total</b>	<b>2 038</b>	<b>1 986</b>	<b>2 011</b>	<b>2 015</b>	<b>2 004</b>	<b>1 908</b>

(a) Based on the International Classification of Deaths, Edition 10 (ICD-10). Data in this table relate to year of registration of death and are based on death occurring up to one year following a transport accident. Data will therefore differ from the traffic fatalities shown in tables 22.37, 22.38 and 22.41 as data in those tables are based on year of occurrence of transport-related deaths which occur within 30 days of an incident. (b) Mode of transport of deceased persons. (c) Involving motor vehicles driven on public roads. (d) Includes riders of animals, agricultural equipment, all-terrain vehicles, industrial and construction vehicles, and unspecified transport accidents.

Source: State and territory Registrars of Births, Deaths and Marriages.

### 22.37 ROAD TRAFFIC CRASHES INVOLVING FATALITIES

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
CRASHES INVOLVING FATALITIES									
1994	552	345	364	143	195	52	36	15	1 702
1995	563	371	408	163	194	53	56	14	1 822
1996	538	382	338	162	220	53	58	17	1 768
1997	525	346	322	123	184	29	56	17	1 602
1998	491	348	257	152	199	47	59	20	1 573
1999	506	345	273	132	188	47	44	17	1 552
2000	543	373	275	151	184	38	48	16	1 628
2001	486	404	296	137	151	52	43	15	1 584
2002	501	361	283	138	159	34	40	8	1 525
2003	496	294	284	136	155	39	43	10	1 457
PEOPLE KILLED									
1994	646	377	418	159	211	59	41	17	1 928
1995	620	418	456	181	209	57	61	15	2 017
1996	581	417	385	181	247	64	72	23	1 970
1997	576	377	361	148	197	32	60	17	1 768
1998	556	390	279	168	223	48	69	22	1 755
1999	577	383	314	151	217	53	49	19	1 763
2000	603	407	317	166	212	43	51	18	1 817
2001	524	444	324	153	165	61	50	16	1 737
2002	561	397	322	154	179	37	55	10	1 715
2003	552	330	310	157	180	41	52	11	1 633

Source: Australian Transport Safety Bureau, Monthly Fatal Crash Database.

### 22.38 ROAD TRAFFIC FATALITIES

	2002			2003		
	no.	per 100,000 population(a)	per 10,000 motor vehicles registered(b)	no.	per 100,000 population(a)	per 10,000 motor vehicles registered(b)
New South Wales	561	8.5	1.5	552	8.3	1.4
Victoria	397	8.2	1.2	330	6.7	0.9
Queensland	322	8.7	1.3	310	8.2	1.2
South Australia	154	10.1	1.4	157	10.2	1.5
Western Australia	179	9.3	1.3	180	9.2	1.3
Tasmania	37	7.8	1.1	41	8.6	1.2
Northern Territory	55	27.7	5.3	52	26.2	5.0
Australian Capital Territory	10	3.1	0.5	11	3.4	0.5
<b>Australia</b>	<b>1 715</b>	<b>8.7</b>	<b>1.3</b>	<b>1 633</b>	<b>8.2</b>	<b>1.2</b>

(a) Estimated resident population at 30 June. (b) Number of registered motor vehicles and motor cycles (excludes tractors, caravans, plant and equipment) at 31 March.

Source: Motor Vehicle Census, Australia, 31 March 2003 (9309.0); Population by Age and Sex, Australian States and Territories, June 2003 (3201.0); Australian Transport Safety Bureau, Monthly Fatal Crash Database.

## 22.39 ROAD TRAFFIC FATALITIES, International comparisons — 2001

Country	no.	per 100,000 of population	per 10,000 registered vehicles	People killed per 100 million vehicle km travelled	Total population millions
<b>Australia</b>	<b>1 737</b>	<b>8.9</b>	<b>1.4</b>	<b>0.9</b>	<b>19.4</b>
France	8 160	13.8	2.3	1.5	59.0
Germany	6 977	8.5	1.3	1.1	82.3
Japan	10 060	7.9	1.3	—	127.3
Korea, Republic of (South)	8 097	17.2	5.8	—	47.0
New Zealand	455	11.8	1.7	—	3.9
Poland	5 534	14.3	3.8	—	38.6
Portugal	1 671	—	2.0	—	—
Spain	5 517	13.8	2.3	—	40.1
Sweden	554	6.2	1.1	—	8.9
Switzerland	544	7.6	1.2	0.9	7.2
United Kingdom	3 598	6.1	1.2	—	58.8
United States of America	42 116	14.8	1.9	0.9	284.8
OECD median	—	11.4	1.8	1.0	—

Source: Australian Transport Safety Bureau.

### International comparisons of road traffic deaths

Australian road traffic deaths are compared with those for other selected OECD nations in table 22.39. Australia's rate of 8.9 road deaths per 100,000 persons in 2001 is considerably lower than the rates of France (13.8), the Republic of (South) Korea (17.2), Poland (14.3), Spain (13.8) and the United States of America (14.8). Australia's rate is, however, markedly higher than Sweden (6.2) and the United Kingdom (6.1).

Australia's rate of road deaths per 10,000 registered vehicles (1.4) was below the OECD median. For the countries listed the Republic of (South) Korea has the highest death rate per 10,000 registered vehicles (5.8) deaths.

The number of fatalities per 100 million vehicle kilometre travelled in Australia in 2001 (0.9) was the same as that for the United States of America and less than that for France (1.5).

### Rail and water transport accidents

There were 49 deaths associated with water transport accidents in 2002, unchanged from the number of deaths in 2001 (table 22.36). There were five rail transport accident-related deaths recorded in 2002, also unchanged from the number of deaths in the preceding year.

### Air accidents

Since 1991 the number of aircraft accidents has declined by 52%, from 322 in 1991 to 155 in 2003 (table 22.40). In 2003 there were 54 fatalities, the same number of fatalities as occurred in 1991, and a rise of 59% compared with 2002.

#### 22.40 AIR TRANSPORT, Accidents and fatalities(a)

	Accidents	Fatalities
1991	322	54
1992	310	66
1993	318	67
1994	266	64
1995	267	51
1996	243	51
1997	254	38
1998	227	56
1999	196	49
2000	222	46
2001	201	51
2002	164	34
2003	155	54

(a) Includes accidents in Australia, accidents to Australian registered aircraft overseas, and accidents to foreign registered aircraft occurring within the Australian Flight Information Region. Excludes ballooning accidents.

Source: Australian Transport Safety Bureau.

## Road fatalities and fatality rates – 1925 to 2003

Road crashes are a major cause of death and injury in Australia. Since record keeping began in 1925 there have been over 169,000 road fatalities in Australia. This death toll surpasses the aggregate number of Australians killed (89,850 deaths) in the four major wars (World Wars I and II, Korea and Vietnam) in which Australia has been involved (FORS).

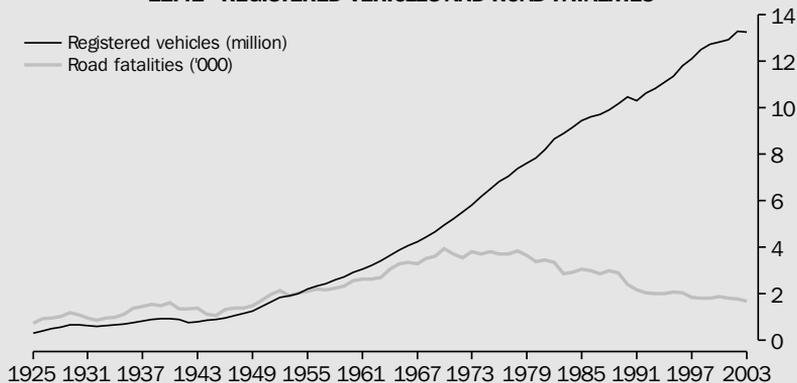
Graph 22.41 compares the trends in Australian vehicle ownership and road fatalities between 1925 and 2003. Graph 22.42 shows road fatalities per 10,000 registered vehicles and 100,000 persons for the same period.

Until 1970, each year other than during the Depression and World War II had seen a steady growth in motor vehicle ownership and a corresponding increase in road deaths. By 1970 the number of vehicles had increased twelve-fold over the number in 1926 and the road toll had increased about four times to reach its highest mark of 3,798 deaths. The number of fatalities per 100,000 people also peaked in 1970 at 30.4. The road toll in 2003 of 1,633 people was less than half the 1970 figure, while the number of fatalities per 100,000 people (8.2) for 2003 was less than a third that of 1970. Also, while there were 8.0 road fatalities per 10,000 registered vehicles in 1970, this rate has decreased to 1.2 in 2003 (ATSB).

Since 1970, despite there being an increased number of motor vehicles, it appears that wide ranging road safety changes and initiatives, and a corresponding heightening of community awareness, have contributed to a reduction in the road toll (FORS). These have included:

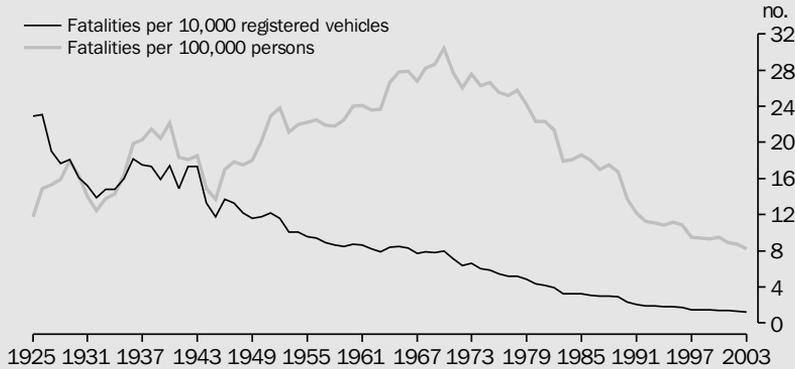
- Improvements to roads, such as separated dual lane highways, major roads by-passing towns and suburbs, road shoulder sealing, eliminating known dangerous 'black spots', use of audible edge-lining, and removal of roadside hazards.
- Changes to vehicles via the application of Australian Design Rules, including child restraint anchorages and seats, head restraints, airbags, and increased vehicle impact resistance and roll-over strength.
- Legislation requiring the fitting and wearing of vehicle seat belts, and motor cycle and bicycle helmets.
- Initiatives against drink driving, such as random breath testing and public education campaigns.
- Enhanced police enforcement aided by improved technology such as red light and speed cameras.

**22.41 REGISTERED VEHICLES AND ROAD FATALITIES**



Source: Australian Transport Safety Bureau.

## 22.42 ROAD FATALITIES



Source: Australian Transport Safety Bureau.

## References

ATSB (Australian Transport Safety Bureau), *Road crash data and rates, Australian States and Territories, 1925 to 2002*, 2003.

FORS (Federal Office of Road Safety), monograph 23, *The history of road fatalities in Australia*, 1998.

## Transport infrastructure

Transport infrastructure comprises three essential elements:

- physical infrastructure – roads, rail track, seaports, airports
- transport equipment – motor vehicles, trains, ships, aircraft
- people with the necessary skills – licensed drivers, pilots, etc.

## Physical infrastructure

The cost of constructing Australia's vast transport infrastructure is substantial. The value of transport-related public and private sector new

engineering construction done during 2002–03 included: \$6,324m on roads, highways and subdivisions; \$312m on bridges; \$1,287m on railways; \$299m on harbours; and \$939m on pipelines.

## Length of the road system

The length of Australia's roads is described in table 22.43. New South Wales is the state with the greatest length of bitumen or concrete roads (91,746 km), representing just over half of all roads in that state. The Australian Capital Territory has the highest percentage of total road surface consisting of bitumen or concrete (95.3%), while the Northern Territory has the lowest percentage of such roads (29.2%).

### 22.43 LENGTHS OF ROADS OPEN FOR GENERAL TRAFFIC(a) — 30 June 2004

	Units	NSW(b)	Vic.(c)	Qld	SA	WA(d)	Tas.(e)	NT(f)	ACT
Bitumen or concrete	km	91 746	76 000	70 608	28 557	50 562	10 456	6 463	2 570
Gravel, crushed stone or other improved surface	km	90 421	53 800	52 513	40 825	55 044	(g)13 343	6 763	128
Formed only	km	(h)	22 900	43 325	14 435	29 644	845	7 531	(h)
Cleared only	km	n.a.	(i)	14 859	12 757	13 189	(i)	1 340	—
<b>Total</b>	<b>km</b>	<b>182 167</b>	<b>152 700</b>	<b>181 305</b>	<b>96 574</b>	<b>148 456</b>	<b>24 644</b>	<b>22 097</b>	<b>2 698</b>
Percentage of total surface with bitumen or concrete	%	50.4	49.8	38.9	29.6	34.1	42.4	29.2	95.3

(a) Road length is defined as follows: for NSW, SA & WA – route (end-to-end) length plus ramps, connections, additional carriageways, etc. All reported lengths include roads, bridges and ferry route lengths. For Vic. – route (end-to-end) length excluding ramps, connections, additional carriageways, etc. All reported lengths include roads and bridges, but exclude ferry route lengths. For Qld – length of the primary through carriageway. For Tas. – point-to-point direct travel distance. For NT – road centre-line length in one direction of travel only. For ACT – route (end-to-end) length plus ramps, connections, additional carriageways, etc. Includes roads and bridges, but excludes forestry, private roads and roads not managed by the ACT Government. (b) Excludes Lord Howe Island, forestry-controlled roads and crown roads. (c) Excludes in excess of 40,000 km of roads in areas such as parks and forests coming under the responsibility of organisations such as the Department of Sustainability and Environment, Parks Victoria and Water Catchment Authorities. Includes VicRoads declared roads as at June 2003 and unclassified roads as at June 2002. (d) Excludes approximately 27,100 km of forestry-controlled roads. (e) Includes an estimate for forestry roads. (f) Excludes roads not managed by the NT Government. (g) Includes local government roads in formed only and cleared only categories. (h) Included in Gravel, crushed stone or other improved surface. (i) Included in Formed only.

Source: Derived primarily from Road and Traffic Authorities and local government sources in each state and territory.

### Rail network

Australia's rail systems comprise 41,461 km of broad, standard and narrow gauge track (table 22.44).

Australia has a diverse range of rail gauges, reflecting the historical development of state infrastructure. It also reflects private development, such as the 4,150 km narrow gauge system of the Queensland sugar industry. The rail system includes the 250 km tram/light rail network in Melbourne, the 12 km tram line in Adelaide, the 7 km light rail and 4 km monorail lines in Sydney, and the 9 km skitube in the New South Wales Snowy Mountains.

### Seaports

Under Section 15 of the *Customs Act 1901* (Cwlth), Australia has 97 appointed ports, which are points of passenger and cargo entry into Australia or transfer where customs and quarantine activities

are carried out. Western Australia has the greatest number of such ports (22), while the Northern Territory has the fewest (3). Of the remaining states, Queensland has 20 ports, South Australia (18), Tasmania (15), New South Wales (14), and Victoria has 5 ports.

### Airports

There are 256 regulated airports in Australia and its external territories. Of these, 11 were operated as international airports servicing scheduled international airlines. The majority of airports are owned and operated by local councils, state government departments and private companies. The remaining airports are owned and operated by the Department of Defence or leased by the Australian Government to private sector companies or government corporations.

### 22.44 TRACK NETWORK(a), Route kilometres operated — 30 June

Gauge	1999	2000	2001	2002	2003
<b>Narrow</b>					
610 mm	4 150	4 150	4 150	4 150	4 150
1067 mm	15 122	15 081	15 054	(b)15 160	(b)15 160
<b>Standard</b>					
1435 mm	16 381	16 339	16 343	17 678	17 720
<b>Broad</b>					
1600 mm	4 009	4 009	4 017	4 017	4 150
<b>Dual</b>					
	264	265	266	281	281
<b>Total</b>	<b>39 926</b>	<b>39 844</b>	<b>39 830</b>	<b>41 286</b>	<b>41 461</b>

(a) Includes tram and light rail. (b) Includes 4 km of 940 mm narrow gauge monorail in Sydney.

Source: Australasian Railway Association Inc.

## Transport equipment

### Registered motor vehicles

There were almost 12.8 million motor vehicles (excluding motor cycles, tractors, plant and equipment, caravans and trailers) registered in Australia at 31 March 2003 (table 22.45). This represents an increase of 3% since the previous census taken on 31 March 2002. Approximately 8 out of every 10 vehicles are passenger vehicles. Table 22.46 shows registered motor vehicles by state or territory of registration. New South Wales, Victoria and Queensland are the states having the largest numbers of vehicles with 30%, 27% and 19% of the total vehicle fleet respectively.

The average age of the Australian motor vehicle fleet at 31 March 2003 was 10.4 years (table 22.47). Tasmania recorded the highest average age (12.4 years) while the Northern Territory recorded the lowest average age (9.3 years). Of the different vehicle types, campervans had the oldest average age (18.9 years), while motorcycles recorded the lowest (9.9 years).

The number of motor vehicles registered per person increased from 595 vehicles per 1,000 persons in 1993 to 662 per 1,000 persons in 2003 (table 22.48). Western Australia had the most registered vehicles per person in 2003, at 737 per 1,000 persons, being 11% above the Australian average.

#### 22.45 REGISTERED MOTOR VEHICLES

Motor vehicle census years(c)	Passenger vehicles(a) '000	Light commercial vehicles '000	Trucks				Buses '000	Total(b) '000	Motor cycles '000
			Rigid	Articulated	Non-freight carrying				
			'000	'000	'000	'000			
1996	9 022	1 602	341	58	16	59	11 097	304	
1997	9 240	1 632	342	59	17	61	11 351	313	
1998	9 561	1 686	347	62	18	64	11 738	329	
1999	9 720	1 721	347	63	18	66	11 935	334	
2001	9 870	1 770	338	63	18	68	12 126	351	
2002	10 137	1 820	342	64	19	70	12 451	371	
2003	10 404	1 880	349	64	19	70	12 786	377	

(a) Includes campervans. (b) Excludes motor cycles, tractors, plant and equipment, caravans and trailers. (c) At 31 March for 2003, 2002 and 2001; at 31 October for all previous years shown.

Source: *Motor Vehicle Census, 31 March 2003 (9309.0)*.

#### 22.46 REGISTERED MOTOR VEHICLES — 31 March 2003

	Passenger vehicles(a) '000	Light commercials '000	Trucks				Buses '000	Total(b) '000	Motor cycles '000
			Rigid	Articulated	Non-freight carrying				
			'000	'000	'000	'000			
New South Wales	3 171	532	105	15	3	19	3 845	100	
Victoria	2 831	438	86	19	5	16	3 395	99	
Queensland	1 922	441	72	14	4	15	2 468	84	
South Australia	878	133	26	6	2	4	1 049	28	
Western Australia	1 099	226	45	8	3	10	1 391	47	
Tasmania	251	65	9	1	1	2	330	9	
Northern Territory	68	26	3	1	—	3	101	3	
Australian Capital Territory	184	19	2	—	—	1	206	7	
<b>Australia</b>	<b>10 404</b>	<b>1 880</b>	<b>349</b>	<b>64</b>	<b>19</b>	<b>70</b>	<b>12 786</b>	<b>377</b>	

(a) Includes campervans. (b) Excludes motor cycles, tractors, plant and equipment, caravans and trailers.

Source: *Motor Vehicle Census, Australia, 31 March 2003 (9309.0)*.

## 22.47 ESTIMATED AVERAGE AGE OF THE VEHICLE FLEET(a) — 31 March 2003

Type of vehicle	State/territory of registration								
	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Passenger vehicles	9.1	10.4	10.1	11.6	10.5	11.9	8.9	9.8	10.1
Campervans	17.0	19.7	16.4	20.2	21.2	19.9	19.0	19.4	18.9
Light commercial vehicles	10.3	12.1	11.2	12.4	12.0	13.4	9.9	10.6	11.4
Light rigid trucks	11.1	13.4	12.0	13.4	13.6	16.5	8.7	11.7	12.3
Heavy rigid trucks	14.0	17.4	15.1	17.8	18.1	17.3	13.0	11.5	16.0
Articulated trucks	10.7	12.0	11.6	11.1	13.5	10.9	12.6	8.1	11.7
Non-freight carrying trucks	13.5	15.3	11.2	14.5	16.9	16.9	12.8	14.6	14.4
Buses	9.9	10.6	10.6	11.6	9.6	14.4	8.9	10.7	10.4
Motor cycles	9.0	9.5	10.5	(b)9.4	12.1	10.6	8.3	9.4	9.9
<b>Total</b>	<b>9.4</b>	<b>10.8</b>	<b>10.5</b>	<b>11.8</b>	<b>11.1</b>	<b>12.4</b>	<b>9.3</b>	<b>9.9</b>	<b>10.4</b>

(a) Excludes plant and equipment, caravans and trailers. (b) Year of manufacture is frequently not reported for SA motor cycles. In 2003 it was not reported for 23% of motor cycles registered in South Australia.

Source: *Motor Vehicle Census, 31 March 2003 (9309.0)*.

## 22.48 MOTOR VEHICLES(a)(b) ON REGISTER PER 1,000 OF POPULATION

	1993	1995	1996	1997(c)	1998	1999	2001(c)	2002	2003
New South Wales	529	545	556	546	581	574	568	578	590
Victoria	642	637	669	661	682	693	690	701	709
Queensland	593	614	624	605	645	659	651	663	676
South Australia	638	653	667	661	693	692	694	699	705
Western Australia	665	679	694	682	725	723	722	731	737
Tasmania	661	676	686	688	684	701	700	708	711
Northern Territory	497	520	529	508	538	535	516	520	529
Australian Capital Territory	591	604	613	637	627	635	634	643	659
<b>Australia</b>	<b>595</b>	<b>606</b>	<b>614</b>	<b>630</b>	<b>612</b>	<b>647</b>	<b>642</b>	<b>652</b>	<b>662</b>

(a) Excludes tractors, plant and equipment, caravans and trailers. (b) At 31 March for 2003, 2002 and 2001; at 31 October for all previous years shown. (c) Revised data.

Source: *Motor Vehicle Census, 31 March 2003 (9309.0)*.

## Sales of new motor vehicles

In 2003 sales of new motor vehicles reached a record, with 910,000 vehicles being sold (table 22.49). Passenger vehicles comprised 65% of sales made in 2003.

In 2003 New South Wales had the largest sales of new motor vehicles (303,000), representing 33% of total sales in that year, followed by Victoria (27%) and Queensland with 20% (table 22.50).

## Rail rolling stock

The number of locomotives, passenger cars and wagons in the Australian rail fleet, is shown in table 22.51. A large number of the narrow gauge diesel locomotives are owned by Queensland operators (Queensland Rail and Sugar Cane Railways), and service the Brisbane to Cairns route or the extensive sugar cane rail network. Queensland Rail has the largest fleet of such locomotives with 326 narrow gauge diesel and 182 narrow gauge electric.

## 22.49 SALES OF NEW MOTOR VEHICLES, By type of vehicle

	Passenger vehicles(a)	Other vehicles(b)	Total vehicles
	'000	'000	'000
1994	462	155	616
1995	489	154	643
1996	491	158	649
1997	541	183	723
1998	583	224	807
1999	547	238	784
2000	556	235	791
2001	531	245	775
2002	540	284	824
2003	589	321	910

(a) Includes vehicles designed primarily for the carriage of people, such as cars, station wagons and people movers.

(b) Includes trucks, buses, vans, all terrain wagons, pick-up/cab chassis (whether four-wheel drive or not) with a gross vehicle mass of 2.5 to 3.5 tonnes. Also includes heavy trucks and buses, with a gross vehicle mass exceeding 3.5 tonnes, and four-wheel drive passenger vehicles.

Source: *Sales of New Motor Vehicles, Australia (Electronic Publication) (9314.0)*.

## 22.50 SALES OF NEW MOTOR VEHICLES, By state and territory

	State/territory of registration								
	NSW '000	Vic. '000	Qld '000	SA '000	WA '000	Tas. '000	NT '000	ACT '000	Aust. '000
1994	225	143	115	40	62	13	6	13	616
1995	235	152	116	42	64	14	8	13	643
1996	231	157	119	42	67	13	7	11	649
1997	257	179	130	47	73	14	8	14	723
1998	286	203	146	53	80	15	9	15	807
1999	282	206	142	48	70	14	8	14	784
2000	282	214	139	47	71	14	8	16	791
2001	271	216	136	48	69	14	7	14	775
2002	283	225	155	53	73	15	7	14	824
2003	303	244	178	62	83	18	8	15	910

Source: Sales of New Motor Vehicles, Australia (Electronic Publication) (9314.0).

## 22.51 RAIL FLEET — 30 June

	2000	2001	2002
LOCOMOTIVES			
Diesel			
Broad gauge	131	142	145
Standard gauge	886	875	912
Narrow gauge	1 050	1 018	747
Electric			
Standard gauge	60	60	58
Narrow gauge	184	184	182
XPT standard gauge	19	21	19
<b>Total</b>	<b>2 330</b>	<b>2 300</b>	<b>2 063</b>
PASSENGER CARS			
Locomotive hauled	711	668	683
Diesel rail cars			
Non-urban	117	117	117
Suburban	106	100	91
Total	223	217	208
Electric railcars			
Interurban(a)	283	283	283
Suburban	2 566	2 593	2 602
Total	2 849	2 876	2 885
Tram/light rail	556	565	601
Charter/heritage	47	40	43
<b>Total</b>	<b>4 386</b>	<b>4 366</b>	<b>4 420</b>
WAGONS			
Revenue			
Broad gauge	2 025	2 020	2 000
Standard gauge	20 703	20 928	22 341
Narrow gauge(b)	19 336	18 614	18 067
Total	42 064	41 562	42 408
Other	1 719	1 650	1 626
<b>Total</b>	<b>43 783</b>	<b>43 212</b>	<b>44 034</b>

(a) Includes 12 tilt cars. (b) Excludes 54,000 610 mm sugar cane wagons.

Source: Australasian Railway Association Inc.

## Shipping fleet

The Australian Marine Safety Authority provides the ship registration service for the maritime and fishing industries and the boating community pursuant to the *Shipping Registration Act 1981* (Cwlth) as part of its General Counsel bureau. The number of ships on the register increased by 145 during 2003–04, with 9,185 registered at 30 June 2004 (table 22.52). Queensland had the largest fleet, with 2,938 ships. In all states and territories except South Australia and Tasmania, over half the fleets were registered for recreational use. High percentages of the total number of ships registered in South Australia (48%) and Tasmania (40%) were registered for fishing purposes.

The major Australian trading fleet (vessels of 2,000 deadweight tonnes and over) comprised 54 ships at 30 June 2002 (table 22.53). The minor trading fleet, consisting of vessels with gross tonnage of between 150 and 2,000 tonnes, comprised 23 ships.

## Aircraft fleet

There were 12,034 aircraft in the Australian Civil Aircraft Register at 31 December 2003 (table 22.54). This included 9,470 aeroplanes and 1,123 helicopters. Between 1993 and 2003, the number of aeroplanes has increased by 1,024 (12%), helicopters by 489 (77%), gliders by 170 (18%), and balloons by 136 (67%).

### 22.52 SHIPS REGISTERED(a) IN AUSTRALIA — 30 June 2004

	Nature of registration					Total
	Recreational	Fishing	Government	Demise chartered(b)	Commercial and Trading	
New South Wales	1 862	282	5	9	260	2 418
Victoria	707	203	—	—	97	1 007
Queensland	1 727	754	18	13	426	2 938
South Australia	284	311	1	—	47	643
Western Australia	642	414	—	3	149	1 208
Tasmania	287	229	1	—	60	577
Northern Territory	296	63	1	—	34	394
<b>Australia</b>	<b>5 805</b>	<b>2 256</b>	<b>26</b>	<b>25</b>	<b>1 073</b>	<b>9 185</b>

(a) Australian-owned commercial or trading ships of 24 metres or more in tonnage length. All ships, regardless of tonnage length, must be registered before departing on a voyage from Australia or from a foreign port where there is an Australian diplomatic representative. (b) Demise charter is the charter of a foreign ship operated by an Australian company in Australian waters. These ships are not necessarily engaged in trade or commerce.

Source: Australian Maritime Safety Authority.

### 22.53 TRADING FLEET — 30 June 2002

Ships	no.	Deadweight tonnes(a)	Gross tonnage(b)
<b>Major Australian fleet(c)</b>			
Coastal			
Australian registered	37	1 019 476	739 138
Overseas registered	4	118 774	71 655
<i>Total</i>	41	1 138 250	810 793
Overseas			
Australian registered	9	759 508	691 995
Overseas registered	4	115 953	68 589
<i>Total</i>	13	875 461	760 584
<i>Total</i>	54	2 013 711	1 571 377
<b>Minor trading ships(d)</b>			
Australian registered	17	9 296	12 165
Overseas registered	6	5 630	4 201
<i>Total</i>	23	14 926	16 366
<b>Australian trading fleet</b>	<b>77</b>	<b>2 028 637</b>	<b>1 587 743</b>

(a) Weight that a vessel can carry, including cargo, bunkers, water and stores. (b) Measure of the internal capacity of a ship (in tonnes) that is available within the hull and enclosed spaces for cargo, stores, passenger and crew. (c) Greater than 2,000 deadweight tonnes. (d) Between 150 gross registered tonnes and 2,000 deadweight tonnes.

Source: Bureau of Transport and Regional Economics.

**22.54 REGISTERED AIRCRAFT(a) — 31 December**

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
<b>Aeroplanes</b>											
Single engine	6 547	6 612	6 676	6 726	6 890	7 024	7 196	7 280	7 350	7 403	7 543
Multi engine	1 881	1 884	1 907	1 950	1 950	1 918	1 930	1 971	1 969	1 932	1 927
<b>Total</b>	<b>8 446</b>	<b>8 496</b>	<b>8 583</b>	<b>8 688</b>	<b>8 840</b>	<b>8 942</b>	<b>9 126</b>	<b>9 251</b>	<b>9 319</b>	<b>9 335</b>	<b>9 470</b>
Helicopters	634	650	680	684	717	751	851	926	967	1 034	1 123
Gliders(b)	932	952	965	985	1 062	1 069	1 068	1 071	1 082	1 082	1 102
Balloons	203	223	239	262	282	296	309	322	334	337	339
<b>Total</b>	<b>10 215</b>	<b>10 321</b>	<b>10 467</b>	<b>10 619</b>	<b>10 901</b>	<b>11 058</b>	<b>11 354</b>	<b>11 570</b>	<b>11 702</b>	<b>11 788</b>	<b>12 034</b>

(a) Includes amateur built aircraft. (b) Includes powered and non-powered gliders.

Source: Civil Aviation Safety Authority, Aircraft Register.

## Air pilot licences

At 30 June 2004 there were 30,390 holders of a current aeroplane pilot licence, including 15,498 private pilots, 4,303 commercial pilots, 6,025 air transport pilots, and 4,564 student General Flying Progress Test Licences.

In addition, there were 1,776 holders of a current helicopter pilot licence (including student licences), of whom there were 376 private pilots, 930 commercial pilots and 429 air transport pilots.

There were licences held by approximately 90 commercial balloonists and 252 flight engineers. These figures show only the highest level of licence held and include only those pilots who have a current medical certificate enabling them to exercise the privileges of the licence. Student pilots who have not progressed to the flight test stage are excluded.

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AUSTROADS, last viewed October 2004 <<http://www.austroads.com.au>>  
Bureau of Transport and Regional Economics, last viewed October 2004 <<http://www.btre.gov.au>>  
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Department of Transport and Regional Services, last viewed October 2004 <<http://www.dotrs.gov.au>>  
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FreightLink, last viewed October 2004 <<http://www.freightlink.com.au/Default.aspx?p=1>>  
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South Australia Central, last viewed October 2004 <<http://www.southaustralia.biz/rail/>>



## COMMUNICATIONS AND INFORMATION TECHNOLOGY

This chapter presents information on the characteristics and performance of industries involved in the production of information and communications technology goods and services. It also provides statistics on Internet activity in Australia and the use of information technology by businesses, farms, households and government organisations.

In 2002–03 the communications services industry contributed 2.8% to Australia's gross domestic product.

The chapter concludes with an article *Use of information technology by older people*.



## Economic contribution of the communication services industries

The communication services industries encompass telecommunication services, and postal and courier services. These industries comprise the Communication Services Division of the Australian and New Zealand Standard Industrial Classification (ANZSIC).

The Australian national accounts provide some statistics about the communication services industries including a measure of its overall contribution to the total level of economic activity in Australia, gross domestic product (GDP). These are presented in table 23.1. The chain volume measure of gross value added by the communication services industries increased by 6% from 2001–02 to 2002–03, which was an improvement on the previous year's increases of

3% for the year to 2001–02 and 1% for the year to 2000–01. However, these recent annual increases are below those experienced in the late-1990s, which were regularly showing around 10% annual growth.

Total factor income is that part of the cost of producing the GDP which consists of gross payments to factors of production (labour and capital) and is equal to the sum of compensation of employees, gross operating surplus and gross mixed income. Examination of the total factor income for the communication services industries shows changes in the share of income accruing to labour (i.e. compensation of employees) compared with the share accruing to capital (i.e. gross operating surplus and gross mixed income). Graph 23.2 shows how the shares accruing to labour and capital for the communication services industries have changed since 1996–97.

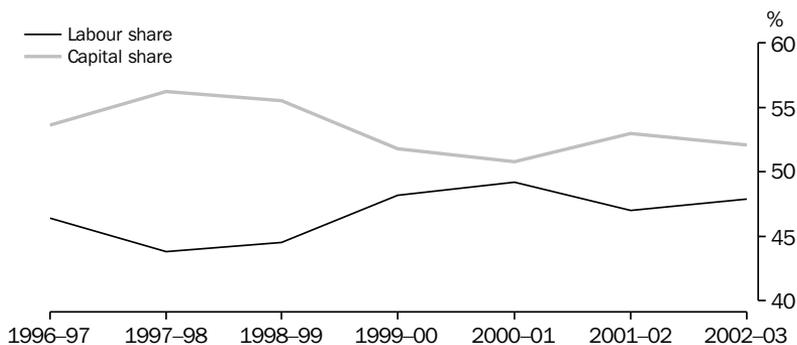
**23.1 COMMUNICATION SERVICES INDUSTRIES, Gross value added(a)**

	Units	1997–98	1998–99	1999–2000	2000–01	2001–02	2002–03
<b>At current prices(b)</b>							
Value	\$m	17 157	18 087	18 159	18 799	19 163	19 994
Change from previous period	%	9.9	5.4	0.4	3.5	1.9	4.3
<b>Chain volume measures(c)</b>							
Value	\$m	15 858	17 583	18 459	18 607	19 163	20 378
Change from previous period	%	10.7	10.9	5.0	0.8	3.0	6.3
Contribution to GDP	%	2.6	2.7	2.7	2.7	2.7	2.8

(a) The value of output at basic prices minus the value of intermediate consumption at purchasers' prices. Basic prices valuation of output removes the distortion caused by variations in the incidence of commodity taxes and subsidies across the output of industries. (b) Estimates valued at the prices of the period to which the observation relates. (c) Estimates revalued to remove the direct effects of changes in prices over time. The reference year for chain volume measures is 2001–02.

Source: Australian System of National Accounts, 2002–03 (5204.0).

**23.2 COMMUNICATION SERVICES INDUSTRIES TOTAL FACTOR INCOME(a)**



(a) Current prices.

Source: Australian System of National Accounts, 2002–03 (5204.0).

## Telecommunication services industry

The telecommunication services industry is made up of businesses mainly providing telecommunication services to the public by wire, cable or radio. The primary activities of the industry include cable and communication channel services, network communication services, operation of radio relay stations, satellite communication services, telecommunications, telephone services, teleprinter and telex services, and operation of television relay stations. The Australian Bureau of Statistics (ABS) classifies the provision of radio and television services (as distinct from the operation of radio and television relay stations) as part of the Cultural and Recreational Services Division of ANZSIC.

The *Telecommunications Act 1997* (Cwth) allows any person to provide a range of telecommunication services, provided they comply with the provisions of the Act. Providers may use telecommunications capacity acquired from a licensed carrier or, in defined circumstances, from non-carrier infrastructure, to supply a range of local or national telecommunication services to consumer and commercial markets. Service providers typically purchase network capacity from carriers at

discounted rates. In theory this allows them to provide either similar services at competitive prices or a variety of value-adding services. These services include basic telephony services, mobile phone services, data and value-adding services, Internet services and other telecommunication services.

Table 23.3 shows performance indicators by size of telecommunication businesses for the telecommunication services industry. Total income for the telecommunication services industry was \$31,796m in 2002–03. The largest income sources for telecommunication services were the provision of basic telephony services (\$10,946m or 34%), mobile and paging services (\$8,154m or 26%), data and text services (\$2,655m or 8%) and Internet services (\$2,183m or 7%). The telecommunication services industry operating profit before tax was \$4,766m and represented an operating profit margin of 15%.

There were 39 telecommunications businesses with employment of 100 persons or more, accounting for 4% of all telecommunications businesses. These large businesses accounted for 90% of employment and 94% of total income. The operating profit margin for these large businesses was 16%, well above that for smaller-sized businesses.

### 23.3 TELECOMMUNICATION SERVICES INDUSTRY(a), Performance indicators — 2002–03

Indicator	Units	Employment size				Total
		0–4 persons	5–19 persons	20–99 persons	100 or more persons	
Businesses at 30 June	no.	563	^ 270	^ 84	39	956
Employment at 30 June	no.	1 158	^ 2 657	^ 3 132	60 803	67 750
Total income	\$m	^ 339	^ 766	923	29 767	31 796
Total expenses	\$m	^ 330	^ 820	^ 921	24 884	26 955
Operating profit before tax	\$m	(b)n.p.	(b)n.p.	(b)n.p.	(b)n.p.	4 766
Labour costs	\$m	^ 52	^ 193	^ 192	4 038	4 475
Income per person employed	\$'000	^ 293	^ 289	^ 295	490	469
Labour costs per employee	\$'000	45	^ 72	61	66	66
Operating profit margin	%	*2.8	**–6.7	**—	16.2	15.0

(a) Excludes businesses for which telecommunication service provision was a minor part of their business operation, businesses which manufacture telecommunications equipment, businesses engaged in cable laying and transmission line construction, and those providing secretarial services such as answering or message delivery services. (b) Not published separately, included in total.

Source: *Information Technology, Australia, 2002–03* (8126.0).

## Internet activity

In the September quarter 2000, the Australian Bureau of Statistics (ABS) commenced a quarterly survey of all identified businesses in Australia providing Internet connectivity services, except for libraries, Internet kiosks and Internet cafes. The survey includes businesses for which telecommunication service provision was a minor part of their business operation. From the March quarter 2002, the collection frequency of the survey was changed from quarterly to biannual. Table 23.4 shows summary indicators of Internet activity for the March quarters 2002, 2003 and 2004:

- Over the year to the end of March 2004, the total number of Internet service providers (ISPs) rose from 554 to 694, mainly as a result of an increase in the number of smaller ISPs (those with 1–1,000 subscribers). The number of very small ISPs (1–100 subscribers) increased by 66 while the number of small ISPs (101–1,000 subscribers) increased by 68.
- The number of access lines rose from 857,470 to 1,474,345 (an increase of 72%). This large increase in access lines is largely attributable to the increase in non dial-up connection subscribers.
- Data downloaded by subscribers were 6,409 million megabytes (MBs) during the March quarter 2004, up from 3,046 million MBs

during the March quarter 2003. On average, each subscriber downloaded 1,228 MBs during the March quarter 2004.

- The number of subscribers increased from 5.1 million at the end of March 2003 to just over 5.2 million at the end of March 2004, representing an average of 3.5 subscribers per access line at the end of March 2004.
- Increasing numbers of subscribers are accessing the Internet using non dial-up connections, including broadband technologies such as Digital Subscriber Lines (DSL). The number of subscribers using DSL increased from 209,000 to 512,000 over the year to the end of March 2004, with the number of ISPs offering this service increasing from 310 to 526 over the same period.

## Postal communications

### Australian Postal Corporation

The Australian Postal Corporation (trading as Australia Post) is a government business enterprise owned by the Commonwealth of Australia. It operates under the *Australian Postal Corporation Act 1989* (Cwlth). Australia Post is independent of government funding, achieves a substantial profit from its activities, and pays a full range of taxes and charges. In 2002–03, Australia Post paid \$485m in taxes and government charges (\$455m in 2001–02).

#### 23.4 INTERNET ACTIVITY, Summary indicators

	Units	March quarter		
		2002	2003	2004
Total number of Internet service providers(a)	no.	571	554	694
Internet service providers providing DSL services(a)(b)	no.	131	310	526
Internet access lines(a)	'000	447	857	1 474
Total number of subscribers(a)	'000	4 229	5 076	5 220
Subscribers using DSL(a)(b)	'000	60	209	512
Data downloaded(c)	million MBs	1 831	3 046	6 409
Average number of subscribers per access line(a)	no.	9.5	5.9	3.5
Average data downloaded per subscriber(d)	MBs	433	616	1 228

(a) As at the end of the reference quarter. (b) Digital Subscriber Line. (c) During the three months of the reference quarter. (d) Calculated by dividing data downloaded with an estimate of the number of subscribers at the midpoint of the reference quarter.

Source: *Internet Activity, Australia* (8153.0).

Australia Post offers letter and parcel delivery services within Australia and internationally. It also provides a range of related services including electronic bulk mail handling, advertising mail, bill payment, money order and banking services, express delivery services and philatelic products and services.

Australia Post's legal obligations require it to:

- provide Australians with a universal letter service
- carry standard letters within Australia at a uniform price

- ensure that the letter service meets the social, industrial and commercial needs of the community
- perform its functions according to sound business practice
- perform its functions consistent with the Commonwealth's general policies.

Financial and other operating statistics for Australia Post are shown in tables 23.5, 23.6 and 23.7.

### 23.5 AUSTRALIAN POSTAL CORPORATION, Consolidated financial statement

	Units	1999–2000	2000–01	2001–02	2002–03
Revenue	\$m	3 786	3 766	3 807	3 972
Expenditure	\$m	3 394	3 364	3 399	3 510
Operating profit before income tax	\$m	392	402	407	462
Dividends	\$m	156	275	292	304
Total taxes and government charges(a)	\$m	327	459	455	485
Cost of Universal Service Obligation(b)	\$m	82	86	88	91
Total assets(c)	\$m	3 037	3 199	3 229	3 365
Return on assets(d)	%	14.0	13.4	12.9	14.0

(a) Includes sales tax and customs duty, payroll tax, local government taxes and charges, federal excise duty, and fringe benefits tax. (b) The Universal Service Obligation ensures that all Australians have reasonable access to the letter service; this includes the delivery of standard letters by ordinary post at a uniform price even when the delivery cost is higher. (c) At 30 June of the financial years shown. (d) Operating profit before net interest and income tax divided by average total assets.

Source: Australian Postal Corporation.

### 23.6 AUSTRALIAN POSTAL CORPORATION, Mail delivery network and post outlets

	1999–2000	2000–01	2001–02	2002–03
Households receiving mail	7 922 702	8 110 865	8 264 191	8 483 422
Businesses receiving mail	856 598	901 482	933 107	959 805
<b>Total delivery points</b>	<b>8 779 300</b>	<b>9 012 347</b>	<b>9 197 298</b>	<b>9 443 227</b>
Corporate outlets and licensed post offices	3 887	3 872	3 861	3 853

Source: Australian Postal Corporation.

### 23.7 AUSTRALIAN POSTAL CORPORATION, Total postal articles handled

	1999–2000	2000–01	2001–02	2002–03
	million	million	million	million
Posted in Australia for delivery in Australia	4 842	4 929	4 962	4 950
Posted in Australia for delivery overseas	193	180	173	165
Posted overseas for delivery in Australia	169	150	147	147
<b>Total articles through mail network</b>	<b>5 204</b>	<b>5 258</b>	<b>5 282</b>	<b>5 262</b>

Source: Australian Postal Corporation.

## The information and communication technology (ICT) sector

The ICT sector is that part of the economy which produces information and communication technology goods and services. It includes businesses involved in telecommunication services, computer services, and selected manufacturing and wholesale trade industries. The ICT sector overlaps with the Communication Services Division discussed earlier.

Table 23.8 provides statistics for a selection of industries considered to be the prominent contributors to the production and distribution of ICT goods and services. At June 2003 there were 23,950 ICT specialist businesses in the industries surveyed, with 18,524 (77%) of these in the computer consultancy services industry. ICT specialists are those businesses for which the

income from the sale, distribution and provision of ICT goods and services forms the greater part of the total income of the business.

There were 235,696 persons working in ICT specialist businesses at the end of June 2003, with 99,574 (42%) working in the computer consultancy services industry and 67,750 (29%) working in the telecommunication services industry.

During 2002–03 total income of ICT specialist businesses was \$79,894m, with the main contributions towards this coming from the telecommunication services industry (\$31,796m or 40%), computer wholesaling industry (\$17,338m or 22%) and computer consultancy services industry (\$15,935m or 20%).

ICT specialist businesses generated a total operating profit before tax of \$6,393m during 2002–03, with the majority (\$4,766m or 75%) coming from the telecommunication services industry.

### 23.8 INDUSTRIES IN THE ICT SECTOR(a), Summary of operations — 2002–03

Industry	Businesses at end June no.	Employment at end June no.	ICT income \$m	Total Income \$m	Total expenses \$m	Operating profit before tax \$m
<b>Manufacturing</b>						
Computer and business machines	233	2 210	808	826	759	46
Telecommunication, broadcasting and transceiving equipment	^ 89	4 526	891	937	877	(b)n.p.
Electronic equipment n.e.c.	252	3 403	627	658	625	^ 33
Electric cable and wire	^ 27	699	199	222	216	(b)n.p.
<b>Total</b>	<b>602</b>	<b>10 838</b>	<b>2 525</b>	<b>2 642</b>	<b>2 477</b>	<b>108</b>
<b>Wholesale trade</b>						
Computers	1 831	29 016	16 625	17 338	16 919	553
Business machines	447	6 749	1 625	2 283	2 182	96
Electrical and electronic equipment n.e.c.	807	14 249	7 938	8 842	8 546	^ 250
<b>Total</b>	<b>3 085</b>	<b>50 013</b>	<b>26 188</b>	<b>28 463</b>	<b>27 647</b>	<b>899</b>
<b>Telecommunication services</b>	<b>956</b>	<b>67 750</b>	<b>29 862</b>	<b>31 796</b>	<b>26 955</b>	<b>4 766</b>
<b>Computer services</b>						
Data processing	^ 204	^ 1,619	^ 168	^ 175	^ 165	*10
Information storage and retrieval	^ 58	932	210	212	207	(b)n.p.
Computer maintenance	521	4 970	639	671	662	(b)n.p.
Computer consultancy	18 524	99 574	15 099	15 935	15 309	^ 586
<b>Total</b>	<b>19 307</b>	<b>107 094</b>	<b>16 116</b>	<b>16 993</b>	<b>16 343</b>	<b>^ 620</b>
<b>Total</b>	<b>23 950</b>	<b>235 696</b>	<b>74 692</b>	<b>79 894</b>	<b>73 421</b>	<b>6 393</b>

(a) The data relates to ICT specialist businesses within the industries in the ICT sector. (b) Not published separately, included in total.

Source: *Information Technology, Australia, 2002–03 (8126.0)*.

### 23.9 ICT GOODS AND SERVICES, Production, imports and exports — 2002–03

Commodity	Income from domestic production	Imports (custom value)	Exports (f.o.b.)(a)	Re- exports (f.o.b.)
	\$m	\$m	\$m	\$m
Computer and communications hardware, equipment and cables	2 934	12 293	2 329	1 373
Packaged software and associated licensing	538	507	163	5
Computer services	15 975	929	1 071	n.a.
Telecommunication services	29 332	1 407	1 083	n.a.
<b>Total</b>	<b>48 779</b>	<b>15 136</b>	<b>4 646</b>	<b>1 379</b>

(a) Exports include exports of Australian commodities and re-exports of goods of foreign origin.

Source: *Information Technology, Australia, 2002–03 (8126.0)*.

Total income from the domestic production of selected ICT goods and services was \$48.8b in 2002–03 (table 23.9), and mainly comprised telecommunication services (60%) and computer services (33%). Imports of selected ICT goods and services totalled \$15.1b during 2002–03, and mainly comprised computer and communications hardware, equipment, cables and other computer parts, and consumables (81%).

### Research and experimental development (R&D) undertaken by the ICT sector

*Chapter 25 Science and innovation* presents a range of R&D statistics based on various ABS surveys. The data presented in table 23.10 have been drawn from surveys for all businesses in the ANZSIC industries covered by the ICT sector.

During 2002–03 expenditure on R&D by the ICT sector was \$1,497m, 25% of total business sector R&D expenditure (\$5,979m). In current price terms this expenditure was 12% less than the level recorded in 2001–02 (table 23.10).

Major ICT research fields where R&D expenditure occurred were Computer software (\$536m) and Communication technologies (\$363m), 36% and 24% respectively of the total.

The bulk of the R&D expenditure in the ICT sector was in the Computer services industry grouping (\$719m or 48%), followed by the

Telecommunications service industry grouping (\$318m or 21%) and the Manufacturing industry grouping (\$252m or 17%).

### Government technology

The ABS has conducted a number of surveys of government expenditure on ICT over the past decade. The most recent survey was conducted in respect of 2002–03 and a summary of results is shown in table 23.11.

Of the 30,733 ICT employees in all levels of government, Commonwealth Government (including higher education) account for 49%, state and territory governments 43%, and local government 8%. ICT employees accounted for 5% of Commonwealth Government's total employment which compares with 2% for all levels of government.

Total selected ICT operating expenses for all levels of government was \$6.7b. Of this, wages and salaries of ICT employees was 25%, payments to contractors and consultants for ICT services was 25%, telecommunication services was 23% and ICT hardware operating expenses represented 18%.

Total ICT capital expenditure for all levels of government was \$2.3b, with ICT hardware making up 58% and software 42%.

### 23.10 R&D EXPENDITURE, By ICT industry groupings and research field

Research field	Manufacturing	Wholesale trade	Telecommunication services	Computer services	Total
	\$m	\$m	\$m	\$m	
2001-02					
Information systems and technologies	12.9	6.9	11.8	110.6	142.2
Computer hardware	7.2	(a)n.p.	(a)n.p.	5.1	18.2
Computer software	85.2	52.3	13.1	406.1	556.7
Communication technologies	123.6	(a)n.p.	(a)n.p.	103.8	543.1
Other information, computer and communication technologies	35.6	(a)n.p.	(a)n.p.	19.9	245.9
<i>Total ICT fields</i>	<i>264.6</i>	<i>(a)n.p.</i>	<i>(a)n.p.</i>	<i>645.4</i>	<i>1 506.0</i>
Other fields	89.8	(a)n.p.	(a)n.p.	80.7	189.4
<b>Total</b>	<b>354.4</b>	<b>255.0</b>	<b>359.9</b>	<b>726.1</b>	<b>1 695.5</b>
2002-03					
Information systems and technologies	7.4	10.2	2.7	142.6	163.0
Computer hardware	4.0	(a)n.p.	(a)n.p.	6.4	11.7
Computer software	60.4	84.5	6.0	384.9	535.8
Communication technologies	66.9	(a)n.p.	(a)n.p.	102.6	363.0
Other information, computer and communication technologies	21.7	(a)n.p.	(a)n.p.	40.9	269.8
<i>Total ICT fields</i>	<i>160.4</i>	<i>(a)n.p.</i>	<i>(a)n.p.</i>	<i>677.5</i>	<i>1 343.3</i>
Other fields	91.8	(a)n.p.	(a)n.p.	41.9	153.3
<b>Total</b>	<b>252.2</b>	<b>207.0</b>	<b>318.0</b>	<b>719.4</b>	<b>1 496.6</b>

(a) Not available for publication but included in totals where applicable, unless otherwise indicated.

Source: ABS data available on request, *Survey of Research and Experimental Development – Business Sector*.

### 23.11 GOVERNMENT ICT EMPLOYMENT AND ICT EXPENDITURE — 2002-03

Indicator	Units	Commonwealth Government(a)	State/territory government(b)	Local government(c)	Total
ICT employees	no.	15 016	13 180	2 536	30 733
ICT employees as a percentage of total employment	%	4.5	1.4	1.6	2.2
Selected ICT operating expenses:					
Wages and salaries of ICT employees	\$m	836	710	143	1 689
Hardware	\$m	515	611	84	1 209
Software	\$m	269	291	71	631
Telecommunication services	\$m	676	755	111	1 542
Contractors and consultants for ICT services	\$m	811	766	101	1 678
<i>Total</i>	<i>\$m</i>	<i>3 106</i>	<i>3 135</i>	<i>509</i>	<i>6 749</i>
Total selected ICT operating expenses as a percentage of total operating expenses	%	7	4	3	5
ICT capital expenditure:					
Hardware	\$m	616	633	100	1 349
Software(d)	\$m	485	430	69	984
<i>Total</i>	<i>\$m</i>	<i>1 101</i>	<i>1 063</i>	<i>169</i>	<i>2 333</i>

(a) Includes higher education. (b) Includes state/territory general government, vocational and school education. (c) Includes local government authorities and other administrative bodies such as regional councils. (d) Includes computer software developed in-house.

Source: *Government Technology, Australia, 2002-03 (8119.0)*.

## Use of information technology

### Business use of information technology (IT)

#### Adoption of IT by businesses

For the year ended 30 June 2003 of those businesses which used IT, 83% used a computer, 71% used the Internet and 23% had a web presence.

A strong relationship exists between the employment size of a business and the likelihood that the business is using IT (table 23.12). As employment size increases, so does the proportion of businesses making use of IT. For example, for the year ended 30 June 2003 all large businesses (100 or more persons employed) used computers, 99% had access to the Internet and 80% had a web presence. Micro businesses (0–4 persons employed) had a lower level of IT adoption – 78% used computers, 65% had access to the Internet and only 15% had a web presence.

For the year ended 30 June 2003 the proportion of businesses using information technologies varied considerably across industries. The proportion of businesses using computers or with access to the Internet was lowest in the accommodation, cafes and restaurants industry (71% and 58% respectively) and in the personal and other services industry (72% and 58% respectively). Computer and Internet access was highest in the property and business services industry (93% and 89% respectively). The highest proportion of businesses with a web presence was in the cultural and recreation services industry (37%), while the lowest proportion was in the construction industry (11%).

#### Business use of the Internet

Data were collected on all types of Internet access used by businesses. The most common method of Internet access by businesses was dial-up via modem with 76% of businesses utilising this method. Less common was the use of Digital Subscriber Line (DSL) (18%), cable modem (8%) and Integrated Services Digital Network (ISDN) (5%).

**23.12 BUSINESS USE OF SELECTED INFORMATION TECHNOLOGIES — 2002–03**

	Number of businesses '000	Businesses with(a)		
		Computers %	Internet access %	Web site or home page %
<b>All businesses</b>	<b>680</b>	<b>83</b>	<b>71</b>	<b>23</b>
Employment size				
1–4 persons	441	78	65	15
5–19 persons	190	92	81	33
20–99 persons	41	96	91	51
100 or more persons	8	100	99	80
Industry				
Mining	3	87	78	31
Manufacturing	58	84	73	29
Electricity, gas and water supply	1	90	79	35
Construction	101	77	61	11
Wholesale trade	42	88	79	33
Retail trade	114	78	60	19
Accommodation, cafes and restaurants	35	71	58	29
Transport and storage	34	82	67	20
Communication services	6	81	63	22
Finance and insurance	28	83	77	26
Property and business services	155	93	89	28
Health and community services	52	86	72	16
Cultural and recreational services	18	88	81	37
Personal and other services	33	72	58	25

(a) Proportions are of all businesses in each category.

Source: *Business Use of Information Technology, 2002–03 (8129.0)*.

Large businesses (100 or more persons employed) were most likely to use DSL (41%) to access the Internet at 30 June 2003, with other methods of Internet access including dial-up via modem (39%) and ISDN (33%). Smaller businesses were less likely to use more than one type of Internet access with the most common type of Internet access used by these businesses being via dial-up modem. For businesses with employment of 0–4 persons, 5–19 persons and 20–99 persons, the proportion accessing the Internet via dial-up modem was 80%, 73% and 62% respectively, which was significantly higher than for any other type of Internet access.

### **Business use of web sites**

As at 30 June 2003, 23% of businesses which used IT reported having a web presence, either with their own web site or a presence on another entity's web site. While approximately 8% of all businesses with a web presence reported the capability for secure access or transactions, this proportion was 18% for large businesses (100 or more persons employed). Similarly, while integration with back-end systems was reported as a web feature by 10% of all businesses with a web presence, the proportion of large businesses who reported this feature was 20%.

### **The significance of Internet commerce in Australia**

The ABS defines Internet commerce as placing or receiving orders for goods and services via the Internet or web, with or without associated on-line payments.

The proportion of businesses with Internet use that reported placing orders for goods and services over the Internet during 2002–03 was 39%. For this same period, 19% of businesses with Internet use indicated that they had received orders via the Internet or web.

The estimated value of Internet income for the year ended 30 June 2003 was \$24.3b. This represented approximately 1% of total income of all businesses and approximately 5% of total income for those businesses which received orders via the Internet or web during the period.

### **Business IT security**

Of businesses with a computer, 11% reported having no IT security measures in place at June 2003. The most common form of IT security

reported was anti-virus software or a virus scanner (82%) followed by authentication software or hardware (45%), physical security (33%) and the use of a firewall (28%).

### **Farm use of IT**

For the year ended 30 June 2003, nearly 72,000 farms (or 54% of all farms with an estimated value of agricultural operations (EVAO) of \$5,000 or more) used a computer as part of their business operations. This was an increase of one percentage point from the previous year (table 23.13).

For the same period an estimated 46% of farms used the Internet as part of their business operations, an increase of three percentage points from the previous year.

For the period 2002–03:

- Western Australia showed the highest proportion of farms using a computer for business operations (67%) and the highest proportion of farms using the Internet for business operations (59%).
- Victoria showed the lowest proportion of farms using a computer (49%) and the lowest proportion of farms using the Internet (40%).
- The horticulture and fruit growing, dairy cattle farming and other crop industries reported the highest proportion of farms using a computer (59%).
- The grain, sheep and beef cattle farming industry showed the lowest proportion of farms using a computer (52%).
- The horticulture and fruit growing, poultry farming and other crop growing industries reported the highest proportion of farms using the Internet (51%).
- The grain, sheep and beef cattle farming and dairy cattle farming industries showed the lowest proportion of farms using the Internet (44%).
- There was a strong relationship between farm size (as measured by the EVAO) and the use of a computer and the Internet. As farm size increased so did the proportion of farms using a computer and the Internet. For example, 79% of farms with an EVAO of \$1m or more used the Internet, compared with 30% of those with an EVAO less than \$50,000.

### 23.13 FARMS USING A COMPUTER AND THE INTERNET(a)

	2001-02		2002-03	
	Computer	Internet	Computer	Internet
	%	%	%	%
New South Wales	52	43	52	44
Victoria	49	39	49	40
Queensland	51	41	54	45
South Australia	60	51	63	53
Western Australia	63	54	67	59
Tasmania	50	40	51	42
Northern Territory	53	45	57	52
Australian Capital Territory	53	48	59	51
Australia	53	43	54	46

(a) For business operations.

Source: *Use of Information Technology on Farms, Australia (8150.0)*.

### Household use of IT

The percentage of Australian households with access to a computer at home has increased steadily from 44% in 1998 to 66% in 2003 (graph 23.14). The percentage of Australian households with access to the Internet at home has increased strongly, rising from 16% in 1998 to 53% in 2003.

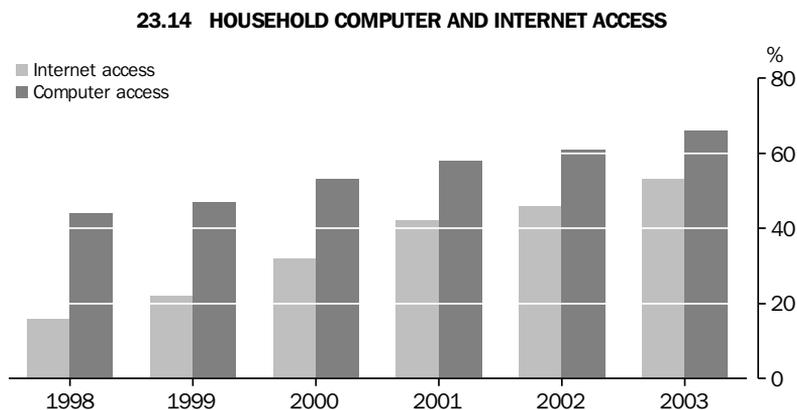
### Characteristics of households with home Internet access

Households in metropolitan areas, with children under 15 years of age and in the Australian Capital Territory were more likely to have access to computers and the Internet at home (table 23.15).

### Characteristics of adult Internet users

While 2003 data is available for household access to computers or the Internet, person level data on use of a computer or the Internet for 2003 is only available for selected population groups (persons aged 15 years and over with a disability, persons aged 60 years and over, and children aged 5–14 years). The latest data available for all Australian adults relates to 2002 and this is presented below.

The number of adults using the Internet continues to grow rapidly – rising from 31% of all persons 18 years and over in 1998 to 58% in 2002. Strong growth has occurred in all age groups across the years. The likelihood that a person uses the Internet decreases with age.



Source: *Household Use of Information Technology, Australia, 2002 and 2003 (8146.0)*.

### 23.15 HOUSEHOLD COMPUTER AND INTERNET ACCESS

	Computer access(a)					Internet access(a)				
	1999	2000	2001	2002	2003	1999	2000	2001	2002	2003
	%	%	%	%	%	%	%	%	%	%
Households										
Without children under 15	39	44	51	53	58	18	28	37	40	47
With children under 15	65	71	77	79	85	29	43	54	59	68
State or territory										
New South Wales	45	52	59	61	65	22	32	45	48	54
Victoria	50	56	61	62	68	23	34	43	46	54
Queensland	44	50	55	57	65	20	31	40	42	52
South Australia	45	49	56	58	62	19	29	37	43	48
Western Australia	50	55	58	63	67	22	34	41	48	53
Tasmania	40	45	50	51	57	18	25	31	35	41
Northern Territory	55	54	52	62	(b)n.p.	30	35	38	48	(b)n.p.
Australian Capital Territory	66	70	77	78	80	34	46	60	60	66
Region										
Capital city	51	55	62	65	69	25	36	47	50	56
Balance of state	40	48	52	54	61	15	26	34	39	47
All households	47	53	58	61	66	22	32	42	46	53

(a) Proportions are of all households in each category. (b) The 2003 estimates for NT are included in the total and other classifications but cannot be shown separately.

Source: *Household Use of Information Technology, Australia, 2002 and 2003 (8146.0)*.

During 2002, home was the site where adults were most likely to use the Internet (table 23.16). This was particularly the case for those adults with incomes below \$40,000 in 2000–01. Those adults with incomes of \$40,000 and over were considerably more likely to use the Internet at work than those with lower incomes. Adults aged 18–24 years were most likely to use the Internet at sites other than home or work.

During the period 1998 to 2002 home Internet use by adults has increased as a percentage of total use (graph 23.17). In 1998, 59% of those who used the Internet did not use the Internet at home; in 2002 only 26% of those who used the Internet did not use the Internet at home.

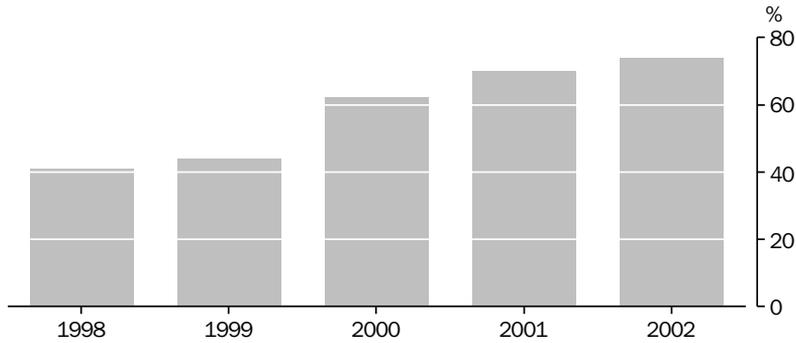
### 23.16 ADULTS ACCESSING THE INTERNET(a), Main characteristics — 2002

	Site of Internet access(b)			
	Home	Work	Other sites	Any site
	%	%	%	%
Age group (years)				
18–24	57	28	69	84
25–34	52	42	49	78
35–44	55	39	29	69
45–54	45	36	19	58
55–64	32	21	12	42
65 and over	10	2	5	13
Personal income(c)				
\$0–\$39,999	37	20	29	52
\$40,000–79,999	61	59	36	80
\$80,000 and over	76	78	40	89
All adults	43	30	31	58

(a) Proportions are of all persons in each category. (b) Persons may have accessed the Internet at only one or any number of sites. (c) In 2000–01.

Source: *Household Use of Information Technology, Australia, 2001–02 (8146.0)*.

### 23.17 PROPORTION OF HOME INTERNET USE(a)



(a) As a proportion of total Internet use by persons 18 years and over.

Source: *Household Use of Information Technology, Australia, 2001–02 (8146.0)*.

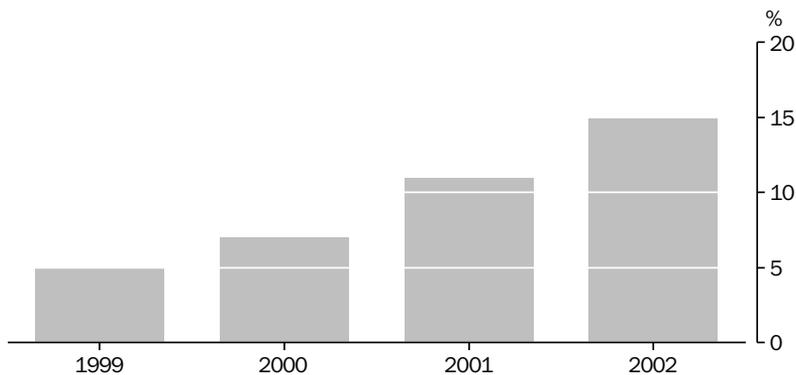
#### Internet purchasing

During 2002, 2.2 million or 15% of all adults purchased or ordered goods or services via the Internet for private use (graph 23.18). This represents an increase of 34% in the number of people ordering good or services via the Internet from 2001. Of Internet users, just over one in four (26%) also ordered goods or services via the Internet. The largest increase in the percentage of people ordering goods or services via the Internet between 2000 and 2002 occurred in the age group 25–34 years.

#### Accessing government services via the Internet

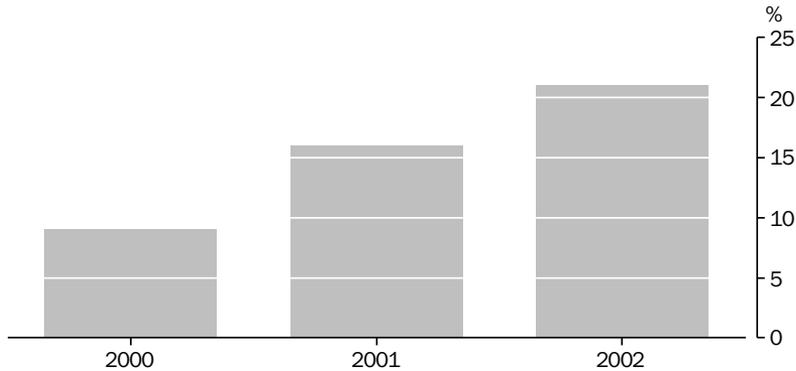
More than one in five (21%) adults accessed government services via the Internet for private purposes in 2002, compared with one in six (or 16%) in 2001 (graph 23.19). For those adults who accessed government services in 2002 for private purposes, 49% did so to pay bills (compared with 38% in 2001). The next three most popular services accessed were taxation information, employment/unemployment information and submitting tax returns, each being accessed by 20% of adults who accessed government services in 2002.

### 23.18 ADULTS PURCHASING/ORDERING VIA INTERNET FOR PRIVATE USE



Source: *Household Use of Information Technology, Australia, 2001–02 (8146.0)*.

### 23.19 ADULTS ACCESSING GOVERNMENT SERVICES VIA INTERNET



Source: *Household Use of Information Technology, Australia, 2001–02* (8146.0).

#### International comparison

The proportion of Australian households with Internet access was 46% in 2002. Comparable data is available in graph 23.20 for 14 other countries. Australia's household Internet access is comparable with proportions in Canada and Japan (49%), the United Kingdom (50%) and the United States of America (51%).

#### Use of IT by selected population groups in 2003

In 2003 data on computer and Internet use was collected in ABS household collections covering three selected population groups: persons aged 15 years and over with a disability; persons aged 60 years and over; and children aged 5–14 years.

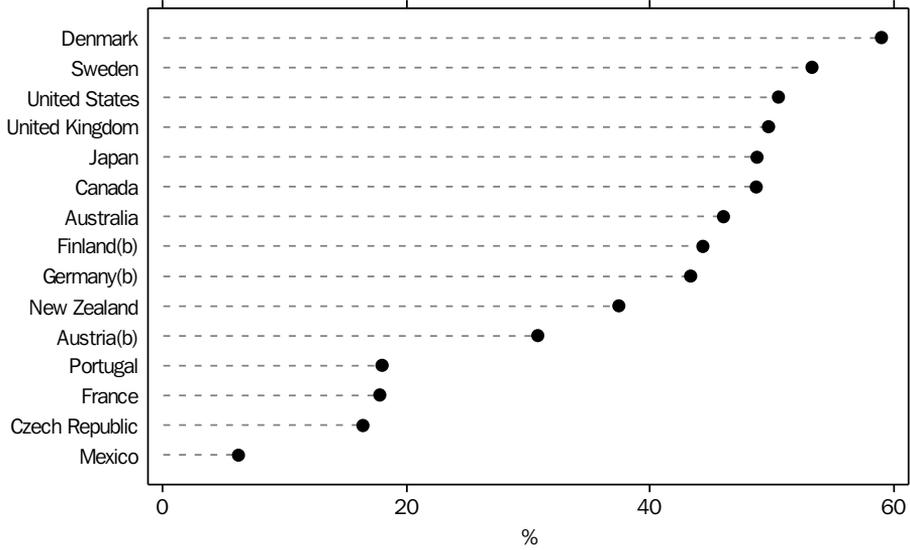
This data is not directly comparable with that for 2002 presented earlier in this chapter, due to the different surveys used to collect the 2003 data.

#### Persons aged 15 years and over with a disability

In 2003 just under half (48%) of persons aged 15 years and over with a disability reported having used a computer in the previous 12 months. For the same period, almost two in five (39%) had accessed the Internet (graph 23.21).

People with a disability were most likely to have used a computer or the Internet at home (41% and 30%, respectively). They were most likely to have used a computer or the Internet at home for private or personal purposes (92% of those using a computer at home and 94% of those using the Internet at home).

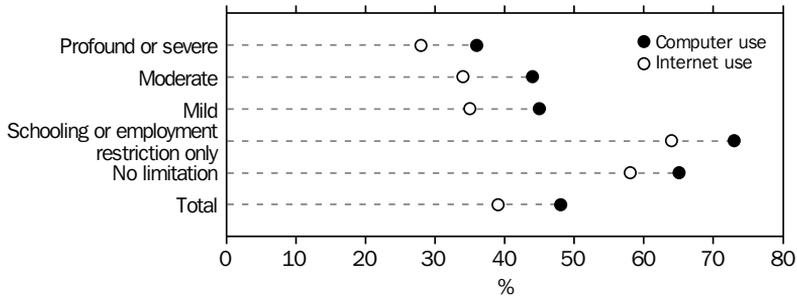
**23.20 HOUSEHOLDS WITH ACCESS TO THE INTERNET — 2002(a)**



(a) Or latest year available. (b) Data relates to first quarter of 2002.

Source: OECD, Science, Technology and Industry Scoreboard, 2003.

**23.21 USE OF COMPUTERS OR THE INTERNET BY PERSONS(a) WITH A DISABILITY(b) — 2003**



(a) Persons aged 15 years and over. (b) Excludes disfigurements or deformities without any limitations.

Source: Household Use of Information Technology, Australia, 2002 and 2003 (8146.0).

### Persons aged 60 years and over

In 2003, 29% of Australians aged 60 years and over reported having used a computer in the last 12 months. For the same period, 21% reported having used the Internet (graph 23.22).

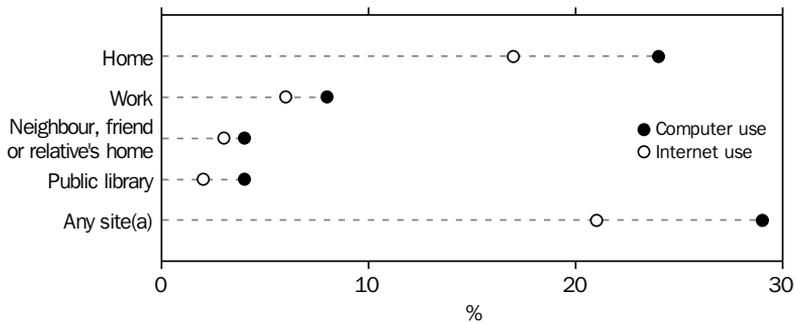
It was approximately three times more likely people aged 60 years and over would use a computer or the Internet at home than at work. Those using a computer or the Internet at home were most likely to have done so for personal or private reasons (95% of those using a computer at home and 96% of those using the Internet at home).

### Children aged 5–14 years

Most children aged 5–14 years (95%) used a computer in the 12 months to April 2003 during or outside of school hours (graph 23.23). The proportion of children using the Internet in the same period was 64%. Computer and Internet usage increased with age.

Children were most likely to have used a computer at school (89%), followed by home (82%), someone else's home (40%) and a public library (11%). The Internet was most likely to have been used at home (51%), followed by school (45%), someone else's home (16%) and a public library (4%).

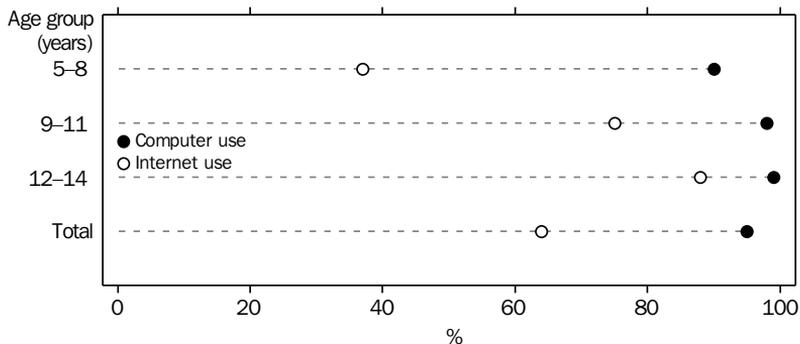
**23.22 USE OF COMPUTERS OR THE INTERNET BY PERSONS AGED 60 YEARS AND OVER — 2003**



(a) More than one site may be nominated.

Source: Household Use of Information Technology, Australia, 2002 and 2003 (8146.0).

**23.23 USE OF COMPUTERS OR THE INTERNET BY CHILDREN(a) — 2003**



(a) Children aged 5–14 years.

Source: Household Use of Information Technology, Australia, 2002 and 2003 (8146.0).

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Internet Activity, Australia (8153.0)

*Use of Information Technology on Farms, Australia* (8150.0)

### Other publications

Australian Postal Corporation, trading as: Australia Post, *Annual Report*

OECD (Organisation for Economic Co-operation and Development), Science, Technology and Industry Scoreboard, 2003

### Web sites

Australian Communications Authority (ACA), last viewed October 2004 <<http://www.aca.gov.au>>. The ACA is responsible for regulating telecommunications and radio communications. It licenses telecommunications carriers and monitors service performance and quality.

Australian Competition and Consumer Commission (ACCC), last viewed October 2004 <<http://www.accc.gov.au>>. The ACCC administers the *Trade Practices Act 1974* (Cwlth) and the *Prices Surveillance Act 1983* (Cwlth). Its telecommunications group has prime responsibility for administering the Commission’s functions for competition and economic regulation of telecommunications.

Australian Information Industries Association (AIIA), last viewed October 2004 <<http://www.aiia.com.au>>. The AIIA is responsible for leading and representing the information industry to maximise the potential of the Australian economy.

Australian Government Information Management Office (AGIMO), last viewed October 2004 <<http://www.agimo.gov.au>>. AGIMO is responsible for leading the productive application of information and communications technologies to government administration, information and services.

Australian Government Department of Communications, Information Technology and the Arts (DCITA), last viewed October 2004 <<http://www.dcita.gov.au>>. DCITA is responsible for providing strategic advice and professional support to the Australian Government on a wide range of significant policy areas including broadcasting and on-line regulation, post, telecommunications and information and communications technology.

Organisation for Economic Co-operation and Development (OECD), last viewed October 2004 <<http://www.oecd.org>>, OECD Science, Technology and Industry Scoreboard 2003, Towards a knowledge-based economy.

Telecommunications Industry Ombudsman (TIO), last viewed October 2004 <<http://www.tio.com.au>>. The TIO is an industry funded scheme that is responsible for resolving disputes between telecommunications companies, small business and residential customers.

# Use of information technology by older people

This article provides an analysis of Australian Bureau of Statistics (ABS) data sources on the use of information technology (IT) by older persons (those aged 65 years and over), including computer usage and Internet access. While people in older age groups are less likely to use a computer or to access the Internet than in the younger age groups, the proportion using these technologies is increasing over time. Older persons are more likely to use their computer and Internet access at home for personal or private use. The older population is proportionally more likely to spend a higher amount each year on goods and services purchased via the Internet than other age groups. However, only a small proportion of older people are accessing government services via the Internet.

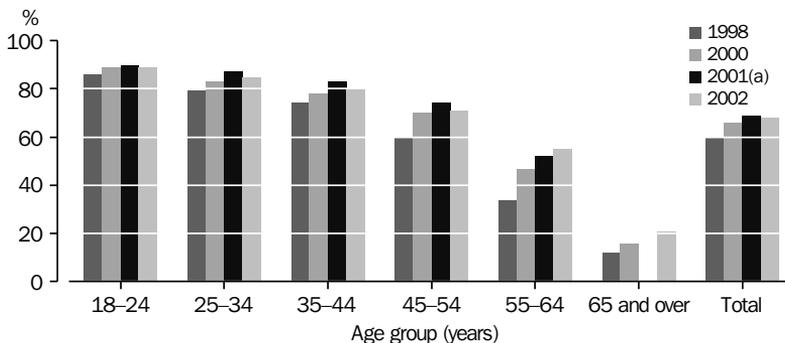
In 2002 around one in five older persons used a computer. The proportion of persons using a computer decreased steadily across age groups

from a high of 89% for those aged 18–24 years to 55% for those aged 55–64 years, then dropping substantially to 21% for older persons (graph S23.1). The lower use of computers by older persons may be partially explained by their lower exposure to such technology and fewer opportunities to gain computing skills over their lifetime.

After experiencing continuous growth in previous years, the proportion of people using a computer appears to have plateaued in 2002. However, while small declines were experienced for the age groups 18–24 years to 45–54 years, the proportion for those aged 55–64 years and 65 years and over continued to grow.

During 2002 most adults reported they were most likely to use a computer at home (81%). Among older persons, 18% were using a computer at home, 10% at other sites and 3% at work (graph S23.2).

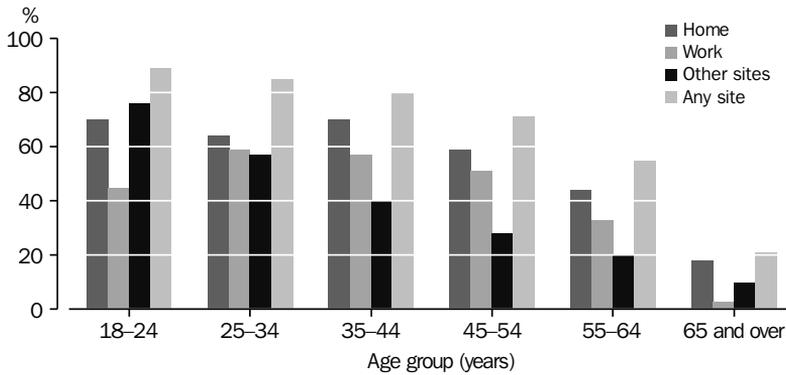
**S23.1 COMPUTER USE**



(a) Data for 2001 not available for persons aged 65 years and over.

Source: *Household Use of Information Technology, Australia (8146.0)*.

### S23.2 COMPUTER USE BY SITE — 2002



Source: *Household Use of Information Technology, Australia (8146.0)*.

Older persons were most likely to use their home computer for personal and private purposes (92%). Other uses were educational purposes (19%), work or business purposes (16%) and voluntary or community purposes (13%).

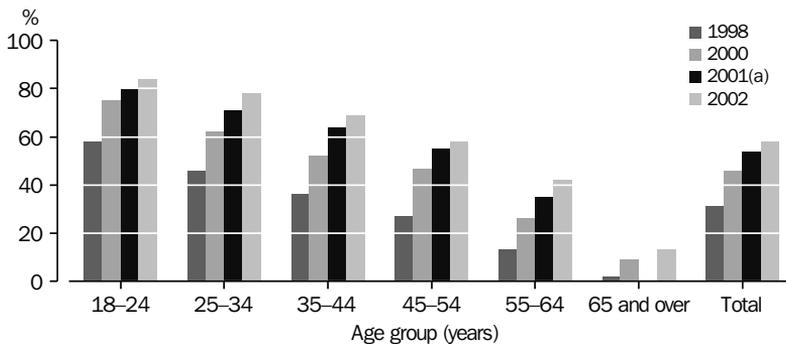
### Internet access and use

The number of adults using the Internet continues to grow strongly, though the rate of change is slowing. Internet use rose from 31% of adults in 1998 to 58% in 2002 (graph S23.3). As with computer use, the likelihood that a

person had used the Internet decreases with age, with 13% of older people using the Internet in 2002.

Of the 6.2 million adults who used the Internet at home in 2002, the purpose of Internet use most commonly reported was personal or private purposes (89%). This purpose was also reported by older persons as the most common reason for using the Internet (91%), with other uses including educational purposes (18%), work or business purposes (15%) and voluntary or community purposes (9%) (table S23.4).

### S23.3 INTERNET USE



(a) Data for 2001 not available for persons aged 65 years and over.

Source: *Household Use of Information Technology, Australia (8146.0)*.

### S23.4 INTERNET USE AT HOME — 2002

Age group (years)	Persons aged 18 years and over who used the Internet at home '000	Purpose(a)(b)				
		Personal or private %	Work or business related %	Educational or study %	Voluntary or community %	Other %
18–24	1 091	90	18	62	7	2
25–34	1 503	92	46	35	6	2
35–44	1 621	87	49	33	10	1
45–54	1 193	87	49	27	10	2
55–64	597	85	43	22	13	2
65 and over	222	91	15	18	9	2
<b>Total</b>	<b>6 227</b>	<b>89</b>	<b>41</b>	<b>36</b>	<b>9</b>	<b>2</b>

(a) More than one purpose may be nominated. (b) Percentages are of all people who said they used the Internet.

Source: Household Use of Information Technology, Australia, 2002 (8146.0).

More Australians are choosing to pay bills or transfer funds via the Internet, increasing over time to one in four (23%) by 2002. Those most likely to pay bills or transfer funds via the Internet were those aged between 25–34 years (36%), decreasing to 4% for the older population (table S23.5).

During 2002, 2.2 million or 15% of Australian adults purchased or ordered goods or services via the Internet for private use. However, only 2% of the older population purchased goods or services via the Internet. Proportionally, the category travel and accommodation represented the most common type of purchase (47% of people who used the Internet) for older persons compared with 46% for the entire adult population. Computer software (31%) and financial services (21%) were the next most common purchases for the older population compared with books and magazines (26%) and tickets to entertainment or cinema (30%) for the entire adult population. Proportionally, older

people were more likely to purchase goods or services from outside of Australia than younger age groups.

Across all age groups in 2002, two-thirds of the total value of Internet purchases were \$1,000 or less. A higher proportion of older persons (44%) spent more than \$1,000 on Internet purchases per year than younger age groups, with the 18–24 year age group having the lowest proportion (17%).

More than one in five adults (21%) accessed government services via the Internet for private purposes in 2002. Those least likely to access government services were the older population comprising 2% of all adults who accessed government services. For those adults who accessed government services in 2002 for private purposes, 49% did so to pay bills. Proportionally, the older population were more likely to use the Internet for bill payments (e.g. car registration or rates payments) than other age groups (table S23.6).

### S23.5 SELECTED INTERNET TRANSACTIONS(a) — 2002

Age group (years)	Persons aged 18 years and over '000	Accessed the Internet at any site(b) %	Paid bills or transferred funds via the Internet(b) %	Purchased or ordered goods or services via the Internet for private use(b) %
25–34	2 907	78	36	24
35–44	2 933	69	30	20
45–54	2 645	58	24	16
55–64	1 884	42	14	10
65 and over	2 230	13	4	2
<b>Total</b>	<b>14 503</b>	<b>58</b>	<b>23</b>	<b>15</b>

(a) More than one transaction may be selected. (b) Percentages are of all persons aged 18 years and over in each category.

Source: Household Use of Information Technology, Australia, 2002 (8146.0).

### S23.6 GOVERNMENT SERVICES(a) ACCESSED VIA THE INTERNET FOR PRIVATE PURPOSES — 2002

Age group (years)	Persons who accessed government services via the Internet for private purposes '000	Electronic lodgement of			Information or services for		
		Bill payments (e.g. rates and car registration) %	Tax returns %	Applications for permits, etc. %	Taxation %	Employment/unemployment %	Pensions or other benefits %
18–24	475	29	22	5	12	39	*4
25–34	923	53	18	7	22	23	5
35–44	804	55	21	9	21	15	5
45–54	527	51	21	12	22	14	7
55–64	235	42	20	*6	23	8	10
65 and over	61	59	*18	**5	*15	**2	*17
<b>Total</b>	<b>3 024</b>	<b>49</b>	<b>20</b>	<b>8</b>	<b>20</b>	<b>20</b>	<b>6</b>

(a) More than one service may be accessed.

Source: Household Use of Information Technology, Australia, 2002 (8146.0).

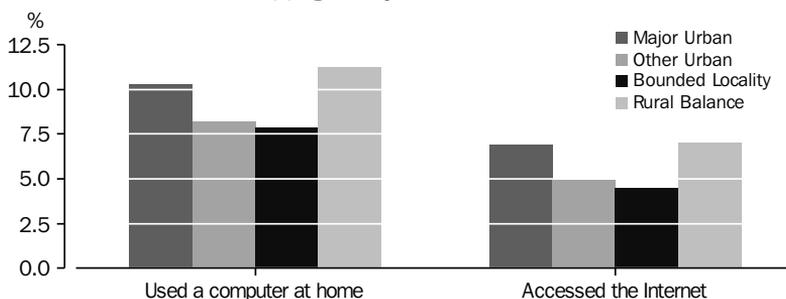
### Other findings

Analysis of the geographic distribution of the use of IT by older people in 2001 shows the proportion of those using a computer at home generally decreased from 10% in Major Urban areas (populations of 100,000 people and over) to 8% in both Other Urban areas (populations of 1,000 to 99,999 people) and Bounded Localities (rural areas with populations of 200 to 999 people), while the proportion of older people using a computer at home in less populated rural areas (Rural Balance) was 11%.

The same pattern was evident for access to the Internet by older persons, with proportions similar for the Rural Balance (7%) and Major Urban areas (7%) decreasing to 5% for Other Urban areas and 5% for Bounded Localities (graph S23.7).

This higher proportion of computer use and Internet access by older Australians in the Rural Balance is associated with the continued growth in the use of such technology by farmers.

**S23.7 COMPUTER USE AND INTERNET ACCESS BY SECTION OF STATE(a), Persons(b) aged 65 years and over — 2001**



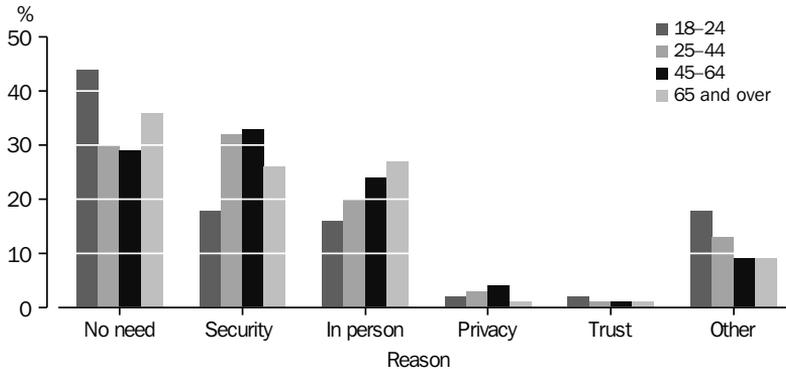
(a) Based on Census usual residency counts. (b) Excludes overseas visitors. Also excludes Migratory and those who did not state or adequately describe their place of usual residence.

Source: ABS data available on request, 2001 Census of Population and Housing.

An examination of the barriers to the use of technology shows the majority (74%) of adult Internet users did not order goods and services via the Internet during 2002 with a third stating they have no need or had not bothered to try. This was also the main reason stated by the older population for not ordering via the

Internet (36%). Security concerns were higher in the 25–44 years age group (32%) and the 45–64 years age group (33%) than the older persons (26%). Privacy and trust concerns were least likely reasons for the older age group (graph S23.8).

**S23.8 MAIN REASON FOR NOT PURCHASING VIA THE INTERNET — 2002**



Source: *Household Use of Information Technology, Australia, 2002 (8146.0)*.

## References

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## ENVIRONMENT

Through their behaviour, industries and households have both direct and indirect impacts on whether natural resources are used prudently and efficiently, and on the extent of waste and pollution. This chapter provides information on some of the practices – and consequences – of Australian households and industry in relation to environmental management and protection.

The chapter commences with an examination of the level of recycling and type of waste management practices reported by Australian households. Although being placed among the top ten generators of household waste in Organisation for Economic Co-operation and Development countries, the number of households in Australia practising recycling and re-use of waste continues to increase.

Besides households, Australian industries are also generators of waste and pollution. This chapter looks at the type of waste and degradation produced by the mining and manufacturing sectors, and provides information on the amount of money spent by these industries to manage the waste and protect the environment. Some information on the quantities of solid and liquid waste going to landfill and other facilities is also included.

Compared with other continents, Australia is characterised by variable climatic conditions and high levels of evapotranspiration. These factors result in a low proportion of rainfall converted to streamflow, making freshwater a valuable resource. The sections *Water supply and use* and *Water stocks* provide information on both surface water and groundwater resources in Australia, and explores water use by Australian industries and households. There is a particular focus on agriculture and water use, with agriculture accounting for two-thirds of all water use in Australia.

There is widespread national and international concern that human activities are linked to global warming and climate change by way of an enhanced greenhouse effect. According to the National Greenhouse Gas Inventory, Australia's total net emissions of greenhouse gases increased by 4.5% between 1990 and 2002. The chapter includes an examination of Australia's greenhouse gas emissions, and the major contributors to these emissions.

## Environmental views and behaviour

### Household waste management

Australia is among the highest producers of waste in the world (OECD 2002). It generates waste at a rate of 2.25 kilograms per person per day, the majority of which ends up in landfill (AGO 2004). During 2002–03 over 17 million tonnes of waste was disposed of at landfills in Australia. Over 30% of this was domestic or municipal waste.

The management of wastes is an important environmental issue. Some wastes are toxic and can harm living organisms and their disposal is of particular importance. Other wastes, while not directly toxic, can physically harm the environment. For example, wildlife can become entangled in plastic packaging and natural waterways can become blocked by rubbish. Sites that are used to store waste (e.g. tips, landfills) can also impact on the environment.

The guiding principles of waste management strategies in Australia are represented by the waste minimisation hierarchy – reduce, re-use and recycle. This strategy embraces a life-cycle approach whereby re-usable and recyclable waste may be used as an alternative to traditional source inputs, not only reducing waste but alleviating pressures on the natural resources. In 1992 a national target of 50% waste reduction by the year 2000 was adopted by the Australian and New Zealand Environment and Conservation Council;

concurrently, all states and territories set ambitious waste minimisation goals to meet or exceed national targets. Available information indicates that although waste reduction has occurred, mostly through recycling, the original targets have not been met by states and territories (Australian State of the Environment Committee 2001).

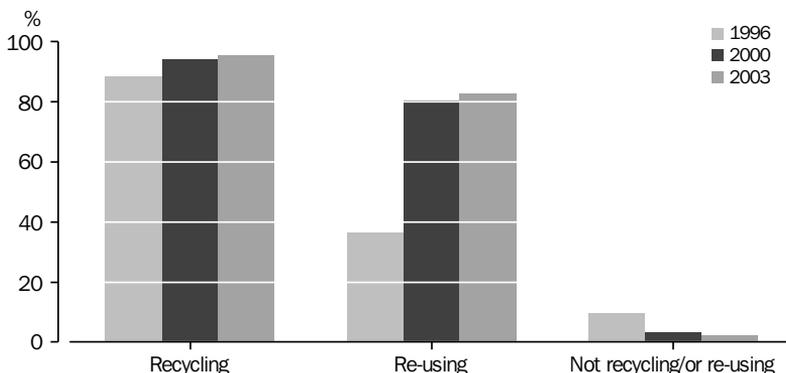
### Waste recycling and re-use by households

Recycling generally refers to the processing of products or materials into similar products or using them as secondary raw materials in producing new products. With recycling, less energy is consumed, less virgin material is used, less damage is caused to the environment and landfill space is saved.

Almost all households in Australia engage in some form of recycling and/or re-use of waste, and the level of participation continues to increase over time. This may be attributed to the success of kerbside collection programs of various state governments and councils that deal with domestic wastes, garden refuse, plastic, paper, cardboard and glass.

In March 2003 about 95% of Australian households recycled waste, 83% re-used waste, while only 2% did not recycle or re-use at all (graph 24.1). Households in Victoria, the Australian Capital Territory and South Australia had the highest rates (99%) of recycling and/or re-using waste. The percentage of households not recycling was highest in the Northern Territory (7% of households).

24.1 WASTE RECYCLING/RE-USE BY HOUSEHOLDS



Source: *Environmental Issues: People's Views and Practices, 2004* (4602.0).

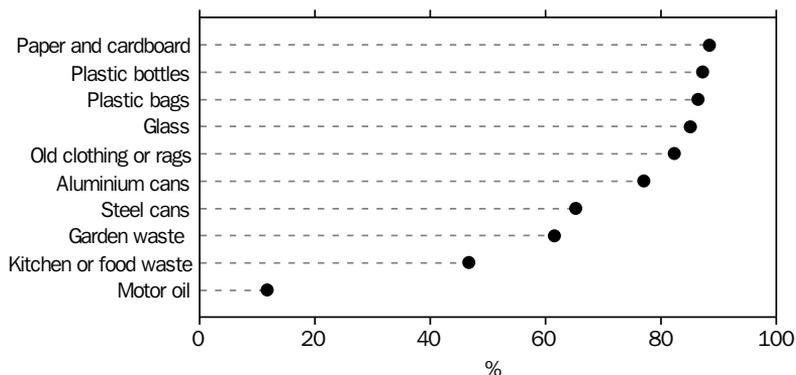
Paper and cardboard (88%) were the items most commonly recycled or re-used in Australia (graph 24.2). In the Australian Capital Territory about 97% of households recycled paper and cardboard, 94% in Victoria and 90% in New South Wales. The Northern Territory (74%) had the lowest levels of paper recycling or re-use. However, this participation rate has nearly doubled since 1996 (39% of households). Large increases in participation in paper and cardboard recycling were also reported in Tasmania (63% in 1996 to 84% in 2003), Victoria (77% to 94%) and Western Australia (68% to 82%).

Plastic bottles and plastic bags were the two next most common waste items recycled or re-used by Australian households (87% and 86% of households, respectively). The recycling or re-use

rates of these plastic products continued to increase since 2000. These wastes were recycled or re-used throughout Australia with the Australian Capital Territory having the highest rates (plastic bottles 96%, plastic bags 92%) and the Northern Territory the lowest (plastic bottles 67% and plastic bags 78%).

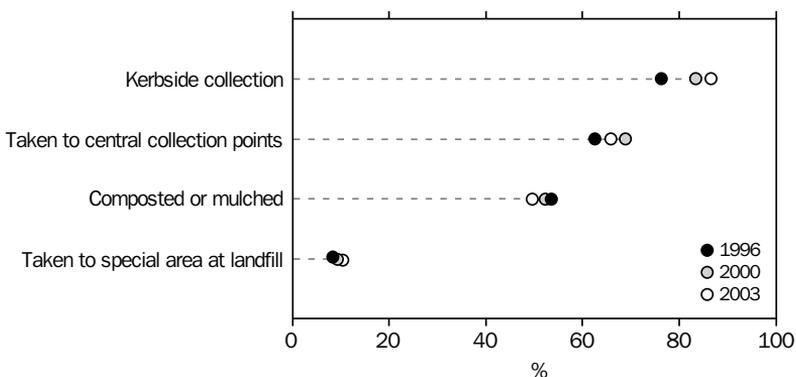
About 87% of waste recycling by Australian households occurred through a regular kerbside collection service (graph 24.3). This method of recycling was practised across Australia; highest in the Australian Capital Territory (97%) and Victoria (95%). Steel cans (95% of households), paper and cardboard (90%), glass (90%) and aluminium cans (89%) were the items recycled most by households via kerbside collection.

### 24.2 ITEMS RECYCLED/RE-USED BY HOUSEHOLDS — March 2003



Source: *Environmental Issues: People's Views and Practices, 2004* (4602.0).

### 24.3 METHODS OF RECYCLING BY HOUSEHOLDS



Source: *Environmental Issues: People's Views and Practices, 2004* (4602.0).

Two-thirds (66%) of all households recycled waste by taking some of their waste to central collection points. South Australian households (81%) practised this recycling method more than households in any other states or territories. Households in the Northern Territory practised this method the least (52%). Old clothing or rags (70%) were the waste most commonly taken to central collection points followed by motor oil (28%), plastic bags (10%) and aluminium cans (9%).

Half (50%) of all households reported they composted or mulched waste, a slight drop from 54% in 1996. Households in the Australian Capital Territory (60%) and Tasmania (59%) had the highest levels of composting while the lowest levels were in Western Australia (43%) and New South Wales (45%). Kitchen and/or garden waste were the items most commonly composted or mulched.

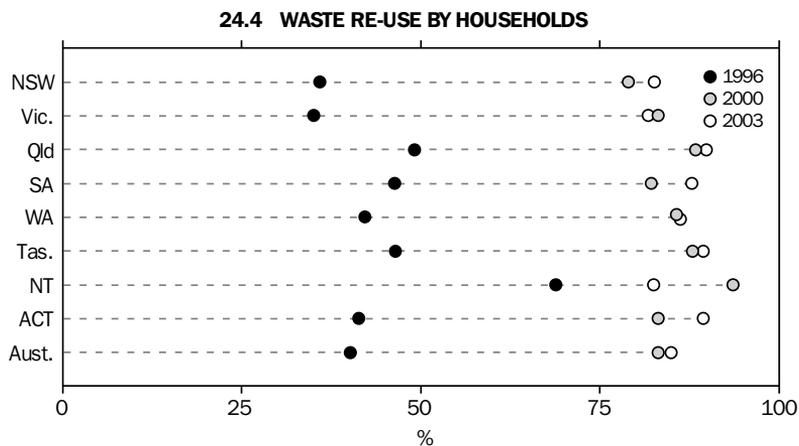
Re-use involves using an item more than once, either for its original purpose or for a different purpose. Since 1996 the proportion of households re-using some waste has increased from 40% in 1996 to 83% in 2000, and to 85% in 2003 (graph 24.4). In 2003 re-use rates were highest in

Queensland (90%), Tasmania (89%) and Australian Capital Territory (89%). Plastic bags (88% of households) and old clothing or rags (41% of households) were the waste items most commonly re-used.

### Hazardous waste disposal

The majority of Australian households (82%) produce and dispose of hazardous waste that may potentially harm human health or the environment. Hazardous wastes require careful management as they may be poisonous, corrosive, flammable, explosive or reactive. Paints, cleaners, waste oils, garden chemicals and batteries are all examples of household materials that can be hazardous if not properly stored, used or disposed of.

With the increasing popularity of battery operated products (e.g. electric toys, mobile phones), household batteries have become the most common hazardous waste disposed of by households (graph 24.5). Disposal of household batteries has increased greatly from 19% of all households in 1996 to 62% in 2003. Pharmaceuticals (35%) and motor oil (28%) were the next most common types of hazardous waste disposed of by households.

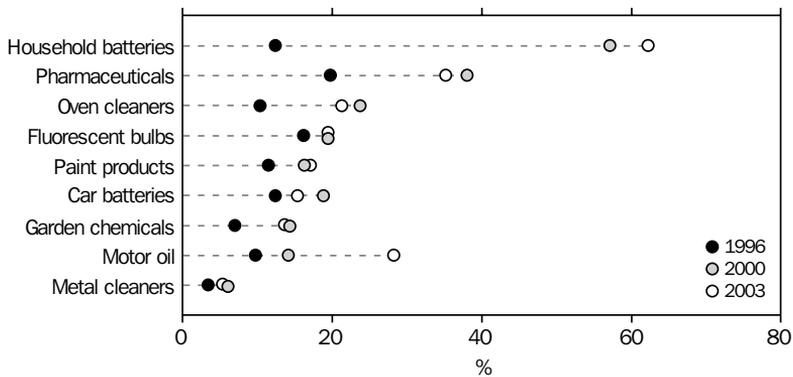


Source: *Environmental Issues: People's Views and Practices, 2004* (4602.0).

The majority of Australian households (85%) continue to dispose of at least one type of hazardous waste via the usual garbage collection (graph 24.6). About 38% of households took hazardous wastes to a business or shop for disposal, while 11% took hazardous wastes to a special area at dumps or waste transfer stations. Motor oil (73%), car batteries (50%) and pharmaceutical products (29%) were the wastes most commonly taken to a business or shop for

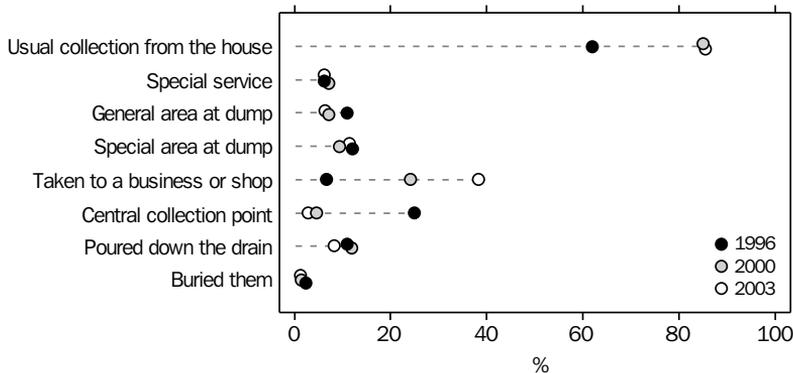
disposal. Car batteries and paint (including their related products and their containers) were the waste most likely to be taken to a special area at the dump or waste transfer station (21% and 20%, respectively). About 19% of households that disposed of pharmaceuticals do so via drains, but this practice has declined over time (26% in 1996). Special services and/or safe waste disposal facilities were not utilised by 83% of all households disposing of hazardous waste.

### 24.5 HAZARDOUS WASTE MATERIALS DISPOSED BY HOUSEHOLDS



Source: *Environmental Issues: People's Views and Practices, 2004 (4602.0)*.

### 24.6 METHODS OF HAZARDOUS WASTE DISPOSAL BY HOUSEHOLDS



Source: *Environmental Issues: People's Views and Practices, 2004 (4602.0)*.

## Use of transport

The pattern of settlement in Australia and, in particular, the widely dispersed centres of industrial, agricultural, mining and production have led to a reliance on motor vehicle transport. For urban commuters, private vehicles (i.e. cars, trucks, vans, motorbikes) offer a convenient, reliable and fast means of travel. For industry, road transport offers a flexible means for the delivery of inputs needed for production and distribution of the goods.

The flexibility and convenience of road transport comes at an environmental cost. For example, motor vehicles create air pollution and, in particular, greenhouse gas emissions. In the inventory of Australia's greenhouse gas emissions for 2002 (AGO 2004) road transport accounted for 69.9 megatonnes (Mt) of carbon dioxide equivalent emissions or 13% of total greenhouse gas emissions, of which 43.5 Mt (62%) came from passenger cars. Greenhouse gas emissions are discussed later in this chapter.

## Main form of transport

The majority of Australians who are 18 years and over and work or study, use private vehicles for transport (75% in 2003) (graph 24.7). Approximately 12% mainly used public transport and 5% walked or cycled. Around 8% did not

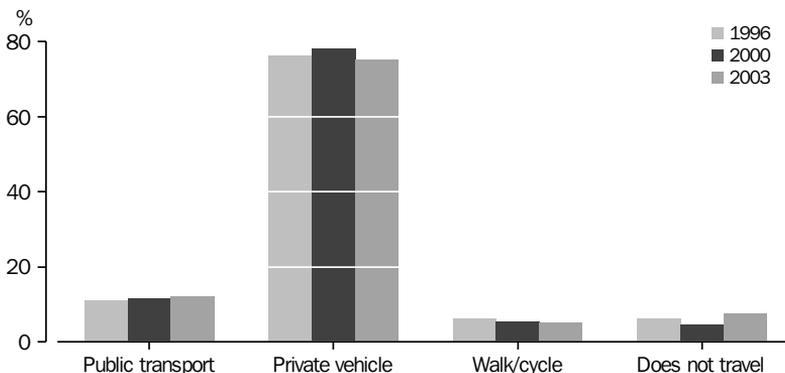
travel at all as they either worked or studied at home or within an educational institution (e.g. students at university colleges).

The proportion of people travelling by private vehicle to work or study has remained about the same between 2000 (78%) and 2003 (75%), as has the proportion of people travelling to work or study by public transport and walking or cycling.

Most people who used private vehicles to travel to work or study did so as a driver (71%). Another 4% of people travelled as a passenger. Driving to work or study was more common of persons aged 25–54 years and least common among younger (18–24 years) and older people (55 years and over).

Of the people driving to work or study in March 2003, 17% took passengers (compared with 19% in March 2000). Of the people taking passengers, the main reasons were work or study with or near passenger (40%), and dropping children off at school (39%). Environmental concerns ranked lowest with only 1% of people reporting this as a reason for taking passengers. The main reasons given for not taking passengers were others did not require transport (48% of people not taking passengers), work or study in different directions or locations (32%), and work or study hours did not match with prospective passengers (20%).

24.7 MAIN FORM OF TRANSPORT TO WORK OR STUDY



Source: *Environmental Issues: People's Views and Practices, 2004* (4602.0).

### Non-use of public transport

Around 81% of Australian people (18 years and over and who work or study) never use public transport and the proportion of people using public transport to travel to work or study has remained constant at about 12% between 2000 and 2003. Public transport was better patronised in New South Wales (18% of people using public transport), Victoria (12%) and South Australia (10%) than in other states and territories. Trains (used by 7% of all people travelling to work or study) and buses (4%) were the most preferred mode of public transport.

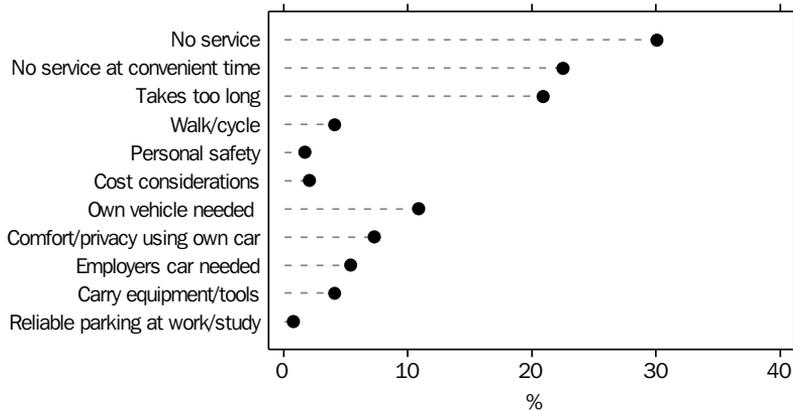
Access and timing were the two main reasons reported by persons not using public transport (graph 24.8). Almost a third of people not using public transport (30%) reported that there was no

service available in their area. Nearly a quarter (23%) said the public transport service did not suit their time, while a fifth (21%) reported it takes too long to reach work or study via public transport.

### Walking and cycling to work or study

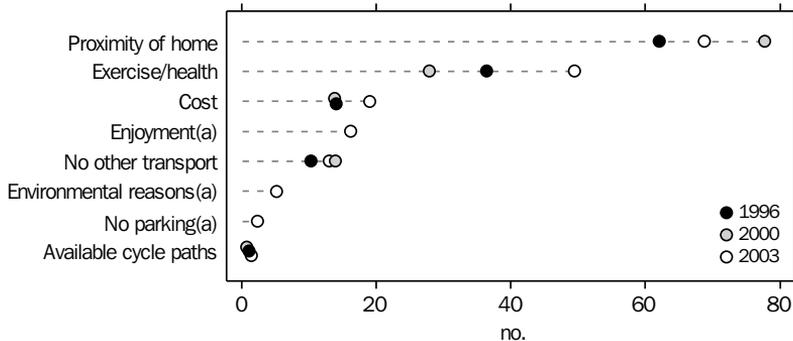
About 5% of Australia's work force and students (18 years and over) usually walk or cycle to work or study. Proximity of home to place of work or study (69%), exercise and health (50%) and cost (19%) were the principal reasons reported for walking or cycling to work or study (graph 24.9). People who usually walk or cycle in 2003 gave more emphasis to exercise and health as compared with 2000 (28%). Environmentally-related reasons (5%) were low on the list of reasons nominated for walking or cycling to work or study.

24.8 REASONS FOR NOT USING PUBLIC TRANSPORT — March 2003



Source: *Environmental Issues: People's Views and Practices, 2004 (4602.0)*.

24.9 REASONS FOR WALKING/CYCLING TO WORK OR STUDY



(a) No data for 1996 and 2000.

Source: *Environmental Issues: People's Views and Practices, 2004 (4602.0)*.

## Environment management and protection

The Australian Government is working with industry to make inroads into waste minimisation in several areas, including packaging, paper, organics, construction and demolition, finance, automotive and electrical industries. For example, the reduction of organic waste from waste streams is important because it could reduce Australia's greenhouse gas emissions by as much as 3% and significantly reduce the volume of landfill (Department of the Environment and Heritage 2004a). In addition, the adoption of the *National Packaging Covenant* in 1999 is a significant initiative aimed at improving the management of used package materials (Department of the Environment and Heritage 2004b).

This section examines environment management in the form of the waste management industry. Waste management services include the collection, transport and/or disposal of refuse (except through sewerage systems) generated by Australian households and businesses. Details of the composition of income generated by waste management businesses, and the nature and volume of waste quantities involved in 2002–03 are provided. Information is also provided on waste management and environment protection in the mining and manufacturing industries. These industries are typically the largest consumers of environment protection goods and services.

### Waste management industry

During 2002–03 almost 1,100 private and public trading sector waste management businesses generated \$2,684m in total income (table 24.10). The collection and transport of waste was the major source of income generating \$1,595m (59.4%) followed by the treatment/processing and/or disposal of waste (\$534m or 19.9%) and income from recyclables (\$227m or 8.4%). Businesses

providing waste management services were predominantly small employers, with 74% of all businesses employing 0 to 4 persons.

There were slightly more than 600 general government organisations undertaking waste management related activities. This sector generated \$181m from the treatment/processing and/or disposal of waste and \$61m from the collection and transport of waste during 2002–03.

During 2002–03, 5.2 million tonnes of waste was received and disposed of at landfills in New South Wales (table 24.11). Commercial, industrial, construction and demolition waste comprised 68% of the total, while the remaining 32% was from domestic and municipal waste.

Of the 5.5 million tonnes of waste received at landfills in Victoria in 2002–03, 51% was comprised of commercial, industrial, construction and demolition, with domestic and municipal accounting for 39%. Another 10% was reported as other 'prescribed waste'.

Queensland recorded a higher proportion of domestic and municipal waste to landfill (39%) than commercial, industrial, construction and demolition (26%). Other waste, which comprised cover material and regulated waste, accounted for 35% of the total 2.8 million tonnes reported for Queensland.

Quantities of waste received at liquid treatment plants (excluding sewage plants) operated by waste management businesses ranged from 263,000 tonnes in New South Wales to 166,900 tonnes in Victoria. Quantities of waste received for disposal at facilities (other than liquid or sewage treatment plants, transfer stations and landfills) totalled 41,500 tonnes and 41,300 tonnes in New South Wales and Victoria, respectively (table 24.12).

### 24.10 INCOME OF WASTE MANAGEMENT BUSINESS(a), By source — 2002–03

	Businesses at end June(b) no.	Income \$m	Proportion of total income %
Collection and transport of waste			
Solid waste			
Domestic and municipal	551	435.0	16.2
Commercial, industrial(c)	629	999.1	37.2
Other	*32	9.9	0.4
Liquid waste (incl. sludge)	*149	151.4	5.6
Total	1 034	1 595.4	59.4
Treatment/processing and/or disposal of waste			
Solid waste			
Domestic and municipal	*76	125.8	4.7
Commercial, industrial(c)	*69	307.7	11.5
Other	14	8.9	0.3
Liquid waste (incl. sludge)	*45	91.7	3.4
Total	*143	534.1	19.9
Recyclables			
Collection and transport(d)	*134	132.5	4.9
Treatment/processing(d)	22	53.9	2.0
Sales of green waste/organic material	**31	11.5	0.4
Sales of other recyclables	*98	28.7	1.1
Total	*231	226.6	8.4
Activities related to renewable energy(e)	8	0.7	—
All other income(f)	n.a.	327.4	12.2
<b>Total</b>	<b>1 092</b>	<b>2 684.2</b>	<b>100.0</b>

(a) Private and public trading sector businesses. (b) As businesses may have had more than one source of income, the counts of businesses for each income source do not sum to the total. (c) Also includes construction and demolition. (d) Includes green waste/organic material. (e) Includes sales of landfill gas, sales of electricity generated from landfill gas and sales of waste for use in power generation schemes. (f) Includes rent, leasing and hiring income, interest income and other income.

Source: Waste Management Services, Australia, 2002–03 (8698.0).

### 24.11 SOLID LANDFILL WASTE QUANTITIES(a)(b), By waste type — 2002–03

	NSW '000 t	Vic. '000 t	Qld '000 t	SA '000 t	WA '000 t	Tas. '000 t	NT '000 t	ACT '000 t
Domestic and municipal	1 657	2 132	1 108	n.a.	741	n.a.	n.a.	82
Commercial, industrial, construction, demolition								
Commercial and industrial	2 358	n.a.	522	n.a.	420	n.a.	n.a.	98
Construction and demolition	1 193	n.a.	200	n.a.	1 535	n.a.	n.a.	27
Total	3 551	2 790	722	n.a.	1 955	n.a.	n.a.	125
Other	—	545	986	n.a.	—	n.a.	n.a.	—
<b>Total</b>	<b>5 208</b>	<b>5 467</b>	<b>2 815</b>	<b>1 252</b>	<b>2 696</b>	<b>n.a.</b>	<b>n.a.</b>	<b>207</b>

(a) Received by private and public trading sector waste management businesses. (b) Data as reported by state and territory government departments and Environment Protection Authorities across all industries. Refer to Technical Notes in 'Waste Management Services, Australia, 2002–03' (8698.0) for more details about the data, including differences in scope across states and territories.

Source: Waste Management Services, Australia, 2002–03 (8698.0).

## 24.12 WASTE QUANTITIES OTHER THAN LANDFILL(a) — 2002–03

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	'000 t								
Received at liquid treatment plants(b)	*263.6	166.9	172.3	n.p.	n.p.	n.p.	n.p.	n.p.	698.1
Received for disposal at other facilities(c)	41.5	41.3	24.5	n.p.	n.p.	n.p.	n.p.	n.p.	123.5

(a) Received by private and public trading sector waste management businesses. (b) Excludes waste received at sewage treatment plants, landfills and transfer stations. (c) Excludes waste not handled by waste management services businesses and waste disposed of at landfills.

Source: Waste Management Services, Australia, 2002–03 (8698.0).

## Mining industry

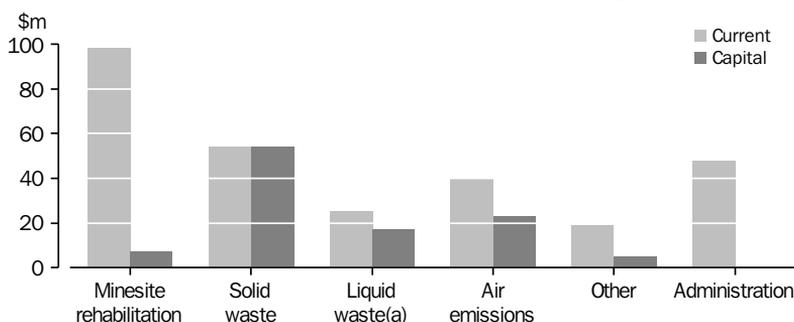
In 2000–01, 65% of businesses in the mining industry incurred current environment protection expenditure. These businesses spent \$284m on payments to government, payments to private organisations and other expenses. Current expenditure on environment management comprised less than 1% of total current expenses for this industry. The largest current expenditures were on minesite rehabilitation (\$98m) and solid waste management (\$54m) (graph 24.13).

Total capital environment protection expenditure was \$107m, or 2% of total capital expenditure. Approximately 28% of all mining businesses undertook capital expenditure to protect the environment in 2000–01.

In 2000–01 mining operations had 39,347 hectares (ha) of newly disturbed land, 34,972 ha of land under rehabilitation and 12,695 ha of land rehabilitated to its pre-mining condition. Current expenditure on current and finalised minesite rehabilitation projects was approximately \$2,050 per ha and \$145 per ha for capital expenditure.

The metal ore mining subdivision (\$154m) reported the highest current environment protection expenditure in the mining industry in 2000–01. Metal ore mining had major expenditure on minesite rehabilitation (\$50m) and reducing air emissions (\$34m). Coal mining was also a significant contributor to minesite rehabilitation (\$36m) (table 24.14).

## 24.13 ENVIRONMENT PROTECTION EXPENDITURE, Mining — 2000–01



(a) Includes waste water.

Source: Environment Protection, Mining and Manufacturing Industries, Australia, 2000–2001 (4603.0).

#### 24.14 CURRENT ENVIRONMENT PROTECTION EXPENDITURE, Mining — 2000–01

Industry subdivision	Minesite rehabilitation \$'000	Solid waste \$'000	Liquid waste(a) \$'000	Air emissions \$'000	Other \$'000	Administration \$'000	Total \$'000
Coal mining	35 800.2	21 219.4	6 274.4	3 957.3	5 772.8	9 400.3	82 424.5
Oil and gas extraction	1 798.4	3 267.2	6 227.1	947.3	3 512.3	7 781.6	23 534.0
Metal ore mining	50 160.0	24 648.4	11 367.8	34 116.6	7 690.8	26 440.1	154 423.8
Other mining	9 903.5	4 705.6	941.0	1 472.7	1 997.0	4 426.0	23 445.8
<b>Total mining</b>	<b>97 662.1</b>	<b>53 840.7</b>	<b>24 810.4</b>	<b>40 493.9</b>	<b>18 972.9</b>	<b>48 048.1</b>	<b>283 828.1</b>

(a) Includes waste water.

Source: *Environment Protection, Mining and Manufacturing Industries, Australia, 2000–2001* (4603.0).

### Manufacturing industry

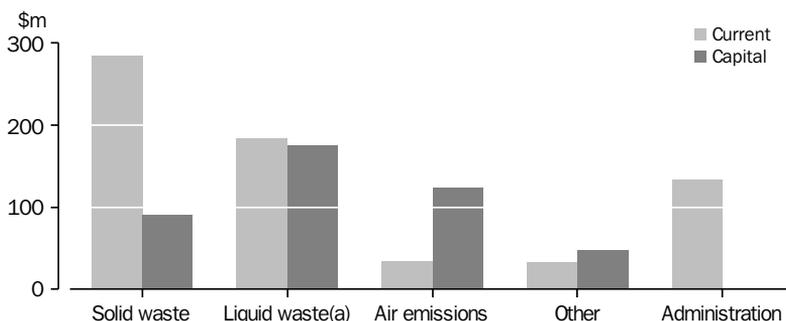
In 2000–01, 70% of manufacturing businesses reported current environment protection expenditure. This amounted to \$668m in current expenditure (less than 0.5% of total manufacturing expenses). Solid waste management was \$284m and liquid waste management was \$183m (graph 24.15).

Capital expenditure on environment protection relates to acquisition of plant, machinery, equipment and land, construction and installation of facilities, and capitalised wages and salaries. Purchases only partly used for environment protection purposes are excluded. Environment protection capital expenditure accounted for nearly 4% (\$438m) of the total capital expenditure for the manufacturing industry in 2000–01. Over 17% of businesses were estimated to have some capital expenditure. Approximately 40% (\$176m) of capital environment protection expenditure was on liquid waste management.

Current expenditure was highest in the food, beverages and tobacco manufacturing industry subdivision (\$164m) followed by metal products (\$137m). Over a quarter of the current expenditure on waste management was by the food, beverages and tobacco manufacturing (27% or \$126m). Metal products accounted for over a third (36% or \$12.5m) of current expenditure on air emissions management. This industry subdivision also had the highest expenditure on administration related to environment protection (\$35m) (table 24.16).

The main type of waste produced by manufacturers was paper and cardboard derived from inputs into the manufacturing process (52% of all businesses). Of the waste types generated, metal scrap was the most recycled form of waste material, with 82% of all manufacturers with that type of waste reporting metal scrap recycling. Nearly two-thirds (65%) of glass waste generated was also recycled (table 24.17).

#### 24.15 ENVIRONMENT PROTECTION EXPENDITURE, Manufacturing — 2000–01



(a) Includes waste water.

Source: *Environment Protection, Mining and Manufacturing Industries, Australia, 2000–2001* (4603.0).

## 24.16 CURRENT ENVIRONMENT PROTECTION EXPENDITURE, Manufacturing — 2000–01

Industry subdivision	Solid waste \$'000	Liquid waste(a) \$'000	Air emissions \$'000	Other \$'000	Admin- istration \$'000	Total \$'000
Food, beverages and tobacco	68 489.4	57 348.0	3 014.6	4 984.5	30 603.4	164 439.9
Textiles, clothing, footwear and leather	15 710.3	17 536.9	607.8	403.6	3 547.2	37 805.8
Wood and paper products	35 482.3	15 208.8	6 153.9	2 565.6	7 553.0	66 963.5
Printing, publishing and recorded media	8 951.3	3 189.4	350.9	287.9	2 605.0	15 384.6
Petroleum, coal, chemical and associated products	36 705.6	37 741.2	4 222.6	7 451.9	24 890.5	111 011.8
Non-metallic mineral products	22 827.7	6 305.0	5 102.1	6 985.6	6 679.0	47 899.5
Metal products	56 944.0	25 595.0	12 451.0	6 347.9	35 217.0	136 554.9
Machinery and equipment	25 687.8	19 336.2	1 966.3	3 346.3	20 522.4	70 858.9
Other manufacturing	13 226.5	1 209.1	583.1	334.2	2 177.7	17 530.6
<b>Total manufacturing</b>	<b>284 025.0</b>	<b>183 469.6</b>	<b>34 452.3</b>	<b>32 707.5</b>	<b>133 795.2</b>	<b>668 449.6</b>

(a) Includes waste water.

Source: *Environment Protection, Mining and Manufacturing Industries, Australia, 2000–2001* (4603.0).

## 24.17 MANUFACTURING BUSINESSES GENERATING AND RECYCLING SOLID WASTE TYPES — 2000–01

Solid waste	Proportion of businesses	
	Generating waste type %	Recycling solid waste(a)(b) %
Metal	35.1	82.0
Glass	7.9	64.7
Plastics	21.0	42.8
Paper and cardboard	51.8	56.4
Construction and demolition	4.9	27.4
Organic	6.2	43.6
Textiles, wood, leather and rubber	24.7	31.1
Other	7.0	36.3
None	19.0	..

(a) Non-hazardous. (b) Of those generating waste type.

Source: *Environment Protection, Mining and Manufacturing Industries, Australia, 2000–2001* (4603.0).

## Water supply and use

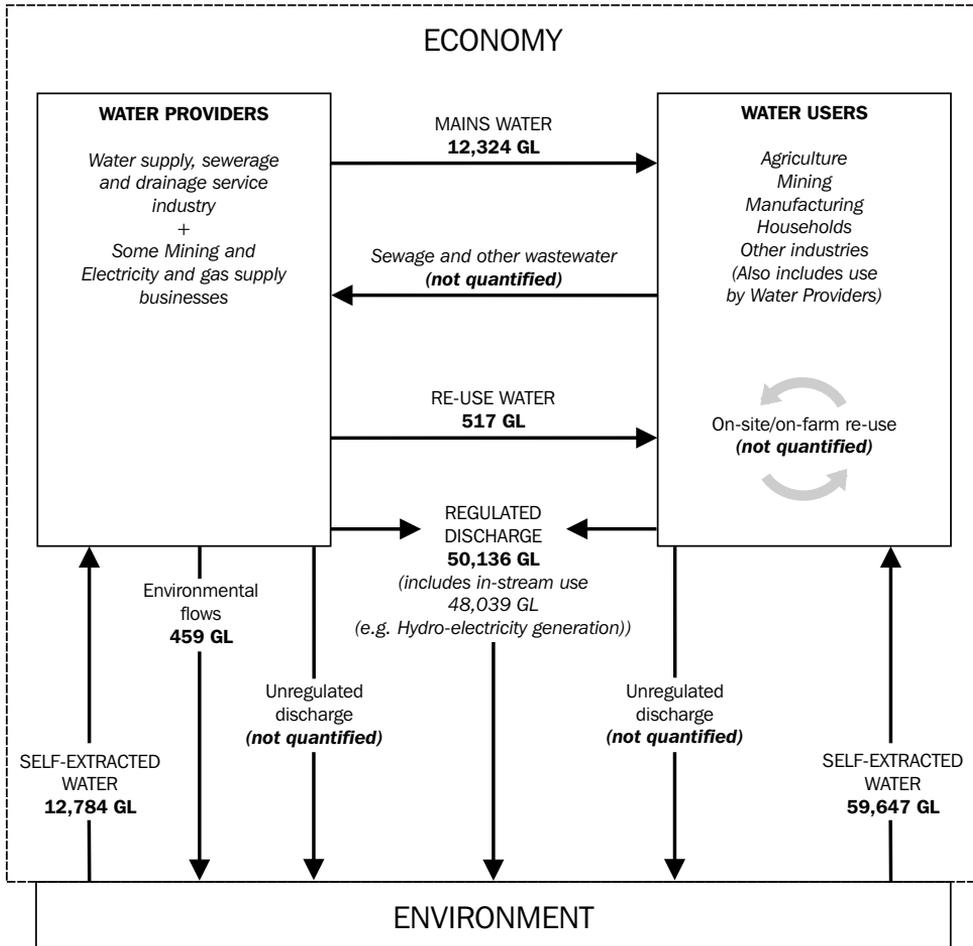
Water is critical for supporting Australia's physical, social and economic environment. By world standards Australia is a dry continent with few freshwater resources. In some regions the biological condition of the river, wetlands and groundwater dependent ecosystems has been severely impacted by the extraction of large volumes of water for agriculture, household and industrial use.

Diagram 24.18 shows the supply and use of water in Australia. During 2000–01, 72,431 gigalitres (GL) of water was extracted from the environment and used within the Australian economy. Of this amount, 12,784 GL was extracted by water

providers, mostly by the water supply, sewerage and drainage services industry (12,765 GL), while water users directly extracted 59,647 GL. Of the volume extracted by water providers, 12,324 GL was supplied as mains water to water users and 459 GL was returned to the environment as environmental flows.

Of the 72,431 GL of water extracted from the environment in 2000–01, most was used in-stream (mainly for hydro-electricity generation) and is available almost immediately for use further downstream. Excluding this 'non-consumptive' use of water, Australian industries and households used 24,909 GL of water in 2000–01.

**24.18 WATER SUPPLY AND USE IN THE AUSTRALIAN ECONOMY — 2000–01**



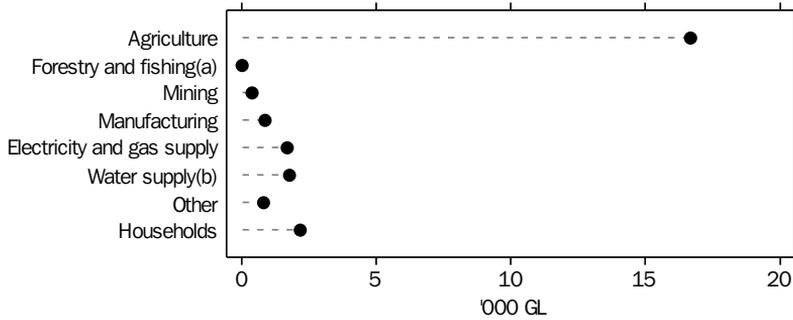
Source: Water Account, Australia, 2000–01 (4610.0).

**Water consumption by industry**

Agriculture was by far the largest consumer of water in 2000–01, accounting for 67% (16,660 GL) of total water use in Australia (graph 24.19, table 24.20). Households were the next highest consumers of water, accounting for 8.8% (2,181 GL) of water use. Total water use in households increased 19% from 1996–97. The average household water use was 115 kilolitres/person in 2000–01. The water supply, sewerage and drainage services industry was also a significant consumer of water, accounting for 7.2% (1,794 GL) of water use, followed by the electricity and gas supply industry which consumed

6.8% (1,688 GL), excluding in-stream water use for hydro-electricity generation. Mining accounted for 1.6% (401 GL) of water use. Metal ore mining (284 GL) and coal mining (72 GL) collectively contributed 89% of water consumption in the mining industry. Manufacturing accounted for 3.5% (866 GL) of the total water consumption in 2000–01. The food, beverage and tobacco industry was the highest user of water within the manufacturing industry with 242 GL used (28% of manufacturing), while the wood and paper products industry contributed 175 GL (or 20%).

### 24.19 WATER CONSUMPTION, By industry — 2000–01



(a) Includes services to agriculture; hunting and trapping. (b) Includes sewerage and drainage services.

Source: *Water Account, Australia, 2000–01 (4610.0)*.

### 24.20 INDUSTRY AND HOUSEHOLD WATER CONSUMPTION — 2000–01

	NSW	Vic.	Qld	SA	WA	Tas.	NT	Aust.
	GL	GL	GL	GL	GL	GL	GL	GL
Agriculture	7 322	3 725	3 454	1 302	565	222	70	16 660
Forestry and fishing(a)	3	4	2	1	10	2	0	23
Mining	52	7	109	12	195	21	5	401
Manufacturing	179	249	181	86	83	79	9	866
Electricity and gas supply	59	1 536	71	2	19	0	1	1 688
Water Supply(b)	676	745	216	24	114	10	9	1 794
Other	254	148	172	38	175	24	22	832
Households	679	472	501	181	245	59	45	2 181

(a) Includes services to agriculture; hunting and trapping. (b) Includes sewerage and drainage services.

Source: *Water Account, Australia, 2000–01 (4610.0)*.

New South Wales and the Australian Capital Territory combined used the most water – 9,425 GL (or 38% of the total) – and 78% of this was used in agriculture. In Victoria, agriculture accounted for 52% of the total, however, the electricity and gas supply industry also contributed a high proportion (22%) compared with that contributed by other states and territories.

#### Water use by agriculture

Water used by agriculture includes water applied through irrigation to crops, pastures, or fed to livestock, that has been directly extracted from the environment by farmers (e.g. from bores, on-farm dams, rivers) or supplied by water providers (e.g. irrigation authorities). It excludes the use of rainwater.

Agricultural water use varied between crops and between states and territories. New South Wales and the Australian Capital Territory combined were the largest users of water for agriculture accounting for 7,322 GL or 44% of total agricultural water use in 2000–01.

In 2000–01 the livestock, pasture, grains and other agriculture industry (which includes cut flowers, nurseries, turf growing and other commodities) was the largest user of water in agriculture (5,568 GL or 33%) followed by the cotton industry (2,908 GL or 17%), dairy farming (which includes livestock and irrigated pastures and grains for dairy farming purposes) (2,834 GL or 17%) and rice (1,951 GL or 12%) (table 24.21).

## 24.21 WATER USE IN THE AGRICULTURE, By industry — 2000–01

	NSW and ACT GL	Vic. GL	Qld GL	SA GL	WA GL	Tas. GL	NT GL	Aust. GL
Livestock, pasture, grains, and other agriculture	2 590	1 435	779	474	176	85	30	5 568
Dairy	401	1 685	288	320	65	76	..	2 834
Vegetables	96	131	103	65	111	49	1	556
Fruit	214	209	107	161	65	10	36	803
Grapes	174	238	6	284	23	1	3	729
Sugar	1	..	1 186	..	124	..	..	1 311
Cotton	1 921	..	985	..	3	..	..	2 908
Rice	1 924	27	..	..	..	..	..	1 951
<b>Total(a)</b>	<b>7 322</b>	<b>3 725</b>	<b>3 454</b>	<b>1 302</b>	<b>565</b>	<b>222</b>	<b>70</b>	<b>16 660</b>

(a) Sums may not necessarily equal totals due to rounding.

Source: *Water Account, Australia, 2000–01 (4610.0)*.

## Household water use

Water use by households (also referred to as domestic water use) includes water that is used for human consumption (such as for drinking and cooking) as well as water used by households for cleaning or outdoors (such as water for gardens and swimming pools).

In 2000–01 the total water used by households was 2,181 GL, increasing from 1,829 GL in 1996–97 and 1,704 GL in 1993–94. This rise can be attributed in part to an increase of population (6% nationally from 1993–94 to 2000–01) and improved coverage and reporting in 2000–01.

Climate plays a significant role in household water use. The majority of household water was used for outdoor purposes (44%), followed by indoor uses, including bathrooms (20%) and toilets (15%) (graph 24.22).

Of the total water used by households in 2000–01, 96% (2,085,768 ML) was supplied by mains and 4% (95,512 ML) of water was from a self-extracted source (i.e. rainwater tanks and direct extraction from surface waterways or groundwater). South Australia has the highest proportion of rainwater tanks (48%) of any state or territory (graph 24.23).

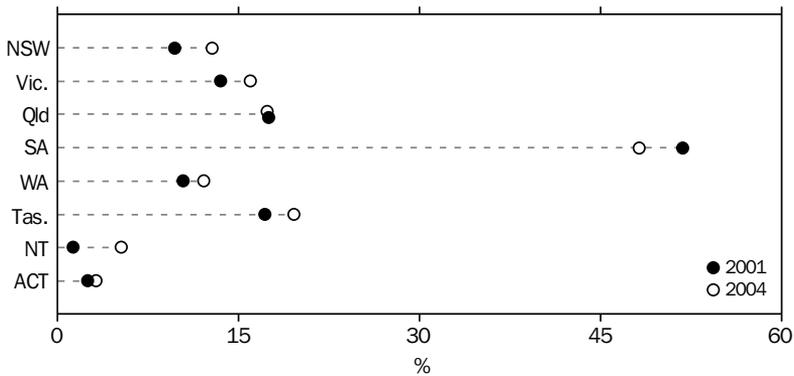
24.22 HOUSEHOLD WATER USE(a), By location of use — 2000–01



(a) Excludes Tasmania and Northern Territory.

Source: *ActewAGL 2003; Day P 2003, pers. comm.; Sydney Water 2001; Water Corporation 2001; Waterwise Queensland (no date)*.

**24.23 PROPORTION OF HOUSEHOLDS WITH RAINWATER TANKS**



Source: *Environmental Issues: People's Views and Practices (4602.0)*.

**Reuse water**

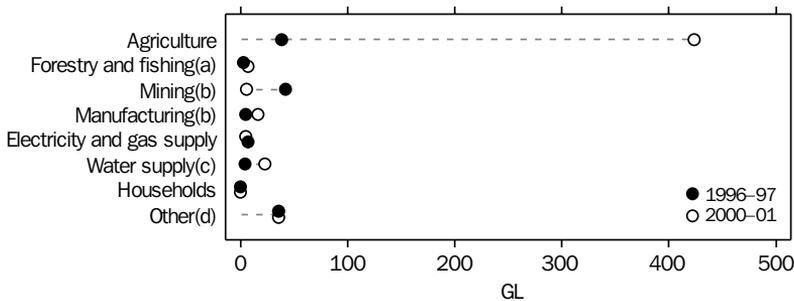
Reuse water is defined as wastewater that may have been treated to some extent and then used again without first being discharged to the environment. Reuse water is supplied mainly by the water supply industry, but may also be supplied by other industries (such as mining and manufacturing). Reuse water supplied by irrigation/rural water providers through regional reuse schemes has also been included.

The use of reuse water has increased almost threefold since 1996–97, although the volume used is still relatively small. In 1996–97 there were 134,424 millilitres (ML) of reuse water used in

Australia, which made up less than 1% of total water use in that year. By 2000–01 this volume had increased to 516,563 ML. However, this use still accounted for less than 1% of total water use. A large proportion of reuse water use is sourced from rural/irrigation regional reuse schemes.

The agriculture industry was the largest user of reuse water in 2000–01, accounting for 423,264 ML or 82% of all reuse water used in Australia (graph 24.24). The majority of reuse water used by the agriculture industry was for application to pastures (45%), although rice crops were also significant users (29%).

**24.24 REUSE WATER USE, By industry**



(a) Includes services to agriculture; hunting and trapping. (b) On-site reuse was included in this industry in 1996–97 and not in 2000–01. (c) Includes sewerage and drainage services. (d) Includes mainly services and administrative industries.

Source: *Water Account, Australia, 2000–01 (4610.0)*.

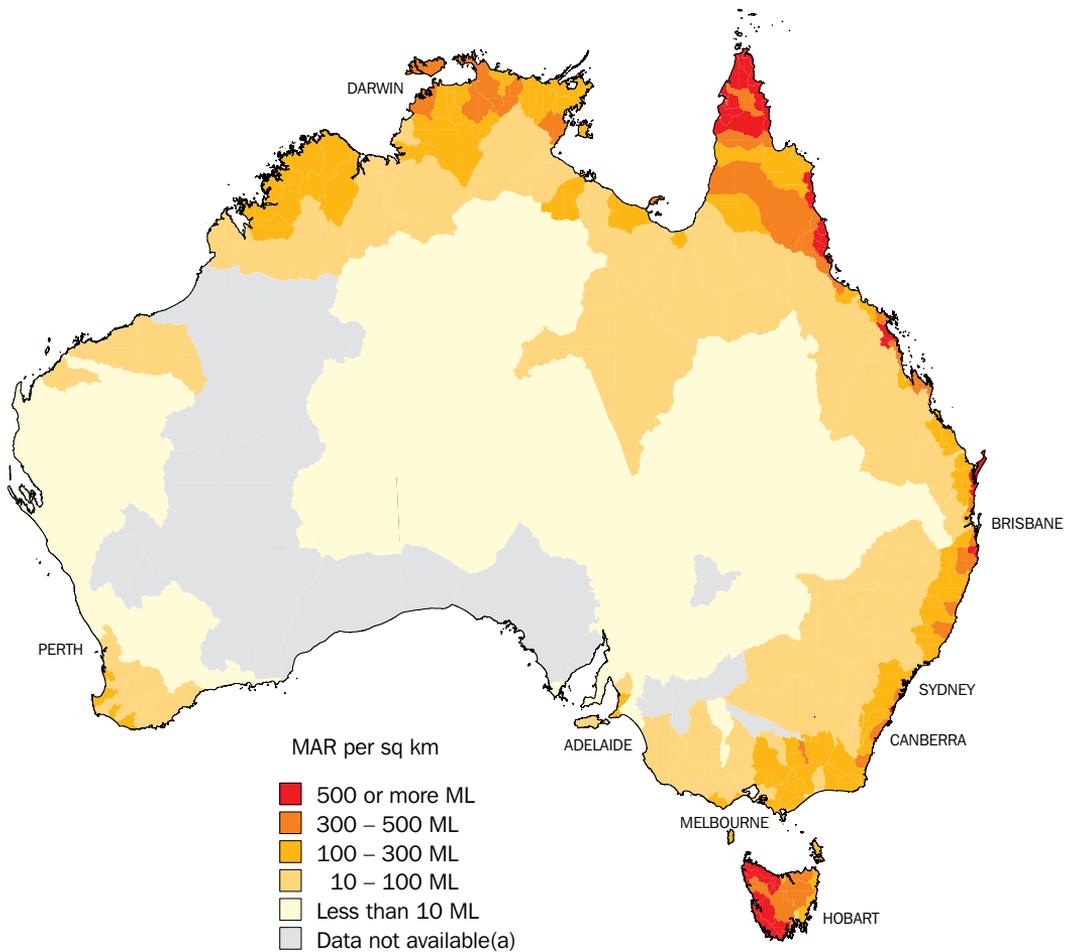
## Water stocks

Rainfall, or the lack of it, is the most important single factor determining land use and rural production in Australia. The scarcity of both surface water and groundwater resources, together with low rates of precipitation, has led to programs to regulate supply by construction of dams, reservoirs, large tanks and other storages.

## Surface water stocks

Water stocks are usually divided into surface water and groundwater resources. Surface water resources are often represented by Mean Annual Run-off (MAR). MAR is the average annual streamflow passing a specified point (NLWRA 2001) or the maximum average annual flow observed in a river basin (AWRC 1987a). In 2000 the total MAR for Australia was 387,184 GL, but the distribution was geographically uneven (map 24.25).

**24.25 SURFACE WATER, MEAN ANNUAL RUN-OFF (MAR), By river basin — 2000**



(a) Data not available for a number of reasons. Refer to <<http://audit.ea.gov.au/>> for more information.

Source: AWRC 1987a; AWRC 1987b; NLWRA 2001.

Table 24.26 summarises Australia's surface water stocks by drainage division. The drainage division with the highest intensity of run-off is Tasmania with 11.8% of the total from only 0.9% of the area. Conversely, the vast area of the Western Plateau, almost a third of Australia's total land area, has no significant run-off at all.

Developed yield (also referred to as Economic Allocated volumes) is the average annual volume of water that can be diverted for use with the existing infrastructure (NLWRA 2001). Map 24.27 shows the developed yield as a percentage of MAR in 2000. The highest proportions are located in the south east and north east areas of Australia.

## Groundwater stocks

The volume of groundwater that exists in Australia is not known with certainty. The volume changes as water percolates through the ground to aquifers (underground water resources) and through water being extracted (e.g. from bores). Instead of an absolute measure of groundwater stock, a proxy is used. This is the amount of water that can be sustainably extracted, referred to as sustainable yield. Sustainable yield is defined as:

Level of extraction measured over a specified planning time frame that should not be exceeded to protect the higher value social, environmental and economic uses associated with the aquifer (NLWRA 2001).

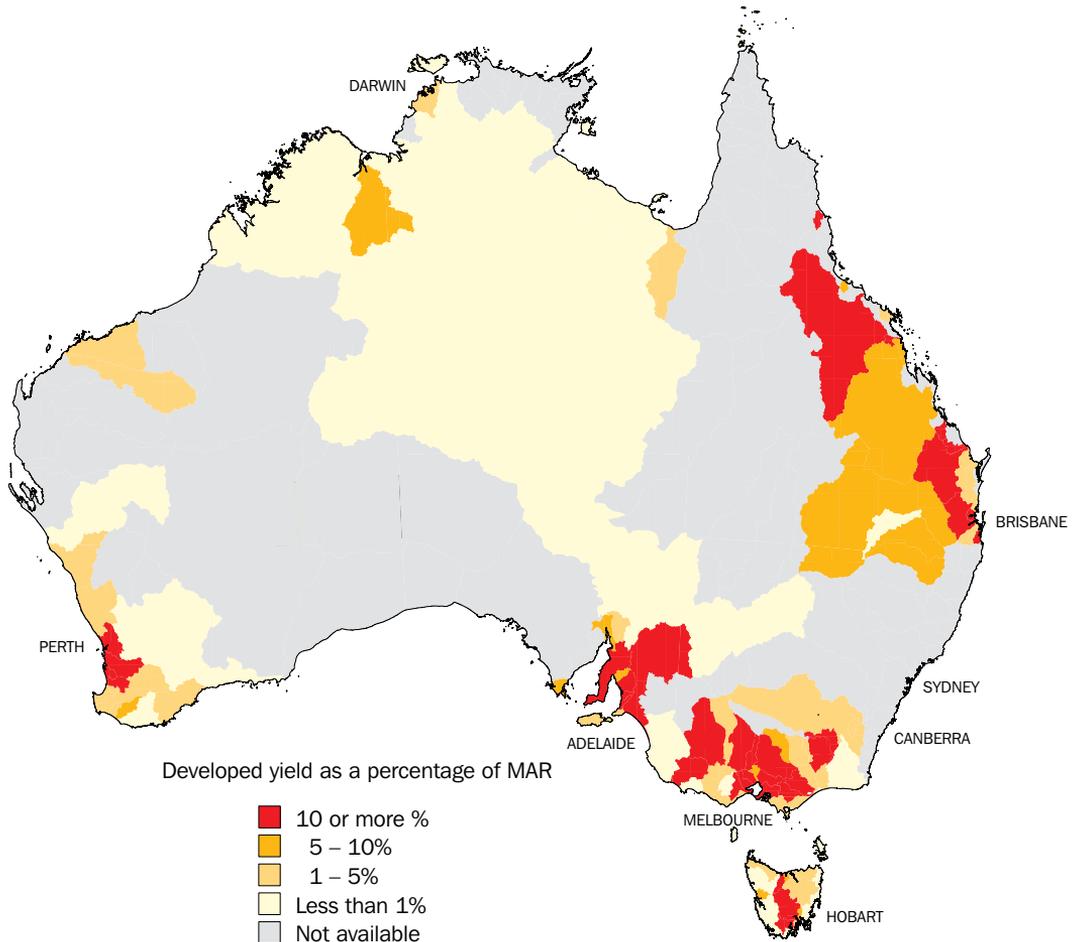
### 24.26 SURFACE WATER STOCKS — 2000

Drainage division	Area	Mean annual run-off	
	sq km	GL	%
North-East Coast	451 000	73 411	19.0
South-East Coast(a)	274 000	42 390	10.9
Tasmania(b)	68 200	45 582	11.8
Murray-Darling Basin(a)	1 060 000	23 850	6.2
South Australian Gulf(c)	82 300	952	0.2
South-West Coast	315 000	6 785	1.8
Indian Ocean	519 000	4 609	1.2
Timor Sea	547 000	83 320	21.5
Gulf of Carpentaria	641 000	95 615	24.7
Lake Eyre	1 170 000	8 638	2.2
Bulloo-Bancannia	101 000	546	0.1
Western Plateau	2 450 000	1 486	0.4
<b>Total</b>	<b>(d)7 680 000</b>	<b>387 184</b>	<b>100.0</b>

(a) South-East Coast and Murray-Darling Division. The volume diverted represents the sum of available data (NSW has not reported water use for unregulated surface water management areas). (b) Tasmanian Division. Volume diverted does not include the hydro-electric scheme diversions. (c) South Australian Gulf Division. Mean annual outflow includes the flow from surface water management areas Willochra Creek and Lake Torrens, which do not flow to the sea, but flow into the terminal lake, Lake Torrens. (d) Total area differs slightly from that in table 1.1, due to improvements in mapping reflected in that table, but not in this table.

Source: NLWRA 2001.

**24.27 SURFACE WATER, DEVELOPED YIELD, By river basin — 2000**

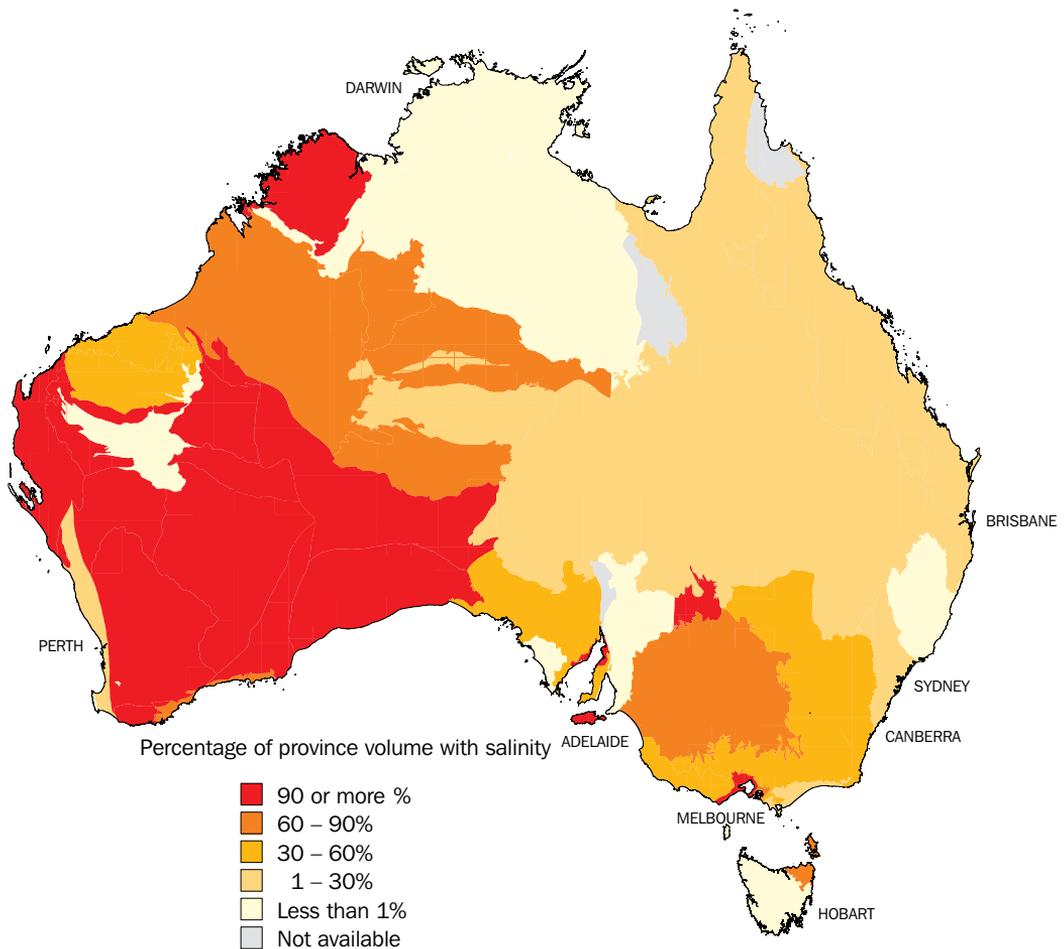


Source: AWRC 1987a; AWRC 1987b; NLWRA 2001.

The National Land and Water Resources Audit 2001 estimated the sustainable yield of groundwater in Australia to be 29,173 GL. Groundwater is not all of equal quality. In particular, the concentration of salt dissolved in water varies (map 24.28). The level of dissolved salt determines the potential uses of the water. The higher the salt level the less suitable the water is for human consumption or agriculture. Typically, a salinity level of more than 1,500 milligrams/ litre (mg/L) restricts the use of water for irrigation. Map 24.28 shows the percentage

of groundwater resource in each province with salinity over 1,500 mg/L in 2000. Salt occurs naturally in Australian soils but through irrigation and land clearing the levels of salt can increase in soils and water. Table 24.29 shows, proportionally, Northern Territory, Tasmania and Queensland have groundwater with the lowest salinity levels (less than 1,500 mg/L), while Victoria, South Australia and Western Australia have groundwater with the highest salinity levels (1,500 mg/L and over).

## 24.28 GROUNDWATER, Salinity levels over 1,500 mg/L — 2000



Source: Data based on NLWRA 2001. Australian Groundwater Provinces (2000) are based on data provided in 2000 with the permission of the Queensland Department of Natural Resources and Mines, Environment ACT, NSW Department of Land and Water Conservation, NT Department of Lands, Planning and Environment, SA Department of Water Resources, Tasmanian Department of Primary Industries, Water and Environment, Victorian Department of Natural Resources and the Environment, WA Water and Rivers Commission, and the Australian Surveying and Land Information Group.

### 24.29 SUSTAINABLE YIELD GROUNDWATER, By level of salinity — 2000

	NSW GL	Vic. GL	Qld GL	SA GL	WA GL	Tas. GL	NT GL	Aust. GL
Less than 1,500 mg/L								
<500 mg/L	698	194	1 373	56	1 899	1 585	4 412	10 217
500–1,000 mg/L	3 928	827	995	229	1 061	767	287	8 093
1,000–1,500 mg/L	34	386	119	679	995	—	455	2 670
<i>Total</i>	4 660	1 407	2 487	964	3 955	2 353	5 154	20 980
1,500 mg/L and over								
1,500–3,000 mg/L	812	244	113	253	1 468	178	139	3 208
3,000–5,000 mg/L	2	707	30	—	588	—	183	1 510
5,000–14,000 mg/L	440	201	63	762	841	—	—	2 307
More than 14,000 mg/L	—	797	—	—	371	—	—	1 168
<i>Total</i>	1 254	1 949	206	1 015	3 268	178	322	8 193
<b>Total sustainable yield</b>	<b>5 914</b>	<b>3 356</b>	<b>2 693</b>	<b>1 979</b>	<b>7 223</b>	<b>2 531</b>	<b>5 476</b>	<b>29 173</b>
Proportion (%)								
Less than 1,500 mg/L	79	42	92	49	55	93	94	72
1,500 mg/L and over	21	58	8	51	45	7	6	28

Source: AWRC 1987a; AWRC 1987b; NLWRA 2001.

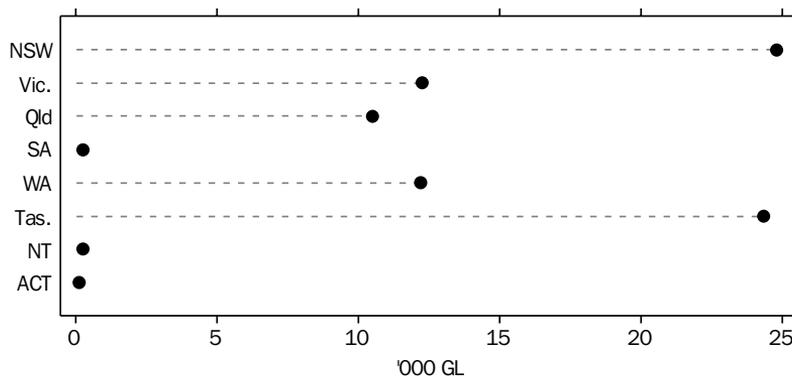
### Water assets

There are several dimensions to water assets including the physical availability of water or water stocks, the administrative (e.g. licences and entitlements) and the physical infrastructure (dams, pipes, etc.) that are used to store and deliver water.

Information on the storage capacity of large dams in each state and territory (except the Australian Capital Territory) is available from the Register of

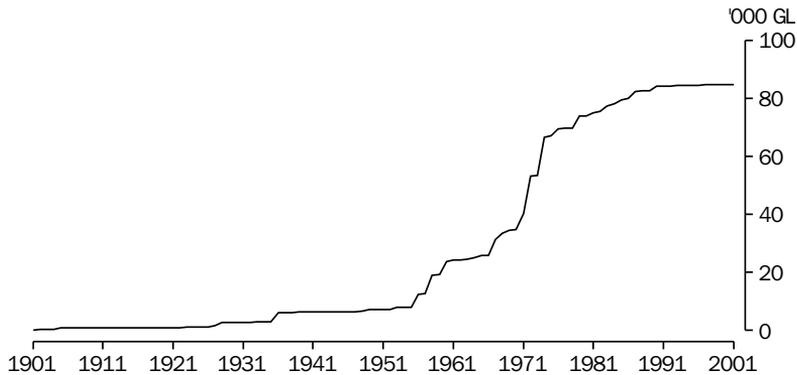
Large Dams (Australian National Committee on Large Dams). There are approximately 500 large dams in Australia with a storage capacity of 84,793 GL. Tasmania (24,340 GL) and New South Wales (24,814 GL) have the largest storage capacity, while the Australian Capital Territory (124 GL) and South Australia (261 GL) have the least (graph 24.30). Most of Australia's dam capacity has been built since 1970 (graph 24.31).

24.30 WATER STORAGE CAPACITY OF LARGE DAMS — 2001



Source: ANCOLD 2001; ActewAGL 2003; NCA 2004.

### 24.31 TOTAL WATER STORAGE CAPACITY OF LARGE DAMS



Source: ANCOLD 2001; ActewAGL 2003; NCA 2004.

## Greenhouse gas emissions

Human activity is increasing atmospheric concentrations of existing greenhouse gases such as carbon dioxide and methane and adding new gases such as chlorofluorocarbons (CFCs). Many experts believe that these gases are linked to global warming and climate change by way of an enhanced greenhouse effect – the process by which water vapour, carbon dioxide and other gases form a blanket around the earth, trapping heat. Projections indicate annual average temperatures in Australia could be 0.4–2.0 degrees celsius (°C) higher by 2030 and 1.0–6.0 °C higher by 2070 (CSIRO 2004a). These estimates are based on world emissions scenarios produced by the Intergovernmental Panel on Climate Change.

The United Nations Framework Convention on Climate Change (UNFCCC) established the first international treaty dealing with climate change and laid the basis for global action to ‘... protect the climate system for present and future generations’. Governments recognised the need for legally binding commitments to greenhouse gas emission limitations and reductions, which were subsequently reflected in policy terms in the Kyoto Protocol (UNFCCC 2004). Information on the Kyoto Protocol, including the Australian Government’s position, can be obtained from <<http://www.greenhouse.gov.au>>.

Estimates of Australia’s greenhouse emissions vary according to the accounting conventions used. Unless otherwise indicated, the emission estimates are produced using the UNFCCC

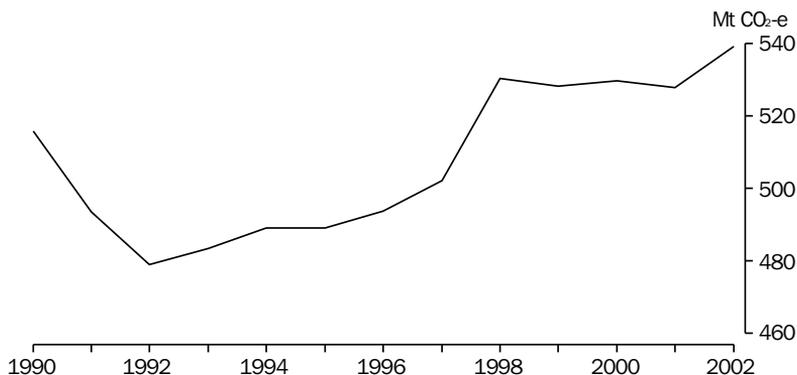
accounting provisions. These emissions totalled 539.2 Mt of carbon dioxide equivalent (CO<sub>2</sub>-e) in 2002. These estimates are lower than those calculated using the Kyoto accounting rules at 550.1 Mt of CO<sub>2</sub>-e in 2002, although changes over time are broadly similar. Information on the UNFCCC and Kyoto emission accounting provisions can be obtained from <<http://www.unfccc.int>>.

According to the Australian National Greenhouse Gas Inventory, Australia’s total net emissions of greenhouse gases increased by 23 Mt of CO<sub>2</sub>-e (4.5%) between 1990 and 2002 (graph 24.32) (AGO 2004).

As amounts of greenhouse gas emissions continue to increase they are being reflected in the findings from atmospheric measuring stations. In the past 25 years a steady increase in the level of carbon dioxide has been recorded at the Cape Grim Baseline Air Pollution Station in Tasmania (graph 24.33) (CSIRO 2004b).

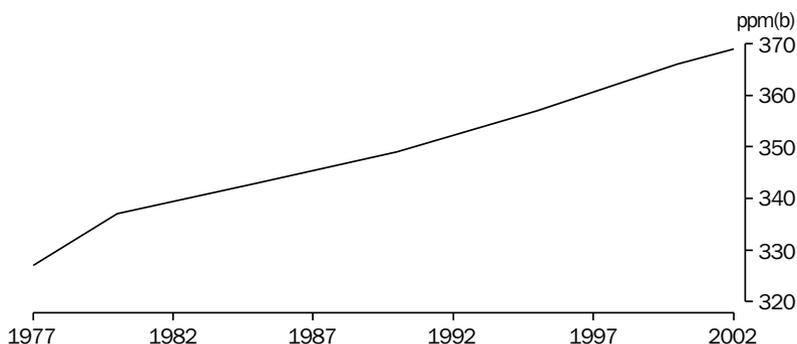
Carbon dioxide is the highest contributor to total net greenhouse gas emissions (68.8% in 2002, down from 70.4% in 1990). A large increase in nitrous oxide emissions has led to this gas increasing its share of total emissions from 5% to 7% between 1990 and 2002. Perfluorocarbons and sulphur hexafluoride were the only greenhouse gases to record a decrease in emissions over the period (14% lower in 2002 than in 1990). Carbon dioxide increased by 2.3% and methane by 1.9% over this period (table 24.34) (AGO 2004).

### 24.32 GREENHOUSE GAS EMISSIONS



Source: AGO 2004.

### 24.33 CARBON DIOXIDE MEASUREMENTS(a)



(a) Recorded at Cape Grim Baseline Air Pollution Station, Tasmania. (b) Parts per million.

Source: CSIRO 2004b.

### 24.34 GREENHOUSE GAS EMISSIONS

Greenhouse gases	1990 Mt CO <sub>2</sub> -e	2002 Mt CO <sub>2</sub> -e	Change in emissions from 1990 to 2002	
			Amount Mt	Percentage %
Carbon dioxide (CO <sub>2</sub> )	363.2	371.6	8.4	2.3
Methane	122.0	124.3	2.3	1.9
Nitrous oxide (N <sub>2</sub> O)	24.0	35.3	11.3	47.1
Perfluorocarbons and sulphur hexafluoride	5.0	4.3	-0.7	-14.0
Carbon dioxide equivalent(a)	1.7	3.7	2.0	117.6
<b>Total(c)</b>	<b>515.9</b>	<b>539.2</b>	<b>23.3</b>	<b>(b)4.5</b>

(a) Includes confidential emissions of CO<sub>2</sub> from soda ash production and use, magnesia production, and ammonia production and N<sub>2</sub>O from nitric acid. (b) According to the Kyoto accounting provisions, the change in emissions between 1990 and 2002 is 1.3%. (c) Forestry and land use change.

Source: AGO 2004.

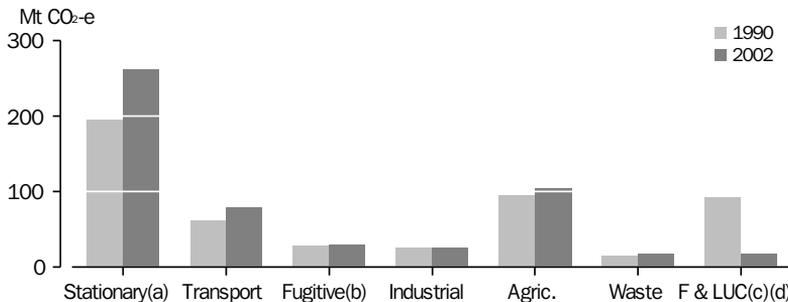
## Greenhouse gas emissions and the Australian economy

The Australian economy is highly dependent on energy consumption. The combined energy sectors were the largest source of Australia's greenhouse gas emissions, comprising 68.9% (371.4 Mt CO<sub>2</sub>-e) of emissions. This proportion is less than many other countries, however, due to the relatively large contribution from the agriculture (19.6%) and land use, land use change and forestry sectors (3.4%) in Australia (graph 24.35) (AGO 2004). The stationary energy sector is the highest contributor to total emissions (48.6%) and recorded the biggest increase (34%) between 1990 and 2002. The transport sector is the third largest contributor (14.7%) and it shows the second highest increase (27.7%) over the 12-year period. The agriculture sector had an 11% increase over the period. The land use change and forestry sector is the only sector that shows a considerable decrease (80.5%) in emissions. Carbon removals through the growth of forest (21.8 Mt CO<sub>2</sub>-e) have contributed to this change. Forest and grassland conversion sub sector is the major contributor in this reduction by

reducing its emissions in 1990 (120.4 Mt CO<sub>2</sub>-e) by 65% in 2002 (42.1 Mt CO<sub>2</sub>-e). Emissions from other sectors have changed very little over the period (AGO 2004). More information on energy use in the Australian economy is provided in *Chapter 17 Energy*.

Vegetation plays an important role in reducing the level of greenhouse gases in the atmosphere, as trees and other plants absorb carbon dioxide from the air and store it as carbon. Under ideal conditions, one million hectares of new forest could absorb about 25 Mt of carbon dioxide a year, which would lower Australia's present carbon dioxide production by about 9% (CSIRO 2004c). The forestry sector (including commercial forestry) is an emitter (source) and an absorber (sink) for carbon dioxide. Emissions from the forestry sector are affected by both timber harvest and forest re-growth rates. In 2002 carbon removals through the growth of forests were 21.8 Mt CO<sub>2</sub>-e with forest and grassland conversion causing 42.1 Mt of emissions. Land use change and forestry provided a total of 3.4% of total net national emissions (AGO 2004).

**24.35 GREENHOUSE GAS EMISSIONS (CO<sub>2</sub>-e), By sector**



(a) Stationary energy. (b) Fugitive emissions from the production and distribution of coal and gas. (c) Estimated emissions from land clearing. These assessments should be treated as indicative only due to high uncertainties in emissions estimates. (d) Forestry and land use change.

Source: AGO 2004.

## Environmental assets

The economy has a complex relationship with the environment. It provides the raw materials and energy for the production of goods and services that support people's lifestyles, but the environment also sustains damage through the activities of households and businesses. The systematic summary of economic activity provided by the national accounts for a country are sometimes criticised for including the value of goods and services produced and the income generated through the use of environmental assets, but not reflecting the economic cost of depleting environmental assets or the damage that arises from economic activity. Thus,

... a country could exhaust its mineral resources, cut down its forests, erode its soil, pollute its aquifers, and hunt its wildlife to extinction, but measured income would not be affected as these assets disappeared (Repetto et al. 1989).

This anomaly is well recognised by national accountants. In the article *Is life in Australia getting better? Chapter 29 National Accounts*, progress is adopted as the primary concept. Progress here encompasses more than improvements in the material standard of living or other changes in economic aspects of life, it also includes changes in the social and environmental circumstances.

This section discusses how the environment is currently treated in the Australian national accounts (*Australian System of National Accounts, 2002–03* (5204.0)), and gives a broad overview of the work being done by the Australian Bureau of Statistics (ABS) to extend the core national accounts in what could be called a satellite account for the environment.

### Environmental assets in the Australian national accounts

For an asset to be included in the Australian national accounts it must have an identifiable owner, and the owner must be able to derive an economic benefit from holding or using the asset. Economic environmental assets can include subsoil assets, land, forests, water, and fish stocks in open seas that are under the control of an economic agent (often the government).

Environmental assets such as the atmosphere are outside the scope of economic assets as they do not have an identifiable owner who can derive an economic benefit from their use. This is not to

suggest that these assets are of no value. On the contrary, many environmental assets are essential to life itself. However, even if they fell within the definition of an economic asset, the valuation techniques available to measure such assets tend to be arbitrary and controversial.

The environmental assets in the Australian national and sector balance sheets are land, significant subsoil assets, plantation timber, and native standing timber available for exploitation. Land valuations are available through administrative sources, and net present value techniques (which take into account current production rates, prices, costs, and discount rates) are used to value both subsoil and native forest assets. Plantation standing timber is also considered an environmental asset and plantations are included in the balance sheet as inventories because timber growth is controlled. Water and fish stocks have not been included on the Australian national balance sheet due to a lack of available data.

The Australian national balance sheet recorded \$4,190b worth of assets at 30 June 2003, of which \$1,622b (39%) were economic environmental assets (table 24.36).

#### 24.36 AUSTRALIA'S TOTAL ASSETS — 30 June

	1995	1999	2003
	\$b	\$b	\$b
Financial	185	325	486
Buildings and structures	1 024	1 236	1 578
Machinery and equipment	265	303	353
Other produced	110	120	144
Other non-produced	—	—	7
Environmental	727	984	1 622
<b>Total assets</b>	<b>2 311</b>	<b>2 969</b>	<b>4 190</b>

Source: *Australian System of National Accounts, 2002–03* (5204.0).

While land accounts for 83% of the value of Australia's economic environmental assets, the value of rural land accounts for only 11% of the total value of land (table 24.37). Subsoil assets account for 16% and timber (native and plantation) account for 1% of Australia's economic environmental assets. No values are included for other environmental assets. The value of environmental assets grew strongly during the 1990s, more than doubling between 30 June 1995 and 30 June 2003. Much of this growth was due to rising prices, environmental assets only grew by 6% in chain volume terms, that is, after adjustment for changes in prices during the period.

**24.37 AUSTRALIA'S ENVIRONMENTAL ASSETS  
— 30 June**

	1995	1999	2003
	\$b	\$b	\$b
Rural land	68	105	145
Other land	558	730	1 205
Oil and gas	55	72	124
Other subsoil	38	68	138
Native standing timber	2	2	3
Plantation standing timber	6	7	7
<b>Total assets</b>	<b>727</b>	<b>984</b>	<b>1 622</b>

Source: Australian System of National Accounts, 2002–03 (5204.0).

**Measuring depletion**

Depletion is defined in the international *System of National Accounts 1993* (SNA93) as the:

... reduction in the value of deposits of subsoil assets as a result of the physical removal and using up of the assets, ... the depletion of water resources, and the depletion of natural forests, fish stocks in the open seas and other non-cultivated biological resources as a result of harvesting, forest clearance, or other use (SNA93, 12.29 and 12.30).

Depletion in an economic sense results because the value of the resource stock has been lowered through its use in a productive activity, and the use has reduced the asset's ability to produce an income stream in the future. In this sense depletion is analogous to depreciation of produced assets whereby the current value of the stock of fixed assets declines through normal use, wear and tear and foreseen obsolescence.

Physical depletion may not necessarily equate to economic depletion in cases where asset values are low or the resource life is long. While the physical dimension of depletion can be fairly readily observed in practice, its value cannot. This is because the mineral or other natural resource product is not what is being valued – rather it is the decline in the value of the mineral asset below the ground or the standing timber in the forest. Generally, one has to resort to capital theory to undertake this valuation. More detail of the theory and calculations used by the ABS are presented in *Environment by Numbers: Selected Articles on Australia's Environment, 2003* (4617.0).

**Subsoil assets**

The depletion of minerals and fossil fuels in any one year is the change in the value of the asset between the beginning and end of the year arising purely from the extraction of these natural resources. A discovery occurs when previously unknown stocks of minerals are found and delineated. In the national accounts the value of a new discovery in itself is not considered as production or income because it is a gift of nature. Graph 24.38 shows that depletions are increasing at a relatively constant rate, whereas discoveries are erratic. The end result is that in some years more subsoil resources are found than are depleted, while in other years the reverse is true and in some years depletions and discoveries are more or less equal in value.

**24.38 SUBSOIL DEPLETION AND DISCOVERIES**



Source: ABS data available on request, Australian National Accounts.

## Land

If land is used sustainably, it has an infinite life and therefore no adjustment for depletion is required. However, where land is being degraded due to economic activity, an adjustment to income for land degradation is applicable. In the context of economic depletion used here, land degradation represents the year-to-year decline in the capital value of land resulting from economic activity (after deducting price rises due to inflation).

Changes in the value of agricultural land can be determined from data on market values or land rates data. However, data for land values are affected by a host of factors other than changes in productive capacity from the impact of land degradation, including inflation, technological advances and changes in land use due to re-zoning, subdivision and 'lifestyle' considerations (Roberts 1997).

Two recent national studies used different approaches to measuring economic losses due to land degradation.

- Kemp and Connell (2001) used a farm survey to estimate the extent of land degradation on farms. Combining data from the survey with land value data, regression techniques were used to estimate that the difference in the capital value of farms with and without degradation was approximately \$14.2b in 1999. This represents the total accumulated value of losses in land value due to degradation.

- The National Land and Water Resources Audit (NLWRA 2002) used models to estimate the 'yield gap', that is, the difference between profits with and without soil degradation. Lost profit at full equity due to salinity, sodicity and acidity was estimated as \$2.6b in 1996–97.

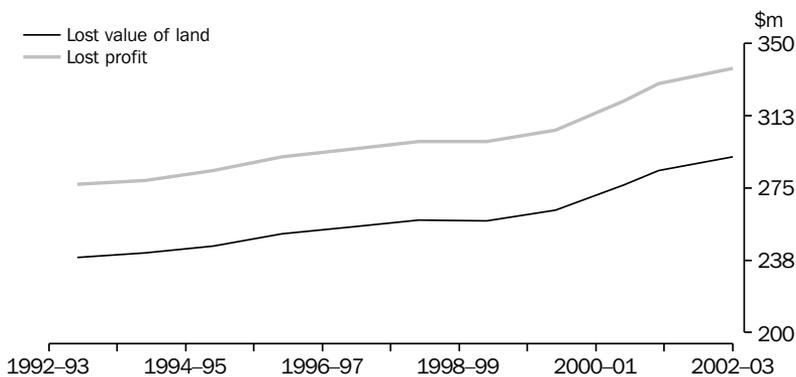
The ABS has used the data from these studies to produce estimates of the effect of land degradation on the value of land and the lost profits from agricultural production. The results of this are presented in graph 24.39.

## Forest assets

Forests are renewable biological resources. In the national balance sheet, forests are depicted as two types: old growth native forests and plantations. The valuation of the depletion of renewable assets presents a different set of issues to valuation of non-renewable assets as it may be possible to replace (over time) the part of the asset that is used in the current period. Where a forest is harvested sustainably, no depletion adjustment is required.

Estimates for depletion of native forests are not available. However, given the value of native forests on the national balance sheet is \$3b compared with \$262b for subsoil assets, it is expected that depletion will be relatively insignificant. This is premised on a narrow economic view that does not account for damage to intrinsic non-monetary values such as ecosystem services, biodiversity and aesthetic/recreational values.

24.39 LAND DEGRADATION



Source: ABS data available on request, Australian National Accounts.

## Adjusting the Australian national accounts

There is currently an asymmetry in the national accounts between the treatment of produced assets such as buildings, and plant and natural (non-produced) assets. Depreciation of produced assets (termed consumption of fixed capital (COFC) in the national accounts) is deducted to derive the various 'net' income measures in the national accounts such as net domestic product (NDP), net operating surplus (NOS), net national income and net saving. No such deduction is made for natural assets when they are used up or degraded as a result of economic activity. The net measures thus fall short of being sustainable

concepts of income, although they are superior to the various 'gross' measures in the Australian national accounts in this respect.

The experimental estimates derived for the value of depletions and discoveries of subsoil assets and the degradation of agricultural land are indicative of adjustments that could be made to the national accounts in the context of a satellite account and are illustrated in table 24.40. Depletion adjustments unambiguously lower the net values. If the value of discoveries is included in income in place of the value of mineral exploration, the net effect of that adjustment can be positive or negative.

### 24.40 PRODUCTION AND CAPITAL INCOME ADJUSTED FOR DEPLETION AND ADDITIONS

	1996-97	1999-00	2002-03
	\$m	\$m	\$m
Subsoil depletion	1 944	2 140	3 858
Land degradation	295	305	337
<i>less</i>			
Subsoil additions	739	2 751	3 858
<i>plus</i>			
Cost of mineral exploration	2 001	1 400	1 727
<i>less</i>			
COFC on mineral exploration	1 248	1 448	1 614
<i>equals</i>			
<b>Net depletion adjustment</b>	<b>2 253</b>	<b>-354</b>	<b>450</b>
GDP	529 886	628 037	755 252
<i>less</i>			
Consumption of fixed capital	80 330	98 075	121 610
<i>equals</i>			
NDP	449 556	529 962	631 642
<i>less</i>			
Net depletion adjustment	2 253	-354	450
<i>equals</i>			
<b>Depletion adjusted NDP</b>	<b>447 303</b>	<b>530 316</b>	<b>631 192</b>
GOS and GMI(a)	210 158	250 694	302 017
<i>less</i>			
Consumption of fixed capital	80 330	98 075	121 610
<i>equals</i>			
NOS	129 828	152 619	180 407
<i>less</i>			
Net depletion adjustment	2 253	-354	450
<i>equals</i>			
<b>Depletion adjusted NOS</b>	<b>127 575</b>	<b>152 973</b>	<b>179 957</b>
Net saving	19 646	21 705	23 178
<i>less</i>			
Net depletion adjustment	2 253	-354	450
<b>Depletion adjusted saving</b>	<b>17 393</b>	<b>22 059</b>	<b>22 728</b>

(a) Gross operating surplus and gross mixed income.

Source: ABS data available on request, Australian National Accounts.

The net saving levels are changed by the same amount as for NOS, but the nation's net lending position is left unchanged.

have the biggest impact on both NDP and NOS in 1996–97, due to the low value of subsoil asset additions in 1996–97 compared with 1995–96.

Adjusting the Australian national accounts for depletion and additions of subsoil assets also affects growth rates, which may increase or decrease. As table 24.41 shows, the adjustments

**24.41 CHANGES IN PRODUCTION AND CAPITAL INCOME GROWTH AFTER ADJUSTMENT FOR DEPLETION AND ADDITIONS**

	1995–96	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03
	%	%	%	%	%	%	%	%
GDP	6.7	5.4	5.9	5.5	6.1	6.9	6.4	5.4
NDP	7.4	6.0	5.7	5.4	5.8	6.6	6.2	5.3
Depletion adjusted NDP	7.4	5.6	6.0	5.8	5.7	6.4	6.2	5.3
<b>Net change in NDP growth</b>	<b>0.0</b>	<b>-0.3</b>	<b>0.3</b>	<b>0.4</b>	<b>-0.1</b>	<b>-0.2</b>	<b>0.1</b>	<b>-0.1</b>
GOS and GMI(a)	5.5	3.7	8.4	3.4	6.5	6.8	8.7	3.7
NOS	7.1	4.6	9.1	1.8	5.8	5.8	9.2	2.3
Depletion adjusted NOS	7.0	3.4	10.3	13.1	5.4	5.2	9.5	2.1
<b>Net change in NOS growth</b>	<b>0.0</b>	<b>-1.2</b>	<b>1.2</b>	<b>1.3</b>	<b>-0.4</b>	<b>-0.6</b>	<b>0.3</b>	<b>-0.2</b>

(a) Gross operating surplus and gross mixed income.

Source: ABS data available on request, Australian National Accounts.

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## SCIENCE AND INNOVATION

The application of science and innovation to business processes influences the strength and competitiveness of industry by providing a basis for innovative change and encouraging economic growth and development.

Australia has a range of statistics relating to science and innovation, many of which are compiled by the Australian Bureau of Statistics (ABS). The key indicators relate to Australia's research and development effort. Australia's statistics in this field are based on international standards, particularly the *Frascati Manual* developed by the Organisation for Economic Co-operation and Development, which is the basic international source of methodology for collecting and using research and development statistics.

A number of additional indicators on science and innovation, not included in this chapter, are compiled by the Australian Government Departments of Industry, Tourism and Resources, and Education, Science and Training.



## Expenditure and human resources devoted to R&D

The ABS defines research and development (R&D) as systematic investigation or experimentation involving innovation or technical risk, the outcome of which is new knowledge, with or without a specific practical application, or new or improved products, processes, materials, devices or services.

Statistics on the amount of expenditure and human resources devoted to R&D in the business sector are collected annually through a survey of all likely R&D performers. Comparable statistics

on the higher education, government (Commonwealth, and state and territories) and private non-profit sectors are collected biennially.

Tables 25.1 and 25.2 summarise the latest statistics available. The data show after increasing by 17% in the period 1998–99 to 2000–01, gross expenditure on R&D increased by 18% from \$10.4b in 2000–01 to \$12.2b in 2002–03. With the exception of the state and territories government component which remained the same, all sectors showed an increase in R&D expenditure compared with 2000–01.

### 25.1 EXPENDITURE ON R&D

	1997–98	1998–99	1999–2000	2000–01	2001–02	2002–03
Sector	\$m	\$m	\$m	\$m	\$m	\$m
Business	4 221.1	4 094.7	4 136.7	4 982.6	5 769.7	5 978.6
Government						
Commonwealth	n.a.	1 179.4	n.a.	1 404.8	n.a.	1 531.3
State/territory	n.a.	863.6	n.a.	951.0	n.a.	950.9
Total	n.a.	2 043.0	n.a.	2 355.8	n.a.	2 482.2
Higher education(a)	n.a.	2 555.1	n.a.	2 789.8	n.a.	3 429.6
Private non-profit	n.a.	225.3	n.a.	289.0	n.a.	359.5
<b>Total</b>	<b>n.a.</b>	<b>8 918.1</b>	<b>n.a.</b>	<b>10 417.1</b>	<b>n.a.</b>	<b>12 249.9</b>

(a) Data for the calendar year ending within the financial year shown.

Source: *Research and Experimental Development, All Sector Summary, Australia (8112.0)*; *Research and Experimental Development, Businesses, Australia (8104.0)*.

### 25.2 HUMAN RESOURCES DEVOTED TO R&D

	1997–98	1998–99	1999–2000	2000–01	2001–02	2002–03
Sector	'000 person years					
Business	24.8	25.1	26.5	28.4	31.1	33.0
Government						
Commonwealth	n.a.	9.4	n.a.	9.6	n.a.	10.2
State/territory	n.a.	9.1	n.a.	8.6	n.a.	8.4
Total	n.a.	18.4	n.a.	18.2	n.a.	18.5
Higher education(a)	n.a.	45.5	n.a.	46.3	n.a.	49.6
Private non-profit	n.a.	2.6	n.a.	2.8	n.a.	3.1
<b>Total</b>	<b>n.a.</b>	<b>91.6</b>	<b>n.a.</b>	<b>95.6</b>	<b>n.a.</b>	<b>104.3</b>

(a) Data for the calendar year ending within the financial year shown.

Source: *Research and Experimental Development, All Sector Summary, Australia (8112.0)*; *Research and Experimental Development, Businesses, Australia (8104.0)*.

## International comparisons

The most commonly used indicator for international comparison purposes is the ratio of expenditure on R&D to gross domestic product (GDP). As table 25.3 shows, in 2002–03 Australia's R&D expenditure was 1.62% of its GDP, ranking it below Sweden (4.27%), Finland (3.46%), Japan (3.12%), Iceland (3.09%), Republic of (South) Korea (2.91%), United States of America (2.67%), Denmark (2.52%), Germany (2.52%), France (2.20%), Belgium (2.17%), Austria (1.93%), Canada (1.91%), the Netherlands (1.89%), the United Kingdom (1.88%), and Norway (1.67%).

In terms of business enterprise R&D, Australia's ratio of R&D expenditure to GDP (0.79%) is again below the ratios for the industrialised countries referred to earlier, and is also below the ratio for Ireland.

For government sector R&D as a percentage of GDP, Australia ranks higher. An R&D to GDP ratio of 0.33% places it eighth in the group of Organisation for Economic Co-operation and Development (OECD) member countries, behind Iceland (0.76%), Republic of (South) Korea (0.39%), New Zealand (0.39%), France (0.37%), Finland (0.36%), Germany (0.35%) and Hungary (0.34%). Government sector R&D as a percentage of GDP is much higher for Australia than for the United States of America, Canada or the United Kingdom.

For the higher education sector, Australia ranks seventh. With an R&D to GDP ratio of 0.45%, Australia ranks behind Sweden (0.83%), Finland (0.66%), Canada (0.63%), Denmark (0.58%), the Netherlands (0.51%) and Iceland (0.50%).

**25.3 EXPENDITURE ON R&D AS A PERCENTAGE OF GDP, OECD countries — 2002–03**

Country	Business	Government	Higher education	All sectors(a)
	%	%	%	%
Sweden(b)	3.32	0.12	0.83	4.27
Finland	2.41	0.36	0.66	3.46
Japan	2.32	0.30	0.43	3.12
Iceland	1.77	0.76	0.50	3.09
Korea, Republic of (South)	2.18	0.39	0.30	2.91
United States of America	1.87	0.24	0.42	2.67
Denmark(b)	1.75	0.18	0.58	2.52
Germany	1.75	0.35	0.43	2.52
France	1.37	0.37	0.43	2.20
Belgium(b)	1.60	0.13	0.42	2.17
Austria	n.a.	n.a.	n.a.	1.93
Canada	1.05	0.22	0.63	1.91
Netherlands(b)	1.10	0.27	0.51	1.89
United Kingdom	1.26	0.17	0.42	1.88
Norway	0.96	0.26	0.45	1.67
<b>Australia</b>	<b>0.79</b>	<b>0.33</b>	<b>0.45</b>	<b>1.62</b>
Czech Republic	0.79	0.30	0.20	1.30
New Zealand(b)	0.43	0.39	0.36	1.18
Ireland(b)	0.80	0.09	0.26	1.15
Italy(b)	0.55	0.20	0.36	1.11
Spain	0.56	0.16	0.31	1.03
Hungary	0.36	0.34	0.26	1.02
Portugal	0.32	0.18	0.33	0.93
Greece(b)	0.21	0.14	0.29	0.65
Poland	0.13	0.26	0.20	0.59
Slovak Republic	0.37	0.15	0.05	0.58
Mexico(b)	0.12	0.15	0.12	0.39

(a) Includes private non-profit. (b) Data for 2001–02.

Source: OECD 2004.

## Source of funds for expenditure on R&D

In 2002–03 the business sector funded 46% of all Australian expenditure on R&D. This compares with 44% recorded in 1992–93. The Australian (Commonwealth) Government funded 38% of R&D in 2002–03 (down from 41% in 1992–93) and the state and territory governments funded 7% (down from 9% in 1992–93).

In 2002–03, 90% of funding for R&D carried out by businesses came from the business sector (down from 94% in 1992–93). Commonwealth Government organisations provided 4% of funding for business R&D expenditure in 2002–03.

About 82% of Commonwealth Government sector R&D was funded by Commonwealth Government organisations in 2002–03. The Commonwealth Government proportion of self-funding has fallen from 86% ten years earlier.

About 66% of state government expenditure on R&D was funded by state government organisations in 2002–03. This is significantly lower than a decade earlier, when the proportion was 76%.

About 86% of higher education R&D funding in 2002–03 came from the Commonwealth Government (compared with 91% in 1992–93). Business enterprises provided 5% of the funding in 2002–03, up from 3% a decade earlier.

Commonwealth Government organisations funded 29% of the R&D of the private non-profit sector in 2002–03, while the contribution by state governments was 11%.

Tables 25.4 and 25.5 show the data for 2002–03 and 1992–93 respectively.

**25.4 EXPENDITURE ON R&D, Source of funds — 2002–03**

Sector	Commonwealth Government		State government		Businesses		Other Australian(a)		Overseas		Total
	\$m	% of total	\$m	% of total	\$m	% of total	\$m	% of total	\$m	% of total	
Business	246.8	4.1	11.5	0.2	5 354.1	89.6	42.8	0.7	323.4	5.4	5 978.6
Government											
Commonwealth	1 255.9	82.0	39.6	2.6	78.0	5.1	123.7	8.1	34.0	2.2	1 531.3
State/territory	67.4	7.1	630.3	66.3	50.3	5.3	189.3	19.9	13.7	1.4	950.9
Total	1 323.2	53.3	669.9	27.0	128.3	5.2	313.0	12.6	47.7	1.9	2 482.2
Higher education(b)	(c)2 937.9	85.7	104.5	3.0	174.1	5.1	98.5	2.9	114.6	3.3	3 429.6
Private non-profit	103.9	28.9	39.8	11.1	31.6	8.8	147.3	41.0	36.9	10.3	359.5
<b>Total</b>	<b>4 611.9</b>	<b>37.6</b>	<b>825.7</b>	<b>6.7</b>	<b>5 688.1</b>	<b>46.4</b>	<b>601.6</b>	<b>4.9</b>	<b>522.6</b>	<b>4.3</b>	<b>12 249.9</b>

(a) Includes funds provided via government levies. (b) Data for year 2002. (c) Includes \$2,033m of General University funds, the majority of which is funding from the Commonwealth Government.

Source: *Research and Experimental Development, All Sector Summary, Australia, 2002–03 (8112.0)*.

## 25.5 EXPENDITURE ON R&D, Source of funds — 1992–93

Sector	Commonwealth Government		State government		Businesses		Other Australian(a)		Overseas		Total
	\$m	% of total	\$m	% of total	\$m	% of total	\$m	% of total	\$m	% of total	\$m
Business	54.0	1.9	8.5	0.3	2 690.8	94.3	15.3	0.5	85.8	3.0	2 854.5
Government											
Commonwealth	988.0	85.8	11.7	1.0	74.7	6.5	62.8	5.5	14.0	1.2	1 151.1
State/territory	56.5	8.5	509.3	76.3	29.0	4.3	69.1	10.4	3.8	0.6	667.6
Total	1 044.5	57.4	521.0	28.6	103.7	5.7	131.0	7.2	17.7	1.0	1 818.8
Higher education(b)	1 544.8	91.1	34.8	2.1	41.7	2.5	63.5	3.7	10.5	0.6	1 695.2
Private non-profit	33.9	33.5	12.8	12.6	6.9	6.8	44.3	43.8	3.3	3.3	101.2
<b>Total</b>	<b>2 677.2</b>	<b>41.4</b>	<b>577.1</b>	<b>8.9</b>	<b>2 843.1</b>	<b>43.9</b>	<b>255.0</b>	<b>3.9</b>	<b>117.4</b>	<b>1.8</b>	<b>6 469.7</b>

(a) Includes funds provided via government levies. (b) Data for year 1992.

Source: *Research and Experimental Development, All Sector Summary, Australia, 1994–95 (8112.0)*.

## Resources devoted to R&D

### Business sector

Business expenditure on R&D (BERD) in 2002–03 was \$5,979m, 3.6% higher than recorded in 2001–02 (table 25.1). This represented the highest level recorded to date and is the third successive year of increase following the declines from 1995–96 to 1998–99 and the levelling off between 1998–99 and 1999–2000. In volume terms, with the effect of changes in prices and wages and salaries removed, BERD increased by 1.5% in 2002–03 compared with 2001–02.

Human resources (in person years) devoted to R&D in 2002–03 was 5.9% higher than in 2001–02 (table 25.2).

In 2002–03 BERD was 0.79% of GDP compared with 0.81% in 2001–02.

The net increase in BERD between 2001–02 and 2002–03 was attributable to a 11.9% increase by the manufacturing industry, a 3.0% decrease by

the mining industry and a 2.8% decrease by other industries in total. It should be noted that mineral exploration is excluded from the definition of R&D (table 25.6).

Major research fields in which BERD took place were: computer software (13%); automotive engineering (11%); manufacturing engineering (8%); communications technologies (7%); medical and health sciences (7%); other information, computing and communication sciences (6%); and resources engineering (6%) (table 25.7).

A slightly different pattern applied to human resources devoted to R&D, with 18% in computer software; 11% in automotive engineering; 8% in manufacturing engineering; 6% in communications technologies; 6% in other engineering and technology; 6% in electrical and electronic engineering; and 6% in medical and health sciences (table 25.7).

## 25.6 BUSINESS R&D RESOURCES, By industry

	Businesses		Expenditure on R&D		Effort on R&D	
	2001-02	2002-03	2001-02	2002-03	2001-02	2002-03
	no.	no.	\$m	\$m	'000 person years	'000 person years
Mining (incl. services to mining)	119	137	553	536	0.8	0.6
Manufacturing						
Food, beverage and tobacco	140	157	231	234	1.4	1.4
Textile, clothing, footwear and leather	43	45	22	28	0.2	0.2
Wood and paper product	34	45	84	98	0.3	0.4
Printing, publishing and recorded media	40	43	16	15	0.1	0.2
Petroleum, coal, chemical and associated product	352	377	430	492	2.4	2.8
Non-metallic mineral product	52	70	74	86	0.2	0.4
Metal product	176	174	257	343	1.0	1.4
Motor vehicle and part and other transport equipment	129	147	555	731	3.5	4.5
Photographic and scientific equipment	138	140	279	304	1.6	1.7
Electronic and electrical equipment and appliance	364	378	423	329	3.1	2.5
Industrial machinery and equipment	232	266	134	150	1.1	1.2
Other manufacturing	78	76	22	20	0.2	0.2
<i>Total</i>	1 778	1 918	2 528	2 829	15.2	16.9
Other industries						
Wholesale and retail trade	339	370	447	429	2.9	2.9
Finance and insurance	53	54	225	239	0.8	0.8
Property and business services	1 050	1 254	1 068	1 044	7.7	8.0
Scientific research	220	240	315	344	1.7	1.7
Other n.e.c.	252	287	634	557	2.1	2.2
<i>Total</i>	1 914	2 205	2 689	2 613	15.2	15.5
<b>Total all industries</b>	<b>3 811</b>	<b>4 260</b>	<b>5 770</b>	<b>5 979</b>	<b>31.1</b>	<b>33.0</b>

Source: Research and Experimental Development, Businesses, Australia (8104.0).

## 25.7 BUSINESS R&D RESOURCES, By field of research(a) — 2002–03

	Type of expenditure				Human resources '000 person years
	Capital expenditure	Labour costs	Other current expenditure	Total	
	\$m	\$m	\$m	\$m	
Mathematical sciences	0.5	13.5	16.4	30.4	0.2
Physical sciences	2.3	22.8	20.3	45.4	0.3
Chemical sciences	13.8	89.2	100.9	203.9	1.3
Earth sciences	4.7	16.7	92.8	114.2	0.2
Biological sciences	20.8	94.0	95.5	210.3	1.0
Information systems	12.6	149.1	125.7	287.4	1.8
Computer software	30.5	515.3	230.1	775.9	6.1
Other information, computing and communication sciences	9.7	156.1	210.8	376.5	1.8
Industrial biotechnology and food sciences	10.7	80.2	56.7	147.7	0.9
Chemical engineering	7.5	30.9	55.4	93.9	0.4
Manufacturing engineering	53.3	192.2	237.7	483.3	2.7
Automotive engineering	52.9	284.9	295.8	633.6	3.6
Mechanical and industrial engineering	13.3	79.4	81.9	174.7	1.2
Resources engineering	38.0	61.6	270.3	369.8	0.6
Electrical and electronic engineering	35.0	145.5	120.2	300.7	1.9
Metallurgy	16.1	43.4	124.6	184.1	0.5
Materials engineering	13.2	53.4	58.3	124.9	0.7
Communications technologies	45.9	171.2	180.9	398.0	2.1
Other engineering and technology	36.1	143.2	161.7	340.9	2.1
Agricultural, veterinary and environmental sciences	17.7	76.3	106.0	199.9	1.1
Medical and health sciences	20.8	163.4	207.8	392.0	1.9
Other research fields	2.5	44.1	44.5	91.1	0.5
<b>Total</b>	<b>457.8</b>	<b>2 626.5</b>	<b>2 894.3</b>	<b>5 978.6</b>	<b>33.0</b>

(a) Data were subjectively allocated by data providers at the time of reporting, using OECD/ABS definitions. The ABS makes every effort to ensure correct and consistent interpretation and reporting of these data and applies consistent processing methodologies. Readers using these data should bear in mind the original subjectivity of the information.

Source: *Research and Experimental Development, Businesses, Australia, 2002–03 (8104.0)*.

In terms of socioeconomic objectives, most BERD (\$5,382m or 90%) was directed towards economic development (table 25.8). About 7% was directed towards society, 2% towards defence and 1% towards environment. Of the amount directed towards economic development, \$2,541m (47%) was directed towards manufacturing.

The same pattern applied to human resources devoted to R&D, with 90% directed towards economic development, 7% directed towards society, 2% towards defence and 1% towards environment (table 25.8).

## 25.8 BUSINESS R&D RESOURCES, By socioeconomic objective(a) — 2002–03

	Type of expenditure				Human resources '000 person years
	Capital expenditure	Labour costs	Other current expenditure	Total	
	\$m	\$m	\$m	\$m	
Defence	(b)n.p.	45.2	(b)n.p.	108.0	0.6
Economic development					
Plant – production and primary products	10.4	31.5	34.0	75.9	0.5
Animal – production and primary products	5.5	23.4	32.9	61.8	0.3
Mineral resources (excl. energy)	22.8	79.8	333.5	436.1	0.9
Energy resources	31.8	31.7	114.2	177.7	0.3
Energy supply	34.6	50.5	69.4	154.6	0.7
Manufacturing	187.6	1 144.8	1 208.9	2 541.3	15.0
Construction	5.2	57.3	89.6	152.1	0.8
Transport	16.9	61.1	58.3	136.3	1.1
Information and communication services	74.8	687.1	529.1	1 291.0	8.3
Commercial services and tourism	22.2	182.4	137.1	341.8	1.7
Economic framework	0.6	8.3	4.4	13.4	0.1
Total	412.5	2 357.9	2 611.5	5 381.9	29.6
Society					
Health	23.2	171.6	181.5	376.4	1.9
Education and training	0.6	9.4	3.4	13.3	0.2
Social development and community services	1.0	16.9	8.3	26.2	0.2
Total	24.8	197.9	193.2	415.9	2.3
Environment					
Environmental policy frameworks and other aspects	1.0	5.2	4.1	10.3	0.1
Environmental management	5.9	17.3	33.5	56.7	0.3
Total	7.0	22.5	37.6	67.0	0.4
Non-oriented research	(b)n.p.	3.0	(b)n.p.	5.7	—
<b>Total</b>	<b>457.8</b>	<b>2 626.5</b>	<b>2 894.3</b>	<b>5 978.6</b>	<b>33.0</b>

(a) Data were subjectively allocated by data providers at the time of reporting, using OECD/ABS definitions. The ABS makes every effort to ensure correct and consistent interpretation and reporting of these data and applies consistent processing methodologies. Readers using these data should bear in mind the original subjectivity of the information. (b) Not available for publication but included in totals where applicable, unless otherwise indicated.

Source: *Research and Experimental Development, Businesses, Australia, 2002–03 (8104.0)*.

### General government sector

Expenditure on R&D carried out by Commonwealth, and state and territory government organisations in 2002–03 was \$2,482m, a 5% increase on expenditure in 2000–01 (table 25.1).

The research fields in which most government R&D expenditure took place were: agricultural, veterinary and environmental sciences (\$761m, or 31%); engineering and technology (\$424m, or

17%); biological sciences (\$263m, or 11%); earth sciences (\$242m, or 10%); and medical and health sciences (\$198m, or 8%) (table 25.9).

A slightly different pattern applied to human resources devoted to R&D, with agricultural, veterinary and environmental sciences accounting for 32%; engineering and technology 17%; medical and health sciences 12%; biological sciences 11%; and earth sciences 7% (table 25.9).

## 25.9 GOVERNMENT R&D RESOURCES, By field of research(a) — 2002–03

	Type of expenditure					Human resources '000 person years
	Land and buildings	Other capital expenditure	Labour costs	Other current expenditure	Total	
	\$m	\$m	\$m	\$m	\$m	
Mathematical sciences	1.4	1.2	22.0	11.5	36.1	0.3
Physical sciences	5.5	9.5	66.5	38.2	119.6	0.8
Chemical sciences	5.4	10.9	64.1	41.3	121.8	0.8
Earth sciences	13.7	16.5	102.1	110.2	242.5	1.3
Biological sciences	19.6	14.9	132.1	96.8	263.4	2.0
Information, computing and communication sciences	3.9	6.0	88.2	83.6	181.7	1.1
Engineering and technology	18.8	24.3	235.2	146.1	424.4	3.1
Agricultural, veterinary and environmental sciences	26.3	21.3	371.4	342.3	761.3	5.9
Medical and health sciences	3.2	9.1	125.9	60.2	198.4	2.2
Economics	0.4	1.0	33.7	22.7	57.7	0.5
Law, justice and law enforcement	0.3	0.3	9.6	5.9	16.1	0.1
Other research fields	1.7	2.6	36.5	18.3	59.1	0.5
<b>Total</b>	<b>100.1</b>	<b>117.5</b>	<b>1 287.3</b>	<b>977.2</b>	<b>2 482.2</b>	<b>18.5</b>
Commonwealth	88.2	92.5	785.5	565.1	1 531.3	10.2
State/territory	11.9	25.0	501.8	412.1	950.9	8.4

(a) Data were subjectively allocated by data providers at the time of reporting, using OECD/ABS definitions. The ABS makes every effort to ensure correct and consistent interpretation and reporting of these data and applies consistent processing methodologies. Readers using these data should bear in mind the original subjectivity of the information.

Source: *Research and Experimental Development, Government and Private Non-Profit Organisations, Australia, 2002–03 (8109.0)*.

In terms of socioeconomic objectives, most government sector R&D expenditure (\$1,341m or 54%) was directed towards economic development (table 25.10). About 20% was directed towards environment, 12% towards society, 11% towards defence, and 2% to non-oriented research. Of the amount directed towards economic development, \$377m (28%) was directed towards plant production and

primary products, \$278m (21%) towards animal production and primary products, and \$233m (17%) towards manufacturing (table 25.10).

A slightly different pattern applied to human resources devoted to R&D, with 51% directed towards economic development, 18% towards environment, 17% towards society, 13% towards defence, and 2% to non-oriented research (table 25.10).

## 25.10 GOVERNMENT R&D RESOURCES, By socioeconomic objective(a) — 2002–03

	Type of expenditure					Human resources '000 person years
	Land and buildings	Other capital expenditure	Labour costs	Other current expenditure	Total	
	\$m	\$m	\$m	\$m	\$m	
Defence	0.3	12.2	194.2	77.2	283.9	2.4
Economic development						
Plant – production and primary products	11.1	9.4	185.2	171.7	377.4	2.9
Animal – production and primary products	9.1	7.3	133.1	128.0	277.6	2.2
Mineral resources (excl. energy)	5.4	5.5	44.9	41.9	97.7	0.5
Energy resources	2.9	1.9	27.6	26.5	59.0	0.3
Energy supply	2.1	1.0	13.9	9.4	26.4	0.2
Manufacturing	15.1	20.6	109.6	88.1	233.4	1.6
Construction	2.6	1.6	21.4	12.8	38.4	0.2
Transport	0.3	0.4	6.4	8.1	15.3	0.1
Information and communication services	4.9	2.5	31.0	14.4	52.9	0.4
Commercial services and tourism	0.7	2.1	17.1	7.1	27.1	0.2
Economic framework	1.4	1.7	57.9	74.7	135.7	0.7
Total	55.6	54.1	648.1	582.9	1 340.7	9.4
Society						
Health	3.4	10.3	140.6	73.6	228.0	2.5
Education and training	0.2	0.1	8.4	3.0	11.7	0.1
Social development and community services	2.3	2.0	35.2	20.5	59.9	0.5
Total	5.9	12.5	184.3	97.0	299.6	3.1
Environment						
Environmental policy frameworks and other aspects	1.3	1.2	19.2	13.9	35.7	0.3
Environmental management	34.4	32.5	217.7	188.5	473.1	3.0
Total	35.8	33.7	236.9	202.4	508.7	3.3
Non-oriented research	2.7	5.1	23.8	17.7	49.2	0.4
<b>Total</b>	<b>100.1</b>	<b>117.5</b>	<b>1 287.3</b>	<b>977.2</b>	<b>2 482.2</b>	<b>18.5</b>

(a) Data were subjectively allocated by data providers at the time of reporting, using OECD/ABS definitions. The ABS makes every effort to ensure correct and consistent interpretation and reporting of these data and applies consistent processing methodologies. Readers using these data should bear in mind the original subjectivity of the information.

Source: *Research and Experimental Development, Government and Private Non-Profit Organisations, Australia, 2002–03* (8109.0).

### Higher education sector

Estimated expenditure on R&D carried out by the higher education sector in 2002 was \$3,430m, an increase of 23% over expenditure in 2000, and 34% over expenditure in 1998 (table 25.1).

The major fields of research in which higher education R&D expenditure took place in 2002 were: medical and health sciences (\$864m, or 25% of total expenditure); biological sciences (\$410m, or 12%); engineering and technology (\$375m, or

11%); and agricultural, veterinary and environmental sciences (\$235m, or 7%). Direct labour costs accounted for 42% of total R&D expenditure (table 25.11).

A slightly different pattern applied to human resources devoted to R&D, with 19% on medical and health sciences, 10% on engineering and technology, 10% on biological sciences and 6% on agricultural, veterinary and environmental sciences (table 25.11).

## 25.11 HIGHER EDUCATION R&D RESOURCES, By field of research(a) — 2002

	Type of expenditure						Human resources '000 person years
	Land and buildings	Other capital expenditure	Direct labour costs	Scholarships	Other current expenditure	Total	
	\$m	\$m	\$m	\$m	\$m	\$m	
Mathematical sciences	0.9	2.5	30.4	4.1	26.1	64.0	0.8
Physical sciences	1.0	11.1	57.4	6.6	53.3	129.4	1.4
Chemical sciences	18.5	11.1	57.3	12.3	56.1	155.2	1.9
Earth sciences	1.1	11.2	47.4	7.7	46.7	114.1	1.5
Biological sciences	56.2	21.5	146.4	26.1	160.0	410.2	4.8
Information, computing and communication sciences	2.0	11.2	62.3	11.1	57.5	144.1	2.2
Engineering and technology	6.6	28.7	150.3	30.7	158.2	374.5	5.2
Agricultural, veterinary and environmental sciences	3.7	11.0	99.9	18.0	102.6	235.2	3.1
Medical and health sciences	16.0	44.0	353.1	41.2	409.6	863.8	9.4
Education	3.0	3.3	58.0	11.2	52.9	128.4	3.1
Economics	1.7	1.7	38.8	4.3	37.4	83.8	1.2
Commerce, management, tourism and services	3.3	4.0	65.4	7.3	57.2	137.2	2.5
Studies in human society	1.9	2.6	48.9	9.9	48.1	111.4	2.3
Behavioural and cognitive sciences	2.7	4.4	51.2	10.5	44.5	113.3	2.2
Other research fields	12.7	8.5	170.0	36.2	137.7	365.0	8.1
<b>Total</b>	<b>131.2</b>	<b>176.7</b>	<b>1 436.8</b>	<b>237.3</b>	<b>1 447.6</b>	<b>3 429.6</b>	<b>49.6</b>

(a) Data were subjectively allocated by data providers at the time of reporting, using OECD/ABS definitions. The ABS makes every effort to ensure correct and consistent interpretation and reporting of these data and applies consistent processing methodologies. Readers using these data should bear in mind the original subjectivity of the information.

Source: Research and Experimental Development, Higher Education Organisations, Australia, 2002 (8111.0).

In terms of socioeconomic objectives (table 25.12), most higher education R&D expenditure (\$1,474m or 43%) was directed towards society. About 29% was directed towards economic development, 21% towards non-oriented research and 6% towards environment. The major subdivision within society was health with 28% of total R&D expenditure.

A similar pattern applied to human resources devoted to R&D, with 44% directed towards society, 29% towards economic development, 20% towards non-oriented research and 7% to environment (table 25.12).

### Private non-profit sector

Expenditure on R&D carried out by private non-profit organisations in 2002–03 was \$360m, an increase an 24% on expenditure in 2000–01 (table 25.1).

Medical and health sciences comprised the major field of research for R&D expenditure in the private non-profit sector, accounting for \$221m (61%) of the sector's total R&D expenditure in 2002–03. Labour costs continued to be the main component of R&D expenditure (50%) (table 25.13).

Medical and health sciences also comprised the leading field of research in terms of human resource use (table 25.13).

In the private non-profit sector, health was the main socioeconomic objective, accounting for 90% or \$324m of total R&D expenditure. Education and training accounted for \$20m (6%), while \$11m (3%) was directed towards economic development (table 25.14).

A similar pattern applied to human resources devoted to R&D, with 92% directed towards health, 4% towards education and training, and 2% towards economic development (table 25.14).

**25.12 HIGHER EDUCATION R&D RESOURCES, By socioeconomic objective(a) — 2002**

	Type of expenditure						Human resources '000 person years
	Land and buildings	Other capital expenditure	Direct labour costs	Scholarships	Other current expenditure	Total	
	\$m	\$m	\$m	\$m	\$m	\$m	
Defence	—	1.5	4.3	0.6	4.5	10.9	0.1
Economic development							
Plant – production and primary products	1.1	5.5	47.9	8.2	53.0	115.8	1.5
Animal – production and primary products	1.5	4.2	32.7	6.0	32.3	76.6	1.0
Mineral resources (excl. energy)	0.4	3.7	24.0	3.5	27.3	58.8	0.7
Energy resources	0.8	3.6	14.0	2.2	14.4	35.0	0.5
Energy supply	0.7	3.5	15.8	3.5	17.0	40.6	0.5
Manufacturing	6.7	17.6	78.8	17.3	80.2	200.6	2.7
Construction	1.4	4.8	24.8	5.9	25.3	62.1	1.1
Transport	0.5	1.3	11.9	1.9	12.8	28.5	0.3
Information and communication services	2.1	11.1	70.9	11.9	65.8	161.8	2.4
Commercial services and tourism	1.0	1.5	21.3	2.3	16.5	42.6	0.7
Economic framework	3.2	4.4	79.3	9.2	73.2	169.3	2.8
Total	19.5	61.2	421.4	72.0	417.8	991.8	14.3
Society							
Health	27.0	42.1	398.5	49.2	453.6	970.4	11.2
Education and training	3.4	4.5	71.1	15.4	66.5	160.8	3.5
Social development and community services	11.9	8.2	159.7	32.3	130.9	343.0	7.3
Total	42.3	54.8	629.2	96.9	651.0	1 474.2	22.0
Environment							
Environmental policy frameworks and other aspects	0.6	1.4	15.1	3.2	13.9	34.3	0.5
Environmental management	4.2	10.7	77.1	15.5	79.2	186.7	2.9
Total	4.9	12.1	92.2	18.7	93.1	221.1	3.4
Non-oriented research	64.5	47.1	289.7	49.1	281.2	731.5	9.8
<b>Total</b>	<b>131.2</b>	<b>176.7</b>	<b>1 436.8</b>	<b>237.3</b>	<b>1 447.6</b>	<b>3 429.6</b>	<b>49.6</b>

(a) Data were subjectively allocated by data providers at the time of reporting, using OECD/ABS definitions. The ABS makes every effort to ensure correct and consistent interpretation and reporting of these data and applies consistent processing methodologies. Readers using these data should bear in mind the original subjectivity of the information.

Source: *Research and Experimental Development, Higher Education Organisations, Australia, 2002 (8111.0)*.

### 25.13 PRIVATE NON-PROFIT R&D RESOURCES, By field of research(a) — 2002–03

	Type of expenditure					Human resources person years
	Land and buildings	Other capital expenditure	Labour costs	Other current expenditure	Total	
	\$m	\$m	\$m	\$m	\$m	
Mathematical sciences	0.1	(b)n.p.	(b)n.p.	(b)n.p.	(b)n.p.	(b)n.p.
Physical sciences	(b)n.p.	0.1	(b)n.p.	0.1	(b)n.p.	(b)n.p.
Chemical sciences	0.2	0.7	0.9	2.3	4.0	15
Earth sciences	—	—	—	—	—	—
Biological sciences	3.5	8.1	55.4	37.5	104.6	966
Information, computing and communication sciences	0.1	0.7	1.9	2.1	4.8	32
Engineering and technology	(b)n.p.	(b)n.p.	0.7	0.6	1.5	12
Agricultural, veterinary and environmental sciences	(b)n.p.	(b)n.p.	1.0	0.9	2.1	18
Medical and health sciences	9.2	16.9	108.8	85.9	220.8	1 945
Other research fields	n.p.	0.5	9.1	(b)n.p.	19.4	116
<b>Total</b>	<b>13.7</b>	<b>27.5</b>	<b>178.8</b>	<b>139.6</b>	<b>359.5</b>	<b>3 117</b>

(a) Data were subjectively allocated by data providers at the time of reporting, using OECD/ABS definitions. The ABS makes every effort to ensure correct and consistent interpretation and reporting of these data and applies consistent processing methodologies. Readers using these data should bear in mind the original subjectivity of the information. (b) Not available for publication but included in totals where applicable, unless otherwise indicated.

Source: *Research and Experimental Development, Government and Private Non-Profit Organisations, Australia, 2002–03 (8109.0)*.

### 25.14 PRIVATE NON-PROFIT R&D RESOURCES, By socioeconomic objective(a) — 2002–03

	Type of expenditure					Human resources person years
	Land and buildings	Other capital expenditure	Labour costs	Other current expenditure	Total	
	\$m	\$m	\$m	\$m	\$m	
Defence	—	—	—	—	—	—
Economic development	(b)n.p.	1.4	3.6	(b)n.p.	11.2	65
Society						
Health	12.6	25.3	163.1	123.0	324.0	2 882
Education and training	(b)n.p.	0.6	9.4	(b)n.p.	20.1	119
Social development and community services	(b)n.p.	0.1	1.3	(b)n.p.	1.9	20
<b>Total</b>	<b>13.0</b>	<b>26.0</b>	<b>173.7</b>	<b>133.2</b>	<b>345.9</b>	<b>3 021</b>
Environment	—	(b)n.p.	1.0	(b)n.p.	1.7	21
Non-oriented research	(b)n.p.	(b)n.p.	0.5	0.2	0.8	10
<b>Total</b>	<b>13.7</b>	<b>27.5</b>	<b>178.8</b>	<b>139.6</b>	<b>359.5</b>	<b>3 117</b>

(a) Data were subjectively allocated by data providers at the time of reporting, using OECD/ABS definitions. The ABS makes every effort to ensure correct and consistent interpretation and reporting of these data and applies consistent processing methodologies. Readers using these data should bear in mind the original subjectivity of the information. (b) Not available for publication but included in totals where applicable, unless otherwise indicated.

Source: *Research and Experimental Development, Government and Private Non-Profit Organisations, Australia, 2002–03 (8109.0)*.

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OECD (Organization for Economic Corporation and Development):

2003, *Science, Technology and Industry Scoreboard 2003*, Paris

2004, *Main Science and Technology Indicators, 2004/1*, Paris

Additional information on topics presented in this chapter may be found in the Australian Government's annual report on innovation and in the annual reports and other publications of the organisations mentioned, particularly the Department of Education, Science and Training, the Department of Industry, Tourism and Resources and the CSIRO. See also the innovation statement of May 2004, *Backing Australia's Ability – Building Our Future Through Science and Innovation*.

Additional information on some technology-related issues, particularly on the use of information technology, can be found in *Chapter 23, Communications and information technology*.

### Web sites

Information about Australian Government policies and programs relating to science and innovation can be found through the portal, last viewed October 2004 <<http://www.scienceandindustry.gov.au>>

Australian Government Department of Education, Science and Training, last viewed October 2004 <<http://www.dest.gov.au>>. The innovation statement, *Backing Australia's Ability – Building Our Future Through Science and Innovation*, last viewed October 2004 <<http://www.innovation.gov.au>>

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## FINANCIAL SYSTEM

The financial system in Australia can be viewed of as having three overlapping components. The first consists of financial enterprises (such as banks) and regulatory authorities, the Reserve Bank (the central bank) and the Australian Prudential Regulation Authority. The second consists of financial markets (e.g. the bond market) and their participants (issuers such as governments, and investors such as superannuation funds). The third is the payments system – the cash, cheque and electronic means by which payments are effected – and its participants (e.g. banks). The interaction of these components enables funds for investment or consumption to be made available from savings in other parts of the national or international economy.

This chapter provides a summary of the structure and activities of the three components of the Australian financial system.



## Regulatory framework

From 1 July 1998 a new financial regulatory framework came into effect, in response to the recommendations of the Financial System Inquiry (the Wallis Committee). Under the new structure a single prudential supervisor, the Australian Prudential Regulation Authority (APRA), was established to take responsibility for the supervision of banks, life and general insurance companies and superannuation funds. The Australian Securities and Investments Commission (ASIC) assumed responsibility for market integrity and consumer protection across the financial system. The Reserve Bank retained responsibility for monetary policy and the maintenance of financial stability, including stability of the payments system.

From 1 July 1999 building societies and credit unions have been supervised by APRA. APRA supervises benefit funds of friendly societies under the *Life Insurance Act 1995* (Cwlth), while health benefit funds of friendly societies are regulated by the Private Health Insurance Administration Council under the *National Health Act 1959* (Cwlth). Prior to 1 July 1999, building societies, credit unions and friendly societies were regulated under state legislation.

On 1 July 2000 regulation of self-managed superannuation funds was transferred to the Australian Taxation Office (ATO). From September 2001 the *Financial Sector (Collection of Statistics) Act 2001* (Cwlth) provided APRA with powers to collect information previously collected under the range of legislation for which it was responsible, and under the *Financial Corporations Act* (Cwlth) administered by the Reserve Bank. The new legislation enables harmonised and consistent data collection from financial institutions. APRA commenced data collection from registered financial corporations from March 2003.

## Inter-sectoral financial flows

The data collected by APRA are combined with data from other sources by the Australian Bureau of Statistics (ABS) to compile a set of financial accounts according to the international standard, the *System of National Accounts 1993 (SNA93)*. Diagram 26.1 provides an overview of the flows of capital through the financial system and summarises the end result of applying the current statistical framework. It illustrates the net financial flows between sectors during the year 2003–04.

The arrows show the net flow from lenders to borrowers. For example, there is a \$46.9b net flow from the financial corporations sector to households. There is also a \$12.9b net flow from financial corporations to non-financial corporations. This is mainly attributable to increased share purchases by financial institutions such as life offices and pension funds.

## Financial enterprises

Financial enterprises are institutions which engage in acquiring financial assets and incurring liabilities, for example, by taking deposits, borrowing and lending, providing superannuation, supplying all types of insurance cover, leasing, and investing in financial assets.

For national accounting purposes, financial enterprises are grouped into six sectors: depository corporations; life insurance corporations; pension funds; other insurance corporations; central borrowing authorities; and financial intermediaries n.e.c.

*Depository corporations* – are those included in the Reserve Bank of Australia's *broad money* measure (see *Money supply measures*). The Reserve Bank itself is a depository corporation; authorised depository institutions are those supervised by APRA and include banks, building societies and credit unions; non-supervised depository corporations registered under the *Financial Statistics (Collection of Data) Act 2001* (Cwlth) include merchant banks, pastoral finance companies, finance companies and general financiers; finally cash management trusts are also included in depository corporations.

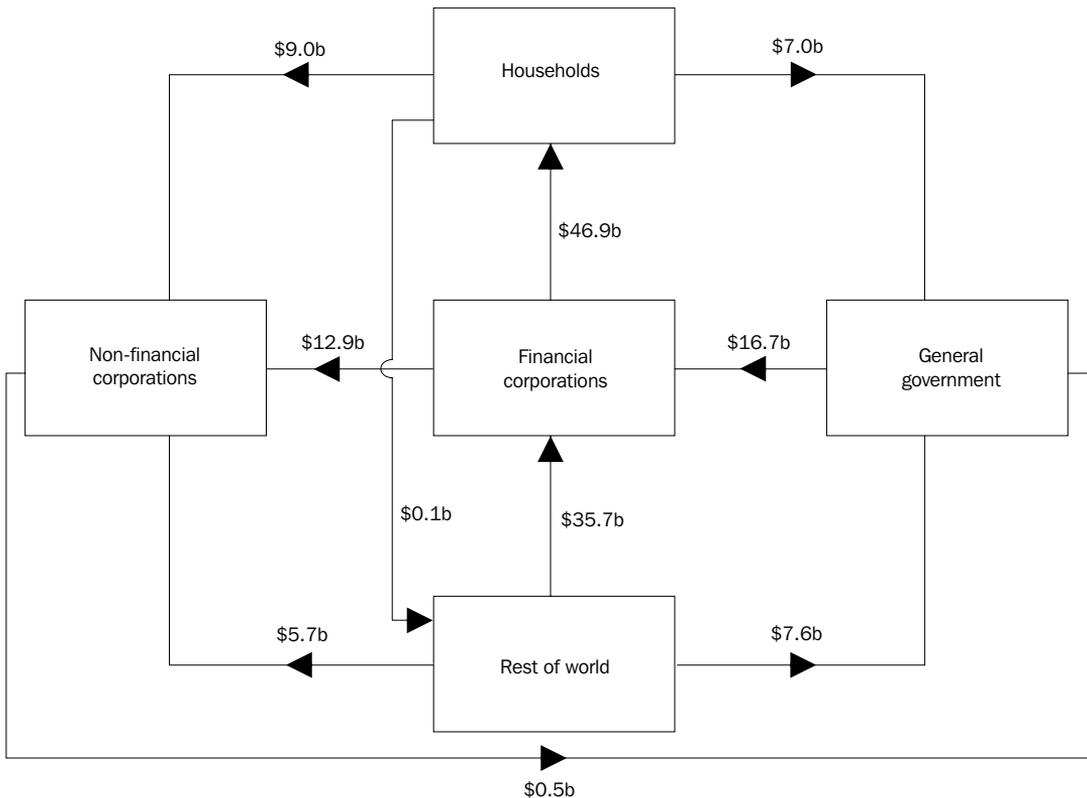
*Life insurance corporations* – cover the statutory and shareholders' funds of life insurance companies and similar businesses undertaken by friendly societies and long-service leave boards.

*Pension funds* – cover separately constituted superannuation funds.

*Other insurance corporations* – cover health, export and general insurance companies.

*Central borrowing authorities* – are corporations set up by state and territory governments to provide liability and asset management services for those governments.

## 26.1 INTER-SECTORAL FINANCIAL FLOWS — 2003-04



Note: The arrows show the direction of net financial flows from lending sectors to borrowing sectors. The number relating to each arrow indicates the value of that net flow during the period. Other claims are omitted from the diagram. For this reason, inter-sectoral borrowing does not equal inter-sectoral lending.

Source: Australian National Accounts: Financial Accounts, June 2004 (5232.0).

*Financial intermediaries n.e.c.* – cover common funds, mortgage, fixed interest and equity unit trusts, issuers of asset-backed securities, economic development corporations and cooperative housing societies.

Table 26.2 shows the relative size of these groups of financial enterprises in terms of their financial assets. This table has been compiled on a consolidated basis, that is, financial claims

between institutions in the same grouping have been eliminated. The total is also consolidated, that is, financial claims between the groupings have been eliminated. For this reason, and because there are a number of less significant adjustments made for national accounting purposes, the statistics in the summary table will differ from those presented later in this chapter and published elsewhere.

## 26.2 FINANCIAL INSTITUTIONS, Financial assets — 30 June

	Depository corporations			Life insurance corporations	Pension funds	Other insurance corporations	Central borrowing authorities	Financial intermediaries n.e.c.	Consolidated financial sector total
	Reserve Bank	Banks	Other						
	\$b	\$b	\$b						
1999	44.6	637.9	179.5	170.8	344.7	68.4	97.0	163.8	1 216.1
2000	51.1	728.6	197.0	185.7	423.9	72.9	91.3	214.3	1 400.3
2001	55.1	805.7	228.2	188.8	451.1	78.0	91.8	220.0	1 506.5
2002	54.7	875.3	245.5	190.7	451.2	77.5	93.9	240.3	1 600.5
2003	55.3	976.0	243.4	183.4	474.9	87.8	103.3	253.3	1 694.6
2004	62.3	1 116.0	233.0	193.1	572.1	90.4	101.2	324.4	1 946.1

Source: Australian National Accounts: Financial Accounts (5232.0).

### Banks

Between 1940 and 1959, central banking business was the responsibility of the Commonwealth Bank. The *Reserve Bank Act 1959* (Cwlth) established the Reserve Bank of Australia as the central bank, and from 1959 to 1998 the Reserve Bank was responsible for the supervision of commercial banks. From 1 July 1998, APRA assumed responsibility for bank supervision while the Reserve Bank retained responsibility for monetary policy and the maintenance of financial stability, including stability of the payments system.

Banks are the largest deposit-taking and financial institutions in Australia. At the end of June 2004 there were 52 banks operating in Australia. All are authorised to operate by the *Banking Act 1959*

(Cwlth). Four major banks: the Australia and New Zealand Banking Group, Commonwealth Bank of Australia, National Australia Bank, and the Westpac Banking Corporation, account for over half the total assets of all banks. These four banks provide widespread banking services and an extensive retail branch network throughout Australia. The remaining banks provide similar banking services through limited branch networks often located in particular regions. At 30 June 2003 banking services were provided at 4,858 branches, 2,990 giroPost locations, and 20,339 Automatic Teller Machines (ATMs).

The liabilities and financial assets of the Reserve Bank are set out in table 26.3. The liabilities and financial assets of the banks operating in Australia are shown in table 26.4.

### 26.3 RESERVE BANK OF AUSTRALIA, Financial assets and liabilities

	Amounts outstanding at 30 June		
	2002 \$m	2003 \$m	2004 \$m
<b>FINANCIAL ASSETS</b>			
Monetary gold and SDRs(a)	1 661	1 555	1 729
Currency and deposits	12 367	11 093	24 043
One name paper	1 897	549	2 560
Bonds	38 056	41 749	31 668
Derivatives	—	8	2
Loans and placements	637	91	23
Other accounts receivable	122	221	261
<b>Total(b)</b>	<b>54 740</b>	<b>55 266</b>	<b>62 345</b>
<b>LIABILITIES</b>			
Currency and deposits	35 169	34 320	36 417
Unlisted shares and other equity(c)	11 399	11 678	12 514
Other	3 795	6 783	4 780
<b>Total</b>	<b>50 363</b>	<b>52 781</b>	<b>53 711</b>

(a) Special Drawing Rights. (b) Excludes non-financial assets (e.g. fixed assets, property, inventories, etc.). (c) Estimates based on net asset values.

Source: Australian National Accounts: Financial Accounts (5232.0).

## 26.4 BANKS(a), Financial assets and liabilities

	Amounts outstanding at 30 June		
	2002 \$m	2003 \$m	2004 \$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	41 119	30 879	34 650
Acceptance of bills of exchange	77 783	76 984	83 398
One name paper	15 130	12 882	16 653
Bonds	26 161	28 776	34 941
Derivatives	41 089	57 276	58 290
Loans and placements	604 106	689 397	803 359
Equities	67 096	75 517	79 265
Prepayments of premiums and reserves	1 535	1 616	1 743
Other accounts receivable	1 319	2 645	3 728
<b>Total(b)</b>	<b>875 338</b>	<b>975 972</b>	<b>1 116 027</b>
<b>LIABILITIES</b>			
Currency and deposits	450 250	504 533	567 084
Acceptance of bills of exchange	37 148	39 304	42 308
One name paper	88 391	113 464	145 645
Bonds	109 015	107 528	151 233
Derivatives	44 144	63 337	53 071
Loans and placements	43 040	45 898	39 789
Equity	181 787	171 717	180 002
Other accounts payable	3 560	3 280	2 528
<b>Total</b>	<b>957 335</b>	<b>1 049 061</b>	<b>1 181 660</b>

(a) Does not include the Reserve Bank of Australia. (b) Excludes non-financial assets (e.g. fixed assets, property, inventories, etc.).

Source: Australian National Accounts: Financial Accounts (5232.0).

### Other depository corporations

In addition to banks, financial institutions such as building societies, credit unions and merchant banks play an important part in the Australian financial system. In the Australian financial accounts, other depository corporations are defined as those, apart from banks, with liabilities included in the Reserve Bank's definition of *broad money*. Non-bank institutions included in broad money are other authorised depository institutions (building societies and credit cooperatives), cash management trusts, and corporations registered under the *Financial Statistics (Collection of Data) Act 2001* (Cwlth) which include money market corporations, pastoral finance companies, finance companies and general financiers.

*The Financial Corporations Act 1974* (Cwlth) ceased on 1 July 2002. Corporations previously subject to the *Financial Corporations Act 1974* (Cwlth) were then required to report to APRA as Registered Financial Corporations. From 31 March 2003 reporting requirements and categorisation for Registered Financial Corporations changed, reducing the number of categories of other depository corporations to five.

*Permanent building societies* are usually organised as financial cooperatives. They are authorised to accept money on deposit. They provide finance principally in the form of housing loans to their members.

*Credit cooperatives*, also known as credit unions, are similar to building societies. As their name implies, they are organised as financial cooperatives which borrow from and provide finance to their members.

*Money market corporations* are similar to wholesale banks and for this reason they are often referred to as merchant or investment banks. They have substantial short-term borrowings which they use to fund business loans and investments in debt securities.

*Other registered financial corporations*. This category covers what were pastoral finance companies, finance companies and general financiers categories. These corporations engage in a variety of borrowing and lending activity.

## 26.5 OTHER DEPOSITORY CORPORATIONS, Total assets

	Amounts outstanding at 30 June		
	2002 \$m	2003 \$m	2004 \$m
Permanent building societies	12 456	12 986	14 567
Credit cooperatives	25 542	28 527	29 215
Money market corporations	85 837	99 995	67 715
Other registered financial corporations	88 466	80 204	76 243
Cash management trusts	33 023	30 031	29 586
<b>Total</b>	<b>245 324</b>	<b>251 743</b>	<b>217 326</b>

Source: *Managed Funds, Australia (5655.0)*; APRA; Reserve Bank of Australia.

*Cash management trusts* are investment funds which are open to the public. They invest the pooled monies of their unit holders mainly in money-market securities such as bills of exchange and bank certificates of deposit. As with other public unit trusts their operations are governed by a trust deed and their units are redeemable by the trustee on demand or within a short time. They are not subject to supervision by APRA or registered under the *Financial Statistics (Collection of Data) Act 2001* (Cwlth).

Table 26.5 shows the total assets of each category of non-bank deposit-taking institution.

### Life insurance corporations

Life insurance corporations offer termination insurance and investment policies. Termination insurance includes the payment of a sum of money on the death of the insured or on the insured receiving a permanent disability. Investment products include annuities and superannuation plans. The life insurance industry in Australia consists of 37 direct insurers, including six reinsurers. As with the banking industry, the life insurance industry is dominated by a few very large companies holding a majority of the industry's assets.

Life insurance companies are supervised by the APRA under the *Life Insurance Act 1995* (Cwlth). APRA also regulates friendly societies which offer services similar to life insurance corporations.

Table 26.6 shows the financial assets and liabilities arising from both policyholder and shareholder investment in life insurance corporations and APRA regulated friendly societies.

### Pension funds

Pension funds have been established to provide retirement benefits for their members. Members make contributions during their employment and receive the benefits of this form of saving in retirement. There are two basic types of contribution, employer contributions in the form of the superannuation guarantee and voluntary contributions. In order to receive concessional taxation treatment, a pension fund must elect to be regulated under the *Superannuation Industry (Supervision) Act 1993* (Cwlth) (SIS Act). These funds are supervised by either APRA or the ATO. Public sector funds, being funds sponsored by a government employer or government controlled business enterprise, are exempt from direct APRA supervision.

The largest number of pension funds comprise self-managed superannuation funds. From 1 July 2000 the ATO assumed responsibility for regulating self-managed superannuation funds.

Self-managed superannuation funds are superannuation funds:

- that have less than five members
- each individual trustee of the fund is a fund member
- each member of the fund is a trustee
- no member of the fund is an employee of another member of a fund, unless they are related
- if the trustee of the fund is a body corporate each director of the body corporate is a member of the fund.

## 26.6 LIFE INSURANCE CORPORATIONS, Financial assets and liabilities

	Amounts outstanding at 30 June		
	2002 \$m	2003 \$m	2004 \$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	14 487	10 890	11 190
Bills of exchange	3 651	3 294	3 243
One name paper	12 159	14 622	15 391
Bonds	39 708	42 373	40 630
Derivatives	351	309	-38
Loans and placements	5 925	4 503	3 306
Equities	106 385	101 670	114 272
Other accounts receivable	8 045	5 705	5 076
<b>Total</b>	<b>190 711</b>	<b>183 366</b>	<b>193 070</b>
<b>LIABILITIES</b>			
Bills of exchange	36	4	49
One name paper issued in Australia	—	—	—
One name paper issued offshore	416	—	1 287
Bonds etc. issued in Australia	1 095	1 010	778
Bonds etc. issued offshore	975	633	385
Derivatives	—	—	85
Loans and placements	3 568	3 328	3 447
Listed and unlisted equity	35 509	24 418	30 424
Net equity in reserves	49 961	40 154	38 240
Net equity of pension funds	120 236	121 129	134 716
Other accounts payable	5 705	5 661	6 164
<b>Total</b>	<b>217 501</b>	<b>196 337</b>	<b>215 575</b>

Source: Australian National Accounts: Financial Accounts (5232.0).

Corporate funds are funds sponsored by a single non-government employer, or group of employers. Industry funds generally have closed memberships restricted to the employees of a particular industry and are established under an agreement between the parties to an industrial award.

Public sector funds are those funds sponsored by a public sector employer. Retail funds are pooled superannuation products sold through an intermediary to the general public. Funds with less than five members but which do not qualify as self-managed superannuation funds are known as small APRA funds.

In addition to separately constituted funds, the SIS Act also provides for special accounts operated by financial institutions earmarked for superannuation contributions, known as Retirement Savings Accounts, that also qualify for concessional taxation under the supervision of APRA.

The liabilities represented by these accounts are liabilities of the institutions concerned and are included with the relevant institution in this chapter (e.g. retirement savings accounts operated by banks are included in bank deposits in table 26.4), but are also footnoted in table 26.8 for completeness.

The number of pension funds at 30 June 2004 is shown in table 26.7. The assets of pension funds are shown in table 26.8 and include unfunded pension claims by pension funds on the Australian Government where these have been formally recognised in accounting systems. The assets in the table do not include any provision for the pension liabilities of governments to public sector employees in respect of unfunded retirement benefits. At 30 June 2004 the ABS estimate for claims by households on governments for these outstanding liabilities was \$147.3b.

## 26.7 PENSION FUNDS(a) — 30 June 2004

Type of fund	no.
Corporate	1 406
Industry	103
Public sector	55
Retail	234
Small funds(a)(b)	290 440
<b>Total(b)</b>	<b>292 238</b>

(a) Small funds include small APRA funds, single member approved deposit funds and self-managed superannuation funds. (b) Approximate number, final data not yet available.

Source: APRA.

### Other insurance corporations

This sector includes all corporations that provide insurance other than life insurance. Included are general, fire, accident, employer liability, household, health and consumer credit insurers.

Private health insurers are regulated by the Private Health Insurance Administration Council under the *National Health Act 1959* (Cwlth). At 30 June 2004 there were 40 private health insurers, including health benefit funds of friendly societies. Other private insurers are supervised by APRA under the *Insurance Act 1973* (Cwlth). At 30 June 2004 there were 109 insurers authorised to

conduct new or renewal general insurance supervised by APRA. There are 10 separately constituted public sector insurance corporations with significant assets. Table 26.9 shows the financial assets and liabilities of other insurance corporations at 30 June 2004 and the preceding two years.

### Central borrowing authorities

Central borrowing authorities are institutions established by the state governments and the Northern Territory Government primarily to provide finance for public corporations and quasi-corporations, and other units owned or controlled by those governments, and to arrange investment of the units' surplus funds. The central borrowing authorities borrow funds, mainly by issuing securities, and on-lend them to their public sector clientele. However, they also engage in other financial intermediation activity for investment purposes, and may engage in the financial management activities of the parent government.

Table 26.10 shows the financial assets and liabilities held by the central borrowing authorities at 30 June of the past three years.

## 26.8 PENSION FUNDS(a), Financial assets

	Amounts outstanding at 30 June		
	2002	2003	2004
	\$m	\$m	\$m
Currency and deposits	30 333	35 254	38 000
Bills of exchange	5 805	7 929	8 884
One name paper	11 360	14 131	17 156
Bonds	41 284	46 739	54 568
Loans and placements	15 954	15 392	19 239
Equities	215 867	224 815	286 703
Unfunded superannuation claims	5 688	4 891	1 711
Net equity of pension funds in life office reserves	120 236	121 129	134 716
Other accounts receivable	4 660	4 603	5 903
<b>Total</b>	<b>451 187</b>	<b>474 883</b>	<b>572 075</b>

(a) Retirement savings accounts were valued at \$1,063m at 30 June 2004 (APRA).

Source: Australian National Accounts: Financial Accounts (5232.0).

## 26.9 OTHER INSURANCE CORPORATIONS, Financial assets and liabilities

	Amounts outstanding at 30 June		
	2002	2003	2004
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	7 285	8 043	8 558
Bills of exchange	3 043	2 651	1 930
One name paper	2 482	4 450	5 038
Bonds	21 829	28 750	26 080
Loans and placements	9 286	10 105	10 594
Equities	23 746	20 140	23 434
Other accounts receivable	9 823	13 530	14 715
<b>Total</b>	<b>77 495</b>	<b>87 769</b>	<b>90 349</b>
<b>LIABILITIES</b>			
One name paper on issue	40	99	161
Bonds on issue	1 944	2 019	1 562
Loans and placements	2 250	2 258	2 175
Listed shares and other equity	8 905	14 798	22 081
Unlisted shares and other equity	16 484	15 442	18 297
Prepayment of premiums	51 175	53 815	58 022
Other accounts receivable	9 403	6 850	6 281
<b>Total</b>	<b>90 201</b>	<b>95 281</b>	<b>108 577</b>

Source: Australian National Accounts: Financial Accounts (5232.0); APRA; Private Health Insurance Administration Council.

## 26.10 CENTRAL BORROWING AUTHORITIES, Financial assets and liabilities

	Amounts outstanding at 30 June		
	2002	2003	2004
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	2 341	6 352	3 560
Holdings of bills of exchange	5 232	5 495	6 388
One name paper	4 201	5 689	7 923
Bonds	4 939	4 461	5 471
Derivatives	5 689	7 688	6 399
Loans and placements	70 729	72 488	70 698
Other accounts receivable	779	633	756
<b>Total(a)</b>	<b>93 910</b>	<b>103 260</b>	<b>101 195</b>
<b>LIABILITIES</b>			
Drawings of bills of exchange	—	—	—
One name paper	8 167	8 016	6 550
Bonds	66 007	70 664	74 741
Derivatives	5 066	7 335	7 181
Loans and placements	13 781	16 797	13 339
Equity	87	30	30
Other accounts payable	1 527	923	729
<b>Total</b>	<b>94 635</b>	<b>103 765</b>	<b>102 570</b>

(a) Excludes non-financial assets (e.g. fixed assets, property, inventories, etc.).

Source: Australian National Accounts: Financial Accounts (5232.0).

## Financial intermediaries not elsewhere classified (n.e.c.)

This subsector comprises all institutions that meet the definition of a financial enterprise and have not been included elsewhere. It includes:

- economic development corporations owned by governments
- cash, mortgage, equity and fixed interest common funds
- mortgage, fixed interest, balanced and equity public unit trusts
- wholesale trusts
- securitisers
- investment companies
- cooperative housing societies
- housing finance schemes established by state governments to assist first home buyers.

In addition to enterprises which engage directly in intermediation, the subsector also includes enterprises which undertake activity closely associated with intermediation such as:

- fund managers
- insurance brokers
- arrangers of hedging instruments such as swaps, options and futures.

Table 26.11 shows the financial assets of selected groups of financial intermediaries n.e.c.

*Economic development corporations* – are owned by governments. As their name implies, these bodies are expected to provide finance mainly in their home state or territory.

*Common funds* – are set up by trustee companies and are governed by state Trustee Acts. They allow the trustee companies to combine depositors' funds and other funds held in trust in an investment pool. They are categorised according to the main types of assets in the pool, for example, cash funds or equity funds.

*Public unit trusts* – are investment funds open to the Australian public. Their operations are governed by a trust deed which is administered by a management company. Under the *Managed Investments Act 1997* (Cwlth), the management company has become the single responsible entity for both investment strategy and custodial arrangements; the latter previously had been the responsibility of a trustee. These trusts allow their unit holders to dispose of their units relatively quickly. They may sell them back to the manager if the trust is unlisted, or sell them on the Australian Stock Exchange (ASX) if the trust is listed. Public unit trusts are categorised according to the main types of assets in the pool; for example, property or equity. Only those which invest primarily in financial assets – mortgages, fixed interest, futures or equity securities – are included here. While public unit trusts are not subject to supervision by APRA or registered under the *Financial Statistics (Collection of Data) Act 2001* (Cwlth), they are subject to the provisions of corporations law which includes having their prospectus registered with ASIC.

### 26.11 FINANCIAL INTERMEDIARIES n.e.c., Financial assets

	Amounts outstanding at 30 June		
	2002 \$m	2003 \$m	2004 \$m
<i>Public unit trusts(a)</i>	(b)n.p.	104 482	(b)n.p.
Equity unit trusts	(b)n.p.	78 056	(b)n.p.
Other unit trusts	28 431	26 426	24 244
Common funds	7 899	8 886	9 686
Securitisers	110 640	129 030	159 793
Other(c)	(b)n.p.	10 950	(b)n.p.
<b>Total</b>	<b>240 310</b>	<b>253 348</b>	<b>324 495</b>

(a) Excludes property and trading trusts. (b) Not separately published, included in totals. (c) Includes investment companies, economic development corporations, fund managers, insurance brokers, hedging instrument arrangers, wholesale trusts, cooperative housing societies and state government housing schemes.

Source: *Assets and Liabilities of Australian Securitisers* (5232.0.40.001); *Australian National Accounts: Financial Accounts* (5232.0); *Managed Funds, Australia* (5655.0).

*Wholesale trusts* – are investment funds that are only open to institutional investors – life insurance corporations, superannuation funds, retail trusts, corporate clients, high net worth individuals – due to high entry levels (e.g. \$500,000 or above). They may issue a prospectus, but more commonly issue an information memorandum. Only those which invest in financial assets are included here.

*Securitisers* – issue short and/or long-term debt securities which are backed by specific assets. The most common assets bought by securitisation trusts/companies are residential mortgages. These mortgages are originated by financial institutions such as banks and building societies or specialist mortgage managers. Other assets can also be used to back these securities, such as credit card receivables and financial leases. Securitisers generally pool the assets and use the income on them to pay interest to the holders of the asset-backed securities.

*Investment companies* – are similar to equity trusts in that they invest in the shares of other companies. However, investors in investment companies hold share assets, not unit assets.

*Cooperative housing societies* – are similar to permanent building societies. In the past they were wound up after a set period, but now they too are continuing bodies. They raise money through loans from members (rather than deposits) and provide finance to members in the form of housing loans. Over recent years many cooperative housing societies have originated mortgages on behalf of securitisers.

*Fund managers, insurance brokers and arrangers of bedding instruments* – are classified as financial auxiliaries as they engage primarily in activities closely related to financial intermediation, but they themselves do not perform an intermediation role. Auxiliaries primarily act as agents for their clients (usually other financial entities) on a fee-for-service basis, and as such the financial asset remains on the balance sheet of the client, not the auxiliary. However, a small portion of the activities of auxiliaries is brought to account on their own balance sheet, and these amounts are included in table 26.11.

## Financial markets

Financial markets are used by participants to either raise funds (e.g. by issuing securities) or invest savings (by buying securities and other financial assets). The major markets in the Australian

financial system include the share market, bond market and money market. Descriptions and tables indicating prices and activity in various financial markets are provided in this section.

A significant influence in financial markets is the participation of institutional investors controlling large pools of investment funds. These pools are accumulated by collective investment institutions and are often managed on a fee-for-service basis by investment managers. A summary of the activities of these institutions is also provided.

## Credit market

Credit may be defined broadly as funds provided to those seeking to borrow. However, analytically useful measures of credit usually exclude borrowings by financial enterprises because their main role is as an intermediary, that is, they borrow in order to lend. Also, lending and borrowing between enterprises which have a special relationship, such as between companies in the same group or between government agencies, are often excluded from credit measures because transactions between these bodies frequently are of a non-market nature. Similarly, some types of financial instrument, such as trade debts, are not considered to be part of an organised market. All of these types of transactions are omitted from table 26.12, which presents a summary of the demand for credit in Australia by the non-financial sectors. It includes raisings by the issue of both debt and equity securities.

Table 26.13 shows the growth in household borrowings. The significant growth in demand for credit by households is largely a result of increased borrowing for housing.

## Stock market

The stock market is a mechanism for trading equities (shares), units in trusts, options, and some fixed-interest securities.

Operated nationally by the ASX, which is responsible for the day-to-day running and surveillance of trading, the Australian system is electronic and conducted using the Stock Exchange Automated Trading System, allowing buyers and sellers to be located anywhere in the country.

The ASX classifies listed companies according to their major activity and produces indexes based on these classifications. Table 26.14 summarises the performance of the major indexes over the past three financial years.

## 26.12 DEMAND FOR CREDIT(a)

	Net transactions during year		
	2001-02	2002-03	2003-04
	\$m	\$m	\$m
Funds (including equity) raised on conventional credit markets by			
Private non-financial corporations	27 577	37 214	56 134
National public non-financial corporations	1 191	-2 520	-2 070
State and local public non-financial corporations	1 931	2 298	-941
National general government	-2 615	-5 169	-3 814
State and local general government	-1 281	-166	-2 008
Households	79 099	93 679	115 964
<b>Total</b>	<b>105 902</b>	<b>125 336</b>	<b>163 265</b>

(a) Positive numbers indicate an increase in raisings. Negative numbers indicate repayment or redemption.

Source: Australian National Accounts: Financial Accounts (5232.0).

## 26.13 HOUSEHOLD DEMAND FOR CREDIT

	Net transactions during year	
	2003	2004
	\$m	\$m
<b>Households demand for credit</b>	<b>93 679</b>	<b>115 964</b>
<i>Housing</i>	<i>78 102</i>	<i>95 129</i>
Total Authorised Deposit-taking Institutions (ADIs)	62 767	65 153
Owner-occupied housing	35 720	35 682
Investment housing	27 047	29 471
Other lenders	15 335	29 976
<i>Non-housing borrowing</i>	<i>15 577</i>	<i>20 835</i>

Source: Housing Finance, Australia (5609.0).

## 26.14 AUSTRALIAN STOCK MARKET INDEXES(a)

	2001-02	2002-03	2003-04
All ordinaries			
Index(b)	3 163.2	2 999.7	3 530.3
High(c)	3 440.0	3 205.4	3 549.0
Low(c)	2 867.5	2 673.3	3 266.8
S&P/ASX 200	3 216.0	3 026.9	3 532.9
Banks	5 095.8	4 877.2	4 932.7
Industrials	5 445.7	5 159.0	5 829.3
Resources	1 576.0	1 439.1	2 016.3

(a) Base 31 December 1979 = 500. (b) Share prices on joint trading floors; June closing value. (c) Over a 12-month period.

Source: Australian Stock Exchange; Reserve Bank of Australia; Standard and Poor's.

Table 26.15 shows the market value of Australian shares and units in trusts on issue – both listed and unlisted. It shows the amount on issue by sector of issuer and sector of holder of equities and units.

### Money market

Liquidity management by Australian corporations, financial institutions and governments is conducted through an informally arranged market for deposits, loans and placements and by

issuance, purchase and sale of short-term debt securities. Rates in the market at end June of the past three years are shown in table 26.16.

Money market securities have an original term to maturity of less than one year, often 30, 90 or 180 days. They are issued by borrowers at a discount to face value and carry no income payment other than the repayment of face value at maturity. To enhance liquidity, money market securities conform to standardised attributes concerning risk and discount rates. Because of the

### 26.15 EQUITY MARKET(a), Amounts on issue — 30 June

	2002		2003		2004	
	Listed	Unlisted	Listed	Unlisted	Listed	Unlisted
	\$m	\$m(b)	\$m	\$m(b)	\$m	\$m(b)
<b>Total equities and units in trusts</b>	<b>731 671</b>	<b>732 534</b>	<b>704 492</b>	<b>752 226</b>	<b>864 547</b>	<b>848 790</b>
ISSUED BY						
Private non-financial corporations	429 590	177 946	412 544	194 871	540 040	206 462
National public non-financial corporations(c)	59 960	4 854	56 615	4 908	63 522	5 152
State and local non-financial corporations(c)	—	92 131	—	92 062	—	100 307
Central bank(c)	—	11 399	—	11 678	—	12 514
Banks	181 323	8 624	174 080	6 792	182 710	6 399
Other depository corporations	227	25 071	363	33 900	389	36 758
Life insurance corporations	22 457	14 143	11 336	13 583	17 587	13 383
Other insurance corporations	8 905	16 883	14 896	16 120	22 234	19 108
Central borrowing authorities	—	87	—	30	—	30
Financial intermediaries	29 209	103 400	34 658	108 748	38 065	126 465
Rest of world	—	277 996	—	269 534	—	322 212
HELD BY						
Private non-financial corporations	8 395	159 414	7 198	165 371	12 749	186 856
National public non-financial corporations	—	6 647	—	3 635	—	3 702
State and local public non-financial corporations	—	310	—	279	—	282
Banks	8 812	66 444	10 466	74 206	10 064	78 308
Other depository corporations	—	10 506	353	15 954	123	14 469
Life insurance corporations	58 789	48 687	48 049	54 122	55 857	58 961
Pension funds	104 879	110 988	111 117	113 698	142 409	144 294
Other insurance corporations	4 440	19 705	3 562	17 354	4 851	19 547
Financial intermediaries	61 350	46 105	52 717	49 888	76 317	61 394
National general government	30 040	16 541	28 365	16 881	31 222	17 968
State and local general government	—	92 371	—	91 655	—	101 940
Households	167 757	88 808	145 410	83 312	182 168	79 999
Rest of world	287 209	65 966	297 255	65 865	348 787	81 080

(a) Includes units in trusts. (b) The unlisted estimated market values are considered to be of poor quality unless based on net asset values. They should be used cautiously. (c) Net asset values.

Source: Australian National Accounts: Financial Accounts (5232.0).

standardisation, the securities of different issuers are often combined in the one parcel of securities for trading purposes. There are two types of securities: bills of exchange and one name paper (promissory notes, treasury notes, commercial paper and bank certificates of deposit), both of which are covered by the *Bills of Exchange Act 1909* (Cwlth). The risk of default of a bill of exchange is reduced by an acceptor or endorser adding their name to the security for a fee.

Most bills of exchange traded in the market are bank-accepted bills. Promissory notes are issued by institutions whose credit worthiness is equal to or better than banks; they are not accepted by a bank and unlike bills of exchange they are not endorsed by the parties which sell them in the market. The Australian Government issues

treasury notes, state governments and large corporations issue commercial paper and banks issue negotiable certificates of deposit. Table 26.17 shows the amount on issue by sector of issuer and sector of holder of the various types of money market securities.

### 26.16 SHORT-TERM MONEY MARKET RATES — 30 June

	2002	2003	2004
	% p.a.	% p.a.	% p.a.
11 am call	4.72	4.75	5.25
Bank-accepted bills—90 days	5.07	4.67	5.49

Source: Reserve Bank of Australia.

**26.17 SHORT-TERM DEBT SECURITIES, Amounts outstanding — 30 June**

	2002	2003	2004
	\$m	\$m	\$m
<b>ISSUED BY</b>			
Private non-financial corporations	77 436	74 657	75 176
National public non-financial corporations	2 637	2 104	2 374
State and local public non-financial corporations	—	2	10
Banks	102 938	136 440	179 835
Other depository corporations	51 580	37 063	26 501
Life insurance corporations	452	4	1 336
Other insurance corporations	62	121	186
Central borrowing authorities	8 643	8 650	6 905
Financial intermediaries n.e.c.	22 799	23 431	26 533
National general government	4 477	246	221
Households	8 923	10 537	12 667
Rest of world	2 690	2 912	3 858
<b>Total</b>	<b>282 637</b>	<b>296 167</b>	<b>335 602</b>
<b>HELD BY</b>			
Private non-financial corporations	20 249	27 405	29 116
National public non-financial corporations	797	495	183
State and local public non-financial corporations	126	36	7
Central bank	1 897	549	4 619
Banks	70 312	73 538	91 933
Other depository corporations	34 464	39 057	38 562
Life insurance corporations	15 810	17 916	18 634
Pension funds	17 165	22 060	26 040
Other insurance corporations	5 526	7 101	6 968
Central borrowing authorities	9 909	11 818	14 666
Financial intermediaries n.e.c.	17 483	15 635	18 502
State and local general government	533	209	208
Households	8 586	8 557	8 007
Rest of world	79 780	71 791	78 157
<b>Total</b>	<b>282 637</b>	<b>296 167</b>	<b>335 602</b>

Source: Australian National Accounts: Financial Accounts (5232.0).

**Bond market**

Bonds are issued with original terms to maturity of one or more years. Usually the investors are paid a set periodic interest, called a coupon, for the life of the bond and receive their initial investment back at maturity. Some bonds have variable interest rates, some have principal repayments indexed, and there are small amounts of zero-coupon or deep discount securities which are issued at a discount to face value. Governments, trading enterprises and financial institutions issue bonds to finance long-term requirements. For these entities, the bond market generally provides a cheaper source of funds than borrowing from

banks and other financial institutions. Table 26.18 shows the market yields at 30 June of the past three years for a range of bonds.

Historically, the main issuers of bonds have been the Australian Government and state governments, the latter through their central borrowing authorities. Corporate bonds are issued only by very large private trading and financial enterprises. In recent years banks and asset-backed security trusts have issued increasing amounts as government issuance has decreased. The amounts outstanding on bonds at 30 June of the past three years are shown in table 26.19.

**26.18 BOND MARKET, Market yields — 30 June**

	2002	2003	2004
	% p.a.	% p.a.	% p.a.
Treasury bonds			
3 years	5.61	4.47	5.43
5 years	5.78	4.71	5.67
10 years	5.99	5.01	5.87
New South Wales T-corp bonds			
3 years	5.79	4.64	5.70
5 years	6.04	4.89	5.88
10 years	6.29	5.20	6.05
Finance company debentures			
2 years	5.45	4.10	5.55
3 years	5.60	4.20	5.65

Source: Reserve Bank of Australia.

**Foreign exchange market**

The foreign exchange market is the means whereby currencies of different countries can be bought and sold. In October 1983 the Australian Commonwealth decided to float the Australian dollar, allowing its value to be determined by market forces with few exchange controls and little Reserve Bank intervention. Prior to 1983 the Australian dollar was pegged to a basket of currencies which were weighted according to their

trading significance to Australia. Table 26.20 shows the value of the Australian dollar against major currencies at end June of the past three years.

Currencies are traded for many reasons: because of exporting or importing requirements, investing or borrowing overseas, arbitraging (i.e. taking advantage of short-term discrepancies in rates) or speculating on possible exchange rate movements with a view to making a profit. Table 26.21 shows daily averages of foreign exchange turnover against all currencies.

**26.19 BONDS, Amounts outstanding — 30 June**

	2002	2003	2004
	\$m	\$m	\$m
<b>ISSUED BY</b>			
Private non-financial corporations			
Issued in Australia	17 864	22 094	23 817
Issued offshore	32 704	37 438	36 026
National public non-financial corporations			
Issued in Australia	4 976	3 013	3 039
Issued offshore	10 708	9 972	9 424
State and local public non-financial corporations			
Issued in Australia	2	8	2
Issued offshore	—	—	—
Banks			
Issued in Australia	26 735	23 205	31 915
Issued offshore	87 827	90 507	127 022
Other depository corporations			
Issued in Australia	11 587	8 471	8 442
Issued offshore	15 269	24 201	23 611
Other insurance corporations			
Issued in Australia	127	423	117
Issued offshore	1 817	1 861	1 548
Life insurance corporations			
Issued in Australia	1 255	1 257	959
Issued offshore	975	633	385
Central borrowing authorities			
Issued in Australia	52 998	56 674	55 474
Issued offshore	17 513	18 924	23 363
Financial intermediaries n.e.c.			
Issued in Australia	42 529	51 645	62 896
Issued offshore	37 914	46 106	61 878
National general government			
Issued in Australia	64 155	65 120	59 831
Issued offshore	1 449	1 439	1 234
State and local general government			
Issued in Australia	306	304	300
Issued offshore	—	—	—
Rest of the world			
Issued in Australia	10 776	12 616	29 190
Issued offshore	54 205	58 001	56 883
<b>Total</b>	<b>493 691</b>	<b>533 912</b>	<b>617 356</b>
<b>HELD BY</b>			
Private non-financial corporations	7 155	5 818	5 690
National public non-financial corporations	372	124	122
State and local public non-financial corporations	71	26	28
Central bank	38 056	41 749	31 668
Banks	31 708	34 960	42 645
Other depository corporations	20 047	16 627	12 718
Life insurance corporations	39 868	42 620	40 811
Pension funds	47 727	53 461	67 722
Other insurance corporations	21 829	29 015	26 183
Central borrowing authorities	9 443	9 395	9 567
Financial intermediaries n.e.c.	26 514	21 756	22 418
National general government	15	22	16
State and local general government	315	575	705
Households	6 704	5 461	6 915
Rest of world	243 867	272 303	350 148
<b>Total</b>	<b>493 691</b>	<b>533 912</b>	<b>617 356</b>

Source: Australian National Accounts: Financial Accounts (5232.0).

**26.20 VALUE OF AUSTRALIAN DOLLAR, Against major currencies — At last trading day in June**

	2002	2003	2004
United States of America dollar	0.5670	0.6700	0.6936
United Kingdom pound	0.3720	0.4047	0.3851
Japanese yen	68.09	80.44	75.46
Euro	0.5790	0.5907	0.5787

Source: Australian Tax Office.

**26.21 FOREIGN EXCHANGE TURNOVER AGAINST ALL CURRENCIES, Daily averages(a)**

	2001-02	2002-03	2003-04
	\$m	\$m	\$m
Transactions by foreign exchange dealers(b)			
Outright spot(c)	22 772	30 384	39 440
Outright forward(d)	6 407	7 424	7 675
Swaps	58 404	68 014	78 190
Options	4 832	6 298	7 233
<b>Total</b>	<b>92 414</b>	<b>112 120</b>	<b>132 538</b>

(a) Figures given are the average daily turnover for the financial year. (b) Australian banks and non-bank financial intermediaries authorised to deal in foreign exchange. (c) An outright spot transaction is one for receipt or delivery within two business days. (d) An outright forward transaction is one for receipt or delivery in more than two business days.

Source: Reserve Bank of Australia.

## Managed funds

The term ‘managed funds’ is used loosely in the financial community to embrace two broad types of institutions. The first are collective investment institutions (such as life insurance companies) which buy assets on their own account. The second are investment or fund managers which act as investment agents for the collective investment institutions as well as others with substantial funds to invest. Investment managers have relatively small balance sheets because most of the assets they acquire are purchased on behalf of clients. The significant growth in managed funds to 2000 (graph 26.22) eased during 2001 to

2003, and accelerated again during 2004. The main influence on this growth pattern has been share market prices.

## Collective investment institutions

As the name implies, collective investment institutions pool the funds of many small investors and use them to buy a particular type or mix of assets. The asset profile can be structured to satisfy individual investor requirements regarding, for example, the degree of risk, the mix of capital growth and income, and the degree of asset diversification. Collective investment institutions comprise the following:

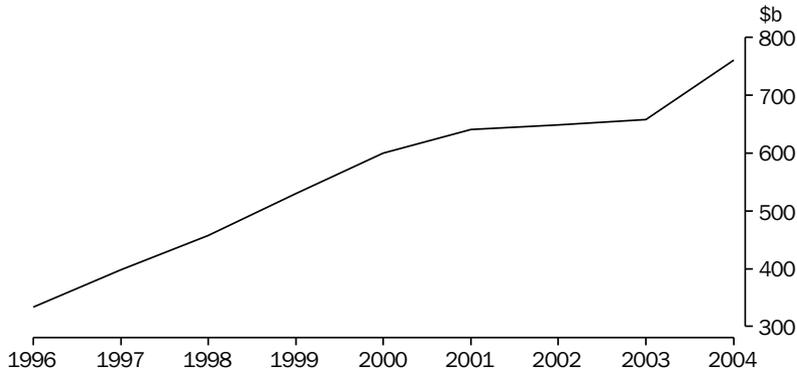
- life insurance corporations
- pension and approved deposit funds
- public unit trusts
- friendly societies
- common funds
- cash management trusts.

Funds of a speculative nature that do not offer redemption facilities – for example, agricultural and film trusts – are excluded.

To derive the total assets of collective investment institutions in Australia on a consolidated basis, it is necessary to eliminate the cross investment between the various types of institution. For example, investments by superannuation funds in public unit trusts are excluded from the assets of superannuation funds in a consolidated presentation.

Although statistics for each of these institutions were presented earlier in this chapter, the accompanying tables summarise their consolidated position (i.e. after the cross investment between the institutions has been eliminated). Table 26.23 shows their assets by type of institution and table 26.24 shows assets by type of investment.

## 26.22 MANAGED FUNDS, Consolidated assets — 30 June



Source: *Managed Funds, Australia* (5655.0).

## 26.23 ASSETS OF MANAGED FUNDS — 30 June 2004

Type of institution	Total \$m	Cross invested \$m	Consolidated \$m
Life insurance corporations(a)	202 880	30 930	171 950
Pension funds	464 764	83 785	380 979
Public unit trusts	188 085	27 182	160 904
Friendly societies	6 236	1 680	4 556
Common funds	9 687	389	9 298
Cash management trusts	32 386	—	32 386
<b>Total</b>	<b>904 037</b>	<b>143 965</b>	<b>760 072</b>

(a) Investments by pension funds which are held and administered by life insurance offices are included under life insurance offices.

Source: *Managed Funds, Australia, June 2004* (5655.0).

## 26.24 MANAGED FUNDS, Consolidated assets

Type of investment	Amounts outstanding at 30 June		
	2002 \$m	2003 \$m	2004 \$m
Deposits, loans and placements	70 455	72 358	85 906
Short-term debt securities	63 550	68 757	72 356
Long-term debt securities	62 620	67 374	66 563
Equities and units in trusts	225 912	224 052	282 779
Land and buildings	74 988	82 380	92 508
Overseas assets	127 933	119 419	137 164
Other assets	23 709	23 901	22 796
<b>Total</b>	<b>649 166</b>	<b>658 241</b>	<b>760 072</b>

Source: *Managed Funds, Australia* (5655.0).

## Investment managers

Specialist investment managers are employed on a fee-for-service basis to manage and invest in approved assets on their clients' behalf. They usually act for the smaller collective investment institutions such as public unit trusts. They are not accessible to the small investor. Investment managers provide a sophisticated level of service, matching assets and liabilities. They act in the main as the managers of pooled funds, but also manage clients' investments on an individual portfolio basis.

A considerable proportion of the assets of collective investment institutions, particularly the statutory funds of life insurance corporations and assets of pension funds, is channelled through investment managers. At 30 June 2004, \$503.4b (56% of the unconsolidated assets of collective investment institutions) were channelled through investment managers. Table 26.25 shows the total unconsolidated assets of each type of collective investment institution and the amount of these assets invested through investment managers.

Investment managers also accept money from investors other than collective investment institutions. At 30 June 2004 investment managers invested \$230.2b on behalf of government bodies, general insurers and other clients, including overseas clients.

### 26.25 ASSETS OF MANAGED FUNDS, Invested through investment managers — 30 June 2004

Type of fund	Unconsolidated assets of managed funds \$m	Assets invested with investment managers \$m
Life insurance corporations(a)	202 880	136 324
Pension and approved deposit funds	464 764	232 242
Public unit trusts	188 085	95 314
Friendly societies	6 236	2 408
Common funds	9 687	9 203
Cash management trusts	32 386	27 933
<b>Total</b>	<b>904 038</b>	<b>503 424</b>

(a) Includes both superannuation and ordinary business.

Source: *Managed Funds, Australia, June 2004* (5655.0).

## Lending by financial institutions

The lending activities of financial institutions are grouped for statistical purposes into four major types of lending – housing, personal, commercial and leasing. Information regarding housing finance is presented in *Chapter 8 Housing*. Table 26.26 shows the size of commitments by financial institutions for the four types of lending. It should be noted that, although commitments are firm offers of finance made by institutions that have been accepted by borrowers, not all commitments are taken up by borrowers.

### 26.26 FINANCIAL INSTITUTIONS, Lending commitments

Type of lending activity	2001–02 \$m	2002–03 \$m	2003–04 \$m
Housing finance	96 482	106 699	124 033
Personal finance	58 137	68 813	79 588
Commercial finance	207 012	261 405	289 198
Lease finance	6 626	6 312	6 371
<b>Total</b>	<b>365 718</b>	<b>468 584</b>	<b>549 937</b>

Source: *Lending Finance, Australia* (5671.0).

## Lease finance

The statistics in tables 26.27 and 26.28 measure lease finance commitments made by significant lenders (banks, money market corporations, finance companies, general financiers, etc.) to trading and financial enterprises, non-profit organisations, governments, public authorities and individuals.

### 26.27 LEASE FINANCE COMMITMENTS, By type of lessor

	2001–02 \$m	2002–03 \$m	2003–04 \$m
All banks	1 906	1 976	1 957
Finance companies	1 813	1 251	1 319
General financiers	1 636	1 706	1 962
Other(a)	1 271	1 379	1 132
<b>Total</b>	<b>6 626</b>	<b>6 312</b>	<b>6 371</b>

(a) Includes money market corporations.

Source: *Lending Finance, Australia* (5671.0).

**26.28 LEASE FINANCE COMMITMENTS, By type of good leased**

	2001-02	2002-03	2003-04
	\$m	\$m	\$m
Motor vehicles and other transport equipment	2 856	2 905	3 106
Construction and earth moving equipment	231	313	294
Agricultural machinery and equipment	220	174	174
Automatic data processing equipment and office machinery	2 122	1 956	1 866
Shop and office furniture, fittings and equipment	340	164	196
Other goods	857	801	735
<b>Total</b>	<b>6 626</b>	<b>6 312</b>	<b>6 371</b>

Source: Lending Finance, Australia (5671.0).

**26.29 PERSONAL FINANCE NEW AND INCREASED COMMITMENTS, By type of lender(a)**

	2001-02	2002-03	2003-04
	\$m	\$m	\$m
All banks	43 721	52 926	62 558
Finance companies	7 885	9 230	10 902
Credit cooperatives	3 325	3 496	3 318
Other lenders(b)	3 207	3 159	2 809
<b>Total</b>	<b>58 137</b>	<b>68 813</b>	<b>79 588</b>

(a) Includes both fixed loan facilities and new and increased lending commitments under revolving credit facilities. (b) Includes permanent building societies, general financiers and retailers.

Source: Lending Finance, Australia (5671.0).

**26.30 PERSONAL FINANCE COMMITMENTS, By type of facility**

	2001-02	2002-03	2003-04
	\$m	\$m	\$m
Personal finance new and increased commitments	58 137	68 813	79 588
Fixed loan commitments	25 620	30 442	33 885
New and increased credit limits	32 517	38 371	45 703
Cancellations and reductions in credit limits	14 960	13 253	16 768
Credit limits at 30 June			
Total	129 615	153 382	186 206
Used	61 000	75 074	90 527

Source: Lending Finance, Australia (5671.0).

**Personal finance**

Tables 26.29 and 26.30 present statistics of commitments made by significant lenders (banks, credit cooperatives, finance companies, etc.) to lend to individuals for their own personal (non-business) use. The new revolving credit commitments provided in table 26.30 include commitments for overdrafts, credit cards and other personal revolving lines of credit.

**Commercial finance**

The statistics in tables 26.31 and 26.32 measure commitments, made by significant lenders (banks, finance companies, money market corporations, etc.) to lend to government, private and public enterprises, non-profit organisations and individuals for investment and business purposes.

### 26.31 COMMERCIAL FINANCE NEW AND INCREASED COMMITMENTS(a)

	2001-02	2002-03	2003-04
	\$m	\$m	\$m
All banks	171 023	227 709	242 851
Finance companies	6 938	6 193	6 028
Money market corporations	12 140	5 776	8 793
Other lenders(b)	16 911	21 728	31 527
<b>Total</b>	<b>207 012</b>	<b>261 406</b>	<b>289 198</b>

(a) Includes both fixed loan facilities and new and increased lending commitments under revolving credit facilities. (b) Includes permanent building societies, general financiers and pastoral finance companies.

Source: *Lending Finance, Australia* (5671.0).

### 26.32 FIXED COMMERCIAL FINANCE NEW COMMITMENTS

Purpose	2001-02	2002-03	2003-04
	\$m	\$m	\$m
Construction	9 844	18 561	15 697
Purchase of real property(a)	53 399	69 829	83 138
Purchase of plant and equipment	13 571	12 739	12 613
Re-financing	11 765	12 369	16 067
Other purposes	41 828	55 291	64 315
<b>Total</b>	<b>130 408</b>	<b>168 789</b>	<b>191 830</b>

(a) Purchase of real property includes those finance commitments to individuals for the purchase of dwellings for rental or resale.

Source: *Lending Finance, Australia* (5671.0).

## Money and the payments system

The payments system supports trade and commerce in a market economy. Notes and coin are one means of payment. Liquid balances held at financial institutions are also available potentially for transactions needs, under cheque and other forms of transfer facilities, and thus add to the money supply.

From 1 July 1998 a new financial regulatory framework came into effect, in response to the recommendations of the Financial System Inquiry. Under these arrangements the Reserve Bank has stronger regulatory powers in the payments system in accordance with the *Payments Systems (Regulations) Act 1998* (Cwlth), to be exercised by a Payments System Board within the Bank.

### Money

Australia has a decimal system of currency, the unit being the dollar, which is divided into 100 cents. Australian notes are issued in the denominations of \$5, \$10, \$20, \$50 and \$100 and coins in the denominations of 5c, 10c, 20c, 50c, \$1 and \$2.

\$1 and \$2 notes were replaced by coins in 1984 and 1988 respectively, and 1c and 2c coins ceased to be issued from 1 February 1992. Table 26.33 shows the value of notes on issue on the past Wednesday of June in the past three years. Table 26.34 shows the value of coin on issue at the same points of time.

### 26.33 VALUE OF AUSTRALIAN NOTES ON ISSUE

	Units	Last Wednesday in June		
		2002	2003	2004
\$2	\$m	45	45	—
\$5	\$m	530	515	533
\$10	\$m	802	762	791
\$20	\$m	2 801	2 514	2 533
\$50	\$m	14 718	14 918	15 941
\$100	\$m	13 057	13 406	14 224
<b>Total</b>	<b>\$m</b>	<b>31 954</b>	<b>32 161</b>	<b>34 022</b>
Increase	%	18.6	0.7	5.8

Note: \$2 notes on issue has been written off by the Reserve Bank of Australia.

Source: *Reserve Bank of Australia*.

### 26.34 VALUE OF AUSTRALIAN DECIMAL COIN ON ISSUE

	Units	Last Wednesday in June		
		2002	2003	2004
1c	\$m	22	22	22
2c	\$m	29	29	29
5c	\$m	143	148	154
10c	\$m	135	140	147
20c	\$m	198	203	210
50c	\$m	281	290	302
\$1	\$m	483	506	531
\$2	\$m	748	796	832
<b>Total</b>	<b>\$m</b>	<b>2 039</b>	<b>2 134</b>	<b>2 227</b>
Increase	%	15.6	4.6	4.4

Source: *Reserve Bank of Australia*.

## Money supply measures

The money supply, as measured and published by the Reserve Bank, refers to the amount of cash held by the public plus deposits with specified financial institutions. The measures range from the narrowest category, money base, through to the widest category, broad money, with other measures in between. The measures mainly used are as follows:

*Money base* – comprises holdings of notes and coin by the private sector, deposits of banks with the Reserve Bank, and other Reserve Bank liabilities to the private sector.

*M3* – is defined as currency plus bank deposits of the private non-bank sector.

*Broad money* – is defined as M3 plus borrowings from the private sector by non-bank financial intermediaries (including cash management trusts) less their holdings of currency and bank deposits.

The money supply under each of these measures at 30 June for the past three years is shown in table 26.35.

## Payments system

Following recommendations by the Financial System Inquiry, the Payments System Board was established within the Reserve Bank on 1 July 1998. The Payments System Board has responsibility for determining the Reserve Bank's payments system policy, under the powers set out in the *Payments Systems (Regulation) Act 1998* (Cwlth). The payments system has components for settling large amounts, and components for settling retail amounts.

The High Value Clearing System (HVCS) was implemented in August 1997. The HVCS allows all holders of Reserve Bank exchange settlement accounts to settle large value payments through a

system designed to process a high volume of transactions. On 1 March 1999 the Payments System Board announced easing of restrictions on eligibility for holding exchange settlement accounts. APRA-supervised institutions and some institutions not supervised by APRA potentially now have access.

Initially, the settlement of payments was on a net deferred basis, where settlement of interbank obligations was not completed until 9 am on the day following the sending of payment instructions. This was changed to a real-time gross settlement basis on 22 June 1998. This new settlement basis, where payments are settled immediately, contributes substantially to the reduction of settlement risk and systemic risk in the Australian payments system.

About 75% of the value exchanged in the payments system is cleared via the HVCS.

Table 26.36 shows the number of points of access to the payments system. Branches are access points staffed by employees of financial institutions. Face-to-face other points of presence are staffed by other than employees of financial institutions such as postmasters or storekeepers, and exclude school agencies and giroPost agencies. GiroPost provides a limited range of services at Australia Post offices on behalf of participating financial institutions. Electronic points of access include ATM and electronic funds transfer at point of sale (EFTPOS) terminals.

**26.35 MONEY SUPPLY MEASURES — 30 June**

	Units	2002	2003(a)	2004
Money base	\$m	34 936	35 115	37 194
M3	\$m	472 758	535 202	583 845
Broad money	\$m	545 781	599 741	653 652
Percentage change(b)	%	5.4	9.9	9.8

(a) Series break due to other changes in bank reporting. (b) Of broad money, over level at end of preceding June.

Source: Reserve Bank of Australia.

**26.36 POINTS OF ACCESS TO THE AUSTRALIAN PAYMENTS SYSTEM — 30 June**

	2002	2003	2004
<b>Branches</b>			
Banks	4 843	4 858	n.y.a.
Building societies and credit unions	1 270	1 247	n.y.a.
<b>Other points of presence</b>			
<b>Banks</b>			
Face-to-face	2 775	2 810	n.y.a.
Other(a)	916	880	n.y.a.
Building societies and credit unions			
Face to face	562	857	n.y.a.
Other(a)	29	33	n.y.a.
giroPost	2 962	2 990	3 089
ATM(b)	16 398	20 339	21 550
EFTPOS terminals(b)	415 167	433 640	465 754

(a) Excludes giroPost, ATM's and EFTPOS terminals. (b) As defined by the Australian Payments Clearing Association.

Source: APRA; Australian Payments Clearing Association Limited.

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## GOVERNMENT FINANCE

The main functions of government are the provision of non-market services, the regulation of economic and social conditions, and the redistribution of income between sections of the community. These activities are primarily financed by taxation and are carried out by entities in the general government sector. In addition to this core activity, governments can also own or control enterprises that sell goods or services to the public and which operate largely on a commercial (or market) basis (public non-financial corporations) or engage in financial intermediation (public financial corporations).

The term 'government finance statistics' refers to statistics that measure the financial activities of governments of all levels and reflect the impact of those activities on other sectors of the economy. The Australian system of Government Finance Statistics (GFS), which is used to derive the statistics presented in this chapter, is designed to provide statistical information on public sector entities in Australia classified in a uniform and systematic way.

The public sector comprises general government entities and public financial and public non-financial corporations. These entities are described in the next section. This is followed by an outline of the roles of the different levels of government and a description of the GFS classifications.

GFS enables policy makers and users to analyse the financial operations and financial position of the public sector at either the level of a specific government, institutional sector or set of transactions.

The GFS system is based on international standards set out in the *System of National Accounts* and the accrual version of the International Monetary Fund's *A Manual of Government Finance Statistics*.

GFS is consistent in scope with the Australian accounting standard for whole of government reporting – Australian Accounting Standard (AAS) 31 *Financial Reporting by Governments*. There are, however, differences in the way activities are treated and presented in GFS and AAS31.

The chapter concludes with an article *The use made of ABS statistics by the Commonwealth Grants Commission*.

## Public sector

The public sector can be divided into the institutional sectors described below, based on the characteristics of the organisations it comprises.

*General government* – The principal function of general government entities is to provide non-market goods and services (e.g. roads, hospitals, libraries) primarily financed by taxes, to regulate and influence economic activity, to maintain law and order, and to redistribute income by means of transfer payments.

This institutional sector covers the departments of the Australian Government, state governments and local government municipalities. It also includes agencies and government authorities under departmental administration which are engaged in the provision of public administration, defence, law enforcement, welfare, public education, and health. Also included are non-departmental bodies which independently perform the government functions of regulation (e.g. Nurses Registration Boards and the Maritime Safety Authority), provision of non-market services (e.g. the Australian Broadcasting Corporation), and redistribution of income (e.g. the Aboriginal and Torres Strait Islander Commission). Some of these bodies may be corporations, but they are still considered part of the general government sector if they perform general government functions.

Unincorporated government enterprises which provide goods and services to their governments and to the public at prices that are not economically significant are also included in this sector. In addition, government quasi-corporations which sell their output exclusively to other government units, while not in open competition with other producers, are classified as general government units.

*Public non-financial corporations (PNFCs)* – The main function of PNFCs is to provide goods and services which are predominantly market, non-regulatory and non-financial in nature, and financed through sales to consumers of these goods and services.

Enterprises in the PNFC sector differ from those in the general government sector in that all or most of their production costs are recovered from consumers, rather than being financed from the general taxation revenue of government. Some enterprises, however, do receive subsidies to make up for shortfalls incurred as a result of

government policy, for example, in the provision of ‘community service obligations’ at concessional rates.

PNFCs vary in their degree of ‘commercialism’, from those which are quite heavily reliant on parent governments for subsidies, such as rail and bus transport undertakings, to those which are net contributors to government revenue. Governments may exercise control over PNFCs by either owning more than 50% of the voting stock or otherwise controlling more than half the shareholders’ voting power, or through legislation, decree or regulation which empowers the government to determine corporate policy or to appoint the directors. Examples of PNFCs are Telstra, Australia Post, state rail authorities, and local bus and transport operations.

*Public financial corporations (PFCs)* – PFCs are government-owned or controlled enterprises which engage in financial intermediation (i.e. trade in financial assets and liabilities), such as central borrowing authorities, government banks and insurance offices, or home lending schemes.

## Levels of government

The public sector comprises all organisations owned or controlled by any of the three levels of government within the Australian political system – national, state/territory and local.

## Australian Government

The Australian (Commonwealth) Government, the national government, has exclusive responsibility under the Constitution for the administration of a wide range of functions including defence, foreign affairs and trade, and immigration. A distinctive feature of the Australian federal system is that the Australian Government levies and collects all income tax, from individuals as well as from enterprises. It also collects a significant portion of other taxes, including taxes on the provision of goods and services such as the Goods and Services Tax (GST). The Australian Government distributes part of this revenue to other levels of government, principally the states and territories.

## State governments

State and territory governments (referred to as ‘state’ governments in tables in this chapter) perform the full range of government functions, other than those the Constitution deems the exclusive domain of the Australian Government. The functions mainly administered by state and territory governments include public order,

health, education, administration, transport and maintenance of infrastructure. The revenue base of state and territory governments is narrower than that of the Australian Government and consists of taxes on property, on employers' payrolls, and on provision and use of goods and services. This revenue base is supplemented by grants from the Australian Government, which includes an allocation of GST revenue.

## Local governments

Local government authorities govern areas typically described as cities, towns, shires, boroughs, municipalities and district councils. Although the range of functions undertaken by local governments varies between the different jurisdictions, their powers and responsibilities are generally similar and cover such matters as:

- the construction and maintenance of roads, streets and bridges
- water, sewerage and drainage systems
- health and sanitary services
- the regulation of building standards
- the administration of regulations relating to items such as slaughtering, weights and measures, and registration of dogs.

Local governments also provide transport facilities, hospitals, charitable institutions, recreation grounds, parks, swimming pools, libraries, museums and other business undertakings. Local governments' own-source revenue is derived mainly from property taxes. They also rely on grants from the Australian Government and their parent state governments. The Australian Capital Territory has no separate local government.

## Multi-jurisdictional

The multi-jurisdictional sector in the GFS contains units where jurisdiction is shared between two or more governments, or classifications of a unit to a jurisdiction is otherwise unclear. The main type of units currently falling into this category are the public universities.

## Understanding the GFS financial statements

The GFS conceptual framework is divided into a number of separate statements, each of which is designed to draw out analytical aggregates or balances of particular economic significance and

which, taken together, provide for a thorough understanding of the financial positions of jurisdictions individually and collectively. These published statements are the Operating Statement, the Cash Flow Statement, and the Balance Sheet.

## Operating Statement

The Operating Statement presents details of transactions in GFS revenues, GFS expenses and the net acquisition of non-financial assets for an accounting period. GFS revenues are broadly defined as transactions that increase net worth and GFS expenses as transactions that decrease net worth. Net acquisition of non-financial assets equals gross fixed capital formation, less depreciation, plus changes in inventories plus other transactions in non-financial assets. Two key GFS analytical balances in the operating statement are GFS Net Operating Balance (NOB) and GFS Net Lending(+)/Borrowing(-).

GFS NOB is the difference between GFS revenues and GFS expenses. It reflects the sustainability of government operations. GFS Net Lending(+)/Borrowing(-) is equal to NOB minus the total net acquisition of non-financial assets. A positive result reflects a net lending position while a negative result reflects a net borrowing position.

## Cash Flow Statement

The Cash Flow Statement identifies how cash is generated and applied in a single accounting period. 'Cash' means cash on hand (notes and coins held and deposits held at call with a bank or other financial institution) and cash equivalents (highly liquid investments which are readily convertible to cash on hand at the investor's option and overdrafts considered integral to the cash management function).

The Cash Flow Statement reflects a cash basis of recording (the other statements are on an accruals accounting basis) where the information has been derived indirectly from underlying accrued transactions and movements in balances. This, in effect, means that transactions are captured when cash is received or when cash payments are made. Cash transactions are specially identified because they allow the compilation of the cash-based Surplus(+)/Deficit(-) measure and because the management of cash is often considered an integral function of accrual accounting.

The Surplus(+)/Deficit(-) is a broad indicator of a sector's cash flow requirements. When it is positive (i.e. in surplus), it reflects the extent to

which cash is available to government to either increase its financial assets or decrease its liabilities (assuming that no revaluations and other changes occur). When it is negative (i.e. in deficit), it is a measure of the extent to which government requires cash, either by running down its financial assets or by drawing on the cash reserves of the domestic economy, or from overseas.

## Balance Sheet

The Balance Sheet is the statement of an entity's financial position at a specific point in time. It shows the entity's stock of assets, liabilities and GFS Net Worth. GFS Net Worth is an economic measure of 'wealth' calculated as assets less liabilities for the general government sector and as assets less liabilities less shares and other contributed capital for the PNFCs and PFCs sectors.

## Total public sector, all levels of government combined

This section sets out the Operating Statement, Cash Flow Statement and Balance Sheet for the total public sector for all levels of government.

## Operating Statement

Table 27.1 shows the GFS NOB for the total public sector for levels of all government combined was \$12,736m in 2002–03. GFS Net Lending was \$7,100m.

## Cash Flow Statement

Table 27.2 shows the total public sector surplus for all levels of government combined was \$11,464m in 2002–03. The main contributors to this result were net cash flows from operating activities of \$37,845 and a net cash payment of \$24,284m for investments in non-financial assets.

## Balance Sheet

GFS Net Worth reflects the contribution of governments to the wealth of Australia. Table 27.3 shows the consolidated net worth at 30 June 2003 for the total public sector for all levels of government combined was \$402,279m.

## General government, all levels of government combined

This section sets out the Operating Statement, Cash Flow Statement and Balance Sheet for the general government sector for all levels of government.

### 27.1 ALL LEVELS OF GOVERNMENT, Total public sector: Operating Statement — 2002–03

	Commonwealth	Multi-jurisdictional(a)	State	Local	All levels of government(b)
	\$m	\$m	\$m	\$m	\$m
GFS Revenue	227 713	12 036	142 256	19 124	336 296
<i>less</i>					
GFS Expenses	220 606	11 630	137 795	17 565	323 560
<i>equals</i>					
<b>Net Operating Balance</b>	<b>7 107</b>	<b>406</b>	<b>4 461</b>	<b>1 559</b>	<b>12 736</b>
<i>less</i>					
Net acquisition of non-financial assets	-743	120	5 245	1 020	5 636
<i>equals</i>					
<b>GFS Net Lending(+)/Borrowing(-)</b>	<b>7 850</b>	<b>286</b>	<b>-784</b>	<b>540</b>	<b>7 100</b>

(a) The multi-jurisdictional sector contains units where jurisdiction is shared between two or more governments, or classifications of a unit to a jurisdiction is otherwise unclear. The main type of units currently falling into this category are the public universities.

(b) The sums of individual levels of government may not agree with total figures for all levels of government due to transfers between levels of government.

Source: *Government Finance Statistics, Australia, 2002–03 (5512.0)*.

## 27.2 ALL LEVELS OF GOVERNMENT, Total public sector: Cash Flow Statement — 2002–03

	Commonwealth	Multi-jurisdictional(a)	State	Local	All levels of government(b)
	\$m	\$m	\$m	\$m	\$m
<b>CASH FLOW STATEMENT</b>					
Cash receipts from operating activities	224 559	11 971	147 989	17 970	333 694
Cash payments for operating activities	-210 393	-10 638	-128 346	-14 103	-295 792
<i>Net cash flows from operating activities</i>	<i>14 166</i>	<i>1 333</i>	<i>19 643</i>	<i>3 867</i>	<i>37 845</i>
Net cash flows from investments in non-financial assets	-4 565	-930	-14 954	-3 898	-24 284
Net cash flows from investments in financial assets for policy purposes	-465	10	18 062	18	17 493
Net cash flows from investments in financial assets for liquidity purposes	-1 946	-65	-4 687	25	-5 696
Net cash flows from financing activities	-6 958	-315	-14 220	-503	-21 755
<b>Net Increase(+)/Decrease(-) in Cash Held</b>	<b>232</b>	<b>32</b>	<b>3 844</b>	<b>-491</b>	<b>3 604</b>
<b>SURPLUS(+)/DEFICIT(-)</b>					
<b>Surplus(+)/Deficit(-)</b>	<b>7 932</b>	<b>403</b>	<b>4 261</b>	<b>-32</b>	<b>11 464</b>

(a) The multi-jurisdictional sector contains units where jurisdiction is shared between two or more governments, or classifications of a unit to a jurisdiction is otherwise unclear. The main type of units currently falling into this category are the public universities.

(b) The sums of individual levels of government may not agree with total figures for all levels of government due to transfers between levels of government.

Note: Negative figures denote outflows.

Source: *Government Finance Statistics, Australia, 2002–03 (5512.0)*.

## 27.3 ALL LEVELS OF GOVERNMENT, Total public sector: Balance Sheet — 30 June 2003

	Commonwealth	Multi-jurisdictional(a)	State	Local	All levels of government(b)
	\$m	\$m	\$m	\$m	\$m
<b>Assets</b>					
Financial assets	136 163	8 841	115 885	9 920	255 051
Non-financial assets	63 692	21 643	418 821	158 676	662 821
<i>Total</i>	<i>199 855</i>	<i>30 484</i>	<i>534 706</i>	<i>168 596</i>	<i>917 872</i>
<b>Liabilities</b>					
Shares and other contributed capital	28 445	816	—	38	29 259
<b>GFS Net Worth</b>	<b>-88 945</b>	<b>22 681</b>	<b>309 381</b>	<b>159 162</b>	<b>402 279</b>
Net debt(c)	25 277	-3 849	9 382	-2 459	28 351
<b>Net financial worth(d)</b>	<b>-152 637</b>	<b>1 038</b>	<b>-109 440</b>	<b>486</b>	<b>-260 542</b>

(a) The multi-jurisdictional sector contains units where jurisdiction is shared between two or more governments, or classifications of a unit to a jurisdiction is otherwise unclear. The main type of units currently falling into this category are the public universities.

(b) The sums of individual levels of government may not agree with total figures for all levels of government due to assets and liabilities held between levels of government. (c) Equals deposits held, advances received, Reserve Bank notes on issue and borrowing less cash and deposits, advances paid, and investments, loans and placements. (d) Equals total financial assets less total liabilities less shares and other contributed capital. While Net financial worth should add across levels of government, small discrepancies may remain due to the difficulties in accurately identifying the parties and counter-parties associated with financial assets and liabilities.

Source: *Government Finance Statistics, Australia, 2002–03 (5512.0)*.

## Operating Statement

Table 27.4 presents an Operating Statement for the general government sector for 2002–03.

In 2002–03 the GFS NOB for the general government sector for all levels of government combined was \$11,467m, indicating that GFS operating revenue exceeded GFS operating expenses. The largest contributor to this result was the NOB for the Commonwealth Government of \$6,212m.

GFS Net Lending for the general government sector for all levels of government combined was \$8,425m. The Commonwealth Government and the state governments contributed \$6,430m and \$2,096m respectively to the aggregate result.

## Cash Flow Statement

Table 27.5 shows the general government sector for all levels of government combined recorded a cash surplus of \$11,134m in 2002–03. On a consolidated basis, the Commonwealth Government recorded a surplus of \$7,404m while the state and territory governments collectively contributed \$4,639m to the overall surplus.

## Balance Sheet

GFS Net Worth reflects the contribution of governments to the wealth of Australia. The consolidated GFS Net Worth at 30 June 2003 for the general government sector for all levels of government combined was \$444,790m (table 27.6). The most significant assets held were land and fixed assets of \$440,848m followed by equity in financial assets of \$189,163m. The most significant liabilities were unfunded superannuation liability and other employee entitlements of \$171,675m, followed by borrowings of \$105,360m.

## Total public sector, state and territory governments

This section provides the Operating Statement, Cash Flow Statement and Balance Sheet for the total public sector for each of the state and

territory governments. The results for local government appear separately in this chapter and are not reflected in these tables.

## Operating Statement

Table 27.7 summarises the net operating results for the total public sector for each state and territory government for 2002–03.

## Cash Flow Statement

Table 27.8 summarises the cash results for the total public sector for each state and territory government for 2002–03.

## Balance Sheet

Table 27.9 summarises the Balance Sheet results at 30 June 2003 for the total public sector for each state and territory government.

## General government, state and territory governments

This section sets out the Operating Statement, Cash Flow Statement and Balance Sheet for the general government sector for each state and territory government.

## Operating Statement

Table 27.10 summarises the net operating results for the general government sector for each state and territory government for 2002–03.

## Cash Flow Statement

Table 27.11 summarises the cash results for the general government sector for each state and territory government for 2002–03.

## Balance Sheet

Table 27.12 summarises the Balance Sheet results at 30 June 2003 for the general government sector for each state and territory government.

## 27.4 ALL LEVELS OF GOVERNMENT, General government: Operating Statement — 2002–03

	Commonwealth	Multi-jurisdictional(a)	State	Local	All levels of government(b)
	\$m	\$m	\$m	\$m	\$m
<b>GFS Revenue</b>					
Taxation revenue	194 313	—	36 322	7 201	237 477
Current grants and subsidies	—	4 858	52 831	2 202	1 397
Sales of goods and services	3 805	5 692	10 491	6 148	24 346
Interest from public non-financial corporations	—	—	167	—	167
Interest from public financial corporations	468	14	434	56	971
Interest from other sources	717	173	483	356	1 518
Dividend income	3 958	50	3 263	40	7 312
Other	2 928	864	9 768	3 152	13 399
<i>Total</i>	<i>206 189</i>	<i>11 651</i>	<i>113 760</i>	<i>19 156</i>	<i>286 586</i>
<i>less</i>					
<b>GFS Expenses</b>					
Gross operating expenses					
Depreciation	1 795	764	5 678	3 746	11 983
Employee expenses	15 048	6 160	47 591	6 167	74 962
Other operating expenses	36 577	3 987	28 983	7 054	74 707
<i>Total</i>	<i>53 420</i>	<i>10 911</i>	<i>82 253</i>	<i>16 967</i>	<i>161 652</i>
Nominal superannuation interest expenses	5 409	—	3 081	—	8 490
Other interest expenses	4 890	39	2 265	383	7 358
Other property expenses	—	—	—	—	—
Current transfers					
Grant expenses to state governments	51 172	1	561	—	561
Grant expenses to the private sector	7 181	48	10 158	77	17 464
Grant expenses to universities	4 381	—	191	—	—
Grant expenses to local governments	274	—	1 780	—	—
Grant expenses n.e.c.	184	—	1	—	185
Subsidy expenses to public corporations	68	—	3 986	32	4 086
Subsidy expenses to other	5 149	11	963	—	6 121
Other current transfers	64 670	362	1 531	91	66 314
Capital transfers					
Grant expenses to public non-financial corporations	—	—	893	7	900
Grant expenses to public financial corporations	—	—	21	—	21
Grant expenses to other levels of government	2 596	—	513	—	—
Grant expenses n.e.c.	585	—	986	14	1 585
Other capital transfers	—	3	378	19	382
<i>Total</i>	<i>199 978</i>	<i>11 376</i>	<i>109 562</i>	<i>17 591</i>	<i>275 120</i>
<i>equals</i>					
<b>GFS Net Operating Balance</b>	<b>6 212</b>	<b>275</b>	<b>4 199</b>	<b>1 565</b>	<b>11 467</b>
<i>less</i>					
Net acquisition of non-financial assets					
Gross fixed capital formation	2 530	932	7 939	4 653	16 055
<i>less</i> Depreciation	1 795	764	5 678	3 746	11 983
<i>plus</i> Change in inventories	-443	-8	24	-9	-435
<i>plus</i> Other transactions in non-financial assets	-511	-16	-182	115	-594
<i>Total</i>	<i>-219</i>	<i>144</i>	<i>2 102</i>	<i>1 014</i>	<i>3 042</i>
<i>equals</i>					
<b>GFS Net Lending(+)/Borrowing(-)</b>	<b>6 430</b>	<b>131</b>	<b>2 096</b>	<b>552</b>	<b>8 425</b>

(a) The multi-jurisdictional sector contains units where jurisdiction is shared between two or more governments, or classifications of a unit to a jurisdiction is otherwise unclear. The main type of units currently falling into this category are the public universities.

(b) The sums of individual levels of government may not agree with total figures for all levels of government due to transfers between levels of government.

Source: Government Finance Statistics, Australia, 2002–03 (5512.0).

**27.5 ALL LEVELS OF GOVERNMENT, General government: Cash Flow Statement — 2002–03**

	Commonwealth \$m	Multi- jurisdictional(a) \$m	State \$m	Local \$m	All levels of government(b) \$m
<b>CASH FLOW STATEMENT</b>					
Cash receipts from operating activities					
Taxes received	191 374	—	35 897	7 200	234 135
Receipts from sales of goods and services	3 674	4 980	10 563	5 959	23 303
Grants and subsidies received	—	4 942	55 823	2 685	1 364
Interest received from public non-financial corporations	—	—	160	—	160
Interest received from public financial corporations	468	3	427	55	953
Interest from other sources	514	129	967	377	1 775
Other receipts	6 782	1 509	11 600	1 713	19 406
<i>Total</i>	<i>202 812</i>	<i>11 563</i>	<i>115 437</i>	<i>17 989</i>	<i>281 098</i>
Cash payments for operating activities					
Payments for goods and services	-51 854	-8 695	-76 132	-13 344	-148 156
Grants and subsidies paid to state governments	-53 718	-19	-1	—	—
Grants and subsidies paid to the private sector	-12 382	—	-12 595	-73	-25 031
Grants and subsidies paid to universities	-4 429	—	-100	—	—
Grants and subsidies paid to local governments	-276	—	-2 436	-15	-15
Grants and subsidies paid to public corporations	-252	—	-5 481	—	-5 733
Interest paid	-4 623	-42	-2 228	-385	-7 063
Other payments	-65 825	-1 707	-4 167	-290	-69 468
<i>Total</i>	<i>-193 359</i>	<i>-10 444</i>	<i>-103 141</i>	<i>-14 107</i>	<i>-255 466</i>
<i>Net cash flows from operating activities</i>	<i>9 453</i>	<i>1 119</i>	<i>12 297</i>	<i>3 881</i>	<i>25 632</i>
Net cash flows from investments in non-financial assets					
Sales of non-financial assets	1 258	284	1 657	774	3 973
Purchases of new non-financial assets	-3 306	-1 198	-8 969	-4 650	-18 123
Purchases of secondhand non-financial assets	—	—	—	-1	-1
<i>Total</i>	<i>-2 048</i>	<i>-914</i>	<i>-7 312</i>	<i>-3 877</i>	<i>-14 151</i>
Net cash flows from investments in financial assets for policy purposes	-229	10	267	18	-65
Net cash flows from investments in financial assets for liquidity purposes	-1 743	-65	-1 764	44	-3 526
Net cash flows from financing activities					
Advances received (net)	—	-1	-49	1	86
Borrowing (net)	-6 012	11	-2 195	-65	-8 244
Deposits received (net)	107	1	-23	38	101
Other financing (net)	580	78	-127	-538	1 118
<i>Total</i>	<i>-5 325</i>	<i>89</i>	<i>-2 394</i>	<i>-564</i>	<i>-6 938</i>
<b>Net Increase(+)/Decrease(-) in Cash Held</b>	<b>108</b>	<b>238</b>	<b>1 095</b>	<b>-497</b>	<b>951</b>
<b>SURPLUS(+)/DEFICIT(-)</b>					
Net cash flows from operating activities and net cash flows from investments in non-financial assets	7 405	205	4 985	5	11 481
Acquisitions of assets under finance leases and similar arrangements	-1	—	-346	-1	-347
<b>Surplus(+)/Deficit(-)</b>	<b>7 404</b>	<b>205</b>	<b>4 639</b>	<b>4</b>	<b>11 134</b>

(a) The multi-jurisdictional sector contains units where jurisdiction is shared between two or more governments, or classifications of a unit to a jurisdiction is otherwise unclear. The main type of units currently falling into this category are the public universities.

(b) The sums of individual levels of government may not agree with totals for all levels of government due to transfers between levels of government.

Note: Negative figures denote outflows.

Source: Government Finance Statistics, Australia, 2002–03 (5512.0).

## 27.6 ALL LEVELS OF GOVERNMENT, General government: Balance Sheet — 30 June 2003

	Commonwealth	Multi-jurisdictional(a)	State	Local	All levels of government(b)
	\$m	\$m	\$m	\$m	\$m
<b>Assets</b>					
Financial assets					
Cash and deposits	2 339	893	7 456	2 857	13 541
Advances paid	22 531	9	4 486	10	22 250
Investments, loans and placements	21 805	4 170	28 365	5 264	59 582
Other non-equity assets	18 829	3 250	13 099	1 699	34 454
Equity	44 381	431	143 730	622	189 163
<i>Total</i>	109 886	8 754	197 136	10 452	318 990
Non-financial assets					
Land and fixed assets	35 996	19 944	228 496	156 412	440 848
Other non-financial assets	222	119	2 974	1 388	4 693
<i>Total</i>	36 218	20 063	231 470	157 800	445 540
<i>Total</i>	146 104	28 817	428 606	168 252	764 530
<b>Liabilities</b>					
Deposits held	2 480	16	1 370	249	4 110
Advances received	—	16	3 775	46	—
Borrowing	72 440	652	28 073	5 168	105 360
Unfunded superannuation liability and other employee entitlements	97 253	4 377	68 399	1 645	171 675
Other provisions	2 689	30	7 996	239	10 954
Other non-equity liabilities	17 547	1 164	9 623	1 743	27 642
<i>Total</i>	192 410	6 255	119 234	9 091	319 741
<b>GFS Net Worth</b>	<b>-46 307</b>	<b>22 563</b>	<b>309 372</b>	<b>159 162</b>	<b>444 790</b>
Net debt(c)	28 244	-4 389	-7 090	-2 668	14 098
Net financial worth(d)	-82 524	2 499	77 902	1 362	-751

(a) The multi-jurisdictional sector contains units where jurisdiction is shared between two or more governments, or classifications of a unit to a jurisdiction is otherwise unclear. The main type of units currently falling into this category are the public universities.

(b) The sums of individual levels of government may not agree with total figures for all levels of government due to assets and liabilities held between levels of government. (c) Equals deposits held, advances received and borrowing less cash and deposits, advances paid and investments, loans and placements. (d) Equals total financial assets less total liabilities. While Net financial worth should add across levels of government, small discrepancies may remain due to the difficulties in accurately identifying the parties and counter-parties associated with financial assets and liabilities.

Source: *Government Finance Statistics, Australia, 2002–03 (5512.0)*.

## 27.7 STATE GOVERNMENTS, Total public sector: Operating Statement — 2002–03

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Total(a)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
GFS Revenue	46 147	32 576	26 607	11 093	16 591	4 153	2 800	2 490	142 256
less									
GFS Expenses	44 370	30 866	26 446	10 925	16 223	3 939	2 816	2 314	137 795
<i>equals</i>									
<b>GFS Net Operating Balance</b>	<b>1 777</b>	<b>1 710</b>	<b>161</b>	<b>169</b>	<b>368</b>	<b>214</b>	<b>-15</b>	<b>176</b>	<b>4 461</b>
less									
Net acquisition of non-financial assets	2 173	1 758	1 032	74	226	35	74	-139	5 245
<i>equals</i>									
<b>GFS Net Lending(+)/Borrowing(-)</b>	<b>-397</b>	<b>-48</b>	<b>-871</b>	<b>94</b>	<b>142</b>	<b>180</b>	<b>-89</b>	<b>315</b>	<b>-784</b>

(a) The sums of all individual state jurisdictions may not agree with total state figures, due to transfers between jurisdictions.

Source: *Government Finance Statistics, Australia, 2002–03 (5512.0)*.

### 27.8 STATE GOVERNMENTS, Total public sector: Cash Flow Statement — 2002–03

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Total(a)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>CASH FLOW STATEMENT</b>									
Cash receipts from operating activities	48 962	32 314	28 626	11 108	17 410	4 537	2 843	2 409	147 989
Cash payments for operating activities	-41 191	-28 879	-24 677	-10 121	-15 752	-3 750	-2 501	-2 079	-128 346
<i>Net cash flows from operating activities</i>	<i>7 771</i>	<i>3 434</i>	<i>3 949</i>	<i>987</i>	<i>1 658</i>	<i>787</i>	<i>342</i>	<i>330</i>	<i>19 643</i>
Net cash flows from investments in non-financial assets	-5 523	-3 071	-3 576	-589	-1 606	-302	-260	-41	-14 954
Net cash flows from investments in financial assets for policy purposes	390	-789	5	10	16	48	-2	20	18 062
Net cash flows from investments in financial assets for liquidity purposes	-4 367	-90	53	-194	-132	-382	-211	-398	-4 687
Net cash flows from financing activities	4 992	494	-239	-199	663	-158	69	-49	-14 220
<b>Net increase(+)/Decrease(-) in Cash Held</b>	<b>3 262</b>	<b>-22</b>	<b>192</b>	<b>15</b>	<b>599</b>	<b>-7</b>	<b>-62</b>	<b>-139</b>	<b>3 844</b>
<b>SURPLUS(+)/DEFICIT(-)</b>									
<b>Surplus(+)/Deficit(-)</b>	<b>1 902</b>	<b>363</b>	<b>374</b>	<b>398</b>	<b>52</b>	<b>402</b>	<b>82</b>	<b>289</b>	<b>4 261</b>

(a) The sums of individual state jurisdictions may not agree with total state figures, due to transfers between jurisdictions.

Note: Negative figures denote outflows.

Source: Government Finance Statistics, Australia, 2002–03 (5512.0).

### 27.9 STATE GOVERNMENTS, Total public sector: Balance Sheet — 30 June 2003

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Total(a)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>Assets</b>									
Financial assets	22 814	37 541	29 923	7 710	10 322	3 434	1 663	2 776	115 885
Non-financial assets	163 161	73 881	80 556	24 126	50 593	12 049	5 358	9 097	418 821
<i>Total</i>	<i>185 975</i>	<i>111 422</i>	<i>110 479</i>	<i>31 837</i>	<i>60 915</i>	<i>15 483</i>	<i>7 021</i>	<i>11 873</i>	<i>534 706</i>
<b>Liabilities</b>									
	64 936	58 743	45 586	16 531	23 191	8 282	5 111	3 244	225 327
<b>GFS Net Worth</b>	<b>121 040</b>	<b>52 679</b>	<b>64 894</b>	<b>15 306</b>	<b>37 724</b>	<b>7 200</b>	<b>1 910</b>	<b>8 629</b>	<b>309 381</b>
Net debt(b)	13 469	-8 716	-2 174	646	4 465	1 613	1 308	-1 229	9 382
Net financial worth(c)	-42 121	-21 202	-15 663	-8 820	-12 868	-4 848	-3 447	-468	-109 440

(a) The sums of individual state jurisdictions may not agree with total state figures, due to assets and liabilities held between jurisdictions. (b) Equals deposits held, advances received and borrowing less cash and deposits, advances paid and investments, loans and placements. (c) Equals total financial assets less total liabilities less shares and other contributed capital.

Source: Government Finance Statistics, Australia, 2002–03 (5512.0).

**27.10 STATE GOVERNMENTS, General government: Operating Statement — 2002–03**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Total(a)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>GFS Revenue</b>									
Taxation revenue	14 161	9 251	5 598	2 431	3 388	564	246	684	36 322
Current grants and subsidies	16 473	11 519	10 175	4 638	5 464	1 784	1 805	982	52 831
Sales of goods and services	2 929	3 114	1 964	997	1 001	316	81	240	10 491
Interest income(b)	443	366	-129	146	107	26	18	122	1 084
Other	3 821	2 758	2 647	1 134	1 837	290	211	332	13 031
<i>Total</i>	<i>37 827</i>	<i>27 007</i>	<i>20 255</i>	<i>9 346</i>	<i>11 798</i>	<i>2 980</i>	<i>2 361</i>	<i>2 360</i>	<i>113 760</i>
<i>less</i>									
<b>GFS Expenses</b>									
Gross operating expenses									
Depreciation	1 773	1 017	1 460	401	598	163	125	141	5 678
Employee expenses	15 322	10 689	9 304	3 997	5 123	1 269	937	949	47 591
Other operating expenses	10 132	8 301	3 800	2 134	2 733	711	600	696	28 983
<i>Total</i>	<i>27 228</i>	<i>20 007</i>	<i>14 564</i>	<i>6 532</i>	<i>8 454</i>	<i>2 143</i>	<i>1 663</i>	<i>1 786</i>	<i>82 253</i>
Nominal superannuation interest expenses									
	745	937	630	299	277	101	82	11	3 081
Other interest expenses									
	806	477	220	297	197	80	144	58	2 265
Other property expenses									
	—	—	—	—	—	—	—	—	—
Current transfers									
Grant expenses	3 966	2 311	2 827	1 102	1 525	320	311	333	12 691
Subsidy expenses	1 494	755	1 355	531	502	114	93	107	4 949
Other current transfers	463	629	87	42	260	42	10	—	1 531
Capital transfers									
Grants to local governments	171	35	165	12	118	—	3	—	503
Other capital transfers	1 175	338	393	83	215	11	57	16	2 288
<i>Total</i>	<i>36 048</i>	<i>25 488</i>	<i>20 240</i>	<i>8 899</i>	<i>11 548</i>	<i>2 811</i>	<i>2 361</i>	<i>2 310</i>	<i>109 562</i>
<i>equals</i>									
<b>GFS Net Operating Balance</b>	<b>1 780</b>	<b>1 519</b>	<b>15</b>	<b>448</b>	<b>250</b>	<b>170</b>	<b>—</b>	<b>50</b>	<b>4 199</b>
<i>less</i>									
Net acquisition of non-financial assets									
Gross fixed capital formation	2878	1 947	1 596	400	683	122	199	115	7 939
<i>less</i> Depreciation	1 773	1 017	1 460	401	598	163	125	141	5 678
<i>plus</i> Change in inventories	4	2	9	2	7	—	—	—	24
<i>plus</i> Other transactions in non-financial assets	-51	-23	12	34	-35	-1	-2	-116	-182
<i>Total</i>	<i>1 057</i>	<i>909</i>	<i>156</i>	<i>35</i>	<i>57</i>	<i>-42</i>	<i>73</i>	<i>-142</i>	<i>2 102</i>
<i>equals</i>									
<b>GFS Net Lending(+)/Borrowing(-)</b>	<b>722</b>	<b>610</b>	<b>-141</b>	<b>413</b>	<b>193</b>	<b>212</b>	<b>-74</b>	<b>192</b>	<b>2 096</b>

(a) The sums of all individual state jurisdictions may not agree with total state figures, due to transfers between jurisdictions.

(b) Negative interest income in Queensland reflects low investment earnings due to volatility and poor performance of domestic and international equity markets.

Source: Government Finance Statistics, Australia, 2002–03 (5512.0).

**27.11 STATE GOVERNMENTS, General government: Cash Flow Statement — 2002–03**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Total(a)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>CASH FLOW STATEMENT</b>									
Cash receipts from operating activities									
Taxes received	13 956	9 101	5 603	2 432	3 339	564	245	657	35 897
Receipts from sales of goods and services	3 055	3 174	2 042	933	956	229	124	292	10 563
Grants and subsidies received	17 584	12 101	10 693	4 883	5 801	1 848	1 888	1 032	55 823
Other receipts	4 144	2 375	2 363	1 233	2 156	514	106	279	13 154
Total	38 740	26 751	20 701	9 481	12 251	3 154	2 363	2 260	115 437
Cash payments for operating activities									
Payments for goods and services	-23 974	-20 430	-12 856	-6 249	-7 920	-2 034	-1 544	-1 363	-76 132
Grants and subsidies paid	-6 875	-3 437	-4 724	-1 754	-2 417	-510	-460	-441	-20 613
Interest paid	-822	-452	-215	-279	-195	-79	-145	-56	-2 228
Other payments	-1 766	-537	-666	-158	-772	-109	-10	-149	-4 167
Total	-33 437	-24 856	-18 461	-8 440	-11 304	-2 731	-2 158	-2 008	-103 141
Net cash flows from operating activities	5 304	1 894	2 241	1 040	947	423	205	252	12 297
Net cash flows from investments in non-financial assets									
Sales of non-financial assets	508	128	636	41	118	63	30	132	1 657
Purchases of new non-financial assets	-3 003	-1 977	-2 232	-422	-795	-184	-226	-131	-8 969
Purchases of secondhand non-financial assets	—	—	—	—	—	—	—	—	—
Total	-2 495	-1 849	-1 596	-381	-677	-121	-196	1	-7 312
Net cash flows from investments in financial assets for policy purposes	914	-322	-380	82	-107	22	29	30	267
Net cash flows from investments in financial assets for liquidity purposes	-1 114	-245	74	-18	48	—	-116	-392	-1 764
Net cash flows from financing activities									
Advances received (net)	-31	-2	—	-13	—	-6	14	-11	-49
Borrowing (net)	-1 017	-9	96	-451	17	-748	-53	-29	-2 195
Deposits received (net)	-10	16	—	-73	-9	—	53	—	-23
Other financing (net)	-4	-27	—	-2	-65	-24	-1	-13	-127
Total	-1 062	-22	96	-540	-57	-777	12	-53	-2 394
<b>Net Increase(+)/Decrease(-) in Cash Held</b>	<b>1 547</b>	<b>-544</b>	<b>434</b>	<b>184</b>	<b>155</b>	<b>-453</b>	<b>-66</b>	<b>-162</b>	<b>1 095</b>
<b>SURPLUS(+)/DEFICIT(-)</b>									
Net cash flows from operating activities and net cash flows from investments in non-financial assets	2 809	45	645	659	271	302	9	254	4 985
Acquisitions of assets under finance leases and similar arrangements	-345	—	-1	—	—	—	—	—	-346
<b>Surplus(+)/Deficit(-)</b>	<b>2 464</b>	<b>45</b>	<b>644</b>	<b>659</b>	<b>271</b>	<b>302</b>	<b>9</b>	<b>254</b>	<b>4 639</b>

(a) The sums of all individual state jurisdictions may not agree with total state figures, due to transfers between jurisdictions.

Note: Negative figures denote outflows.

Source: Government Finance Statistics, Australia, 2002–03 (5512.0).

## 27.12 STATE GOVERNMENTS, General government: Balance Sheet — 30 June 2003

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Total(a)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>Assets</b>									
Financial assets									
Cash and deposits	1 091	1 123	1 613	2 052	283	520	52	722	7 456
Advances paid	1 403	207	164	1 167	867	103	49	525	4 486
Investments, loans and placements	7 941	4 030	13 173	170	1 470	1	486	1 274	28 365
Other non-equity assets	5 381	1 527	4 435	305	750	299	119	302	13 099
Equity	66 779	28 564	12 775	10 482	16 271	4 032	1 407	3 419	143 730
Total	82 595	35 452	32 160	14 176	19 641	4 955	2 114	6 242	197 136
Non-financial assets									
Land and fixed assets	78 944	40 898	53 914	11 710	28 246	5 893	3 580	5 312	228 496
Other non-financial assets	1 046	1 464	—	78	11	—	—	375	2 974
Total	79 990	42 362	53 914	11 787	28 257	5 893	3 580	5 687	231 470
Total	162 585	77 813	86 075	25 964	47 898	10 848	5 693	11 930	428 606
<b>Liabilities</b>									
Deposits held	52	409	—	329	298	24	207	52	1 370
Advances received	1 804	6	—	780	581	315	17	272	3 775
Borrowing	10 166	6 245	3 690	2 947	2 105	770	1 708	622	28 073
Unfunded superannuation liability and other employee entitlements	19 423	16 337	14 204	5 796	6 541	2 396	1 708	1 994	68 399
Other provisions	6 466	278	1 149	1	—	—	77	25	7 996
Other non-equity liabilities	3 634	1 859	2 138	806	657	144	68	336	9 623
Total	41 546	25 135	21 181	10 658	10 182	3 648	3 784	3 301	119 234
<b>GFS Net Worth</b>	<b>121 039</b>	<b>52 679</b>	<b>64 893</b>	<b>15 306</b>	<b>37 716</b>	<b>7 200</b>	<b>1 909</b>	<b>8 629</b>	<b>309 372</b>
Net debt(b)	1 587	1 300	-11 260	666	364	485	1 344	-1 575	-7 090
Net financial worth(c)	41 049	10 317	10 979	3 519	9 459	1 307	-1 671	2 941	77 902

(a) The sums of all individual state jurisdictions may not agree with total state figures, due to assets and liabilities held between jurisdictions. (b) Equals deposits held, advances received and borrowing less cash and deposits, advances paid, and investments, loans and placements. (c) Equals total financial assets less total liabilities.

Source: Government Finance Statistics, Australia, 2002-03 (5512.0).

## Total public sector, local governments

This section sets out the Operating Statement, Cash Flow Statement and Balance Sheet for the total public sector for local governments. The Australian Capital Territory has no separate local government.

### Operating Statement

Table 27.13 summarises the net operating results for the total public sector for local governments for 2002-03.

## Cash Flow Statement

Table 27.14 summarises the cash results for the total public sector for local governments for 2002-03.

## Balance Sheet

Table 27.15 summarises the Balance Sheet results at 30 June 2003 for the total public sector for local governments.

**27.13 LOCAL GOVERNMENTS, Total public sector: Operating Statement — 2002–03**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT(a)	Total(b)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>GFS Revenue</b>									
Taxation revenue	2 346	1 826	1 423	629	752	175	48	..	7 201
Current grants and subsidies	765	516	465	152	187	72	50	..	2 202
Sales of goods and services	2 223	790	2 316	201	351	208	59	..	6 152
Interest income	210	47	91	14	38	12	4	..	415
Other	1 042	798	856	73	320	40	18	..	3 153
<i>Total</i>	6 586	3 977	5 151	1 069	1 648	506	179	..	19 124
<i>less</i>									
<b>GFS Expenses</b>									
Gross operating expenses									
Depreciation	1 125	691	1 094	257	404	134	54	..	3 762
Employee expenses	2 142	1 410	1 497	336	566	152	67	..	6 176
Other operating expenses	2 205	1 800	1 612	444	599	198	144	..	7 009
<i>Total</i>	5 472	3 901	4 203	1 037	1 568	484	265	..	16 947
Property expenses									
Other interest expenses	92	39	216	26	14	14	1	..	402
Income tax equivalent expenses	—	—	13	—	—	2	—	..	14
Current transfers									
Grant expenses	3	30	26	8	7	2	—	..	77
Tax expenses	11	—	9	—	—	—	—	..	19
Other current transfers	61	—	—	1	—	9	—	..	72
Capital transfers									
Grant expenses	—	—	11	—	2	—	2	..	14
Other capital transfers	8	—	7	1	1	1	—	..	18
<i>Total</i>	5 647	3 970	4 485	1 074	1 593	512	267	..	17 565
<i>equals</i>									
<b>GFS Net Operating Balance</b>	<b>939</b>	<b>7</b>	<b>666</b>	<b>-5</b>	<b>55</b>	<b>-6</b>	<b>-97</b>	<b>..</b>	<b>1 559</b>
<i>less</i>									
Net acquisition of non-financial assets									
Gross fixed capital formation	1 384	1 006	1 300	317	473	146	43	..	4 669
<i>less</i> Depreciation	1 125	691	1 094	257	404	134	57	..	3 762
<i>plus</i> Change in inventories	-8	-3	1	-1	2	1	—	..	-8
<i>plus</i> Other transactions in non-financial assets	156	-38	4	7	-9	—	—	..	120
<i>Total</i>	407	274	211	67	62	12	-14	..	1 020
<i>equals</i>									
<b>GFS Net Lending(+)/Borrowing(-)</b>	<b>531</b>	<b>-267</b>	<b>456</b>	<b>-72</b>	<b>-7</b>	<b>-18</b>	<b>-83</b>	<b>..</b>	<b>540</b>

(a) The ACT has no separate local government. (b) The sums of local governments at the state level may not equal the total local figure, due to transfers between jurisdictions.

Source: Government Finance Statistics, Australia, 2002–03 (5512.0).

**27.14 LOCAL GOVERNMENTS, Total public sector: Cash Flow Statement — 2002–03**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT(a)	Total(b)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>CASH FLOW STATEMENT</b>									
Cash receipts from operating activities									
Taxes received	2 256	1 943	1 411	620	746	177	46	..	7 200
Receipts from sales of goods and services	1 969	834	2 224	237	409	201	89	..	5 962
Grants and subsidies received	738	552	795	170	317	66	48	..	2 685
Other receipts	1 177	263	433	15	180	51	5	..	2 124
<i>Total</i>	6 140	3 591	4 862	1 043	1 652	495	187	..	17 970
Cash payments for operating activities									
Payments for goods and services	-4 868	-2 978	-3 094	-768	-1 118	-303	-206	..	-13 336
Grants and subsidies paid	-5	-31	-16	-9	-10	-1	—	..	-73
Interest paid	-97	-36	-216	-27	-14	-13	-1	..	-404
Other payments	-85	-49	-104	-2	-9	-41	—	..	-290
<i>Total</i>	-5 056	-3 095	-3 430	-806	-1 151	-359	-206	..	-14 103
<i>Net cash flows from operating activities</i>	1 085	497	1 432	236	501	136	-19	..	3 867
Net cash flows from investments in non-financial assets									
Sales of non-financial assets	357	143	154	37	72	11	2	..	775
Purchases of new non-financial assets	-1 590	-858	-1 202	-321	-515	-141	-42	..	-4 671
Purchases of secondhand non-financial assets	—	—	-1	—	-1	—	—	..	-2
<i>Total</i>	-1 234	-715	-1 049	-284	-444	-131	-41	..	-3 898
Net cash flows from investments in financial assets for policy purposes	-8	17	—	7	2	-1	1	..	18
Net cash flows from investments in financial assets for liquidity purposes	-77	54	37	—	14	-3	—	..	25
Net cash flows from financing activities									
Advances received (net)	2	—	1	-1	—	—	—	..	-1
Borrowing (net)	-30	-15	-17	-10	21	-10	-2	..	-64
Deposits received (net)	17	1	—	18	1	—	—	..	38
Other financing (net)	167	-18	-591	26	-132	8	61	..	-478
<i>Total</i>	156	-32	-607	34	-110	-2	59	..	-503
<b>Net Increase(+)/Decrease(-) in Cash Held</b>	<b>-78</b>	<b>-179</b>	<b>-187</b>	<b>-7</b>	<b>-37</b>	<b>-1</b>	<b>—</b>	<b>..</b>	<b>-491</b>
<b>SURPLUS(+)/DEFICIT(-)</b>									
Net cash flows from operating activities and net cash flows from investments in non-financial assets	-149	-219	383	-48	57	5	-60	..	-31
Acquisitions of assets under finance leases and similar arrangements	—	—	—	-1	—	—	—	..	-1
<b>Surplus(+)/Deficit(-)</b>	<b>-149</b>	<b>-219</b>	<b>383</b>	<b>-49</b>	<b>57</b>	<b>5</b>	<b>-60</b>	<b>..</b>	<b>-32</b>

(a) The ACT has no separate local government. (b) The sums of local governments at the state level may not equal the total local figure, due to transfers between jurisdictions.

Note: Negative figures denote outflows.

Source: *Government Finance Statistics, Australia, 2002–03 (5512.0)*.

## 27.15 LOCAL GOVERNMENTS, Total public sector: Balance Sheet — 30 June 2003

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT(a)	Total(b)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>Assets</b>									
Financial assets									
Cash and deposits	279	586	1 631	17	228	86	55	..	2 882
Advances paid	2	2	—	—	1	6	—	..	11
Investments, loans and placements	3 874	579	240	25	449	87	46	..	5 300
Other non-equity assets	546	451	416	86	161	43	13	..	1 716
Equity	—	—	-1	12	—	—	—	..	11
Total	4 701	1 618	2 287	140	838	222	114	..	9 920
Non-financial assets									
Land and fixed assets	65 085	33 546	36 309	8 724	8 326	4 379	916	..	157 285
Other non-financial assets	913	442	—	2	16	13	5	..	1 391
Total	65 998	33 988	36 309	8 726	8 342	4 391	921	..	158 676
Total	70 699	35 606	38 596	8 866	9 181	4 614	1 035	..	168 596
<b>Liabilities</b>									
Deposits held	110	67	2	59	7	3	—	..	249
Advances received	11	9	—	22	2	—	—	..	45
Borrowing	1 370	614	2 884	138	228	199	6	..	5 439
Unfunded superannuation liability and other employee entitlements	664	352	411	80	91	45	9	..	1 652
Other provisions	188	29	19	11	3	5	—	..	254
Other non-equity liabilities	584	410	385	111	192	46	28	..	1 756
Total	2 925	1 480	3 703	421	524	298	43	..	9 395
Shares and other contributed capital	—	—	39	—	—	—	—	..	38
<b>GFS Net Worth</b>	<b>67 773</b>	<b>34 126</b>	<b>34 854</b>	<b>8 444</b>	<b>8 657</b>	<b>4 316</b>	<b>992</b>	<b>..</b>	<b>159 162</b>
Net debt(c)	-2 665	-476	1 015	178	-439	24	-95	..	-2 459
Net financial worth(d)	1 776	137	-1 455	-282	314	-76	71	..	486

(a) The ACT has no separate local government. (b) The sums of local governments at the state level may not equal the total local figure, due to assets and liabilities held between jurisdictions. (c) Equals deposits held, advances received and borrowing less cash and deposits, advances paid, and investments, loans and placements. (d) Equals total financial assets less total liabilities less shares and other contributed capital.

Source: Government Finance Statistics, Australia, 2002–03 (5512.0).

## Taxation revenue

Table 27.16 shows for the general government sector the amount of taxation revenue collected in Australia during 2002–03, by level of government and by type of tax. Total taxation revenue collected during the period was \$237,477m. Commonwealth Government taxation revenue totalled \$194,313m and accounted for 81.8% of total taxation revenue, while total state and territory, and local government taxation revenue totalled \$43,503m or 18.2% of total taxation revenue.

Income taxes continue to be the largest component of the Commonwealth Government's taxation revenue, accounting for 67.6% of the Commonwealth's total taxation revenue in 2002–03. Property taxes continue to be the largest component of state and territory, and local governments' taxation revenue, accounting for 49.1% of the consolidated governments' total taxation revenue in 2002–03.

## 27.16 TAXATION REVENUE, General government: All levels of government — 2002–03

Type of tax	Commonwealth \$m	State and local \$m	All levels of government(a) \$m
<b>Taxes on income</b>			
Income taxes levied on individuals	91 484	—	91 484
Income taxes levied on enterprises(b)	38 696	—	38 696
Income taxes levied on non-residents(c)	1 098	—	1 098
<i>Total</i>	<i>131 278</i>	<i>—</i>	<i>131 278</i>
<b>Employers' payroll taxes</b>			
General taxes (payroll tax)	—	10 147	9 874
Other employers' labour force taxes	3 085	—	3 020
<i>Total</i>	<i>3 085</i>	<i>10 147</i>	<i>12 894</i>
<b>Taxes on property</b>			
Taxes on immovable property	—	10 371	10 371
Taxes on financial and capital transactions	13	10 989	11 001
<i>Total</i>	<i>13</i>	<i>21 360</i>	<i>21 372</i>
<b>Taxes on provision of goods and services</b>			
General taxes (sales tax)	896	—	896
Goods and services tax (GST)	31 257	—	31 257
Excise and levies			
Crude oil and liquid petroleum gas (LPG)	13 662	—	13 662
Other excises	7 125	—	7 125
Agricultural production taxes	586	3	589
Levies on statutory corporations	95	—	95
<i>Total</i>	<i>21 468</i>	<i>3</i>	<i>21 471</i>
Taxes on international trade	5 573	—	5 573
Taxes on gambling	—	3 843	3 843
Taxes on insurance	—	3 132	3 132
<i>Total</i>	<i>59 194</i>	<i>6 978</i>	<i>66 171</i>
<b>Taxes on use of goods and performance of activities</b>			
Motor vehicle taxes	—	4 691	4 691
Franchise taxes	—	10	10
Other	743	318	1 061
<i>Total</i>	<i>743</i>	<i>5 019</i>	<i>5 762</i>
<b>Total taxes</b>	<b>194 313</b>	<b>43 503</b>	<b>237 477</b>

(a) The sum of individual levels of government may not agree with totals for all levels of government, due to intergovernmental taxes. (b) Amounts collected under petroleum resource rent taxes are included in income taxes levied on enterprises. (c) From 2001–02, withholding taxes on non-residents are no longer separately identifiable under the PAYG system. The values shown for 2001–02 and subsequent years are estimates based on methodologies developed by the Balance of Payments area within the ABS.

Source: *Taxation Revenue, Australia, 2002–03* (5506.0).

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# The use made of ABS statistics by the Commonwealth Grants Commission

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*This article was contributed by the Commonwealth Grants Commission (September 2004).*

The Commonwealth Grants Commission is an Australian Government statutory authority operating under the *Commonwealth Grants Commission Act 1973*. Its main function is to report annually to the Australian Government on the share each state and territory government should receive of the pool of Goods and Services Tax (GST) revenue and Health Care Grants (HCGs). The funds distributed by the Commission amounted to \$38,825m in 2003–04 and were equivalent to 34% of the gross operating expenses of the states and territories in total. This ranged from 64% for the Northern Territory to 29% for Western Australia.

In deciding its recommended distribution of GST and HCGs, the Commission uses a specific principle of fiscal equalisation, which says:

State (and territory) governments should receive funding from the pool of goods and services tax revenue and health care grants such that, if each made the same effort to raise revenue from its own sources and operated at the same level of efficiency, each would have the capacity to provide services at the same standard.

This principle reflects similar values to those reflected in Australia's social security and taxation systems. For example, the social security system provides:

- more assistance to those who are more needy; and
- less assistance to those who have the capacity to address their own needs.

The tax system raises more tax from those with higher incomes or more valuable properties.

Just like those systems, the fiscal equalisation system delivers more money to states and territories which are more needy (face higher costs through no fault of their own) or which are less able to raise their own revenue.

Therefore, the Commission evaluates how much revenue states and territories could raise and how much their services would cost if they operated at Australian average levels. Based on its findings, it recommends an allocation of GST revenue and HCGs for each state and territory. This allocation is intended to give all states and territories the capacity to provide the same level of services while maintaining their flexibility to vary the service levels and revenue effort to best meet the needs of their citizens.

To evaluate states and territories' revenue raising capacities and their costs of providing services, the Commission makes extensive use of Australian Bureau of Statistics (ABS) data. For example:

- *Government Finance Statistics (GFS)*. The Commission calculates national average per person expenses using GFS data at a disaggregated level to provide a base for its comparisons. For example, it makes comparisons of the costs states and territories incur in transporting school students in non-urban areas and comparisons of the costs they incur in transporting school students in other areas.

- *Population data.* ABS population data are used extensively by the Commission for working out differences in state and territories' costs of providing average services to their populations. Some population groups use services more or less than others, and a unit of service for some groups may cost more to provide. As a result, costs will differ. It is therefore important to identify those jurisdictions which have more or less people in those groups. The Commission uses population data dissected by such characteristics as age, sex, Indigenous status, level of income, level of English fluency and region. The Commission also uses mean resident population data provided by ABS to derive per capita figures for each of the states and territories and for Australia as a whole.<sup>1</sup>
  - *Data on state services.* The Commission also uses ABS data on state and territory services to estimate cost differences. For example, the Commission uses ABS data on student numbers because it needs to know which jurisdictions have more students in their populations than others. It uses enrolment data for each year dissected by sector, age and grade. Different numbers of students per person, distributed differently by sector (government and non-government) and grade result in differences in per person costs. Similarly, the Commission uses ABS National Health Survey data to calculate the impact of income on a person's use of health services. The differential demands and unit costs of providing corrective services for individual states and territories are measured using prisoner numbers and their socio-demographic profile (age, sex, Indigenous status).
  - *Taxation data.* To take account of influences beyond the control of a state or territory that would result in it raising more (or less) revenue per person than other states and territories, the Commission sometimes uses ABS data. Tax bases jurisdictions can access are generally measured using data on the number or value of activities, and transactions or assets subject to a tax. For example, the tax base for payroll tax is the estimated annual value of payrolls above a threshold level paid by private sector businesses and most public trading enterprises. These data are also obtained from the ABS.
  - *Economic data.* States and territories face different cost structures and the Commission needs to recognise these. The Commission uses data from the periodic ABS Surveys of Education and Training to identify the underlying differences in the wages paid. It also sometimes uses economic indicators to reflect the capacity of states and territories to raise revenue in a broad way. Gross household disposable income is used to measure capacity to raise gambling taxes.
- Finally, the Commission uses ABS data to conduct 'reality checks' of its overall calculations and to explain its results. It uses economic indicators such as gross state product, turnover of retail establishments, value of commercial/industrial land and unemployment rates for this purpose.

## Endnote

- 1 The article *Population figures for state grants – an historical perspective, Chapter 5 Population* outlines the legislative basis and the use made of official population statistics in determining grants to the states, principally during the first half of the 20th century.

## PRICES

Prices are a key factor in the operation of an economy. Price indexes, which provide summary measures of the movements in various categories of prices, are used extensively to analyse and monitor price behaviour and to adjust government payments such as pensions.

This chapter provides an outline of the consumer price index, the major producer price indexes and the international trade price indexes, their history and their underlying concepts and methodology. More detailed information is contained in the source publications referred to throughout the chapter and in the Bibliography.

Another major price index produced by the Australian Bureau of Statistics (ABS), the wage cost index, is described in *Chapter 6 Labour*, while established house and project home price indexes are described in *Chapter 8 Housing*.

The chapter contains two articles; *History of retail/consumer prices indexes in Australia* and *Price impacts on the living costs of selected Australian household types*.



## Consumer price index (CPI)

The description of the CPI commonly adopted by users is in terms of its perceived uses; hence the frequent references to the CPI as a measure of inflation, a measure of changes in purchasing power, or a measure of changes in the cost of living. In practice, the CPI is a measure of changes, over time, in the prices of a basket of goods and services acquired by households in the eight capital cities in Australia. As such, the CPI has been designed as a general measure of price inflation for the household sector in Australia.

The simplest way of thinking about the CPI is to imagine a basket of goods and services of the kind typically acquired by Australian households. As prices vary, the total cost of this basket will also vary. The CPI is simply a measure of the changes in the cost of this basket as the prices of items in it change.

The price of the CPI basket in the reference base period is assigned a value of 100.0 and the prices in other periods are expressed as percentages of the price in the base period. For example, if the price of the basket had increased by 35% since the base year, then the index would read 135.0. Similarly, if the price had fallen by 5% since the base year, the index would stand at 95.0.

Households acquire a large number of different goods and services. It is not practical or necessary to price all the goods and services acquired by the CPI population group. Many related items are subject to similar price changes and households acquire more of some items than others. Rather, the items selected for pricing in the CPI are the more significant ones and are likely to have price movements that are representative of a wider range of goods and services.

From the September quarter 2000 onwards, the total basket is divided into the following 11 major commodity groups: food; alcohol and tobacco; clothing and footwear; housing; household furnishings, supplies and services; health; transportation; communication; recreation; education; and miscellaneous. These groups are in turn divided into 34 subgroups, and the subgroups into 89 expenditure classes.

In addition to the aggregate 'All groups' index, indexes are also compiled and published for each of the groups, subgroups and expenditure classes for each state capital city, Darwin and Canberra. National indexes are constructed as the weighted average of the indexes compiled for each of the eight capital cities.

The 14th Series CPI is the latest of a number of retail/consumer price indexes that have been constructed for various purposes by the ABS.

## Index population

The CPI measures price changes relating to the spending pattern of metropolitan private households. This group is termed the CPI population group. 'Metropolitan' is defined as the state capital cities, together with Darwin and Canberra.

This population group differs from that applying to CPIs calculated and published prior to the September quarter 1998. For more information see 'Outcomes of the 13th Series Australian Consumer Price Index Review', *Year Book Australia 1999*.

## Conceptual basis

The CPI is a quarterly measure of the change in average price levels. It provides a method to compare the average price level for a quarter with the average price level for other periods such as the reference base year, or other quarters. Changes in the average price levels between periods can be calculated from their respective index levels.

The CPI aims to measure only pure price changes. In other words, it is concerned with isolating and measuring only that element of price change which is not caused by any change to either the quantity or the quality of the goods or services concerned (i.e. it aims to measure, each quarter, the change in the cost of acquiring an identical basket of goods and services). This involves evaluating any changes in the quality of goods and services included in the index and removing the effects of such changes from the prices used to construct the index.

The CPI measures changes in the prices actually paid by consumers for the goods and services they buy. It is not concerned with nominal, recommended or list prices (unless they are the prices that consumers actually pay).

The CPI basket includes goods and services ranging from steak to motor cars and from dental fillings to restaurant meals. The items are chosen not only because they represent the spending habits of the CPI population group, but also because the items are those for which the prices can be associated with identifiable and specific commodities and services. While government taxes and charges that are associated with the use of specific goods and

services (such as excise and customs duties, goods and services taxes, local government rates, etc.) are included, income taxes and the income-related Medicare levy are excluded because they cannot be clearly associated with the purchase or use of a specific quantity of any good or service.

Items are not excluded from the CPI basket on the basis of moral or social judgements. For example, some people may regard the use of tobacco and alcohol as socially undesirable, but these commodities are included in the CPI basket because they are significant items of household expenditure and their prices can be accurately measured. However, to assist in understanding the effect that major item groups have on the CPI, the ABS publishes a range of supplementary indexes which exclude, in turn, each of the 11 major commodity groups. These supplementary indexes can also be used in their own right for evaluating price changes or for indexation purposes.

### **Periodic reviews of the CPI**

Like any other long-standing and important statistical series, the CPI is reviewed from time to time to ensure that it continues to be relevant to current conditions. Over time, household spending habits change, as does the range of available goods and services. The CPI needs to be updated to take account of these changes. Regular reviews also provide an opportunity to reassess the scope and coverage of the index and other methodological issues.

The CPI was first compiled in 1960, with index numbers backcast to 1948. Since its inception in its current form in 1960, reviews of the CPI have usually been carried out at about five-yearly intervals. Following each review, which involves revising the list of items and their weights, the new series are linked to the old to form continuous series. This linking is carried out in such a way that the resulting continuous series reflect only price changes and not differences in the composition of the old and new baskets.

The current (14th Series) CPI reflects expenditure patterns derived mainly from the 1998–99 Household Expenditure Survey (HES) conducted by the ABS and has a reference base of 1989–90. It was introduced in the September quarter 2000.

In addition to revising weights to reflect new expenditure patterns, the 14th Series CPI introduced a new utility-based commodity classification to better address possible consumer

substitution between commodities in response to relative price changes arising from the introduction of The New Tax System (July 2000).

### **Weighting pattern**

The composition of the CPI basket is based on the pattern of household expenditure in the ‘weighting base period’, which is 1998–99 for the 14th Series CPI. Measures of expenditure are obtained primarily from the HES. The HES data, modified for known instances of under-reporting (the most notable being for alcohol and tobacco), are then used to derive a weight for each of the 89 expenditure classes. The weights for the 14th Series groups and subgroups based on June quarter 2000 prices are shown in table 28.1.

### **Price collection**

Since the CPI is designed to measure the impact of changing prices on metropolitan private households, information about prices is collected in the kinds of retail outlets or other places where these households normally purchase goods and services. Prices are collected from many sources, including supermarkets, department stores, footwear stores, restaurants, motor vehicle dealers, house builders, dental surgeries, hotels and clubs, schools, hairdressers, telephone carriers, travel agents and airlines, bus operators, electricians and plumbers. Items like rail fares, electricity, gas, water and sewerage charges and property rates and charges, are collected from the authorities concerned. Information on rents is obtained from property management companies and from government housing commissions. In total, around 100,000 separate price quotations are collected each quarter.

The collection of prices in each capital city is carried out by trained ABS field staff.

The prices used in the CPI are those that any member of the public would have to pay to purchase the specified good or service, including any taxes, excise and customs duties, etc. relating to goods and services. Sale prices, discount prices and ‘specials’ are reflected in the CPI so long as the items concerned are of normal quality (i.e. not damaged or shop-soiled) and are offered for sale in reasonable quantities. To ensure that the price movements reflect the buying experience of the bulk of the metropolitan population, the brands and the varieties of the items priced are generally those which sell in greatest volume.

## 28.1 WEIGHTING PATTERN FOR THE CPI, Average of eight capital cities(a)(b) — 14th Series

Groups and subgroups	Weight in CPI basket
<b>Food</b>	
Dairy and related products	1.51
Bread and cereal products	2.20
Meat and seafoods	2.62
Fruit and vegetables	2.30
Non-alcoholic drinks and snack food	2.48
Meals out and take away foods	4.93
Other food	1.69
<i>Total</i>	17.72
<b>Alcohol and tobacco</b>	
Alcoholic drinks	5.14
Tobacco	2.27
<i>Total</i>	7.41
<b>Clothing and footwear</b>	
Men's clothing	0.98
Women's clothing	1.80
Children's and infants' clothing	0.47
Footwear	0.83
Clothing accessories, supplies and services	1.10
<i>Total</i>	5.19
<b>Housing</b>	
Rents	5.60
Utilities	3.23
Other housing	10.91
<i>Total</i>	19.75
<b>Household furnishings, supplies and services</b>	
Furniture and furnishings	3.58
Household appliances, utensils and tools	1.98
Household supplies	1.91
Household services	0.62
<i>Total</i>	8.09
<b>Health</b>	
Health services	3.55
Pharmaceuticals	1.14
<i>Total</i>	4.69
<b>Transportation</b>	
Private motoring	14.40
Urban transport fares	0.85
<i>Total</i>	15.25
<b>Communication</b>	
Communication	2.88
<i>Total</i>	2.88
<b>Recreation</b>	
Audio, visual and computing	2.70
Books, newspapers and magazines	1.08
Sport and other recreation	4.16
Holiday travel and accommodation	4.35
<i>Total</i>	12.29
<b>Education</b>	
Education	2.69
<i>Total</i>	2.69
<b>Miscellaneous</b>	
Insurance services	1.46
Personal care	2.14
Child care	0.44
<i>Total</i>	4.04
<b>All groups</b>	<b>100.00</b>

(a) Percentages may not add due to rounding. (b) Weights shown are those applicable from the June quarter 2000 onwards.

Source: *Australian Consumer Price Index: Concepts, Sources and Methods* (6461.0).

## Price movements by city

Table 28.2 presents All groups index numbers for each of the eight capital cities and for the weighted average of the eight capital cities, together with percentage changes.

The capital city indexes measure price movements over time in each city individually. They do not measure differences in price levels between cities. For example, the index for Adelaide in 2003–04 of 147.0, compared with the corresponding index for Perth of 139.6, does not mean that prices in Adelaide are higher than those in Perth. It simply means, since the reference base period (1989–90), prices in Adelaide have increased by a greater percentage than those in Perth (47.0% compared with 39.6%).

## Price movements by broad commodity group

Table 28.3 presents, for the weighted average of the eight capital cities, index numbers for each of the 11 major commodity groups of the 14th Series CPI and for All groups, together with percentage changes.

## Long-term price series

Although the CPI has only been compiled from 1948, an approximate long-term measure of retail price change has been constructed by linking together other selected retail price index series (table 28.4). The index numbers are expressed on a reference base 1945 = 100.0. The successive series are:

- from 1901 to 1914, the A series retail price index
- from 1914 to 1946–47, the C series retail price index
- from 1946–47 to 1948–49, a combination of the C series index (excluding rent) and the housing group of the CPI
- from 1948–49 onwards, the CPI.

For more information about these former retail price index series see *History of retail/consumer price indexes in Australia*.

## 28.2 CONSUMER PRICE INDEX, All groups index numbers(a)(b)

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra	Weighted average of eight capital cities
INDEX NUMBER(c)									
1998–99	122.5	120.9	122.9	123.2	120.1	122.5	122.4	121.5	121.8
1999–2000	125.4	124.1	125.0	126.3	122.9	124.8	124.2	124.2	124.7
2000–01(d)	133.2	131.6	132.4	133.5	129.6	132.0	130.9	131.9	132.2
2001–02	137.2	135.3	136.3	137.2	133.1	134.7	133.7	135.2	136.0
2002–03	141.1	139.7	140.7	142.7	136.8	139.1	136.8	139.7	140.2
2003–04	144.1	142.8	144.8	147.0	139.6	142.6	138.7	143.4	143.5
CHANGE FROM PREVIOUS YEAR (%)									
1998–99	1.7	0.9	1.1	1.3	1.8	1.0	0.9	0.9	1.2
1999–2000	2.4	2.6	1.7	2.5	2.3	1.9	1.5	2.2	2.4
2000–01(d)	6.2	6.0	5.9	5.7	5.5	5.8	5.4	6.2	6.0
2001–02	3.0	2.8	2.9	2.8	2.7	2.0	2.1	2.5	2.9
2002–03	2.8	3.3	3.2	4.0	2.8	3.3	2.3	3.3	3.1
2003–04	2.1	2.2	2.9	3.0	2.0	2.5	1.4	2.6	2.4

(a) Reference base year is 1989–90 = 100.0. (b) The separate city indexes measure price movements within each city individually. They do not compare price levels between cities. (c) Annual average of the quarterly index numbers. (d) The 2000–01 data were affected by the introduction of The New Tax System, in particular, the introduction of the Goods and Services Tax from 1 July 2000.

Source: *Consumer Price Index, Australia (6401.0)*.

## 28.3 CONSUMER PRICE INDEX, Group index numbers — Weighted average of eight capital cities(a)

	Food	Alcohol and tobacco	Clothing and footwear	Housing	Household furnishings, supplies and services	Health	Transportation	Communication	Recreation	Education	Miscellaneous	All groups
INDEX NUMBER(b)												
1998–99	126.5	168.7	106.7	95.8	113.7	163.4	122.1	102.9	119.4	174.1	143.5	121.8
1999–2000	129.2	175.2	105.5	99.9	113.3	158.7	128.9	97.8	120.4	182.4	153.2	124.7
2000–01(c)	135.6	194.7	112.5	107.9	117.3	164.3	137.0	104.7	124.6	191.4	166.0	132.2
2001–02	142.7	203.1	112.4	111.1	119.7	169.9	137.3	105.2	128.6	200.0	171.8	136.0
2002–03	147.9	208.9	113.3	115.1	121.0	181.5	140.6	108.5	131.9	210.0	178.6	140.2
2003–04	152.3	217.8	112.7	120.2	121.1	193.9	142.0	110.0	130.0	223.3	183.4	143.5
CHANGE FROM PREVIOUS YEAR (%)												
1998–99	3.9	2.5	-0.7	1.4	-0.1	-1.2	-1.1	-3.5	1.4	5.1	3.6	1.2
1999–2000	2.1	3.9	-1.1	4.3	-0.4	-2.9	5.6	-5.0	0.8	4.8	6.8	2.4
2000–01(c)	5.0	11.1	6.6	8.0	3.5	3.5	6.3	7.1	3.5	4.9	8.4	6.0
2001–02	5.2	4.3	-0.1	3.0	2.0	3.4	0.2	0.5	3.2	4.5	3.5	2.9
2002–03	3.6	2.9	0.8	3.6	1.1	6.8	2.4	3.1	2.6	5.0	4.0	3.1
2003–04	3.0	4.3	-0.5	4.4	0.1	6.8	1.0	1.4	-1.4	6.3	2.7	2.4

(a) Reference base year is 1989–90 = 100.0. (b) Index numbers for financial years are calculated as the averages of the quarterly index numbers. (c) The 2000–01 data were affected by the introduction of The New Tax System, in particular, the introduction of the Goods and Services Tax from 1 July 2000.

Source: *Consumer Price Index, Australia (6401.0)*.

### 28.4 RETAIL PRICE INDEX NUMBERS(a)(b)

Year	Index no.						
1901	47	1931	78	1961	252	1991	1 898
1902	50	1932	74	1962	251	1992	1 917
1903	49	1933	71	1963	252	1993	1 952
1904	46	1934	73	1964	258	1994	1 989
1905	48	1935	74	1965	268	1995	2 082
1906	48	1936	75	1966	276	1996	2 136
1907	48	1937	78	1967	286	1997	2 141
1908	51	1938	80	1968	293	1998	2 159
1909	51	1939	82	1969	302	1999	2 191
1910	52	1940	85	1970	313	2000	2 289
1911	53	1941	89	1971	332	2001	2 389
1912	59	1942	97	1972	352	2002	2 462
1913	59	1943	101	1973	385	2003	2 530
1914	61	1944	100	1974	443		
1915	70	1945	100	1975	510		
1916	71	1946	102	1976	579		
1917	75	1947	106	1977	650		
1918	80	1948	117	1978	702		
1919	91	1949	128	1979	766		
1920	103	1950	140	1980	844		
1921	90	1951	167	1981	926		
1922	87	1952	196	1982	1 028		
1923	89	1953	205	1983	1 132		
1924	88	1954	206	1984	1 177		
1925	88	1955	211	1985	1 257		
1926	90	1956	224	1986	1 370		
1927	89	1957	229	1987	1 487		
1928	89	1958	233	1988	1 594		
1929	91	1959	237	1989	1 714		
1930	87	1960	245	1990	1 839		

(a) Reference base year 1945 = 100.0 (b) The index numbers from 1901 to 1980 relate to the weighted average of six state capital cities; and from 1981 to the weighted average of eight capital cities. Index numbers are for calendar years.

Source: ABS data available on request, Consumer Price Index.

## International comparisons

In analysing price movements in Australia, an important consideration is Australia's performance relative to other countries. However, due to the many differences in the structure of the housing sector in different countries and in the way housing is treated in their CPIs, a simple comparison of All groups (or 'headline') CPIs is often inappropriate. In order to provide a better basis for international comparisons, the

Fourteenth International Conference of Labour Statisticians (1987) adopted a Resolution which called for countries to 'provide for dissemination at the international level of an index which excludes shelter, in addition to the all items index'.

Table 28.5 presents indexes for selected countries on a basis consistent with the resolution and broadly comparable with the Australian series 'All groups excluding Housing'.

**28.5 CONSUMER PRICE INDEX, International comparisons(a)(b)**

	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
INDEX NUMBER						
<b>Australia(c)</b>	<b>126.9</b>	<b>129.4</b>	<b>136.4</b>	<b>140.4</b>	<b>144.5</b>	<b>147.1</b>
New Zealand	116.9	118.7	123.5	127.0	129.5	130.2
Hong Kong (SAR of China)	172.0	166.6	164.8	162.5	159.2	158.7
Indonesia	368.3	367.1	402.6	458.3	495.8	524.4
Japan	112.4	111.6	111.0	107.7	106.4	106.1
Korea, Republic of (South)	169.0	172.1	179.2	185.0	190.9	197.4
Singapore	118.5	120.7	123.0	122.7	123.1	124.9
Taiwan	128.2	129.3	130.9	130.6	130.5	131.1
Canada	122.0	125.0	128.1	130.3	135.2	136.9
United States of America	127.2	130.9	135.3	136.4	138.9	141.8
Germany	121.5	122.2	123.7	126.0	127.4	128.9
United Kingdom	137.2	139.3	141.4	143.5	145.8	147.9
CHANGE FROM PREVIOUS YEAR (%)						
<b>Australia(c)</b>	<b>1.2</b>	<b>2.0</b>	<b>5.4</b>	<b>2.9</b>	<b>2.9</b>	<b>1.8</b>
New Zealand	1.7	1.5	4.0	2.8	2.0	0.5
Hong Kong (SAR of China)	-1.1	-3.1	-1.1	-1.4	-2.0	-0.3
Indonesia	58.3	-0.3	9.7	13.8	8.2	5.8
Japan	0.0	-0.7	-0.5	-3.0	-1.2	-0.3
Korea, Republic of (South)	4.3	1.8	4.1	3.2	3.2	3.4
Singapore	-0.8	1.9	1.9	-0.2	0.3	1.5
Taiwan	0.8	0.9	1.2	-0.2	-0.1	0.5
Canada	1.2	2.5	2.5	1.7	3.8	1.3
United States of America	1.1	2.9	3.4	0.8	1.8	2.1
Germany	0.4	0.6	1.2	1.9	1.1	1.2
United Kingdom	1.9	1.5	1.5	1.5	1.6	1.4

(a) Reference base year is 1989-90 = 100.0. (b) All groups excluding Housing. (c) The 2000-01 data for Australia were affected by the introduction of The New Tax System, in particular, the introduction of the Goods and Services Tax from 1 July 2000.

Source: *Consumer Price Index, Australia* (6401.0).

## History of retail/consumer prices indexes in Australia

The Consumer Price Index (CPI) is the latest of a number of retail price indexes that have been constructed for various purposes by the Australian Bureau of Statistics (ABS).

### Early retail price indexes

Prior to the introduction of the CPI in 1960, there had been five series of retail price indexes compiled by the (then) Commonwealth Bureau of Census and Statistics. Those indexes were:

- The *A Series Index*, which covered a range of commodities gathered into four groups – groceries, dairy products, meat, and house rents (for all types of houses) – was first compiled in 1912, with index numbers calculated retrospectively to 1901. In 1907 Mr. Justice Higgins handed down the ‘Harvester’ ruling which set a basic wage of 42 shillings per week. From 1913 to 1933 the A Series Index was adopted by the Commonwealth Court of Conciliation and Arbitration for use in adjusting this basic wage in line with price changes. The A Series Index was discontinued in June 1938.
- The *B Series Index*, which essentially covered the same commodities as the A Series Index, except for the measurement of rents, was first compiled in 1925. In August 1924 the Conference of Statisticians of Australia and New Zealand resolved that ‘for purposes of computing price levels in respect of rent, it is desirable that houses of four and five rooms only be taken into account’. The B Series Index was used for general statistical purposes but was never used for the purpose of wage adjustment. It was discontinued in 1953.
- The *C Series Index*, which covered food and groceries, house rents (4 and 5-roomed houses), clothing, household drapery, household utensils, fuel, lighting, urban transport fares, smoking and some miscellaneous items, was introduced in 1921, with index numbers calculated retrospectively to 1914. The food and rent component of the C Series Index was the same as that for the B Series Index. In 1934 the Commonwealth Court of Conciliation and Arbitration adopted the C Series Index for the purpose of wage adjustment and it continued to be used for this purpose until 1953. At that time the Commonwealth Court of Conciliation and

Arbitration decided to abolish automatic adjustment of wages, although some state tribunals continued to use or consider the C Series Index in their proceedings until it was discontinued in 1961.

- The *D Series Index*, which was derived by combining the A and C Series Indexes and was compiled especially for wage adjustment purposes for a short period in 1933–34, for those industries which were exempt from the Arbitration Court’s 1934 decision to adopt the C Series Index for wage adjustment.
- The *Interim Retail Price Index*, which covered food and groceries, house rents (4 and 5-roomed houses), clothing, household drapery, household utensils, fuel, lighting, urban transport fares, smoking, and some services and miscellaneous items, was first compiled in 1954 and calculated retrospectively to 1952. It was discontinued in 1960 following its replacement by the first CPI. The Interim Index was intended to serve as a transitional index while a comprehensive review of the structure and weighting pattern of the C Series Index was undertaken, to reflect the rapidly changing consumption patterns affecting Australian households following World War II. To some extent, however, it replaced the C Series Index for general statistical purposes for a number of years prior to 1960, although it was never used for wage adjustment purposes.

### C Series Index

By far the most important of these former retail price indexes was the C Series Index, which was the principal retail price index in Australia for close to 40 years. In 1920 the Royal Commission on the Basic Wage recommended the introduction of a new series which would cover a wider range of goods. This led to the introduction of the C Series Index, which was first compiled in 1921, with index numbers being compiled retrospectively to 1914. The C Series Index was subject to a general review in 1936 and a slightly revised regimen was introduced following that review. The C Series Index remained on this basis until its last issue in December quarter 1960, although it was continued on a special basis for certain transitional purposes until September quarter 1961.

The main reason for the long interval without any review or change in composition of the C Series Index after 1936 was the recurrent changes in consumption patterns which occurred during and after World War II. It was considered impossible at the time to devise a revised weighting pattern which would be any more representative, on a continuous basis, of post-war consumption than was the existing weighting pattern of the C Series Index. The Commonwealth Statistician of the time, in successive editions of the *Labour Report* during the 1950s and 1960s, explained the absence of any reweighting of the C Series Index in the following terms:

From the outbreak of war in 1939 to late in 1948, periodic policy changes in various wartime controls (including rationing) caused recurrent changes in consumption and in the pattern of expenditure. This rendered changes desirable but made it impracticable either to produce a new index, or to revise the old one, on any basis that would render the index more representative than it already was of the changing pattern of household expenditure in those years. When commodity rationing had virtually ceased in the latter part of 1948, action was taken by the Statistician to collect price data of about 100 additional items and to gather information as to current consumption and expenditure patterns. This was done to facilitate review of the component items and weighting system of the C Series Retail Price Index in the light of the new pattern of wage earner expenditure and consumption that appeared to be then emerging. But there supervened, in the next few years, conditions which caused wide price dispersion, coupled with a very rapid rise in prices and a new sequence of changes in consumption and in the pattern of wage earner expenditure. Under these conditions it was not possible to devise any new weighting pattern likely to be more continuously representative of conditions then current, than was the existing C Series Index on the 1936 revision.

In 1953 the decision was made to continue to compile the C Series Index on its pre-war basis but to also compile an interim retail price index based as nearly as possible on the post-war pattern of consumer usage and expenditure. Nevertheless, the C Series Index continued to be regarded by the majority of users as the principal official index and was the one used in most indexation and escalation arrangements throughout the 1950s.

## Interim Retail Price Index

The Interim Retail Price Index was based on post-war consumption weights. Compared with the C Series Index, the Interim Index covered an expanded range of items, including additional foods (such as packaged breakfast foods, soft drinks, ice cream and confectionery) and services (such as dry cleaning and shoe repairs). It retained the same weighting pattern throughout the period of its compilation and no attempt was made to revise its weights to take account of major changes in expenditure patterns and lifestyles that were occurring during the 1950s.

During that decade, house renting was substantially replaced by home ownership, the use of motor cars partially replaced the use of public transport and a variety of electrical appliances, including television, became widely used in households. During the same period, widely disparate movements occurred in the prices of different items of household consumer expenditure. It was considered that the combined impact of these factors made it impracticable to successfully introduce a comprehensive new retail price index during the period to 1960.

## Consumer Price Index

In 1960 a new approach was implemented. Instead of the former emphasis on long-term fixed-weight indexes, the aim was to compile a series of shorter-term indexes that would be chain-linked together to form a long-term series. The Consumer Price Index, commonly referred to as 'the CPI', was the first price index of this kind constructed in Australia.

The CPI was first compiled in 1960, with index numbers being compiled retrospectively to mid-1948. Like its predecessor indexes, the CPI was designed to measure quarterly changes in retail prices of goods and services purchased by metropolitan wage earner households.

The CPI has been reviewed and reweighted thirteen times. At its inception in 1960, the CPI consisted of three original linked series, with changes in weights in 1952 and 1956. Weights were changed in 1960 and subsequently in 1963, 1968, 1973, 1974, 1976, 1982, 1987, 1992, 1998 and 2000. The method of linking the sequence of short-term price indexes to form one continuous

series is described in Chapter 9 of *Australian Consumer Price Index: Concepts, Sources and Methods* (6461.0).

Historically, the CPI and its predecessors were developed with the principal purpose of providing input to the highly centralised wage and salary determination process that existed in Australia. As recently as 1998 the principal purpose remained as an input to wage adjustment, although the range of uses for the CPI had been growing steadily, including its use as a general measure of inflation and for adjustment of age and superannuation pensions, other government benefit payments, and public and private sector contracts and charges. However, with the emerging trend towards decentralised, enterprise-level wage and salary setting arrangements in the later half of the 1990s, the historical purpose of the CPI was greatly diminished.

This culminated with the introduction of the 13th Series CPI in September quarter 1998. Several major changes were made to the index at

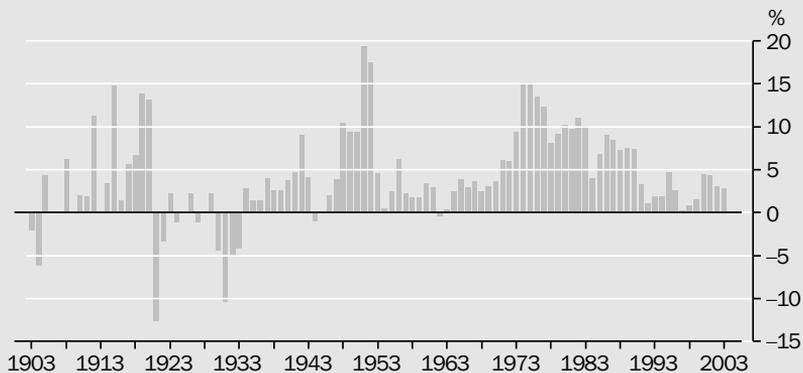
that time, most notably the decision that the CPI would change from a measure of living costs of wage and salary earning households to its current form, as a general measure of price inflation for the household sector as a whole (see *Price impacts on the living costs of selected Australian household types*).

### Long-term linked series

To provide an approximate long-term measure of retail/consumer price change for the period since the first Australian retail price index was compiled, the ABS has constructed a single series of index numbers (table 28.4), by linking together selected retail/consumer price index series from among those described above. The index numbers are expressed on a reference base 1945 = 100.0, which was the end of a period of relative price stability during World War II.

Graph 28.6 shows the annual percentage changes derived from this retail/consumer price index series for the 100-year period.

**28.6 RETAIL/CONSUMER PRICE INDEX, Annual changes**



Source: ABS data available on request.

## Price impacts on the living costs of selected Australian household types

During the course of the review of the Consumer Price Index (CPI) in 1997, it became clear that the principal requirement of the CPI had moved away from an input to wage and salary determination processes to a general measure of price inflation. Accordingly, commencing with the September quarter 1998, the CPI has been designed specifically to measure price inflation for the household sector as a whole. During the review consultations leading up to the decision to alter the design objective of the CPI, various users argued that there was a need for analytical indexes specifically designed to measure changes in living costs for a range of population subgroups.

Using the principal source of household income to categorise households, the four household types for which these indexes have been constructed are:

- *Employee households* (i.e. those households whose principal source of income is from wages and salaries).
- *Age pensioner households* (i.e. those households whose principal source of income is the age pension or veterans' affairs pension).
- *Other government transfer recipient households* (i.e. those households whose principal source of income is a government pension or benefit other than the age pension or veterans' affairs pension).
- *Self-funded retiree households* (i.e. those households whose principal source of income is superannuation or property income and where the Household Expenditure Survey (HES) defined reference person is 'retired' (not in the labour force and over 55 years of age)).

The indexes have been constructed to cover the period from June quarter 1998 up to and including the June quarter 2004.

The estimated number of households in each of these household types and their relative significance based on the 1998–99 HES is shown in table 28.7.

### 28.7 POPULATION SUBGROUPS

Household type	Households	Share of total
	'000	%
Employee	4 042.0	56.7
Age pensioner	1 035.4	14.5
Other government transfer recipient	958.1	13.5
Self-funded retiree	361.1	5.1
Other households(a)	726.3	10.2
<b>Total</b>	<b>7 122.8</b>	<b>100.0</b>

(a) Includes self employed, income indeterminate and parent supported students.

Source: ABS data available on request, Household Expenditure Survey, 1998–99.

These indexes represent the conceptually preferred measures for assessing the impact of changes in prices on the disposable incomes of households. In other words, these indexes are particularly suited for assessing whether or not the disposable incomes of households have kept pace with price changes. The CPI, on the other hand, is designed specifically to measure price inflation for the household sector as a whole and, as such, is not the conceptually ideal measure for assessing the impact of price changes on the disposable incomes of households.

### Background and methodology

The differences between indexes designed to measure price inflation and indexes designed to measure changes in living costs lie only in the item coverage. The items included in the living cost indexes are determined by reference to all the amounts actually paid by households to gain access to consumer goods and services, while the item coverage of inflation indexes is defined as all those goods and services actually acquired by households in monetary transactions.

The most notable differences are that living cost indexes include interest charges but do not include house purchases, while inflation indexes do not include interest charges but do include house purchases. Insurance (other than health insurance) is also treated differently in the living cost indexes. The weight for insurance in the CPI relates to the net value of the service provided by

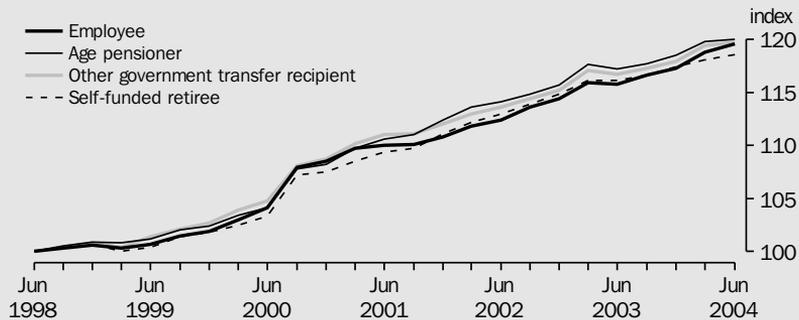
the insurance company (the amount of premiums paid by households less the amounts reimbursed by way of claims). In the living cost indexes, the weight relates to the gross value of insurance premiums paid by households.

For more detail on the methodology used to construct these indexes, see 'Analytical indexes measuring the price impacts on the living costs of selected Australian household types', *Year Book Australia 2002*.

## Results

The index series and quarterly percentage changes for the various household types from June quarter 1998 to June quarter 2004 are shown in graphs 28.8 and 28.9 respectively. The average annual indexes and percentage changes are shown in table 28.10.

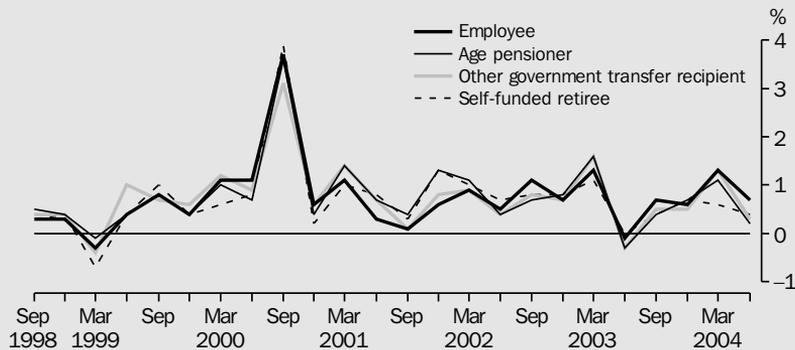
**28.8 INDEX NUMBER(a), By household type**



(a) Reference base is June quarter 1998 = 100.0.

Source: ABS data available on request, derived from selected CPI expenditure weights and price movements.

**28.9 INDEX NUMBER CHANGE FROM PREVIOUS QUARTER, By household type**



Source: ABS data available on request, derived from selected CPI expenditure weights and price movements.

## 28.10 POPULATION SUBGROUP INDEXES AND PERCENTAGE CHANGES(a)

	Employee	Age pensioner	Other government transfer recipient	Self-funded retiree	CPI(b)(c)
INDEX NUMBER(c)					
1998–99	100.5	100.9	100.9	100.4	100.7
1999–2000	102.6	103.0	103.4	102.2	103.1
2000–01(d)	109.0	109.1	109.5	108.1	109.3
2001–02	111.3	112.7	112.4	111.5	112.4
2002–03	114.9	116.3	115.9	115.2	115.9
2003–04	118.1	119.0	118.6	117.7	118.6
CHANGE FROM PREVIOUS YEAR (%)					
1998–99	n.a.	n.a.	n.a.	n.a.	1.2
1999–2000	2.1	2.1	2.5	1.8	2.4
2000–01(d)	6.2	5.9	5.9	5.8	6.0
2001–02	2.1	3.3	2.6	3.1	2.9
2002–03	3.2	3.2	3.1	3.3	3.1
2003–04	2.8	2.3	2.3	2.2	2.4

(a) Reference base is June quarter 1998 = 100.0. (b) The CPI has been re-referenced from 1989–90 = 100.0 to June quarter 1998 = 100.0 for ease of comparison with the population subgroup indexes. (c) The CPI is designed to measure price inflation for the household sector and not changes in living costs. (d) The 2000–01 data were affected by the introduction of The New Tax System, in particular, the introduction of the Goods and Services Tax from 1 July 2000.

Source: ABS data available on request, derived from selected CPI expenditure weights and price movements.

Between 2002–03 and 2003–04, changes in living costs were similar across the population subgroups ranging from a low of 2.2% for self-funded retiree households to a high of 2.8% for employee households. The CPI rose by 2.4% over the same period. This contrasts with the range of changes between 2001–02 and 2002–03 when other government transfer recipient households showed the lowest increase (3.1%) and self-funded retiree households showed the highest increase (3.3%), while the CPI rose by 3.1%.

Between 1998–99 and 2003–04 the increases in the population subgroup indexes ranged from 17.2% for self-funded retiree households to 17.9% for age pensioner households. The increase in the CPI over the same period was 17.8%.

### Conclusions

These analytical indexes have been designed specifically to answer the question:

By how much would after-tax money incomes need to change to allow households to purchase the same quantity of consumer goods and services that they purchased in the base period?

The key issues these indexes can address are whether price changes result in different household types experiencing significantly

different changes in their aggregate living costs and whether the CPI is an adequate proxy for changes in living costs.

In previous studies it was concluded that changes in living costs had been broadly similar across the different household types. The extension of the analysis to June quarter 2004 is generally consistent with those earlier conclusions, although perceptions as to what are significant differences may vary between analysts. Further, it could be argued that the CPI provides a reasonable estimate of changes in living costs for each of the selected household types over this period.

These indexes have been constructed to reflect the experiences of population groups as a whole and not the experiences of any individual household. In this regard it is particularly important to note that the indexes do not reflect the changes in living costs experienced by households as a direct consequence of their moving through the life cycle (e.g. as a result of family formation and ageing). Furthermore, these indexes have been designed to provide a general measure of changes in living costs for each of the population subgroups; they do not measure changes in the relative standard of living of different population subgroups.

## Producer price indexes

The producer price indexes measure changes in the prices received, or paid, by producers of commodities and providers of services. In Australia they generally relate to prices for goods and services as they affect businesses, for example, the price of goods used as input to or output from the manufacturing sector, the price of materials used as input to the building industry and, more recently, the price of services provided by the property and business services, and transport (freight) and storage industries. This contrasts with the CPI which measures changes in the retail prices paid by consumers, as explained earlier in this chapter.

### Stage of production producer price indexes

These indexes are compiled using the 'stage of production' concept. Under this concept, flows of commodities are categorised according to their economic destination on a sequential basis along the production chain. The basis for the categorisation is the 1996–97 Australian input-output tables. The principal categorisation is between final commodities (i.e. commodities destined for final consumption, capital formation or export) and those commodities that will be processed further (referred to as 'non-final' commodities).

This initial breakdown of the commodity flows into final and non-final represents a useful economic dissection of producers' transactions. However, the non-final commodities can flow into the production of either final or other non-final commodities. Therefore, to aid analysis, the non-final commodity flows have been divided on a sequential basis between stage 1 (or preliminary) commodities and stage 2 (or intermediate) commodities. This approach results in three separate stages of production.

In order to avoid multiple counting of transactions, the three stages are not aggregated.

Under this framework, preliminary (stage 1) commodities are used in the production of intermediate (stage 2) commodities which, in turn, flow into the production of final (stage 3) commodities.

The framework allows for analyses of price change as commodities flow through production processes. Price changes for earlier stages of production may be indicators of possible future price changes for later stages.

### Market transactions approach

The ABS has adopted a market transactions approach in disaggregating commodity supply into the various production stages. Under this approach, the individual transactions in a given commodity are assigned to the relevant stage, based on identification of the market(s) in which that commodity is transacted, which in turn is determined by the usage pattern of that commodity. A particular 'commodity', within the index classification system, can be assigned to more than one stage of production, on the basis of its usage pattern as identified in the input-output tables.

### Index coverage

In concept, the scope of the stage of production indexes is economy-wide, relating to the output of all the goods and services industries. However, there are limits on the availability of price indexes for service industries, and coverage is currently restricted to the output of the accommodation, transport (freight) and storage, and property and business services sectors. Similarly, coverage of the construction sector is confined to indexes for the output of the following industries: house construction, residential building construction not elsewhere classified (n.e.c.), non-residential building construction, and road and bridge construction. Coverage of the stage of production indexes will be progressively extended as additional service and construction industry collections are established. Table 28.11 shows stage of production producer price indexes from 1998–99 to 2003–04.

### 28.11 STAGE OF PRODUCTION PRODUCER PRICE INDEXES(a), By stage and source

	Preliminary			Intermediate			Final (excl. exports)		
	Domestic	Imports	Total	Domestic	Imports	Total	Domestic	Imports	Total
1998–99	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1999–2000	104.1	107.1	104.5	103.4	104.4	103.6	104.3	95.7	102.6
2000–01	110.3	126.1	112.4	108.9	119.7	110.3	107.7	104.0	107.0
2001–02	111.8	120.3	112.9	111.3	115.9	111.9	110.0	103.7	108.8
2002–03	114.3	117.4	114.6	113.6	112.1	113.3	113.7	97.5	110.5
2003–04	115.3	105.6	113.8	114.9	99.9	112.7	118.5	86.7	112.0

(a) Reference base year is 1998–99 = 100.0.

Source: *Producer Price Indexes, Australia (6427.0)*.

## Manufacturing price indexes

### Price indexes of articles produced by manufacturing industries

These indexes measure movements in the prices of articles produced by establishments classified to the Manufacturing Division of the Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 edition.

The indexes are constructed on a net sector basis. This approach means that the 'all manufacturing industry' index represents price movements of goods which are produced by establishments in the Manufacturing Division, for sale or transfer to establishments outside the Manufacturing Division, for export, or for use as capital equipment. Articles which are sold or transferred to other establishments within the manufacturing industry, for further processing or for use as inputs, are excluded.

The composition and weighting pattern of these indexes are based on the value of production in 1993–94 and they have a reference base of 1989–90 = 100.0.

The indexes were first published in June 1976 on a reference base of 1968–69 = 100.0, with indexes compiled retrospectively to July 1968. The composition and weighting patterns of the indexes were based on the value of production in 1971–72.

Table 28.12 sets out a summary index for articles produced. More detailed index numbers are contained in *Chapter 18 Manufacturing*.

### 28.12 PRICE INDEXES OF ARTICLES PRODUCED BY MANUFACTURING INDUSTRIES(a)(b)

	Manufacturing Division index
1998–99	115.6
1999–2000	120.6
2000–01	128.5
2001–02	128.8
2002–03	130.3
2003–04	130.4

(a) Reference base year is 1989–90 = 100.0. (b) For a full description of Division C, Manufacturing and the subdivisions within the Manufacturing Division, see the 'Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993' (1292.0).

Source: *Producer Price Indexes, Australia (6427.0)*.

### Price indexes of materials used in manufacturing industries

These indexes measure changes in the prices of materials used by establishments classified to the Manufacturing Division of ANZSIC, 1993 edition.

Indexes are published for materials used in the manufacturing industry as a whole (split into imported and domestic materials) and for each of 17 separate manufacturing sectors (defined in terms of ANZSIC Subdivisions or ANZSIC Groups). Indexes are also published for materials sourced domestically and those that are imported.

The indexes are compiled and published on a net sector basis. That is, each index includes only those materials which are used in the defined sector of Australian manufacturing industry and which have been produced by establishments outside that sector.

The current index series were introduced in July 1996 on a reference base of 1989–90 = 100.0. The items included in the indexes were allocated weights in accordance with the estimated value of manufacturing usage in 1989–90.

The indexes were first compiled on a reference base of 1968–69 = 100.0, using a weighting pattern derived from the estimated manufacturing usage in 1971–72. Index numbers for this first series are available for the period July 1968 to November 1985.

A rebased series was introduced in December 1985 on a reference base of 1984–85 = 100.0 using a weighting pattern based on estimated manufacturing usage in 1977–78.

Table 28.13 shows summary indexes for materials used. More detailed index numbers are contained in *Chapter 18 Manufacturing*.

### 28.13 PRICE INDEXES OF MATERIALS USED IN MANUFACTURING INDUSTRIES(a)

	Imported materials	Domestic materials	All materials
1998–99	113.5	101.5	105.9
1999–2000	118.8	114.5	115.8
2000–01	134.0	131.9	132.4
2001–02	130.3	134.1	132.4
2002–03	125.4	136.7	131.9
2003–04	115.2	134.1	125.9

(a) Reference base year is 1989–90 = 100.0.

Source: *Producer Price Indexes, Australia* (6427.0).

## Construction price indexes

### Price indexes of the output of the construction industry

The price indexes of the output of the general construction industry (table 28.14) measure changes in prices of the output of ANZSIC Subdivision 41 – General construction and in the output of the constituent groups and classes of this subdivision. These include house construction (measured using the CPI project home series, excluding sponsored government home buyers' schemes), other residential building construction, non-residential building construction and non-building construction. These indexes are used for the following purposes:

- as an important input into the Australian national accounts by providing deflators for current price expenditure on general construction to calculate chain volume estimates
- as an input into broader measures of price change, such as the economy-wide stage of production indexes
- to aid industry analysis.

Currently, road and bridge construction is the sole contributor to the index for ANZSIC Group 412 (Non-building construction). However, work is currently under way to extend the coverage to include ANZSIC Class 4122 (Non-building construction n.e.c.).

### 28.14 PRICE INDEX OF THE OUTPUT OF THE GENERAL CONSTRUCTION INDUSTRY(a)

	1998–99	1999–2000	2000–01	2001–02	2002–03	2003–04
General construction subdivision (41)	100.0	104.9	106.1	107.9	112.7	121.1
Building construction (411)	100.0	105.0	106.0	107.8	112.4	121.2
House construction (4111)	100.0	107.2	109.1	112.0	116.5	123.7
Residential building construction n.e.c. (4112)	100.0	104.7	104.2	105.1	110.4	121.0
Non-residential building construction (4113)	100.0	103.3	103.9	105.1	109.6	119.5
Non-building construction(b) (412)	100.0	103.7	107.9	109.7	116.0	120.8
Road and bridge construction (4121)	100.0	103.7	107.9	109.7	116.0	120.8

(a) Reference base year is 1998–99 = 100.0. (b) Road and bridge construction is the sole contributor to Non-building construction.

Source: *Producer Price Indexes, Australia* (6427.0).

### Price indexes of materials used in house building

The price index of materials used in house building measures changes in the prices of selected materials used in the construction of houses in the Statistical Division containing each state capital city.

The current index series were introduced in December 1995 on a reference base of 1989–90 = 100.0 and were linked to previous series. The items and weights for the current series are based on estimated materials usage in a sample of representative houses constructed in the three years ending June 1993.

The index was first compiled on a reference base of 1966–67 = 100.0, using a weighting pattern derived from estimated materials usage in 1968–69.

A rebased series of indexes, linked to the previous series, were introduced in October 1986 on a reference base of 1985–86 = 100.0. The items in the rebased series were selected and allocated weights on the basis of the estimated values of each material used in a sample of representative houses constructed in 1985–86.

Table 28.15 shows price index series for each of the six state capital cities and for the weighted average of the six state capital cities. The movements in the index are discussed in *Chapter 19 Construction*.

### Price indexes of materials used in building other than house building

The price index of materials used in building other than house building measures changes in the prices of selected materials used in the construction of buildings other than houses in the Statistical Division containing each state capital city. The types of building directly represented in the index are: flats and other dwellings; hotels, motels and hostels; shops; factories; offices; other business premises; education buildings; health buildings; and other non-residential buildings.

The current index series were introduced in October 1993 on a reference base of 1989–90 = 100.0. The composition of these indexes reflects the usage of materials in the five years ending June 1992.

The index was first compiled on a reference base of 1966–67 = 100.0 using a weighting pattern derived from estimated materials usage in 1966–67. Rebased indexes for the six state capital cities were introduced in February 1981 on a reference base of 1979–80 = 100.0. The composition of these indexes reflected the usage of materials in the three years ending June 1977.

Table 28.16 shows price index series for each of the six state capital cities and for the weighted average of the six state capital cities. The movements in the index are discussed in *Chapter 19 Construction*.

#### 28.15 PRICE INDEXES OF MATERIALS USED IN HOUSE BUILDING(a)(b)

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Weighted average of six state capital cities
1998–99	121.6	118.0	118.2	125.0	116.1	122.2	119.5
1999–2000	126.8	121.7	120.8	127.2	117.7	123.8	122.8
2000–01	130.0	123.1	120.6	129.6	118.8	126.0	124.4
2001–02	132.0	125.0	122.0	130.6	119.4	128.4	126.0
2002–03	137.2	128.4	127.6	135.7	123.0	133.7	130.5
2003–04	142.3	131.1	132.1	138.4	125.8	139.4	134.3

(a) Reference base year is 1989–90 = 100.0. (b) The separate city indexes measure price movement within each city individually. They do not compare price levels between cities.

Source: *Producer Price Indexes, Australia (6427.0)*.

## 28.16 PRICE INDEXES OF MATERIALS USED IN BUILDING OTHER THAN HOUSE BUILDING(a)(b)

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Weighted average of six state capital cities
1998–99	115.2	113.2	118.4	115.5	114.1	118.5	115.2
1999–2000	116.0	114.4	119.3	116.1	115.4	119.0	116.1
2000–01	116.1	115.4	119.1	116.8	115.6	119.3	116.4
2001–02	118.2	117.8	120.8	118.8	117.7	121.3	118.6
2002–03	123.0	122.7	126.9	123.5	122.8	124.2	123.6
2003–04(c)	127.1	126.7	131.2	126.8	127.7	127.0	127.7

(a) Reference base year is 1989–90 = 100.0. (b) The separate city indexes measure price movements within each city individually. They do not compare price levels between cities. (c) This index has been discontinued from 2003–04.

Source: *Producer Price Indexes, Australia* (6427.0).

### Service industries price indexes

In recognition of the increasing contribution of service industries to the Australian economy, the ABS has progressively extended the scope of the producer price indexes into the service sectors of the economy. Service industry price indexes are an important part of a broader ABS plan to provide a range of statistics that will improve the measurement of various aspects of service industries in the Australian economy.

Since April 2000, the ABS has been publishing quarterly producer price indexes for the output of the Transport (freight) and Storage Division, and the Property and Business Services Division of ANZSIC. The Transport (freight) and storage index contains important freight transport industries such as road, rail, sea and air. The Property Services index contains services such as real estate agents and the hire and lease of machinery and equipment. The Business Services index contains a diverse range of services including surveying, computer services, legal and accounting services, employment placement, pest control and security services. The index numbers are calculated on the reference base 1998–99 = 100.0 using weighting patterns derived from the 1996–97 input-output domestic production tables and are released quarterly in *Producer Price Indexes, Australia* (6427.0).

As part of an ongoing program to improve the coverage and quality of ABS price indexes, a price index for accommodation has been developed and research is currently under way to extend the coverage of the services price indexes to include Postal and courier services and Telecommunication services.

The services price indexes aim to:

- assist in improving the quality of the Australian national accounts by providing a wider range of deflators for deriving real (chain volume) measures of economic growth
- contribute to the development of new measures of inflation by expanding the coverage of the indexes compiled under the economy-wide stage of production price indexes (see *Stage of production producer price indexes*)
- be of use in their own right for industry analysis.

Tables 28.17, 28.18 and 28.19 provide broad level, summary index series.

### 28.17 PRODUCER PRICE INDEXES FOR SELECTED SERVICE INDUSTRIES, Transport (freight) and storage(a)

	Road transport	Rail transport	Water transport	Air and space transport	Other transport	Services to transport	Storage	Transport (freight) and storage Division
1998–99	100.0	100.0	100.0	100.0	n.a.	100.0	100.0	100.0
1999–2000	101.0	94.4	103.8	99.1	n.a.	97.2	100.9	100.2
2000–01	103.1	95.3	109.8	102.7	101.8	97.2	102.1	102.3
2001–02	105.0	94.9	109.4	103.5	102.9	97.0	102.2	103.2
2002–03	107.3	94.8	106.3	111.4	103.4	100.2	103.3	105.2
2003–04	110.2	95.7	105.2	114.4	101.7	101.4	104.9	107.1

(a) Reference base year is 1998–99 = 100.0.

Source: *Producer Price Indexes, Australia (6427.0)*.

### 28.18 PRODUCER PRICE INDEXES FOR SELECTED SERVICE INDUSTRIES, Property services(a)

	Property operators and developers	Real estate agents	Machinery equipment hiring and leasing	Property services Subdivision
1998–99	100.0	100.0	100.0	100.0
1999–2000	102.8	109.9	101.3	103.2
2000–01	109.0	121.6	100.9	108.7
2001–02	111.8	133.9	98.8	111.5
2002–03	111.2	149.7	100.0	113.3
2003–04	111.6	169.0	104.0	116.9

(a) Reference base year is 1998–99 = 100.0.

Source: *Producer Price Indexes, Australia (6427.0)*.

### 28.19 PRODUCER PRICE INDEXES FOR SELECTED SERVICE INDUSTRIES, Business services(a)

	Scientific research	Technical services	Computer services	Legal and accounting services	Marketing and business management services	Other business services	Business services Subdivision
1998–99	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1999–2000	102.7	102.2	108.0	103.1	104.7	102.1	103.8
2000–01	104.7	103.6	111.2	107.7	109.5	103.7	106.9
2001–02	107.0	106.7	112.6	113.2	114.4	105.7	110.1
2002–03	113.5	113.4	114.7	117.7	117.0	108.9	113.6
2003–04	114.3	119.7	115.4	124.4	120.1	113.3	117.5

(a) Reference base year is 1998–99 = 100.0.

Source: *Producer Price Indexes, Australia (6427.0)*.

## International trade price indexes

### Import price index

The import price index measures changes in the prices of imports of merchandise landed in Australia, based on their free-on-board (f.o.b.) prices in the country of origin. The index numbers for each quarter relate to prices of imports landed in Australia during the period.

The main uses of the import price index are as deflators for the production of chain volume estimates, as a guide to future inflationary trends for macro-economic purposes and the indexation of business contracts.

The commodities represented cover about 95% of merchandise imports.

This series has a reference base of 1989–90 = 100.0. From the early-1990s until 2000, the weights were based on the average value of merchandise imports landed in Australia during 1988–89 and 1989–90. In 1999 a review of the index was undertaken with the findings published in *Information Paper: Review of the Import Price Index and Export Price Index, Australia, 1999 (6424.0)*. One of the results of the review was a move to an annually reweighted chain index. Each September quarter the weights of the index are updated to reflect the average value of merchandise imports landed in Australia in the previous financial year. These have been released

in the publication *International Trade Price Indexes, Australia* (6457.0) from the June quarter 2001.

Table 28.20 provides All groups import price index numbers. Import price index numbers based on the Standard International Trade Classification Revision 3 (SITC Rev. 3) are contained in table 30.25, *Chapter 30 International accounts and trade*.

### Export price index

The index measures changes in the prices of all exports of merchandise from Australia, including re-exports (goods which are imported into Australia then exported without alteration). The index numbers for each quarter relate to the prices of exports actually shipped during that quarter.

This series has a reference base of 1989–90 = 100.0. Commencing with the September quarter 2000, it is reweighted annually and chained. Under the chaining process, new weights are introduced in each September quarter. An average of the export values for the latest two years is used each year to derive the new weights. The indexes have been released in the publication *International Trade Price Indexes, Australia* (6457.0) from the June quarter 2001.

The commodities represented constitute approximately 95% of the total value of exports from Australia.

In general, prices are obtained from the major exporters of the selected commodities included in the index. The prices used in the index are the prices at which the goods physically leave Australia, that is, the prices are f.o.b. at the main Australian ports of export.

As the prices used in the index are expressed in Australian currency, changes in the relative value of the Australian dollar against overseas currencies

(in particular the major trading currencies such as the US dollar, Japanese yen, pound sterling and Euro) can have a direct and significant impact on the price movements of the many commodities that are sold in terms of prices expressed in overseas currencies. Forward exchange cover is excluded from the prices used in the index.

The prices collected and used in compiling the index relate to specified standards, grades, types, etc., of each commodity with the aim of incorporating in the index the price changes for exports of representative goods of constant quality. Wherever possible, prices to specific major export markets are used for each of the goods priced, in order to lessen the impact of price variations attributable solely to changes in market destinations. In most cases, prices are combined using fixed weights between markets. Weights between markets are reviewed from time to time and revised where necessary.

Table 28.20 provides All groups export price index numbers. Export price index numbers based on the Standard International Trade Classification Revision 3 (SITC Rev. 3) are contained in table 30.24, *Chapter 30 International accounts and trade*.

**28.20 INTERNATIONAL TRADE PRICE INDEXES(a)**

	Import price index (All groups)	Export price index (All groups)
1998–99	119.9	95.7
1999–2000	120.2	98.0
2000–01	134.3	114.8
2001–02	132.3	116.7
2002–03	126.0	111.7
2003–04	112.3	102.5

(a) Reference base year is 1989–90 = 100.0.

Source: *International Trade Price Indexes, Australia* (6457.0).

## **Bibliography**

### **ABS products**

*A Guide to the Consumer Price Index: 14th Series* (6440.0)

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*Australian Consumer Price Index: Concepts, Sources and Methods* (6461.0)

*Consumer Price Index, Australia* (6401.0)

*Information Paper: Review of the Import Price Index and Export Price Index, Australia, 1999* (6424.0)

*International Trade Price Indexes, Australia* (6457.0)

*Labour Report*

*Producer Price Indexes, Australia* (6427.0)

*Year Book Australia* (1301.0), 1995, 1999 and 2002

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United Nations, *Standard International Trade Classification, Revision 3 (SITC Rev. 3)*, Statistical Papers, Series M, No. 34/Rev. 3, March 1986, New York



## NATIONAL ACCOUNTS

National accounts are designed to provide a systematic summary of national economic activity and have been developed to assist in the practical application of economic theory.

The system of national accounts includes national income, expenditure and product accounts, financial accounts, the national balance sheet and input-output tables. At their summary level, the national income, expenditure and product accounts reflect key economic flows – production, the distribution of incomes, consumption, saving and investment. At their more detailed level, they are designed to present a statistical picture of the structure of the economy and the detailed processes that make up domestic production and its distribution. The financial accounts show the financial assets and liabilities of the nation and of each institutional sector, the market for financial instruments and inter-sectoral financial transactions. The balance sheet is a comprehensive statement of produced and non-produced assets, liabilities to the rest of the world and net worth. Input-output tables show which goods and services are produced by each industry and how they are used.

The national accounts include many detailed classifications (e.g. by industry, by purpose, by commodity, by state and territory, and by asset type) relating to major economic aggregates.

The chapter includes an article *Impact of the farm season on Australian production in 2002–03 and 2003–04*. Although most people regard the overall measure of production, gross domestic product, as an important measure of progress, there are many who believe it should be assessed in conjunction with other measures of progress. The chapter concludes with an article *Is life in Australia getting better?* which provides some measures of Australia's economic, social and environmental progress over the period 1992 to 2002.

## Defining and measuring GDP

The main output from the national accounts is a measure of the overall value of economic production in Australia in a given period, but without any double counting of the goods and services being produced. Many goods and services are bought by businesses for use in their own productive activities (e.g. steel is bought by car manufacturers). If the value of all goods and services produced were simply added together there would be serious duplication because some goods and services would be added in several times at various stages of production. The overall measure of production, excluding double counting, is called 'gross domestic product', which is commonly referred to as GDP. It is formally defined as:

The total market value of goods and services produced in Australia after deducting the cost of goods and services used up (intermediate consumption) in the process of production, but before deducting allowances for the consumption of fixed capital (depreciation).

The performance of the economy is represented in the national accounts by such measures as growth in GDP. While movements in the chain volume measure of GDP (from which the direct effects of price changes have been removed) are an important indicator of economic growth, there is no single measure which can describe all aspects of the well-being of a country's citizens.

There are significant aspects of the quality of life which cannot be reflected in a system of economic accounts, just as there are significant aspects of an individual's well-being which are not measured in the conventional concept (or any other concept) of that individual's income.

Notwithstanding their limitations, especially in relation to uses for which they were never designed, the national accounts provide important information for a range of purposes. The system of national accounts also provides a framework or structure which can be, and has been, adapted and extended to facilitate the examination of many economic and social policy issues. An example of such extensions is in the article *Impact of the farm season on Australian production in 2002–03 and 2003–04*.

There are three ways of measuring GDP:

*Income approach* – which measures GDP by summing the incomes accruing from production: compensation of employees (wages and salaries, and employers' social contributions); gross operating surplus (profits); gross mixed income (income from unincorporated businesses, including a return to the owners of these businesses for their labour); and taxes less subsidies on production and imports.

*Expenditure approach* – which involves summing all final expenditures on goods and services (i.e. those goods and services which are not processed any further), adding on the contributions of changes in inventories and the value of exports, and deducting the value of imports. Final expenditures consist of final consumption expenditure and gross fixed capital formation. Exports are included in GDP because they are part of Australian production even though they are sold to overseas purchasers. Imports are deducted because, although they are included in final expenditures (e.g. when someone buys an imported video recorder its value is included as part of household final consumption expenditure), they are not part of Australian production.

*Production approach* – which calculates GDP by taking the value of goods and services produced by an industry (its output at basic prices, which implicitly includes taxes less subsidies on production) and deducting the cost of goods and services used up by the industry in the productive process (intermediate consumption), which leaves the value added by the industry. GDP is then obtained by summing value added across all industries, and adding taxes less subsidies on products.

While each approach should, conceptually, deliver the same estimate of GDP, if the three measures are compiled independently using different data sources then different estimates of GDP result. However, the Australian national income, expenditure and product estimates have been integrated within annual balanced supply and use tables which are available for 1994–95 to 2001–2002. Integration with balanced supply and use tables ensures that the same estimate of GDP is obtained from the three approaches, and thus annual estimates using the income, expenditure and production approaches are identical for the years for which supply and use tables are available.

Prior to 1994–95, and for the latest financial year, the estimates using each approach are based on independent sources, and there are differences between the income, expenditure and production estimates. Nevertheless, for these periods, a single estimate of GDP has been compiled. Table 29.1 shows time series of chain volume measures for GDP, and GDP per person, from 1976–77 to 2002–03. (For a discussion of chain volume measures, see *Chain volume or 'real' GDP*.)

**29.1 GROSS DOMESTIC PRODUCT,  
Chain volume measures(a)**

	GDP \$m	GDP per person \$
1976–77	321 061	22 753
1977–78	323 989	22 688
1978–79	340 598	23 593
1979–80	349 315	23 923
1980–81	359 918	24 303
1981–82	372 739	24 759
1982–83	362 905	23 732
1983–84	382 266	24 686
1984–85	400 618	25 547
1985–86	417 144	26 234
1986–87	427 028	26 458
1987–88	449 946	27 437
1988–89	468 039	28 050
1989–90	485 503	28 663
1990–91	485 034	28 238
1991–92	486 336	27 959
1992–93	504 145	28 665
1993–94	523 762	29 481
1994–95	545 918	30 394
1995–96	569 125	31 279
1996–97	590 471	32 056
1997–98	616 805	33 118
1998–99	649 550	34 485
1999–00	673 944	35 385
2000–01	687 720	35 686
2001–02	714 370	36 621
2002–03	734 209	37 172

(a) Reference year is 2001–02.

Source: *Australian System of National Accounts, 2002–03 (5204.0)*.

Compared with many developed economies, Australia has experienced relatively strong growth over the past ten years. With an average annual growth rate of 3.8% for 'real' GDP from 1994 to 2003, it is higher than any of the 'G7' countries (table 29.2).

The chain volume measure of GDP increased by 2.8% in 2002–03, following an increase of 3.9% in 2001–02. For some analytical purposes, it is important to allow for the impact of population growth on movements in GDP. Annual growth in GDP per person has been about one to two percentage points lower than that for GDP since the mid-1970s and was negative in 1977–78, 1982–83, 1990–91 and 1991–92 (graph 29.3). In 2002–03, GDP per person increased by 1.5%.

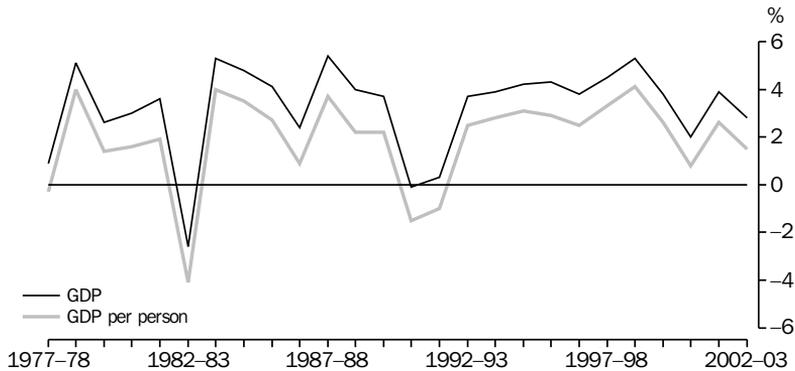
**29.2 GDP AT CONSTANT PRICES, International  
comparison — 1994 to 2003(a)**

	Average annual growth rate %
<b>Australia</b>	<b>3.8</b>
'G7' countries	
Canada	3.4
France	2.1
Germany	1.3
Italy	1.7
Japan	1.3
United Kingdom	2.8
United States of America	3.2
Total 'G7'	2.5
New Zealand	3.3

(a) Average annual growth.

Source: *OECD, Quarterly National Accounts, Vol. 2004/2*.

### 29.3 GDP AND GDP PER PERSON



Source: Australian System of National Accounts, 2002-03 (5204.0).

## Impact of the farm season on Australian production in 2002-03 and 2003-04

### Introduction

Australia experienced a severe drought in 2002-03 that had a significant impact on the growth of the Australian economy. The purpose of this article is to briefly describe the impact of the 2002-03 drought and the improved weather conditions that followed in 2003-04 on the estimates published in the Australian System of National Accounts. Both the direct and indirect effects of the drought on gross domestic product (GDP) are discussed. In addition, the article identifies those components of GDP that have been most affected.

The direct effect of the 2002-03 drought on agricultural production is that it has had a downward impact on GDP growth of 0.9 percentage points between 2001-02 and 2002-03. More favourable weather conditions in some parts of Australia in 2003-04 led to a recovery resulting in a positive impact on GDP growth of 0.7 percentage points between 2002-03 and 2003-04.

In addition to the direct effect of the 2002-03 drought there were various indirect effects. These can be put into two categories. The first category is the effect on downstream industries, principally transport, wholesale trade and the manufacturing of products from agricultural outputs. The second category comprises the multiplier effects arising from the reduced value

of production by the agriculture industry and its downstream industries. This has two elements. One arises from any reduction in the inputs of these industries which leads to a reduction in the production of other Australian industries. The other arises from any reduction in factor income of the agriculture and downstream industries that leads to a fall in final expenditures by farmers and others who draw an income from these industries.

In this article no attempt is made to quantify the magnitude of the indirect effects, although consideration is given as to how this might be done. Assessments of the impacts of the drought on the economy have been released by Australian Bureau of Agricultural and Resource Economics (ABARE), the Commonwealth Treasury and the Reserve Bank of Australia.

### Direct effect of the 2002-03 drought on agricultural production

Australian Bureau of Statistics (ABS) estimates of agricultural production and costs in respect of 2002-03 are based on the latest results from the ABS Agricultural Surveys.

Table 29.4 shows, in seasonally adjusted chain volume terms, the published data for each quarter from the September quarter 2002 to the June quarter 2004. During the 2002-03 drought a much more marked decline occurred in agricultural outputs than in agricultural inputs.

The difference between the outputs and inputs is gross agricultural product at market prices. The fall in the estimates of gross agricultural product at market prices between 2001–02 and 2002–03 represents the direct impact on GDP of the 2002–03 drought. The decline in chain volume terms from \$25,330m in 2001–02 to \$19,075m in 2002–03, a fall of \$6,255m or 24.7%, representing a negative contribution of 0.9 percentage points to the growth in the volume of GDP between 2001–02 and 2002–03.

With more favourable weather conditions in the following year, the ABS estimated the impact of the recovery on the 2003–04 agricultural production based on forecasts from ABARE. Gross agricultural product at market prices increased in chain volume terms from \$19,075m in 2002–03 to \$24,194m in 2003–04, a rise of

\$5,119m or 26.8%, representing a positive contribution of 0.7 percentage points to the growth in the volume of GDP between 2002–03 and 2003–04.

Graph 29.5 shows, in seasonally adjusted chain volume terms, the outputs for five major categories of agricultural output. It is clear that the largest impact of the drought in 2002–03 was on the output of cereals and non-cereal crops. The improved performance of the farm sector in 2003–04 was driven by cropping industries, with the output of cereals more than doubling in 2003–04.

For a complete picture of the impact of the drought on GDP the indirect effects of the drought should also be considered.

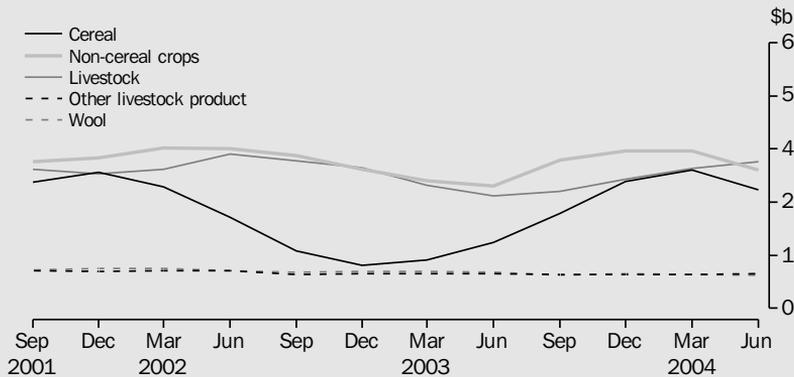
#### 29.4 AGRICULTURAL PRODUCTION, Chain volume measures(a): Seasonally adjusted

	2002–03				2003–04			
	Sep \$m	Dec \$m	Mar \$m	Jun \$m	Sep \$m	Dec \$m	Mar \$m	Jun \$m
Outputs	9 546	8 801	8 311	8 340	9 568	10 805	11 244	10 478
less inputs	4 121	3 948	3 876	3 979	4 191	4 683	4 655	4 372
Gross agricultural product at market prices	5 311	4 791	4 473	4 500	5 377	6 122	6 589	6 106
GDP	187 972	188 242	189 821	190 135	193 220	195 772	196 697	197 904

(a) Reference year is 2002–03.

Source: Australian National Accounts: National Income, Expenditure and Product, June Quarter 2004 (5206.0).

#### 29.5 FARM OUTPUT, Chain volume measures(a): Seasonally adjusted



(a) Reference year is 2002–03.

Source: Australian National Accounts: National Income, Expenditure and Product (5206.0).

## Indirect impacts

The relationships between direct and indirect impacts of the drought on the national accounts are quite complex. For instance, the reduced volume of grain produced means that less road and rail freight were required to move the crops from the point of production to the various final users. Further, the volume of throughput for the wholesale industry was reduced, resulting in reduced volumes of production by this industry. However, these negative impacts on the transport and wholesale trade industries were possibly offset somewhat by the increase in activity required to transport stock to market as well as the possible extra transport activity associated with transporting feed for stock and stock for agistment.

The need of some farmers to divest themselves of all but the core stock of animals caused increased manufacturing activity, in the form of slaughtering, in the short term. In the medium to longer term this results in a reduction in the quantity of stock available for slaughter and thus a probable reduction in this type of activity in future periods.

While very difficult to measure, it is thought, on balance, the secondary impact of the 2002–03 drought on downstream industries, principally the transport, manufacturing and wholesale trade industries, was relatively small.

Another secondary impact of the drought was the effect on the production of other industries due to a reduction in farm inputs. As the table above shows, farm inputs fell much less significantly than farm outputs. For this reason, the impact was likely to be relatively insignificant for the economy as a whole.

There were other indirect effects of the drought. These may broadly be characterised as 'tertiary effects'. Tertiary effects denote the ensuing effects from the reduced value of production of the agriculture and downstream industries. It follows that if the secondary effect on downstream industries is small then the tertiary effect arising from any reduction in their production must be small too. That leaves the tertiary effect arising from a reduction in final expenditures by farmers, and the like, who suffer a reduction in income as a result of a fall in the value of farm production. The impact on farmers' expenditures from the fall in farmers' income

may be mitigated to some degree because farmers can draw down savings from the previous run of good years. Nevertheless, the decline in farm income is highly likely to have had some impact on farmer's expenditures on final consumption goods and services and gross fixed capital formation, although the extent is unknown.

A reduction in expenditures as result of reduced production by agriculture and its downstream industries will, to the extent that such expenditures are on goods and services produced in Australia, have lead to a further reduction in Australian incomes. This in turn would have lead to a further reduction in expenditures and so on. In this way the so-called multiplier effect magnifies the effect of good or bad farm seasons.

In order to estimate the indirect impacts, Input-Output valued added multipliers can be used. These multipliers provide various measures of change that result from an initial exogenous change to final output. They are calculated based on the industrial structures published in the Input-Output tables (*Australian National Accounts: Input-Output Tables* (5209.0.55.001)). Care needs to be exercised in using these multipliers because they reflect average relationships. To the extent that changes at the margin are different from those on average, the results can be misleading. Further, as this approach does not capture the effects of change in structure over time that may result from these initial changes, they represent a static rather than a dynamic view of the economy.

Notwithstanding the caveats in the preceding paragraph, the Input-Output multipliers remain a potentially useful means of generating an assessment of the overall impact of the type of shock caused by an event such as the current drought. The calculation of the tertiary effect can be derived by applying the appropriate multiplier to each postulated initial impact on expenditures. An analysis of this type is described in an article appearing in the September quarter 1996 issue of *Australian National Accounts: National Income, Expenditure and Product* (5206.0), titled 'Impact of the 1995–96 farm season on Australian production'.

## Broad impact on major national accounting aggregates

Reduced levels of agricultural production in 2002–03 were reflected in a number of national accounting aggregates. Production, expenditure and income-based estimates were all affected. For the production and income-based estimates, the most obvious impacts were seen in the level of gross value of agricultural production and the flow on impact on agricultural income – that is, the proceeds of sales net of operating costs. The downward impact of the 2002–03 drought on agricultural production, while offset somewhat by reduced farm costs, resulted in a reduction in the value added and gross mixed income/gross operating surplus of the agriculture industry.

Typically, fluctuations in agricultural incomes tend to be of a much greater magnitude than the fluctuations in agricultural production.

The 2002–03 drought caused several notable direct impacts on expenditure-based estimates in the national accounts. Since the majority (around two-thirds) of farm production is either directly or indirectly exported, there was a significant impact on exports of agricultural commodities, particularly cereals. Estimates of gross fixed capital formation of livestock were also reduced. There were falls in farm inventories due to lower output and as farmers were forced to run down their stocks of fodder. In addition, wholesalers' inventories of agricultural outputs declined.

## Chain volume or 'real' GDP

Chain volume measures were introduced into the Australian national accounts in 1998. They were first presented as experimental measures for the expenditure components of GDP in the December quarter 1997 issue of *Australian National Accounts: National Income, Expenditure and Product* (5206.0) and were an addition to the longstanding constant price estimates which were still the 'official' volume estimates. Subsequently, in the September quarter 1998 issue of 5206.0, the constant price estimates of both the expenditure and production components of GDP were replaced with chain volume measures and they became the ABS' 'official' volume estimates.

The reason for having either chain volume or constant price estimates in the national accounts is to provide time series of expenditure and production aggregates which are free of the direct effects of price change. All the current price aggregates of expenditure and production appearing in the national accounts are estimates of the sums of the values of individual transactions. Each of these transactions has two components: a price and a quantity. From one period to another the quantities and prices comprising the transactions change. This means that when the current price value of an aggregate, such as GDP, in one period is compared with the current price value in another period, the difference between them usually reflects both changes in quantity and changes in price of the constituent transactions. In order to estimate by

how much the 'volume' of GDP has changed between the two periods we need to measure the value of GDP in each period using the same unit prices.

For many years the ABS derived constant price estimates as a means of measuring changes in the volumes of aggregates. Constant price estimates are derived by fixing the unit prices of goods and services to those of some base year. These base year unit prices are effectively the weights used to combine the quantities of the different goods and services purchased or produced. The unit prices of different goods and services tend to grow at different rates – some at dramatically different rates. For example, the prices of computer equipment are estimated to have declined by about 89% between 1989–90 and 2002–03, while the prices of most other goods and services have increased. Therefore, over time, the price relativities of some goods and services change appreciably. This adversely affects the usefulness of constant price estimates for periods distant from the base year, and implies that the base year used to derive constant price estimates needs to be changed from time to time. It was ABS practice, in common with many other national statistical agencies, to change the base year every five years. However, it has been found that rebasing every five years is commonly insufficient, and hence the latest international standards recommend rebasing every year and linking the resulting indexes to form annually reweighted chain volume measures.

Chain volume estimates are not generally additive. In other words, component chain volume estimates do not usually sum to a total in the way original current price components do. In order to minimise the impact of this characteristic, the ABS is using the latest base year as the reference year (i.e. the year when the annual chain volume estimate equals the current price value). Re-referencing changes the level of the chain volume estimates, but does not of itself change the growth rates. By adopting this approach, non-additivity does not apply to the reference year or the following year.

The decision to replace all ABS constant price estimates with chain volume measures was announced in March 1998 in *Information Paper: Introduction of Chain Volume Measures in the Australian National Accounts* (5248.0). That paper describes what chain volume measures are, their advantages and disadvantages with respect to constant price estimates, the advantages and disadvantages of different chain volume formulae, and the results of an empirical analysis.

## Chain price indexes and implicit price deflators

A by-product of the calculation of chain volume measures is the implicit price deflator (IPD). An IPD is the price index obtained when a current price estimate is divided by the corresponding chain volume measure. The ABS publishes a time series of IPDs for each of the expenditure components of GDP (excluding the changes in inventories).

Chain price indexes are also published for the major expenditure aggregates. They are the prices equivalent of chain volume estimates. Quarterly chain price indexes are generally superior to IPDs for measuring price change, because the quarter-to-quarter growth rates calculated from

the IPDs reflect changes in composition of the expenditure aggregate as well as pure price change. For example, it is possible for an IPD to increase or decrease from one-quarter to another without there being any change in price. Changes in chain price indexes, on the other hand, only reflect pure price change.

## National income, expenditure and product accounts

The Australian national income, expenditure and product accounts are compiled and published in some detail every quarter, in *Australian National Accounts: National Income, Expenditure and Product* (5206.0), and in greater detail once a year, in *Australian System of National Accounts* (5204.0).

### GDP account

The GDP account indicates changes in Australian production over time. Tables 29.6 and 29.7 show the GDP account in current prices for a number of years between 1965–66 and 2002–03 – table 29.6 shows a series of snapshots at five-yearly intervals to 1990–91, while table 29.7 shows annual time series from 1995–96 to 2002–03. Table 29.8 shows expenditure on GDP in real or chain volume terms.

In real terms (i.e. after the effects of price change are removed from the dollar value of Australia's production), there was a fall in production during 1990–91. Since the recession in 1990–91, GDP has grown in each year. Although growth in 1991–92 was relatively low (0.3%), by 1995–96 it had accelerated to 4.2%, a growth rate which was generally maintained until 1999–2000. GDP growth has fluctuated since then, at 2.0%, 3.9% and 2.8% in 2000–01, 2001–02 and 2002–03 respectively.

**29.6 GDP ACCOUNT, Current prices — Five-yearly intervals**

	1965–66	1970–71	1975–76	1980–81	1985–86	1990–91
	\$m	\$m	\$m	\$m	\$m	\$m
Final consumption expenditure						
General government	3 146	5 547	14 715	27 123	49 760	74 663
Households	13 746	21 515	45 459	84 097	144 502	233 726
<i>Total final consumption expenditure</i>	16 892	27 062	60 175	111 220	194 263	308 390
Gross fixed capital formation						
Private	5 082	8 388	13 328	29 256	45 959	67 027
Public	2 040	2 896	6 582	9 926	19 182	23 238
<i>Total gross fixed capital formation</i>	7 122	11 284	19 910	39 182	65 141	90 267
Changes in inventories	84	586	180	446	870	-1 366
<i>Gross national expenditure</i>	24 098	38 933	80 265	150 849	260 274	397 291
Exports of goods and services	3 136	5 086	11 225	22 604	38 948	66 259
less Imports of goods and services	3 683	5 214	11 163	25 530	47 199	66 948
Statistical discrepancy(a)	-386	-459	-801	-2 023	-3 458	1 283
<b>Gross domestic product</b>	<b>23 164</b>	<b>38 345</b>	<b>79 526</b>	<b>145 900</b>	<b>248 566</b>	<b>397 885</b>
Compensation of employees	11 329	19 320	43 919	75 044	123 434	192 723
Gross operating surplus	5 096	9 175	17 299	36 169	68 337	118 690
Gross mixed income	4 638	6 343	10 704	19 904	28 738	42 545
Total factor income	21 063	34 838	71 922	131 117	220 509	353 958
Taxes less subsidies on production and imports	2 079	3 151	7 895	14 753	27 805	43 407
Statistical discrepancy(b)	22	356	-291	30	252	520
<b>Gross domestic product</b>	<b>23 164</b>	<b>38 345</b>	<b>79 526</b>	<b>145 900</b>	<b>248 566</b>	<b>397 885</b>

(a) Expenditure-based. (b) Income-based.

Source: Australian System of National Accounts, 2002–03 (5204.0).

**29.7 GDP ACCOUNT, Current prices**

	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03
	\$m							
Final consumption expenditure								
General government	92 956	96 173	101 332	108 266	113 305	120 390	127 413	134 311
Households	301 069	314 565	335 102	354 420	374 922	404 271	426 154	452 629
<i>Total final consumption expenditure</i>	394 025	410 738	436 434	462 686	488 226	524 661	553 567	586 940
Gross fixed capital formation								
Private	88 029	95 040	108 722	113 721	125 711	120 623	134 452	157 703
Public	23 571	22 550	20 748	25 278	24 898	24 678	26 448	28 268
<i>Total gross fixed capital formation</i>	111 600	117 588	129 473	138 999	150 609	145 301	160 900	185 971
Changes in inventories	-813	-10	62	4 662	1 791	510	1 136	445
<i>Gross national expenditure</i>	504 812	528 316	565 969	606 346	640 626	670 471	715 603	773 356
Exports of goods and services	99 095	105 160	113 744	112 025	126 222	153 854	153 340	148 409
less Imports of goods and services	101 078	103 590	118 482	126 456	140 811	153 205	154 573	167 093
Statistical discrepancy(a)	—	—	—	—	—	—	—	-1 420
<b>Gross domestic product</b>	<b>502 828</b>	<b>529 886</b>	<b>561 229</b>	<b>591 917</b>	<b>626 037</b>	<b>671 120</b>	<b>714 370</b>	<b>753 252</b>
Compensation of employees	241 100	257 968	268 912	286 610	302 116	321 024	337 657	360 012
Gross operating surplus	153 623	162 189	177 700	183 069	196 422	210 279	225 766	240 334
Gross mixed income	49 064	47 969	50 062	52 396	54 272	57 522	65 365	61 683
<i>Total factor income</i>	443 787	468 126	496 674	522 075	552 810	588 825	628 788	662 029
Taxes less subsidies on production and imports	59 041	61 760	64 555	69 842	73 227	82 295	85 582	92 474
Statistical discrepancy(b)	—	—	—	—	—	—	—	-1 251
<b>Gross domestic product</b>	<b>502 828</b>	<b>529 886</b>	<b>561 229</b>	<b>591 917</b>	<b>626 037</b>	<b>671 120</b>	<b>714 370</b>	<b>753 252</b>

(a) Expenditure-based. (b) Income-based.

Source: Australian System of National Accounts, 2002-03 (5204.0).

### 29.8 EXPENDITURE ON GDP, Chain volume measures(a)

	1995–96	1996–97	1997–98	1998–99	1999– 2000	2000–01	2001–02	2002–03
	\$m							
Final consumption expenditure								
General government	108 468	110 031	114 186	118 808	122 278	124 769	127 413	130 616
Households	341 003	350 892	367 713	385 440	401 059	412 726	426 154	443 168
Total final consumption expenditure	449 374	460 858	481 852	504 218	523 315	537 479	553 567	573 784
Gross fixed capital formation								
Private	92 976	102 700	116 625	120 731	133 083	122 189	134 452	155 965
Public	23 720	23 132	21 231	25 473	25 252	24 712	26 448	28 187
Total gross fixed capital formation	114 017	123 050	135 087	144 366	156 052	146 076	160 899	184 149
Domestic final demand	565 572	586 478	619 494	650 426	681 730	684 307	714 467	757 936
Changes in inventories	-255	-821	-28	5 397	3 721	1 210	1 136	520
Gross national expenditure	562 312	583 144	616 018	652 186	682 062	683 923	715 603	758 456
Exports of goods and services	112 701	124 514	129 113	131 743	144 373	154 975	153 340	152 435
less Imports of goods and services	107 311	117 967	129 436	135 685	153 126	151 191	154 573	175 319
Statistical discrepancy(b)	—	—	—	—	—	—	—	-1 363
<b>Gross domestic product</b>	<b>569 125</b>	<b>590 471</b>	<b>616 805</b>	<b>649 550</b>	<b>673 944</b>	<b>687 720</b>	<b>714 370</b>	<b>734 209</b>

(a) Reference year is 2001–02. (b) Expenditure-based.

Source: Australian System of National Accounts, 2002–03 (5204.0).

The GDP account can also be used to show changes in the share of income accruing to labour (i.e. compensation of employees) compared with the share accruing to capital (i.e. profits, defined as the gross operating surplus of non-financial and financial corporations). Graphs 29.9 and 29.10 show how the shares of total factor income accruing to wages and to profits have changed since 1966–67. (Total factor income is equal to the sum of compensation of employees, gross operating surplus and gross mixed income.)

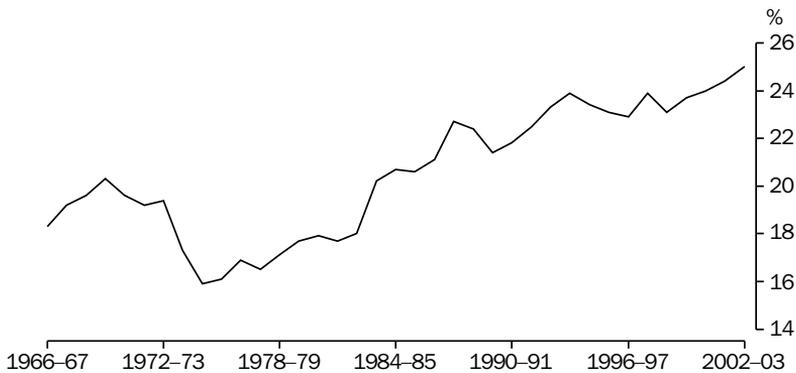
The highest recorded value of the wages share of total factor income was 61.5% in 1974–75. The wages share has recovered somewhat from its low value of 52.8% in 1988–89, but at 54.4% for 2002–03 it remains below the level recorded for most of the 1970s and early-1980s. In 2002–03 the profits share of total factor income of 25.0% for private and public corporations is the highest recorded value.

### 29.9 WAGES SHARE OF TOTAL FACTOR INCOME



Source: Australian System of National Accounts, 2002-03 (5204.0).

### 29.10 PROFITS SHARE OF TOTAL FACTOR INCOME



Source: Australian System of National Accounts, 2002-03 (5204.0).

### National income account

The national income account shows the sources of national income and how much of this income is spent on final consumption. That part of income which is not spent in this way is saving. Tables 29.11

and 29.12 show the income account for a number of years between 1965-66 and 2002-03 – table 29.11 shows a series of snapshots at five-yearly intervals to 1990-91, while table 29.12 shows annual time series from 1995-96 to 2002-03.

**29.11 NATIONAL INCOME ACCOUNT, Current prices — Five-yearly intervals**

	1965–66	1970–71	1975–76	1980–81	1985–86	1990–91
	\$m	\$m	\$m	\$m	\$m	\$m
INCOME						
Compensation of Employees	11 329	19 320	43 919	75 044	123 434	192 723
Gross operating surplus	5 096	9 175	17 299	36 169	68 337	118 690
Gross mixed income	4 638	6 343	10 704	19 904	28 738	42 545
Taxes less subsidies on production and imports	2 079	3 151	7 895	14 753	27 805	43 407
Net primary income from non-residents	-308	-600	-1 202	-2 397	-6 853	-17 224
<i>Gross national income</i>	22 834	37 389	78 615	143 473	241 461	380 141
Net secondary income from non-residents	-90	-110	-287	-441	-384	453
<b>Gross disposable income</b>	<b>22 744</b>	<b>37 279</b>	<b>78 328</b>	<b>143 032</b>	<b>241 077</b>	<b>380 594</b>
USE OF DISPOSABLE INCOME						
Final consumption expenditure						
General government	3 146	5 547	14 715	27 123	49 760	74 663
Households	13 746	21 515	45 459	84 097	144 502	233 726
<i>Total final consumption expenditure</i>	16 892	27 062	60 175	111 220	194 263	308 390
Net saving(a)	1 917	3 751	5 980	9 690	7 379	7 826
Consumption of fixed capital	3 933	6 466	12 169	22 134	39 435	64 378
<b>Total use of gross disposable income</b>	<b>22 744</b>	<b>37 279</b>	<b>78 328</b>	<b>143 032</b>	<b>241 077</b>	<b>380 594</b>

(a) Net saving is derived as a balancing item.

Source: Australian System of National Accounts, 2002–03 (5204.0)

**29.12 NATIONAL INCOME ACCOUNT, Current prices**

	1995–96	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03
	\$m							
INCOME								
Compensation of Employees	241 100	257 968	268 912	286 610	302 116	321 024	337 657	360 012
Gross operating surplus	153 623	162 189	177 700	183 069	196 422	210 279	225 766	240 334
Gross mixed income	49 064	47 969	50 062	52 396	54 272	57 522	65 365	61 683
Taxes less subsidies on production and imports	59 041	61 760	64 555	69 842	73 227	82 295	85 582	92 474
Net primary income from non-residents	-19 533	-19 151	-18 091	-18 430	-18 249	-19 241	-20 273	-22 555
<i>Gross national income</i>	483 295	510 735	543 138	573 487	607 788	651 879	694 097	731 948
Net secondary income from non-residents	64	-21	22	-749	218	32	-17	-220
<b>Gross disposable income</b>	<b>483 359</b>	<b>510 714</b>	<b>543 160</b>	<b>572 738</b>	<b>608 006</b>	<b>651 911</b>	<b>694 080</b>	<b>731 728</b>
USE OF DISPOSABLE INCOME								
Final consumption expenditure								
General government	92 956	96 173	101 332	108 266	113 305	120 390	127 413	134 311
Households	301 069	314 565	335 102	354 420	374 922	404 271	426 154	452 629
<i>Total final consumption expenditure</i>	394 025	410 738	436 434	462 686	488 226	524 661	553 567	586 940
Net saving(a)	10 750	19 646	20 654	18 837	21 705	20 925	25 724	23 178
Consumption of fixed capital	78 584	80 330	86 072	91 215	98 075	106 325	114 789	121 610
<b>Total use of gross disposable income</b>	<b>483 359</b>	<b>510 714</b>	<b>543 160</b>	<b>572 738</b>	<b>608 006</b>	<b>651 911</b>	<b>694 080</b>	<b>731 728</b>

(a) Net saving is derived as a balancing item.

Source: Australian System of National Accounts, 2002–03 (5204.0).

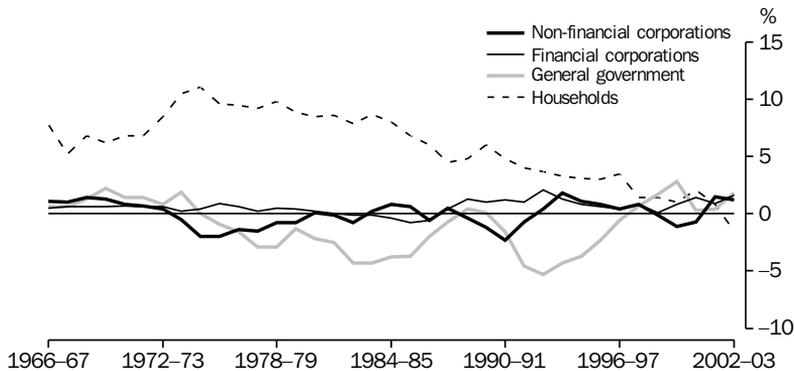
Graph 29.13 shows net saving by institutional sector as a proportion of GDP for the years 1966–67 to 2002–03. Household net saving as a percentage of GDP generally rose between 1966–67 and 1974–75, but has fallen subsequently from its high of 11.1% in 1974–75 to a position in 2002–03 where, for the first time, consumption by households exceeded income and, consequently, household net saving was negative (–\$11.0b) (table 29.15). General government net saving was negative from 1975–76 to 1996–97 (except for 1988–89 and 1989–90). In 2002–03 it was positive at 1.8% (\$13.3b). In 2002–03 net saving of non-financial corporations was 1.2% of GDP (\$8.9b). Net saving of financial corporations was negative from 1982–83 to 1986–87, the only period for which this sector has recorded negative net saving. In 2002–03 net saving of financial corporations was 1.6% of GDP (\$11.9b).

## National capital account

The national capital account shows how the saving from the national income account and consumption of fixed capital (depreciation) are used to finance gross fixed capital formation. If, as is currently the case for Australia, the nation's saving and consumption of fixed capital are not sufficient to pay for all the fixed capital needed for Australian production, the shortfall must be borrowed from overseas. The amount borrowed from overseas is shown in the national capital account as a negative entry for net lending to non-residents.

Tables 29.14 and 29.15 show the national capital account for a number of years between 1965–66 and 2002–03 – table 29.14 shows a series of snapshots at five-yearly intervals to 1990–91, while table 29.15 shows annual time series from 1995–96 to 2002–03.

**29.13 NET SAVING, By sector — Share of GDP**



Source: Australian System of National Accounts, 2002–03 (5204.0).

**29.14 NATIONAL CAPITAL ACCOUNT, Current prices — Five-yearly intervals**

	1965–66	1970–71	1975–76	1980–81	1985–86	1990–91
	\$m	\$m	\$m	\$m	\$m	\$m
Net saving						
Non-financial corporations	259	319	-1 629	100	1 427	-9 324
Financial corporations	131	278	733	308	-1 868	4 592
General government	267	551	-751	-3 174	-9 153	-6 387
Households	1 260	2 603	7 628	12 456	16 974	18 946
<i>Total net saving</i>	1 917	3 751	5 980	9 690	7 379	7 826
Consumption of fixed capital	3 933	6 466	12 169	22 134	39 435	64 378
Net capital transfers receivable from non-residents	46	56	-27	167	830	2 071
<b>Gross saving and capital transfers</b>	<b>6 250</b>	<b>10 908</b>	<b>18 861</b>	<b>32 343</b>	<b>47 301</b>	<b>74 276</b>
Gross fixed capital formation						
Private	5 082	8 388	13 328	29 256	45 959	67 027
Public corporations	951	1 371	2 790	5 584	10 664	12 271
General government	1 089	1 525	3 792	4 342	8 518	10 967
<i>Total gross fixed capital formation</i>	7 122	11 284	19 910	39 182	65 141	90 267
Changes in inventories						
Private non-farm	147	366	91	115	882	-1 125
Farm and public authorities	-63	220	89	331	-12	-241
<i>Total changes in inventories</i>	84	586	180	446	870	-1 366
Acquisitions less disposals of non-produced non-financial assets	—	—	—	—	—	-7
Statistical discrepancy(a)	-409	-815	-510	-2 053	-3 710	763
Net lending to non-residents	-899	-782	-1 454	-5 597	-14 658	-15 382
<b>Total capital accumulation and net lending</b>	<b>6 250</b>	<b>10 908</b>	<b>18 861</b>	<b>32 343</b>	<b>47 301</b>	<b>74 276</b>

(a) Expenditure-based discrepancy less income-based discrepancy.

Source: Australian System of National Accounts, 2002–03 (5204.0).

**29.15 NATIONAL CAPITAL ACCOUNT, Current prices**

	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>Net saving</b>								
Non-financial corporations	4 125	1 994	4 253	-721	-6 928	-4 417	10 505	8 917
Financial corporations	3 073	2 076	4 234	679	4 892	9 414	6 556	11 946
General government	-11 738	-2 996	4 082	10 333	17 367	1 916	3 110	13 324
Households	15 290	18 572	8 085	8 546	6 373	14 012	5 553	-11 009
<i>Total net saving</i>	10 750	19 646	20 654	18 837	21 705	20 925	25 724	23 178
Consumption of fixed capital	78 584	80 330	86 072	91 215	98 075	106 325	114 789	121 610
Net capital transfers receivable from non-residents	1 045	1 323	1 097	1 186	1 136	1 182	1 186	1 431
<b>Gross saving and capital transfers</b>	<b>90 379</b>	<b>101 299</b>	<b>107 823</b>	<b>111 237</b>	<b>120 915</b>	<b>128 433</b>	<b>141 699</b>	<b>146 219</b>
<b>Gross fixed capital formation</b>								
Private	88 029	95 040	108 722	113 721	125 711	120 623	134 452	157 703
Public corporations	11 322	9 525	8 013	11 621	9 018	8 600	10 020	10 702
General government	12 249	13 025	12 735	13 658	15 879	16 078	16 429	17 566
<i>Total gross fixed capital formation</i>	111 600	117 588	129 473	138 999	150 609	145 301	160 900	185 971
<b>Changes in inventories</b>								
Private non-farm	-487	2 402	-418	4 675	1 864	1 047	910	1 241
Farm and public authorities	-326	-2 412	480	-13	-73	-537	226	-796
<i>Total changes in inventories</i>	-813	-10	62	4 662	1 791	510	1 136	445
Acquisitions less disposals of non-produced non-financial assets	-25	6	-30	19	83	73	170	133
Statistical discrepancy(a)	—	—	—	—	—	—	—	-169
Net lending to non-residents	-20 382	-16 285	-21 680	-32 443	-31 567	-17 451	-20 507	-40 161
<b>Total capital accumulation and net lending</b>	<b>90 379</b>	<b>101 299</b>	<b>107 823</b>	<b>111 237</b>	<b>120 915</b>	<b>128 433</b>	<b>141 699</b>	<b>146 219</b>

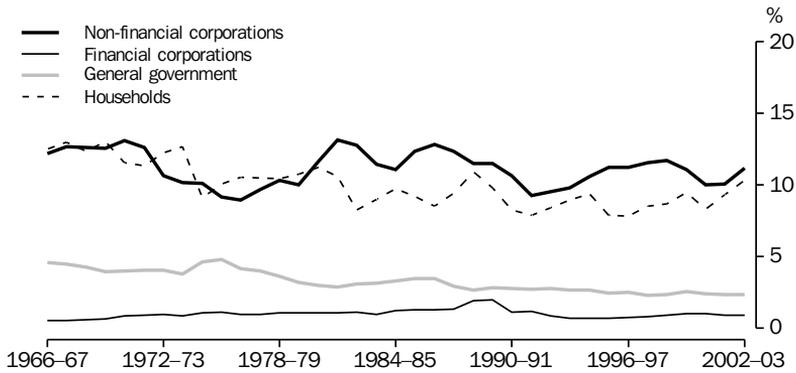
(a) Expenditure-based discrepancy less income-based discrepancy.

Source: Australian System of National Accounts, 2002-03 (5204.0).

Graph 29.16 shows gross fixed capital formation (investment) by institutional sector as a proportion of GDP. For non-financial corporations this proportion generally fell during the 1970s, then rose to a peak of 13.1% in 1981-82. It has subsequently been above 10% except for the years 1991-92 to 1993-94, and in 2000-01. In 2002-03 investment by non-financial corporations was 11.2% of GDP. Household investment has

generally remained at around 9% of GDP but rose sharply in 2002-03 to 10.3%. General government investment as a proportion of GDP peaked at 4.8% in 1975-76. It has generally fallen since and was 2.3% of GDP in 2002-03. Financial corporations investment peaked in 1989-90 at 1.9% of GDP, and was 0.9% of GDP in 2002-03.

### 29.16 GROSS FIXED CAPITAL FORMATION, By sector — Share of GDP

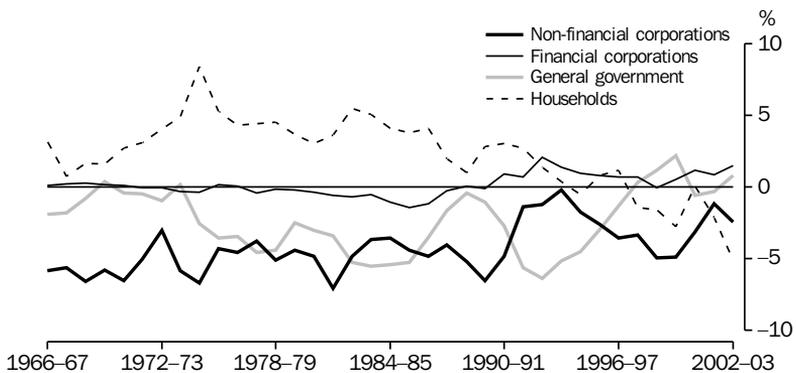


Source: Australian System of National Accounts, 2002-03 (5204.0).

Graph 29.17 shows net lending by institutional sector as a proportion of GDP. A positive percentage for a sector indicates that it is a net lender to other sectors; a negative percentage indicates that it is a net borrower. The household sector has been a net lender for most years. As a proportion of GDP, net lending by households peaked in 1974-75 at 8.4%. Since then it has trended downwards, household lending being -5.2% in 2002-03. Non-financial corporations have been net borrowers over the whole period from 1965-66 to 2002-03, and the amounts borrowed have fluctuated significantly from year to year. As a

proportion of GDP, their net borrowing was 2.5% in 2002-03. After being a net borrower throughout the 1980s, the financial corporations sector returned to being a net lender in 1990-91 and has remained so since then. In 2002-03 financial corporations net lending represented 1.5% of GDP. After recording a record level of borrowing in 1992-93 as a proportion of GDP (6.4%), general government borrowing steadily declined. In 1997-98 the sector became a net lender except for 2000-01 and 2001-02 when it became a net borrower again. In 2002-03 general government net borrowing represented 0.8% of GDP.

### 29.17 NET LENDING, By sector — Share of GDP



Source: Australian System of National Accounts, 2002-03 (5204.0).

## External account

The external account is derived from the detailed balance of payments current and capital accounts (see *Chapter 30 International accounts and trade*). It shows Australia's exports and imports, incomes and transfers received by Australian residents from non-residents, and incomes and transfers payable to non-residents by Australian

residents. The balance on the external account is net lending to non-residents. This is the same as the balance in the national capital account.

Tables 29.18 and 29.19 show the external account for a number of years between 1965–66 and 2002–03 – table 29.18 shows a series of snapshots at five-yearly intervals to 1990–91, while table 29.19 shows annual time series from 1995–96 to 2002–03.

**29.18 EXTERNAL ACCOUNT, Current Prices — Five-yearly intervals**

	1965–66	1970–71	1975–76	1980–81	1985–86	1990–91
	\$m	\$m	\$m	\$m	\$m	\$m
Imports of goods and services	3 683	5 214	11 163	25 530	47 199	66 948
Primary income receivable						
Compensation of employees	11	17	44	110	164	429
Property income	400	760	1 587	3 147	8 879	20 552
<i>Total primary income receivable</i>	<i>411</i>	<i>777</i>	<i>1 631</i>	<i>3 257</i>	<i>9 043</i>	<i>20 981</i>
Secondary Income	169	358	773	1 264	1 797	2 422
Capital transfers to non-residents	40	78	203	320	486	653
Acquisitions less disposals of non-produced non-financial assets	—	—	—	—	—	-7
Net lending	-899	-782	-1 454	-5 597	-14 658	-15 382
<b>Resources provided by non-residents</b>	<b>3 404</b>	<b>5 645</b>	<b>12 316</b>	<b>24 774</b>	<b>43 867</b>	<b>75 615</b>
Exports of goods and services	3 136	5 086	11 225	22 604	38 948	66 259
Primary income payable						
Compensation of employees	10	13	59	119	165	432
Property income	93	164	370	741	2 025	3 325
<i>Total primary income payable</i>	<i>103</i>	<i>177</i>	<i>429</i>	<i>860</i>	<i>2 190</i>	<i>3 757</i>
Secondary income payable	79	248	486	823	1 413	2 875
Capital transfers from non-residents	86	134	176	487	1 316	2 724
<b>Resources provided to non-residents</b>	<b>3 404</b>	<b>5 645</b>	<b>12 316</b>	<b>24 774</b>	<b>43 867</b>	<b>75 615</b>

Source: *Australian System of National Accounts, 2002–03 (5204.0)*.

**29.19 EXTERNAL ACCOUNT, Current prices**

	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
	\$m							
Imports of goods and services	101 078	103 590	118 482	126 456	140 811	153 205	154 573	167 093
Primary income receivable								
Compensation of employees	458	539	792	854	963	1 065	1 054	877
Property income	26 215	27 175	27 683	27 864	31 055	34 379	34 366	35 772
<i>Total primary income receivable</i>	<i>26 673</i>	<i>27 714</i>	<i>28 475</i>	<i>28 718</i>	<i>32 018</i>	<i>35 444</i>	<i>35 420</i>	<i>36 649</i>
Secondary Income	3 228	3 561	3 971	5 247	4 407	4 421	4 297	4 453
Capital transfers to non-residents	907	877	971	1 011	1 199	1 260	1 357	1 293
Acquisitions less disposals of non-produced non-financial assets	-25	6	-30	19	83	73	170	133
Net lending	-20 382	-16 285	-21 680	-32 443	-31 567	-17 451	-20 507	-40 161
<b>Resources provided by non-residents</b>	<b>111 479</b>	<b>119 463</b>	<b>130 189</b>	<b>129 008</b>	<b>146 763</b>	<b>176 609</b>	<b>174 260</b>	<b>168 320</b>
Exports of goods and services	99 095	105 160	113 744	112 025	126 222	153 854	153 340	148 409
Primary income payable								
Compensation of employees	610	678	747	797	826	896	878	897
Property income	6 530	7 885	9 637	9 491	12 943	15 307	14 269	13 197
<i>Total primary income payable</i>	<i>7 140</i>	<i>8 563</i>	<i>10 384</i>	<i>10 288</i>	<i>13 769</i>	<i>16 203</i>	<i>15 147</i>	<i>14 094</i>
Secondary income payable	3 292	3 540	3 993	4 498	4 625	4 453	4 280	4 233
Capital transfers from non-residents	1 952	2 200	2 068	2 197	2 335	2 442	2 543	2 724
<b>Resources provided to non-residents</b>	<b>111 479</b>	<b>119 463</b>	<b>130 189</b>	<b>129 008</b>	<b>146 763</b>	<b>176 609</b>	<b>174 260</b>	<b>168 320</b>

Source: Australian System of National Accounts, 2002-03 (5204.0).

Australia has generally been a net borrower of funds from overseas. In the national accounts, this situation is reflected by a negative value for net lending to non-residents. The only exception to this pattern was in 1972-73 when Australia was a net lender to non-residents. Net borrowing from non-residents (i.e. negative net lending to non-residents), expressed as a proportion of GDP, increased significantly during the early-1980s and

has remained at relatively high levels since then. Graph 29.20 shows net lending to non-residents as a proportion of GDP since 1966-67.

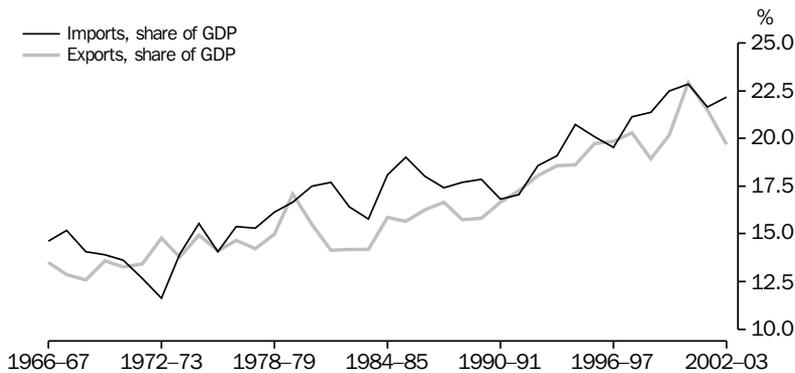
The importance of foreign trade to the Australian economy is illustrated by graph 29.21, which shows the ratios of exports and imports of goods and services to GDP for the financial years 1966-67 to 2002-03. In 2002-03 the import ratio was 22.2% and the export ratio was 19.7%.

### 29.20 NET LENDING TO NON-RESIDENTS, Share of GDP



Source: Australian System of National Accounts, 2002-03 (5204.0).

### 29.21 EXPORTS AND IMPORTS, Share of GDP



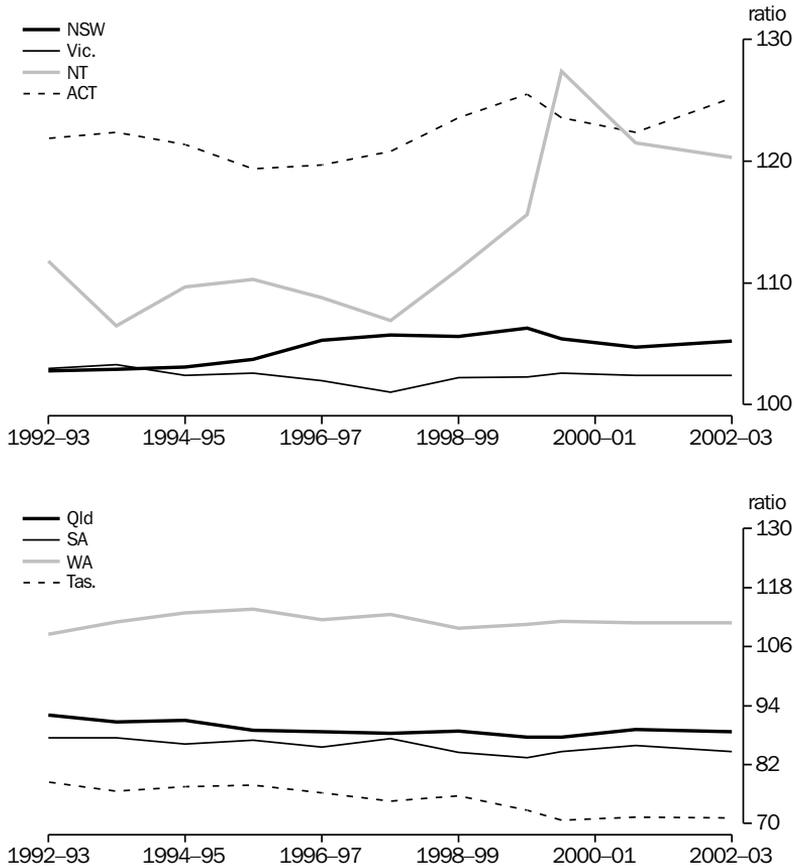
Source: Australian System of National Accounts, 2002-03 (5204.0).

## State accounts

As well as Australia's national accounts, the ABS produces annual accounts for each of Australia's states and territories. These provide estimates of gross state product (GSP) and state final demand. GSP is produced by summing the incomes generated in the production process (the income approach to measuring total production). State final demand is equal to the sum of government and household final consumption expenditure and public and private gross fixed capital formation. Estimates of state final demand and GSP are available in both current price and chain volume terms.

An important use of state accounts is to compare the performance of each state and territory. Graph 29.22 shows the ratio of GSP, in current prices, per head of mean population for each state and territory to the Australian value (GDP per head of mean population) since 1992-93. For New South Wales, Victoria, Western Australia, Northern Territory and Australian Capital Territory, GSP per head of mean population has been above the national average. For Queensland, South Australia and Tasmania, GSP per head of mean population has been below the national average.

## 29.22 GSP PER HEAD OF MEAN POPULATION(a)



(a) Aust. = 100.0.

Source: Australian National Accounts: State Accounts, 2002-03 (5220.0).

## Input-output tables

### Basic structure

Input-Output (I-O) tables show the structure of a country's entire production system for a particular period, usually one year. They show which goods and services are produced by each industry and how they are used (e.g. some goods, such as cars, are sold to final consumers while others, such as steel, are used as inputs by other industries in producing more goods and services). The tables are based on the principle that the value of the output of each industry can be expressed as the sum of the values of all the inputs to that industry. These inputs include the use of the outputs of

other industries; any profits made from production; compensation of employees; and any taxes on production paid less any subsidies received. All the goods and services produced in a period are identified as being used as inputs by industries in their production process, being sold to final users of the goods and services (either in Australia, or overseas as exports), or contributing to the changes in inventories (an increase in inventories if more goods are produced than purchased, or a run-down in inventories if purchases exceed production). The net increase in inventories includes any timing difference between supply and use.

## Relationship to the national income and expenditure accounts

I-O tables are directly related to the GDP account. The income side of the GDP account shows the amount of income generated in the economy accruing to labour (in the form of compensation of employees) and to capital (as profits or, in national accounting terms, gross operating surplus and gross mixed income – the latter including some return to owners of businesses for their labour). The expenditure side of the account shows the value of goods and services entering into the various categories of final uses.

The I-O tables provide a much more detailed disaggregation of the GDP account than is available in the national income, expenditure and product accounts. The latter only shows details of the end results of economic activity, whereas the I-O tables show the flows of goods and services through the production process. The extra detail provided by the I-O tables is essential for many analyses.

### I-O table for seven industry sectors

Table 29.23 and diagram 29.24 show the flows of goods and services in respect of 1998–99.

The links between the table and the diagram are explained by working through the following formulae.

*Total intermediate use* – (\$557,889m) in the diagram is derived by summing from column 8 of the table: intermediate use (\$469,282m); taxes on products, net (\$18,325m); competing imports (\$70,203m); and complementary imports (\$79m).

*Domestic final use* – (\$606,345m) in the diagram is derived from the table by subtracting total exports (\$112,025m), column 12, from total final uses (\$718,370m), column 13.

*Imports* – (\$126,453m) is derived by summing from column 14 of the table: competing imports (\$126,007m); and complementary imports (\$446m). In the diagram it is dissected into imports for intermediate uses (\$70,282m); and imports for final uses (\$56,170m).

*Exports* – (\$112,025m) in the diagram is total exports, column 12 in the table.

*Total use* – (\$1,276,259m), which equals total supply, is the sum of domestic final use (\$606,345m); total intermediate use (\$557,889m); and exports (\$112,025m).

*Gross value added* – (\$542,831m) in the diagram is derived by summing from column 14 of the table: compensation of employees (\$286,610m); gross operating surplus and mixed income (\$235,465m); and other taxes on production (net) (\$20,756m).

*GDP (income measure)* – (\$591,917m) in the diagram is derived by summing from column 14 of the table: compensation of employees (\$286,610m); gross operating surplus and mixed income (\$235,465m); taxes on products (net) (\$49,086m); and other taxes on production (net) (\$20,756m).

*GDP (expenditure measure)* – (\$591,917m) in the diagram is derived by summing domestic final use (\$606,345m); and exports (\$112,025m); and subtracting imports (\$126,453m).

**29.23 INDUSTRY BY INDUSTRY FLOW TABLE, Basic prices — 1998–99**

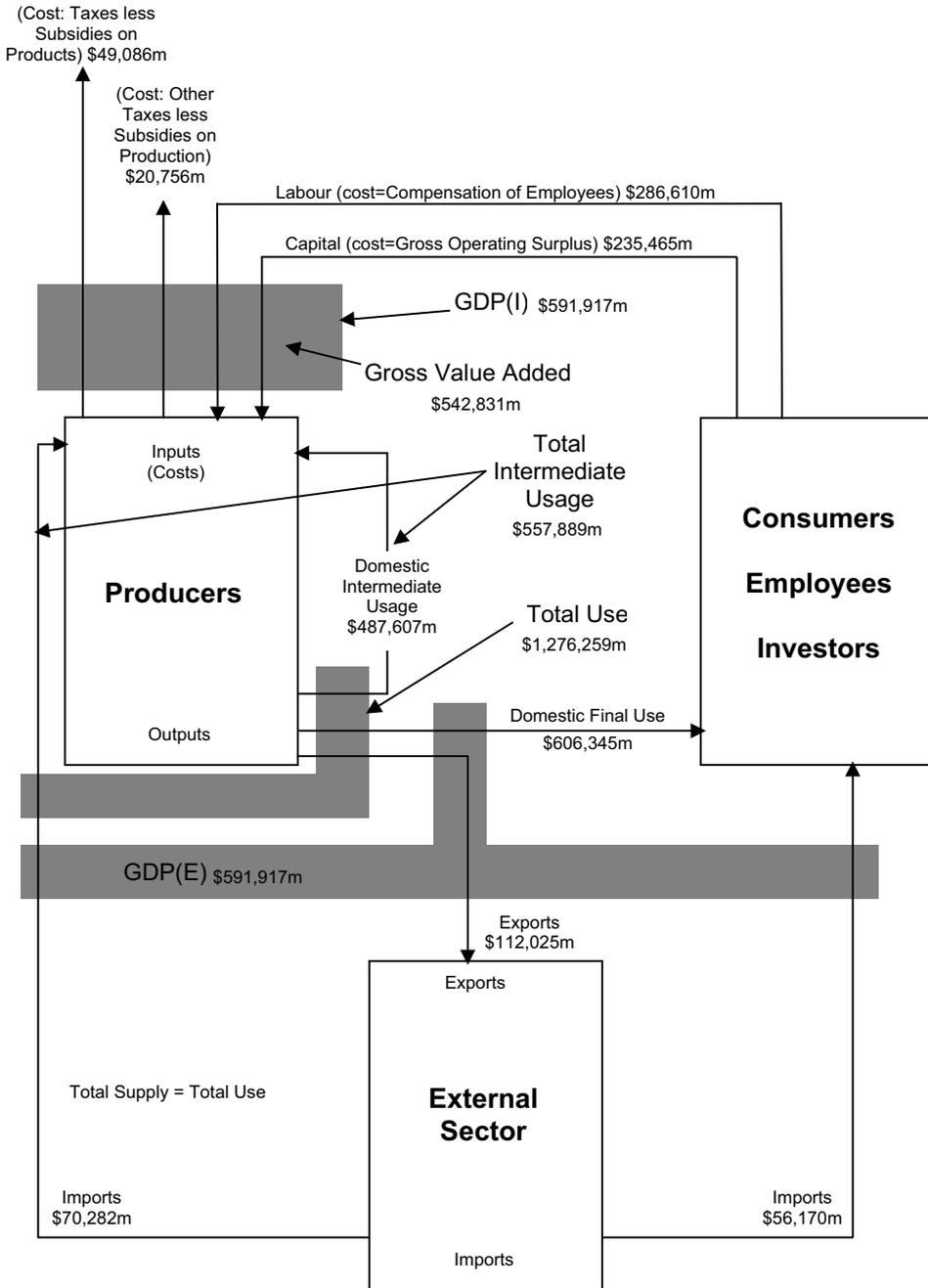
	1	2	3	4	5	6	7
	Agriculture	Mining	Manufacturing	Construction	Trade and transport	Service industries	Government admin. and defence
Supply	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Agriculture	4 062	25	14 755	136	429	1 872	62
Mining	29	4 201	8 283	499	224	4 238	63
Manufacturing	4 029	3 654	49 108	17 104	14 771	26 693	3 893
Construction	223	1 133	64	82	959	2 523	972
Trade and transportation	2 449	3 627	19 054	4 199	21 861	18 458	2 388
Service industries	4 563	5 388	28 053	11 158	52 298	114 357	9 205
Government admin. and defence	60	220	714	163	1 534	2 528	2 919
<i>Intermediate use</i>	<i>15 415</i>	<i>18 248</i>	<i>120 031</i>	<i>33 341</i>	<i>92 076</i>	<i>170 669</i>	<i>19 502</i>
Compensation of employees	4 699	5 889	38 456	14 817	53 307	149 389	20 053
Gross operating surplus and gross mixed income	12 907	17 879	28 966	18 727	16 414	137 186	3 386
Taxes on products (net)	851	673	2 205	1 169	4 862	8 088	477
Other taxes on production (net)	540	490	2 602	698	4 672	11 651	103
Competing imports	2 159	2 443	33 012	4 358	6 223	19 333	2 675
Complementary imports	—	—	47	—	5	27	—
<b>Australian production</b>	<b>36 572</b>	<b>45 621</b>	<b>225 317</b>	<b>73 111</b>	<b>177 561</b>	<b>496 342</b>	<b>46 196</b>

	8	9	10	11	12	13	14
	Intermediate usage = Sum (1 to 7)	Final consumption expenditure	Gross fixed capital formation	Changes in inventories	Exports	Final uses = Sum (9 to 12)	Total supply = Sum (8+13)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Agriculture	21 341	4 936	1 312	459	8 522	15 230	36 572
Mining	17 537	439	1 779	-100	25 968	28 085	45 621
Manufacturing	119 252	50 649	14 177	2 234	39 007	106 066	225 317
Construction	5 956	2 803	64 288	4	60	67 155	73 111
Trade and transportation	72 036	71 923	12 334	245	21 024	105 525	177 561
Service industries	225 022	241 036	17 442	—	12 837	271 319	496 342
Government admin. and defence	8 138	37 672	237	—	150	38 058	46 196
<i>Intermediate use</i>	<i>469 282</i>	<i>409 458</i>	<i>111 569</i>	<i>2 843</i>	<i>107 568</i>	<i>631 438</i>	<i>1 100 720</i>
Compensation of employees	286 610	—	—	—	—	—	286 610
Gross operating surplus and gross mixed income	235 465	—	—	—	—	—	235 465
Taxes on products (net)	18 325	22 071	7 716	717	256	30 761	49 086
Other taxes on production (net)	20 756	—	—	—	—	—	20 756
Competing imports	70 203	30 889	19 622	1 093	4 200	55 803	126 007
Complementary imports	79	266	92	10	—	367	446
<b>Australian production</b>	<b>1 100 720</b>	<b>462 684</b>	<b>138 999</b>	<b>4 662</b>	<b>112 025</b>	<b>718 370</b>	<b>1 819 090</b>
Gross value added	<b>542 831</b>	..	..	..	..	..	<b>542 831</b>
<b>Gross domestic product</b>	..	..	..	..	..	..	<b>591 917</b>

Source: Australian National Accounts: Input-Output Tables, 1998–99 (5209.0.55.001).

**29.24 THE AUSTRALIAN ECONOMY, Flow of goods and services — 1998–99**



**Notes:**

- (1) Flows are based on 1998–99 input-output tables.
- (2) This diagram shows the flows between producers and the rest of the economy. In this context a producer can also be a consumer (e.g. own account capital expenditure) or an investor.
- (3) The shaded areas identify the components that make up the main aggregates. Flows passing through the shaded areas are included in the calculation.

Source: Australian National Accounts: Input-Output Tables, 1998–99 (5209.0.55.001).

## Financial accounts

In addition to the national accounts, the ABS produces annual and quarterly information on the levels of financial assets and liabilities of each institutional sector of the economy, the market for financial instruments, and inter-sectoral transactions in financial assets and liabilities classified by financial instrument (*Chapter 26 Financial system*). National and sectoral financial accounts, which show major financial aggregates, are published annually in *Australian System of National Accounts* (5204.0) and quarterly in *Australian National Accounts: Financial Accounts* (5232.0).

## National balance sheet

The national balance sheet provides estimates of the value of Australia's produced, non-produced and financial assets, its liabilities to the rest of the world, and the net worth (defined as the difference between total assets and liabilities, including the value of equity in Australian enterprises owned by non-residents) of the total economy. The major national and sectoral balance sheet tables are published in *Australian System of National Accounts* (5204.0). Balance sheets are provided for each of the four domestic sectors: non-financial corporations, financial corporations, general government and households (including unincorporated enterprises and non-profit institutions serving households).

The non-produced assets included in the balance sheet cover experimental estimates of the value of some of Australia's natural resources: subsoil assets, timber available for log production and land. The monetary estimates of natural resources contained in the balance sheet are underpinned by physical estimates of particular natural resources. Further, since valuation of natural resources is a difficult and contentious undertaking, the monetary estimates of these natural resources should be considered in conjunction with the physical estimates.

The natural resource estimates are used to monitor the availability and exploitation of these resources and to assist in the formulation of environmental policies. More generally, data on the level, composition and change in assets and liabilities shown in the balance sheet indicate the extent of economic resources available to and claims on a nation and each of its institutional sectors.

Sectoral balance sheets provide information necessary for analysing a number of topics; for example, the estimation of household liquidity; and the computation of widely used ratios, such as assets to liabilities, net worth to total liabilities, non-financial to financial assets, and debt to income. In a period of concern about the level of saving in Australia, national and sector balance sheets provide additional information on the relationships between consumption, saving and wealth accumulation.

## Real/volume balance sheets

An article introducing experimental real/volume balance sheets for Australia was published in the March quarter 2001 issue of *Australian National Accounts: National Income, Expenditure and Product* (5206.0). Subsequently, estimates have been published annually in *Australian System of National Accounts* (5204.0). The real/volume balance sheet is designed to remove the effect of price changes, in much the same way as for other real and volume estimates, and allow for comparisons of changes in the value of Australia's assets and liabilities over time, free of the direct effects of inflation.

Volume estimates for the major categories of fixed asset stocks described as 'produced assets' – such as dwellings, other buildings and structures, and machinery and equipment – have been available for many years in the Australian national accounts. However, volume estimates for stocks of non-produced, non-financial assets (land and other natural resources, etc.) and real estimates of financial assets, liabilities and net worth (wealth) have only recently become available. The calculation of volume and real estimates for some of these components is subject to some practical and conceptual difficulties, and therefore the term 'experimental' has been attached to these initial estimates.

The values of non-financial assets, such as dwellings, equipment and standing timber, can be decomposed into prices and volumes. Volume indexes, which measure the volume change of an aggregate between one period and another, can thus be derived by holding prices the same in the two periods. The ABS calculates an annual volume index of an aggregate by dividing its value in one year with its value in the previous year, using the prices of the earlier of the two years – termed the base year – to derive the values for both years. Chain volume indexes are then derived by multiplying successive annual volume indexes

from a reference year to the current year. For example, starting with a year one reference year the chain volume index in year three is derived by multiplying the volume index for year one to year two by the volume index for year two to year three. ABS practice is to re-reference the chain indexes to the current price value of the aggregate in the year of the latest base year.

Financial assets and liabilities cannot be decomposed into prices and volumes, and so it is impossible to derive volume indexes for them. The same is true of gross operating surplus and other income flows, and is the reason why chain volume estimates of GDP cannot be derived by aggregating volume indexes of its income components. However, it is possible to deflate income flows, financial assets and liabilities by a price index in order to measure the purchasing power of the aggregate in question over a designated numeraire set of goods and services. Such measures are called 'real' estimates.

Real net worth has been derived by aggregating the chain volume estimates of the non-financial assets with the real estimates of financial assets less liabilities using the standard method of chain aggregation.

The ABS will continue to develop estimates of the value and volume of Australia's assets for inclusion in national balance sheets as additional data become available. Estimation techniques will be

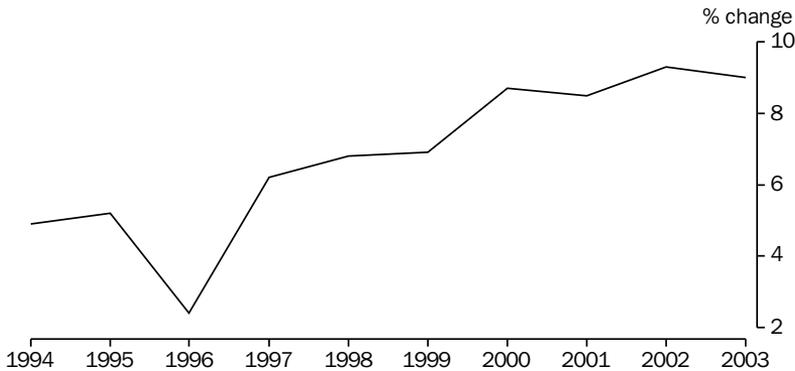
refined as research in Australia and abroad explores issues relating to the valuation of natural resources.

### Current price balance sheet estimates

Australia's net worth at 30 June 2003 is estimated at \$3,262.0b, an increase of \$270.4b (9.0%) since 30 June 2002. Of the increase, \$23.1b was due to transactions (both capital and financial), and \$247.3b was due to revaluations and other flows (including discoveries of subsoil assets). Graph 29.25 shows that the net worth series grew strongly during the years 1996–97 to 2002–03 when average annual rates of at least 6% were achieved.

Total produced assets at 30 June 2003 are estimated at \$2,082.0b, an increase of 4.8% from the level at 30 June 2002 (table 29.26). The estimated value of produced assets rose at an average annual rate of 5.7% between 30 June 1997 and 30 June 2003 and consistently accounted for around 64% of net worth. Dwellings, other buildings and structures, and machinery and equipment, represent about 93% of total produced assets. While computer software has consistently accounted for less than 1% of total produced assets over the period, the series has exhibited by far the strongest growth of produced assets, with an average annual rate between 30 June 1997 and 30 June 2003 of 13.1%.

**29.25 CHANGE IN TOTAL NET WORTH — 30 June**



Source: Australian System of National Accounts, 2002–03 (5204.0).

**29.26 NATIONAL BALANCE SHEET, Current prices — 30 June**

	1997	1998	1999	2000	2001	2002	2003
	\$b						
<b>TOTAL ASSETS</b>	<b>2 553.1</b>	<b>2 767.7</b>	<b>2 968.6</b>	<b>3 277.7</b>	<b>3 585.2</b>	<b>3 867.9</b>	<b>4 189.5</b>
<b>Non-financial assets</b>	<b>2 323.3</b>	<b>2 468.2</b>	<b>2 643.4</b>	<b>2 851.5</b>	<b>3 099.8</b>	<b>3 388.4</b>	<b>3 703.5</b>
<b>Produced assets</b>	<b>1 496.8</b>	<b>1 569.4</b>	<b>1 666.6</b>	<b>1 778.9</b>	<b>1 902.5</b>	<b>1 986.2</b>	<b>2 082.0</b>
<i>Fixed assets</i>	1 404.5	1 475.9	1 568.5	1 673.8	1 794.4	1 877.1	1 973.4
Dwellings	484.1	506.5	544.2	590.7	678.1	721.2	769.4
Other buildings and structures	622.4	652.6	692.1	728.9	749.4	775.7	808.1
Machinery and equipment	274.3	290.5	302.7	318.9	325.6	337.0	353.3
Livestock – fixed assets	10.9	12.1	12.7	15.4	18.0	18.0	16.3
Computer software	12.3	13.8	16.2	19.3	22.7	24.5	25.7
Entertainment, literary or artistic originals	0.5	0.5	0.6	0.6	0.6	0.6	0.7
<i>Inventories</i>	92.2	93.5	98.1	105.2	108.1	109.2	108.6
Private non-farm(a)	73.0	73.1	77.1	83.4	86.5	86.7	88.1
Farm	6.8	7.0	6.7	6.8	7.1	7.4	6.5
Public authorities(b)	3.4	3.7	3.9	3.8	3.0	3.0	3.1
Livestock – inventories	2.5	2.7	3.1	3.6	3.9	4.6	4.0
Plantation standing timber	6.5	7.0	7.3	7.6	7.6	7.5	6.9
<b>Non-produced assets</b>	<b>826.6</b>	<b>898.8</b>	<b>976.8</b>	<b>1 072.6</b>	<b>1 197.3</b>	<b>1 402.2</b>	<b>1 621.5</b>
Land	710.1	768.9	834.9	906.5	991.4	1 154.1	1 349.9
Subsoil assets(c)	114.3	127.7	139.8	160.5	197.1	239.2	262.3
Native standing timber(c)	2.2	2.2	2.2	2.4	2.7	2.5	2.8
<b>Financial assets with the rest of the world(d)</b>	<b>229.8</b>	<b>299.5</b>	<b>325.2</b>	<b>426.2</b>	<b>485.4</b>	<b>479.5</b>	<b>486.0</b>
Monetary gold and SDRs	1.8	1.3	1.1	1.4	1.6	1.7	1.6
Currency and deposits	10.7	21.7	20.4	21.2	25.1	26.0	23.9
Securities other than shares	40.7	45.1	51.0	62.0	82.5	88.3	102.7
Loans and placements	30.1	37.3	38.0	39.2	52.2	54.1	55.0
Shares and other equity	135.6	180.3	196.0	282.0	297.5	284.2	276.5
Other accounts receivable	11.0	13.9	18.7	20.5	26.4	25.2	26.5
<b>LIABILITIES TO THE REST OF THE WORLD(d)</b>	<b>519.9</b>	<b>596.5</b>	<b>646.8</b>	<b>754.9</b>	<b>849.3</b>	<b>876.2</b>	<b>927.5</b>
Currency and deposits	21.6	33.4	35.2	39.5	56.2	56.6	61.7
Securities other than shares	223.6	249.5	248.9	281.7	332.4	351.9	384.2
Loans and placements	51.6	56.6	66.6	85.0	93.9	103.7	109.5
Shares and other equity	217.1	249.5	287.0	338.1	355.4	351.8	359.1
Other accounts payable	6.1	7.5	9.1	10.6	11.5	12.2	13.0
<b>NET WORTH</b>	<b>2 033.2</b>	<b>2 171.3</b>	<b>2 321.8</b>	<b>2 522.7</b>	<b>2 735.9</b>	<b>2 991.6</b>	<b>3 262.0</b>
<b>Memorandum items</b>							
Consumer durables	148.5	151.8	156.1	162.9	172.5	181.5	190.0
Direct investment							
Foreign investment in Australia	150.8	162.4	174.5	196.2	201.2	215.3	n.a.
Australian investment abroad	89.0	125.6	129.5	178.3	183.3	158.4	n.a.
Non-rateable land	40.8	43.6	48.8	53.3	48.0	55.6	61.7

(a) Includes for all periods the marketing authorities privatised in July 1999. (b) Includes for all periods the remaining public marketing authorities. (c) These estimates are regarded as experimental. (d) Series break at 30 June 1995. See 'Information Paper: Upgraded Australian National Accounts: Financial Accounts, 1998' (5254.0).

Source: Australian System of National Accounts, 2002–03 (5204.0).

**Real/volume balance sheet estimates**

Table 29.27 presents real/volume balance sheet data for Australia. Real net worth (total assets less total liabilities to the rest of the world) grew by 12.1% between 30 June 1997 and 30 June 2003, compared with an increase of 60.4% in current prices.

Total assets, in real terms, grew by 20.8% during this period, driven mainly by increased volumes of dwellings (22.9%), machinery and equipment (29.3%), subsoil assets (14.5%), and real total financial assets with the rest of the world (85.5%). Real financial liabilities to the rest of the world increased by 56.5% between 30 June 1997 and 30 June 2003.

**29.27 NATIONAL REAL/VOLUME BALANCE SHEET — 30 June**

	1997	1998	1999	2000	2001	2002	2003
	\$b						
<b>TOTAL ASSETS</b>	<b>3 154.8</b>	<b>3 301.1</b>	<b>3 382.9</b>	<b>3 546.9</b>	<b>3 672.7</b>	<b>3 745.4</b>	<b>3 811.0</b>
<b>Non-financial assets</b>	<b>2 917.9</b>	<b>2 983.3</b>	<b>3 039.0</b>	<b>3 101.7</b>	<b>3 181.2</b>	<b>3 270.8</b>	<b>3 340.0</b>
<b>Produced assets</b>	<b>1 690.3</b>	<b>1 734.5</b>	<b>1 780.8</b>	<b>1 825.9</b>	<b>1 903.2</b>	<b>1 968.2</b>	<b>2 030.2</b>
<i>Fixed assets</i>	1 594.8	1 637.8	1 680.6	1 720.8	1 795.7	1 852.1	1 915.2
<i>Tangible fixed assets</i>	1 588.1	1 628.6	1 667.4	1 702.8	1 772.5	1 826.2	1 886.4
Dwellings	598.7	618.4	640.3	667.1	684.4	707.1	735.6
Other buildings and structures	698.5	714.1	732.1	746.3	753.6	762.5	777.1
Machinery and equipment	277.5	289.5	300.2	313.9	325.5	338.8	358.8
Livestock – fixed assets(b)	32.8	29.4	28.5	24.3	20.0	17.7	14.9
<i>Intangible fixed assets</i>	10.1	11.9	14.9	18.6	23.3	25.9	28.8
Computer software	9.4	11.1	13.9	17.5	22.0	25.3	28.2
Entertainment, literary or artistic originals	0.5	0.6	0.6	0.6	0.6	0.6	0.7
<i>Inventories</i>	95.4	96.7	100.2	104.9	107.5	116.1	115.0
Private non-farm(c)	80.0	79.2	84.6	88.2	89.9	91.6	92.7
Farm	7.1	7.8	7.6	8.1	8.6	9.2	7.7
Public authorities	3.7	4.1	4.3	3.9	3.0	3.0	3.2
Livestock – inventories	4.6	4.4	4.4	4.6	4.3	4.8	4.3
Plantation standing timber	6.2	6.5	6.8	7.2	7.4	7.5	7.0
<b>Non-produced assets</b>	<b>1 231.0</b>	<b>1 250.9</b>	<b>1 257.4</b>	<b>1 273.8</b>	<b>1 275.1</b>	<b>1 302.6</b>	<b>1 309.7</b>
<i>Tangible non-produced assets</i>	1 231.0	1 250.9	1 257.4	1 273.8	1 275.1	1 300.1	1 307.3
Land	1 019.4	1 028.4	1 040.0	1 045.6	1 042.1	1 052.6	1 058.3
Subsoil assets(d)	212.1	225.3	218.4	229.3	231.8	241.6	242.9
Native standing timber(d)	2.5	2.5	2.3	2.4	2.6	2.3	2.5
Spectrum	—	—	—	1.7	3.4	3.5	3.7
<i>Intangible non-produced assets</i>	—	—	—	1.4	2.7	2.5	2.4
Spectrum licences	—	—	—	1.4	2.7	2.5	2.4
<b>Financial assets with the rest of the world(e)</b>	<b>253.9</b>	<b>326.9</b>	<b>350.0</b>	<b>445.2</b>	<b>490.8</b>	<b>474.6</b>	<b>471.0</b>
Monetary gold and SDRs	2.0	1.4	1.2	1.4	1.6	1.6	1.5
Currency and deposits	11.8	23.6	21.9	22.1	25.4	25.7	23.1
Securities other than shares	45.0	49.3	54.9	64.8	83.4	87.4	99.5
Loans and placements	33.2	40.7	40.9	40.9	52.8	53.6	53.3
Shares and other equity	149.8	196.8	211.0	294.6	300.9	281.3	268.0
Other accounts receivable	12.1	15.1	20.1	21.4	26.7	24.9	25.6
<b>LIABILITIES TO THE REST OF THE WORLD(e)</b>	<b>574.5</b>	<b>651.0</b>	<b>696.3</b>	<b>788.7</b>	<b>858.8</b>	<b>867.3</b>	<b>899.0</b>
Currency and deposits	23.8	36.5	37.9	41.3	56.8	56.0	59.8
Securities other than shares	247.1	272.3	267.9	294.3	336.1	348.3	372.4
Loans and placements	57.0	61.7	71.7	88.8	94.9	102.6	106.2
Shares and other equity	239.9	272.3	308.9	353.3	359.3	348.2	348.0
Other accounts payable	6.7	8.2	9.8	11.0	11.6	12.1	12.6
<b>NET WORTH</b>	<b>2 598.7</b>	<b>2 661.1</b>	<b>2 693.0</b>	<b>2 759.4</b>	<b>2 813.4</b>	<b>2 878.2</b>	<b>2 912.0</b>

(a) The values for Non-financial assets are derived as chain volume estimates, while the values for the remaining assets and liabilities are derived as real estimates. The reference year for all values is 2001–02. (b) Livestock – fixed assets included in the balance sheet include all animals and not just sheep and cattle as shown in the capital stock tables. (c) Includes for all periods the privatised marketing authorities. (d) Experimental, see Appendix 1, 'Conceptual Framework – Balance Sheets'. (e) Owing to the introduction of new international standards from 30 June 1995, estimates of financial assets and liabilities are not fully consistent with the estimates shown prior to this period. For more information on these changes see 'Information Paper: Upgraded Australian National Accounts: Financial Accounts, 1998' (5254.0).

Source: Australian System of National Accounts, 2002–03 (5204.0).

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# Is life in Australia getting better?

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## Beyond GDP: Measures of economic, social and environmental progress

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### Introduction

Recent years have seen growing interest in assessing whether life in Australia and other countries is getting better, and whether the present quality of life can be sustained into the future. Although most regard gross domestic product (GDP) as an important measure of progress, there are many who believe that it should be assessed in conjunction with other measures of progress.

A national statistical agency has an important role to play in providing the statistical evidence that will allow assessments of progress to be made by users – those who formulate and evaluate policy, researchers and the community. Through its publications, electronic releases of data and other means, the Australian Bureau of Statistics (ABS) provides a rich array of statistics relevant to assessing progress. But the very size of the information base means it is not so accessible to many people. Moreover, most ABS products provide a window into one or a few aspects of life in Australia – such as health, education, income, water – whereas a comprehensive assessment of progress requires these aspects of life are examined together.

In 2002 the ABS released the first issue of a major new publication *Measuring Australia's Progress* (1370.0). Its objective was to equip readers with the facts to decide for themselves whether life in Australia was getting better. It was built around 15 headline indicators of national progress that spanned Australia's economy, society and environment. The second issue of the publication – now titled *Measures of Australia's Progress* (MAP) – was released in April 2004. It provides a selection of statistical evidence that allows Australians to make their own assessment of whether life in Australia is getting better.

This article describes ABS work in this area. It discusses why the ABS saw a need to measure progress. It describes how the MAP publication was developed and presents some of the key information included in the 2004 edition.

### The need for some measures of Australia's progress

In October 1995, the *Atlantic Monthly* published an article entitled 'If the GDP is Up, Why is America Down?' (Cobb, Halstead & Rowe 1995). It set out the case for some new national measures of progress, and argued that in the United States of America, Republican and Democrat politicians shared an '... ultimate goal of national policy to make ... GDP climb steadily upward'. The article went on to describe the limitations of GDP as a measure of progress, noting '... GDP is simply a gross measure of market activity, of money changing hands. It makes no distinction whatsoever between the desirable and the undesirable, or costs and gain. On top of that, it looks only at the portion of reality ... involved in monetary transactions [and pays no attention to changes in] the social structure and the natural habitat upon which the economy – and life itself – ultimately depend'. The article struck a chord within the ABS, which had become concerned at the attention being placed on GDP as the indicator of national progress.

Earlier, the World Commission on Environment and Development (the Brundtland Commission) had called for the development of new ways to measure and assess progress towards sustainable development (often defined as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs') (World Commission on Environment and Development 1987). The 1992 Earth Summit in Rio de Janeiro was a further catalyst for discussion (United Nations 1992) as were

calls from organisations such as the United Nations for better measures of social concerns to supplement the System of National Accounts.

The ABS commenced work leading to the development of the MAP publication in late-1999.

## Developing measures of progress

There are many different views of what progress means and how it might be measured. And so there were a number of key issues that needed attention when developing the MAP publication. They included:

- What core concept should be addressed by MAP?
- What presentational model should the ABS adopt?
- On what basis should the selection and presentation of statistical evidence be decided? How should the ABS decide what aspects of national life should be included, and what statistical indicators should be used to encapsulate those aspects?

## The core concept

Answering the question ‘Is life in Australia getting better?’ is not straightforward. It is clear, however, that to understand progress one must examine many aspects of people’s lives – their health, the quality of their environment, their incomes, their work and leisure, their security from crime, and so on. Progress is multidimensional. Moreover, the dimensions of progress are intertwined. To earn more income, people may need to work longer hours and so have less leisure time. Increased industrial activity may generate more money to spend on health care, but it might also lead to more air pollution and hence to poorer health.

Progress was adopted as the primary concept in the MAP publication. Progress here encompasses more than improvements in the material standard of living or other changes in the economic aspects of life; it also includes changes in the social and environmental circumstances. It encompasses:

- The major direct influences on the changing wellbeing of the Australian population.

- The structure and growth of the Australian economy.
- The environment – important both as a direct influence on the wellbeing of Australians and the Australian economy, and because people value it in its own right.

## Presentational model

Having decided to focus on progress, a model was needed to present information. It was decided to use a *suite-of-indicators approach* that sets out key aspects of progress side-by-side and discusses the links between them; readers make their own evaluations of whether the indicators together imply that a country is on balance progressing and at what rate. The approach makes no overall assessment about whether the array of statistical indicators presented implies that life is getting better or worse. Instead, the suite of indicators leaves each individual reader to apply their own values and preferences to the evidence, and to arrive at their own overall assessment of national progress.

There is an irreducible element of subjectivity in such an approach. The choice of indicators cannot be made using statistical criteria alone; it requires some judgment both in choosing the dimensions of progress to include and in choosing the statistical measures for those dimensions of progress.

## Selection and presentation of indicators

Selecting the aspects of progress to be measured was arguably the most difficult part of the project. The task was to recognise and minimise the inherent subjectivity in choosing dimensions. It was also important to recognise there are many ways of looking at the world, other than the way in which statisticians might see it.

MAP’s progress indicators were chosen in four key steps:

- Three broad domains of progress were identified – social, economic and environmental.
- A list of potential progress dimensions within each of the three domains was developed.
- A subset of dimensions for which indicators would be sought was chosen.

- An indicator (or indicators) to give statistical expression to each of those dimensions was identified.

This was an iterative process and several steps were revisited after hearing the views of the many people consulted during the development of the MAP publication.

## Dimensions of progress

To identify the major dimensions, the three broad domains – economic, social and environmental – were considered in detail and partitioned into a number of dimensions of progress to ensure that the important aspects of progress were considered.

Once a list of dimensions of progress that might be presented had been compiled, the subset of dimensions to be presented was selected. A balance had to be struck – if too many indicators were shown, readers would not be able to assimilate them; if too few were chosen, important aspects of progress would be omitted, and the overall picture might be biased. Ten to twenty indicators seemed about right, and the choice of those headline indicators and dimensions was guided by a wide variety of opinions of people from inside and outside the ABS.

During the design of MAP, the selection of aspects of life and indicators were guided by past and current ABS consultations. The ABS has a systematic program of consulting users of statistics about its statistical frameworks, surveys, products and analyses. Through this program, many government agencies, academic researchers, businesses and business councils, community organisations and individual

Australians have told the ABS what they think it is important to measure. The initial choices were tested through several further rounds of consultation undertaken specifically for MAP.

The final choice of indicators was made by the ABS after taking account of the full spectrum of views. In so far as such selections are value-driven, they were distilled from the values and emphases expressed by the user community.

## Indicators of progress

The next step was to find indicators to express these dimensions of progress. The selection of indicators was guided by expert advice and by a set of criteria developed for appropriate indicators of progress.

It was recognised a small set of indicators would not paint a full picture of progress, and so supplementary indicators were included. Some supplementary indicators give more information about dimensions of progress that were already represented by a headline indicator; others extend beyond the dimensions covered by the headline indicators.

The set of headline indicators plays a special role in MAP, and particular considerations of values and preferences arise. MAP presents several hundred indicators overall. To assist readers in gaining a quick understanding of the bigger picture about national progress, MAP presents a more compact suite of 14 headline indicators, covering the 15 dimensions (some dimensions have more than one indicator and some have none) (table S29.1).

**S29.1 MEASURES OF AUSTRALIA'S PROGRESS: Headline dimensions and indicators  
of progress — 2004**

Headline dimensions	Headline progress indicators	Supplementary progress indicators
Health	Life expectancy at birth	Proportion of people surviving to ages 25, 50 and 75 – Infant mortality rate – Avoidable deaths – Incidence of all cancer – Incidence of heart attacks – Burden of disease
Education and training	People aged 25–64 with a vocational or higher education qualification	Education participation rate for those aged 15–19 – Year 7/8 to Year 12 apparent retention rate – Education participation rates and attainment levels for those aged 15–64 – Human capital stock – OECD literacy rates, science, reading and mathematics – Indigenous to non-indigenous attainment ratios – Female students as a proportion of all students
Work	Unemployment rate	Extended labour force underutilisation rate – Proportion of people working – Long-term unemployment rate – Retrenchment rate – Unemployment to population ratios
National income	Real net national disposable income per person	Real gross state domestic income per person – Real gross domestic product per person – Population in work – Terms of trade – Real final consumption expenditure per person – Net national saving as a proportion of GDP
Financial hardship	Average real equivalised weekly disposable income of households in the second and third deciles of the income distribution	People with housing stress
National wealth	Real national net worth per person	Real national assets and liabilities per person – Real net capital stock per capita – Economically demonstrated resources (minerals and energy) per capita – Real net foreign debt – Real gross fixed capital formation per person – Average household net worth
Housing	(No headline indicator)	(No supplementary progress indicators)
Productivity	Multifactor productivity	Labour productivity – Expenditure on research and development – Managers and professionals, as a proportion of total employment – Investment in software, as a proportion of GDP – Proportion of businesses with web site or home page – Hours worked and quality adjusted hours worked
The natural landscape	Threatened birds and mammals – Annual area of land cleared – Salinity, assets at risk in areas affected, or with a high potential to develop, salinity – Water management areas, proportion where use exceeded 70% of sustainable yield	Threatened species trend – Mammalian extinctions – Area of land in conservation reserves – Species-threatening invasive animals – Exotic mammals established in the wild – Weeds of national significance, distribution – Native forest area – Net water use – Dams greater than 100 gegalitres – Water diversions: Murray-Darling Basin – River condition (biota) index – River environment index
The human environment	Fine particle concentrations, days health standards exceeded, selected capital cities	Highest one hour averages of SO <sub>2</sub> , selected regional centres – Days when ozone concentrations exceeded guidelines, selected capital cities – Recycling, Australian Capital Territory
Oceans and estuaries	(No headline indicator)	Estuarine condition index – Oil spills
International environmental concerns	Net greenhouse gas emissions	Greenhouse emissions, net, per person and per \$ GDP – Carbon dioxide measurements – Consumption of ozone depleting substances
Family, community and social cohesion	(No headline indicator)	Children and divorce – Children without an employed parent – Social participation – No participation in selected activities – Voluntary work – Suicide and drug-induced death rates – (indicators in the Work dimension are also relevant)
Crime	Victims of personal and household crimes	Homicide rate
Democracy, governance and citizenship	(No headline indicator)	Proportion of eligible overseas-born residents who are citizens – Voter turnout and informal votes cast – Women in Federal parliament – Volunteering rates for management, committee and coordination work

Headline progress indicators are distinguished from others by their capacity to encapsulate major features of change in the given aspect of Australian life. An additional criterion was applied to them – namely, that most Australians would agree that each headline indicator possessed a ‘good’ direction of movement (signalling progress, when that indicator is viewed alone) and a ‘bad’ direction of movement (signalling regress, when that indicator is viewed alone). This good-direction / bad-direction distinction raises unavoidably the question of values and preferences.

### **The treatment of values and preferences**

Once the ABS had drafted its initial list of candidate headline indicators, it undertook extensive consultation to test whether the list accorded with users’ views. Some commentators disagreed with the choice of headline indicators in the first release of MAP, usually on the grounds of ‘knock-on’ effects or interactions – that is, the good/bad direction of change may be ambiguous when one takes into consideration the real-world associations between movements in the headline indicator and movements in other indicators. Whether a reader agrees with the ABS choice of headline indicators or not, he or she is free to peruse the whole suite of several hundred indicators in MAP and to assign high weight, low weight or no weight to each, as his or her own values and preferences dictate.

Some readers of MAP have tried to infer an ABS view about the relative importance of the different aspects of Australian life from the number of aspects discussed under the social, economic and environmental headings, or from the number of headline indicators or the number of indicators overall. No such inference can or should be drawn. It is not for the national statistical agency to say what relative importance should be accorded to, say, changes in health, income or air quality. The ABS based its decision about how many indicators to present not on relative value but on statistical grounds – is it possible to find one or a few indicators that would encapsulate the changes in the given aspect of life? Is it possible to sum or otherwise combine indicators? To illustrate – changes in national wealth can be summarised well in one indicator (real national net worth per person), whereas five indicators are needed to depict significant changes in knowledge and innovation.

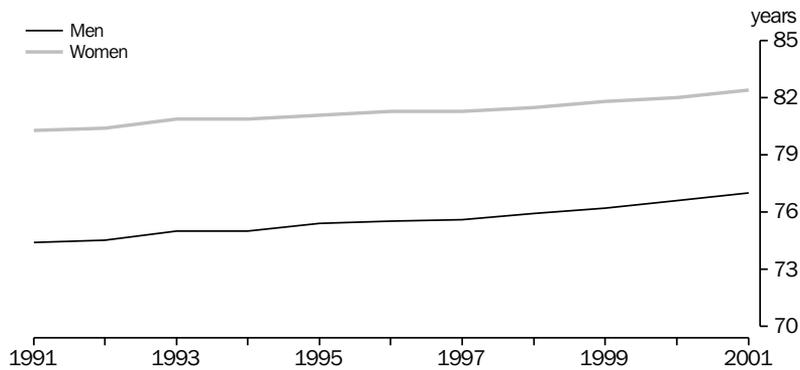
The place of values and preferences in MAP is well illustrated by its treatment of income distribution and equity. Many Australians believe a more even distribution of income would represent progress; some would argue that, other things equal, any shift to more even distribution would be an improvement; others would argue only for a somewhat more even distribution than at present – say, one that reduces extreme disparities between high and low incomes. Other Australians would not accept that more even distribution of income would represent progress. Thus, when developing MAP, the ABS decided that measures of income distribution should not appear as headline indicators. For example, the focus for financial hardship was on the average income at the bottom of the income range (the second and third decile of income), not the full distribution. Likewise, MAP compares and contrasts the circumstances of different groups in the population for several other dimensions of progress.

### **Measures of Australia’s progress at 2004**

MAP is intended to help Australians address the question, ‘Has life in our country got better, especially during the past decade?’. Answering the question is far from easy. Indeed there can be no definitive answer, because individuals have their own views about what is most important to them and to the life of the nation. But the ABS hopes that Australians use these headline indicators to form their own views of how the country is progressing.

The suite of indicators presented in the second, and latest, edition of MAP focus on the period 1992 to 2002. They suggest progress in some areas of Australian life and regress in others. What follows is a very brief summary of information embodied in the headline indicators. Overall progress, as explained above, should not be assessed by simply counting the numbers of areas getting better and subtracting those getting worse. Some aspects of progress (especially aspects such as national income and national wealth) are more easily encapsulated in a small number of indicators, than are some social and environmental aspects of progress. And some readers will give greater importance to some progress indicators than others.

## S29.2 LIFE EXPECTANCY AT BIRTH



Source: *Australian Demographic Trends, 1997 (3102.0); Deaths, Australia (3302.0)*.

### Progress: Individuals

Three headline indicators are associated with this area of progress. All three suggest progress during the past decade.

#### Health

During the past decade Australians' health improved – children born in 2001 were expected to live three years longer than those born in 1991 (graph S29.2). Indigenous Australians, however, have a life expectancy that is considerably lower than other Australians.

#### Education and training

During the past ten years the Australian population became more educated – between 1993 and 2003 the proportion of persons aged 25–64 years with a vocational or higher education qualification rose from 45% to 55%.

#### Work

Since the last recession in the early-1990s the unemployment rate has gradually declined, and the unemployment rate in 2003 was 5.9%.

### Progress: The economy and economic resources

Five headline dimensions are presented, although indicators are only available for four (National income, Financial hardship, National wealth, and Productivity). There appears to have been progress in these dimensions.

#### National income

Australia experienced significant real income growth during the past decade. Between 1992–93 and 2002–03, real net national disposable income per person grew by around 2.8% a year.

#### Financial hardship

Between 1994–95 to 2000–01 the real income of less well-off Australians (those in the second and third lowest deciles of the income distribution) grew by 8%. But the incomes of better-off groups increased by proportionally more.

#### National wealth

National wealth, as measured in Australia's balance sheet, grew during the 1990s. Real national net wealth per person increased by about 0.6% a year between 1993 and 2003 (graph S29.3).

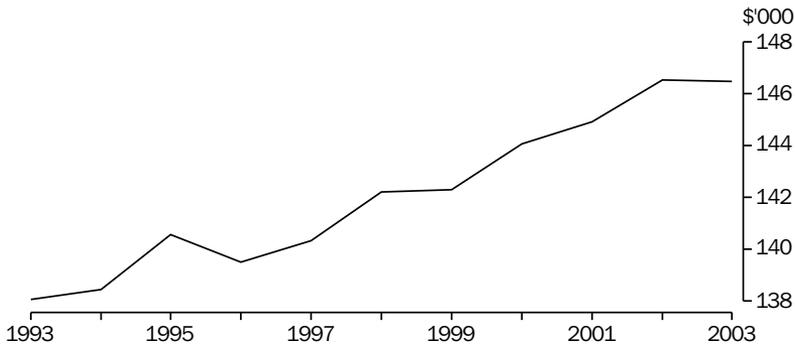
#### Housing

Housing is generally good in Australia, although poor or inadequate housing is a problem for some groups, especially for Aboriginal and Torres Strait Islander peoples living in remote areas. No headline indicator is presented.

#### Productivity

In recent years Australia has experienced improved rates of productivity growth. During the decade 1992–93 to 2002–03, Australia's multifactor productivity rose 1.3% a year on average.

### S29.3 REAL NATIONAL NET WORTH(a) PER PERSON



(a) Chain volume measure, reference year 2001–02.

Source: Australian System of National Accounts (5204.0).

### Progress: The environment

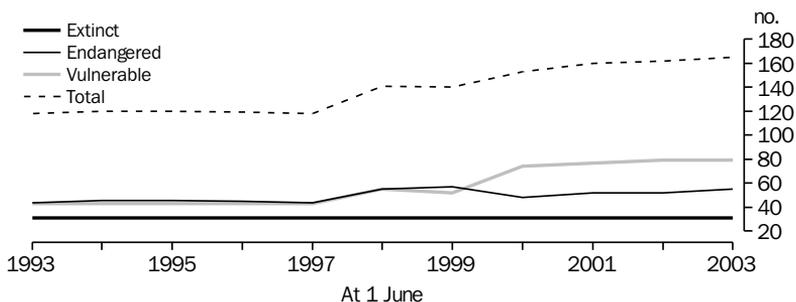
It is difficult to obtain national time series data that encapsulate the changes in Australia's natural capital. Several headline indicators suggest regress for some aspects of the environment during the past decade.

#### The natural landscape

Biodiversity cannot be measured comprehensively, but some experts, such as those on the State of the Environment

Committee, believe Australian biodiversity declined during the past decade. This is partly encapsulated in a rise in the numbers of threatened birds and mammals (graph S29.4). Land clearance, one influence thought to be reducing biodiversity, decreased by about 40% between 1991 and 2001 (graph S29.5). The area of land protected in national parks and the like increased.

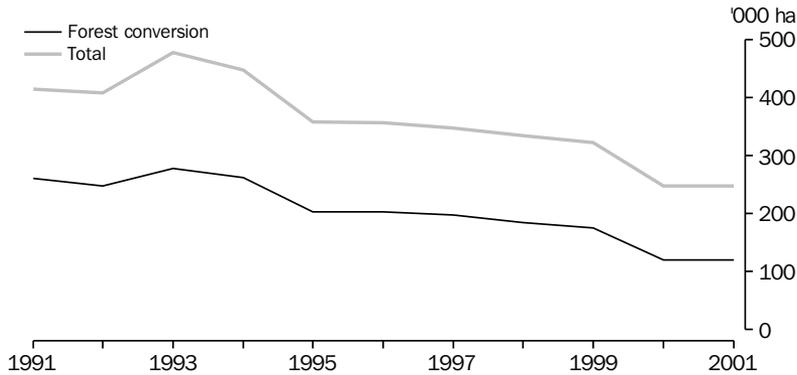
### S29.4 BIODIVERSITY: EXTINCT, ENDANGERED AND VULNERABLE BIRDS AND MAMMALS(a)



(a) Excludes seabirds, marine mammals and animals living on islands far offshore. Extinctions data have been backcast to take account of rediscoveries. Includes subspecies. There is likely to be a time lag between a species being identified as threatened and being listed.

Source: Data compiled from schedules to the Commonwealth Acts: the 'Endangered Species Protection Act 1993' and the 'Environment Protection and Biodiversity Conservation Act 1999'.

### S29.5 BIODIVERSITY: ANNUAL AREA OF LAND CLEARED



Source: National Greenhouse Gas Inventory, Australian Greenhouse Office 2003.

In 2000 about 5.7 million hectares of land were affected by, or at high risk of developing, dryland salinity, a widespread form of land degradation.

Detailed national time series data are not available. But a variety of partial evidence points to a decline in the quality of some of Australia's waterways. In 2000 about a quarter of Australia's surface water management areas were classed as highly used or overused.

#### The human environment

Australia's air remains relatively clean by the standards of other developed nations. The available indicators, such as the incidence of fine particle pollution in several cities, suggest that Australian air quality has improved during the past decade, despite increased motor vehicle use.

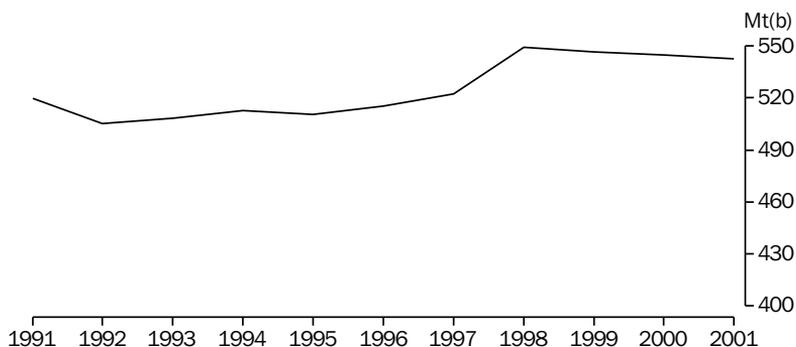
#### Oceans and estuaries

No headline indicator is presented although the commentary discusses a range of information about the pressures on – and state of – Australia's marine ecosystems.

#### International environmental concerns

Total greenhouse gas emissions in 2001 were about 4% higher than they were in 1991 (graph S29.6). Per person, Australia has one of the world's highest levels of greenhouse gas emissions, although per person emissions are decreasing (as are emissions per \$ of GDP). The heavy reliance on fossil fuel burning for energy rather than other forms of power (such as nuclear or hydro-electricity), the structure of the economy and changes in Australian land use are three influences behind the high rate of emissions.

### S29.6 NET GREENHOUSE GAS EMISSIONS(a)



(a) Kyoto-based estimates. (b) Million tonnes (megatonnes) of carbon dioxide equivalent.

Source: Australian Greenhouse Office, National Greenhouse Gas Inventory, 2001.

### Progress: Living together

Three dimensions of progress are covered here, although there is no attempt to assess overall progress in two of them.

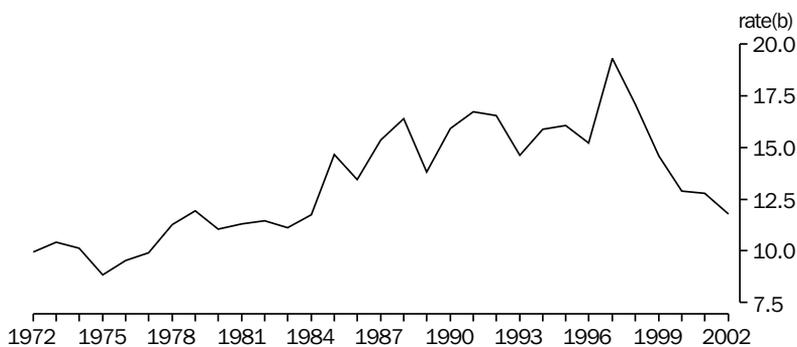
#### Family, community and social cohesion

The quality and strength of people's relationships and bonds with others – their family, friends and the wider community – are important ingredients of the level of social cohesion. And a more cohesive society is one in which communities are strong and inclusive, and where fewer people 'fall through the

cracks'. Rather than present a single indicator, this commentary presents some measures which illustrate aspects of family and community life in Australia, particularly those that are important to social cohesion.

One such measure is the youth suicide rate. For young people aged 15–24 years, the suicide rate showed a period of steady increases in the late-1980s through to the peak of 19.3 suicides per 100,000 people in 1997. Since then it has declined sharply to the current rate in 2002 of 11.8 suicides per 100,000 people – a rate last experienced in 1984 (graph S29.7).

### S29.7 YOUTH SUICIDE DEATHS(a)



(a) Persons aged 15–24 years. (b) Rate per 100,000 persons.

Source: AIHW, 'Australian long-term trends in mortality workbooks, 2003'.

## Crime

Though small, the changes in the prevalence rates for personal crimes between 1998 and 2002 showed an increase from 4.8% to 5.3%. Most of these people were victims of assault. Between 1993 and 2002 there was little change in the proportion of households that were the victim of a household crime (an actual or attempted break-in or motor vehicle theft) and it remained at a little below 9%.

## Democracy, governance and citizenship

National life is influenced, not just by material qualities such as economic output, health and education, but also by many intangible qualities such as the quality of our public life, the fairness of society, the health of democracy and the extent to which citizens of Australia participate actively in community life or cooperate with one another. Rather than present a single indicator, this commentary presents some measures which illustrate aspects of democracy, governance and citizenship.

One such measure is the changing proportion of Australian residents who have lived here for at least two years (those generally eligible for citizenship) that are citizens. In 1991 about 65% of overseas-born residents were Australian citizens. This had risen to just below 73% by 1996 and by 2001 almost three quarters of overseas-born residents were Australian citizens.

## Links between dimensions of progress

Most, if not all, of these dimensions of progress are linked. Changes in one dimension will be associated with changes in many others –

## References

Cobb, C & Halstead, T 1995, *The Genuine Progress Indicator. Redefining Progress*, San Francisco.

Cobb, C, Halstead, T & Rowe, J 1995, 'If the GDP is Up, Why is America Down?', *Atlantic Monthly*, <[www.theatlantic.com/politics/ecbig/gdp.htm](http://www.theatlantic.com/politics/ecbig/gdp.htm)> last viewed 10 August 2004.

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sometimes for the better and sometimes for the worse. A few of these links are outlined in each headline commentary; but many other important links are not discussed.

## Plans for the future

An updated issue of *Measures of Australia's Progress* is planned for mid-2005. The ABS hopes to continue to improve the publication in the future, recognising that it will doubtless evolve – important measures of progress may have been omitted, people's views about progress will change, and new data will become available.

These headline indicators form a core set of statistics for reporting on Australian progress. But the indicators chosen will change over time, because, for example:

- Thinking may change about what is important to national progress.
- There may be conceptual developments relating to one or more dimensions of progress (such as social cohesion).
- There may be statistical developments that allow the measurement of aspects of progress for which indicators cannot be constructed at present (such as human capital).

The commentary accompanying each headline indicator discusses what an ideal progress indicator might be for each dimension. The conceptually ideal indicators may, in some cases, help guide the continuing development of *Measures of Australia's Progress*, and the statistical base that supports it.

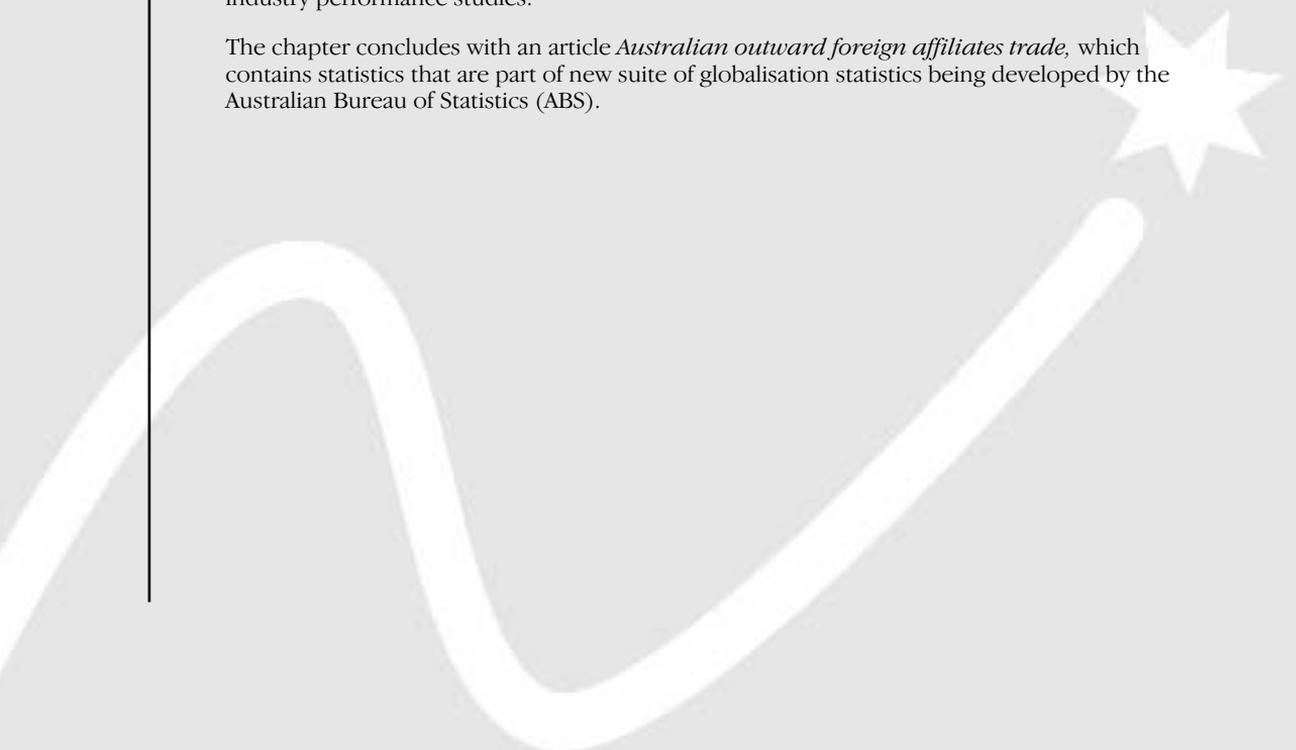


## INTERNATIONAL ACCOUNTS AND TRADE

This chapter presents statistics on Australia's international accounts, covering exports and imports of goods, international trade in services, international investment transactions, and levels of Australia's foreign financial assets and liabilities. Statistics are also provided on foreign ownership of equity in Australian enterprises.

These statistics are used by economic analysts and policy advisers to monitor, evaluate and forecast developments in Australia's external trade and external sector accounts for the purposes of domestic and international macroeconomic analysis and policy determination. They are also used by governments, government agencies, businesses, industry associations, research institutions and others to analyse patterns of trade and assess particular types of transactions and financial claims and liabilities between Australian residents and non-residents, for purposes such as trade promotion and negotiations, and market and industry performance studies.

The chapter concludes with an article *Australian outward foreign affiliates trade*, which contains statistics that are part of new suite of globalisation statistics being developed by the Australian Bureau of Statistics (ABS).



## International accounts

International accounts cover the closely related and integrated balance of payments and international investment position statistics. Diagram 30.1 presents the broad structure and relationship of these statistics.

Australia's balance of payments provides a statistical statement that systematically summarises the economic transactions between residents of Australia and residents of other countries. Residents, who may be people or businesses, need not be Australian nationals. Transactions cover the provision (changes in ownership) of goods, services, income, financial claims on and liabilities to the rest of the world, and transfers (such as gifts) without anything provided in exchange.

Australia's international investment position is a balance sheet of the stock of foreign financial assets and liabilities of Australian residents. International investment statistics integrate the balance sheet positions at two points in time with information on increases and decreases in the levels of these assets and liabilities as a result of the changes due to transactions (investment flows, including reinvestment of earnings) as shown in the financial account of the balance of payments, together with the other changes that affect either the value of the stock (price, exchange rate) or the volume (other adjustments) of the stock of financial assets and liabilities.

### Conceptual framework

Australia's international accounts statistics, which cover both the balance of payments and the international investment position, are compiled in accordance with international statistical standards as defined in the fifth edition of the International Monetary Fund's *Balance of Payments Manual (BPM5)*. The concepts of residency, transactions, valuation and time of recording are common to the balance of payments and international investment position statistics.

The balance of payments accounts, which present systematically the economic transactions between Australia and the rest of the world, incorporate four types of economic transactions. The first involves the provision of real resources, that is, transactions in goods, services and income. The second involves the provision of financial

resources, that is, foreign financial assets and liabilities. The third covers those one-sided transactions of a current nature (described as current transfers) that are offsets to transactions in current real or financial resources undertaken without an exchange. Current resources are not associated with, nor finance, fixed assets. For example, famine relief, whether in cash or in kind, would have its offset in current transfers. The fourth type is capital transfers that offset transactions undertaken, without exchange, in fixed assets or in their financing (such as development aid). For example, migrants' funds represent the shift of the migrants' net worth to or from Australia, and are classified as capital transfers.

The first and third of these types of transactions make up the current account, while the second type makes up the financial account. The fourth type (capital transfers), together with a minor item for the acquisition and disposal of non-produced, non-financial assets (such as patents), make up the capital account.

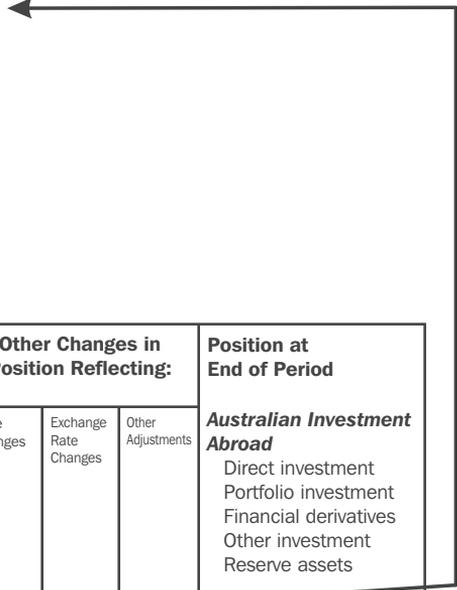
The double entry accounting system is used for recording balance of payments transactions. Under this system, credit entries, which are shown with no arithmetic sign, are used to record the provision of real or financial resources. Credit entries are therefore required for exports of goods and services, and for income earned by residents (a return for providing the use of financial capital to non-residents, or for providing the labour of Australian residents). Credit entries are also required for providing financial resources to the rest of the world, either as new liabilities (such as issuing bonds), or through returning existing foreign assets (such as selling foreign equity securities to non-residents). Therefore, any credit entry in the financial account will reflect either an increase in Australia's foreign liabilities (more foreign debt or foreign ownership), or a decrease in Australia's foreign financial assets (such as a run-down in foreign exchange reserves).

Conversely, debit entries, which are identified by a minus sign (–), are used to record the provision by the rest of the world of real or financial resources to Australia, and are shown against imports of goods and services, income earned from Australia by non-residents, and financial transactions involving either an increase in foreign financial assets or a decrease in foreign liabilities.

### 30.1 RELATIONSHIP BETWEEN THE BALANCE OF PAYMENTS AND INTERNATIONAL INVESTMENT POSITION STATEMENTS

		<i>Balance of Payments</i>					
		<p><b>CURRENT ACCOUNT</b></p> <p><b>Goods</b> Credits Debits</p> <p><b>Services</b> Credits Debits</p> <p><b>Income</b> Credits Debits</p> <p><b>Current transfers</b> Credits Debits</p> <p><b>Balance on Current Account</b></p>					
		<p><b>CAPITAL ACCOUNT</b> Capital transfers Acquisition/disposal of non-produced, non-financial assets</p> <p><b>Balance on Capital Account</b></p>					
<i>International Investment Position</i>	<p><b>Position at Beginning of Period</b></p> <p><b>Australian Investment Abroad</b> Direct investment Portfolio investment Financial derivatives Other investment Reserve assets</p> <p><b>Foreign Investment in Australia</b> Direct investment Portfolio investment Financial derivatives Other investment</p> <p><b>Net International Investment Position</b></p>	<p><b>FINANCIAL ACCOUNT</b></p> <p><b>Transaction Changes</b></p> <p><b>Direct Investment</b> Abroad In Australia</p> <p><b>Portfolio Investment</b> Assets Liabilities</p> <p><b>Financial Derivatives</b> Assets Liabilities</p> <p><b>Other Investment</b> Assets Liabilities</p> <p><b>Reserve Assets</b></p> <p><b>Balance on Financial Account</b></p>	<p><b>Other Changes in Position Reflecting:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Price Changes</td> <td style="width: 33%;">Exchange Rate Changes</td> <td style="width: 33%;">Other Adjustments</td> </tr> </table>	Price Changes	Exchange Rate Changes	Other Adjustments	<p><b>Position at End of Period</b></p> <p><b>Australian Investment Abroad</b> Direct investment Portfolio investment Financial derivatives Other investment Reserve assets</p> <p><b>Foreign Investment in Australia</b> Direct investment Portfolio investment Financial derivatives Other investment</p> <p><b>Net International Investment Position</b></p>
	Price Changes	Exchange Rate Changes	Other Adjustments				
		<p><b>Net errors and omissions</b> (the sum, with sign reversed, of the balances on the current, capital and financial accounts)</p>					

Investment income from International Investment



Source: *Balance of Payments and International Investment Position, Australia: Concepts, Sources and Methods (5331.0)*.

Transactions in a double entry accounting system are reflected in pairs of equal credit and debit entries. For example, an export transaction for which payment is received through the banking system involves a credit entry for providing the good to a non-resident and a debit entry for being provided with foreign exchange assets due as payment for the export. Any entries that are not automatically paired in a transaction, that is, for which there is no 'quid pro quo', are matched by special offsetting entries. Such offsetting entries are made in the categories 'current transfers' (when offsetting the provision of current resources such as food for famine relief) and 'capital transfers' (when offsetting the provision of capital resources such as development aid to build a new dam).

In principle, the net sum of all credit and debit entries is zero. In practice, some transactions are not measured accurately (errors), while others are not measured at all (omissions). Equality between the sums of the credit and debit entries is then brought about by the inclusion of a 'net errors and omissions' item which balances the accounts.

Transactions and other changes should be valued in the balance of payments at market prices. However, for practical reasons, transactions are generally valued in the statistics at transaction prices as this basis provides the closest practical approximation to the market price principle.

Transactions and other changes recorded in the balance of payments should be recorded at the time of change of ownership. For current account transactions, this occurs when ownership of goods changes, or services are provided. Investment income is recorded on a full accrual basis, that is, when it is earned. Reinvested earnings are calculated for the earnings of the period of account, using current replacement cost estimates of depreciation and excluding holding gains and losses. Current and capital transfers should be recorded when the goods, services, cash, etc., to which they are offsets, change ownership. Those transfers, such as taxes and fines, which are imposed by one party on another, should ideally be recorded at the time of occurrence of the underlying transactions or other flows or events that give rise to the liability to pay. For financial account transactions, the time of recording is at the change of ownership of the financial claims, which by convention is the time at which transactions are entered in the books of the transactors.

In practice, the nature of the available data sources is such that the time of recording of transactions will often differ from the time of change of ownership. Where practical, timing adjustments are made for transactions to ensure that they are recorded in the time period in which change of ownership occurs.

International investment position statistics provide information on the levels (stock) of Australia's foreign financial assets and liabilities. The investment position at the end of a period reflects the foreign financial asset and liability positions at the start of the period, and the financial transactions (investment flows) from the balance of payments which increase or decrease these assets and liabilities, together with the non-transaction changes due to exchange rate effects, other price effects and changes in the volume of these assets and liabilities that are not due to transactions (such as debt write-off).

While the international investment position statistics form an integral part of Australia's balance of payments (diagram 30.1), they are also useful in their own right, for example, in determining the impact of foreign investment policies and the level of Australia's foreign assets and liabilities, including foreign debt. They are also useful when analysing the behaviour of financial markets.

As with the balance of payments, market price is the principal method of valuation in international investment position statistics, and financial assets and liabilities are recognised on a change of ownership basis, that is, at the time when the foreign financial asset or liability is acquired, sold, repaid or otherwise disposed of. By convention, this is generally taken to be the time at which the event is recorded in the books.

## Classifications

In the following tables, estimates are presented of the current, capital and financial accounts of Australia's balance of payments. Current and capital account transactions are generally recorded gross. This means that, for each item in the current and capital accounts, the credit entries are recorded separately from the debit entries. For example, goods credits are shown separately from goods debits. For each item in the financial account, however, debit and credit transactions are combined to produce a single result for the item which may be either a net credit or a net debit. For example, in a given period, non-resident purchases of shares issued by companies in

Australia (credit) are netted against sales of Australian shares to residents by non-residents (debit) and the net result is recorded in the financial account as either a net credit or a net debit.

The current account records transactions between Australian residents and non-residents in goods, services, income and current transfers. Goods are classified into five main components: general merchandise; goods for processing; goods procured in ports by carriers; repairs on goods; and non-monetary gold. Changes of ownership from residents to non-residents are recorded as credits (also referred to as exports), and changes from non-residents to residents are recorded as debits (also referred to as imports). Services, comprising 11 primary components, cover services provided by Australian residents to non-residents (credits) and by non-residents to residents (debits), together with transactions in a few types of goods (e.g. goods purchased by travellers). Income, comprising investment income (e.g. dividends and interest) and compensation of employees (e.g. wages), covers income earned by Australian residents from non-residents (credits) or earned by non-residents from residents (debits). Current transfers cover the offsetting entries required when resources are provided, without something of economic value being received in return. When non-residents provide something to Australian residents, offsetting credits are required; when residents provide resources to non-residents, offsetting debits are required. General government transfers (e.g. official foreign aid) are distinguished from transfers by other sectors.

The capital account covers capital transfers (such as migrants' funds), distinguished between general government and other sectors, and the acquisition/disposal of non-produced, non-financial assets.

The financial account shows transactions in foreign financial assets and liabilities. The primary split is by functional type of capital (direct investment, portfolio investment, financial derivatives, other investment and reserve assets) further split into assets and liabilities (where appropriate). Within the asset and liability categories, details are presented of instruments of investment and resident sectors (for other than direct investment), and in some cases the contractual maturity of the instruments used.

The primary distinction used in international investment position statistics is between assets and liabilities. Assets primarily represent Australian

investment abroad, and liabilities primarily represent foreign investment in Australia. The difference between the two represents the net international investment position (graph 30.8 and table 30.9). Australian investment abroad refers to the stock of foreign financial assets owned by Australian residents, after netting off any liabilities of Australian direct investors to their direct investment enterprises abroad. Conversely, foreign investment in Australia refers to the stock of financial assets in Australia owned by non-residents, after netting off any claims of Australian direct investment enterprises on their foreign direct investors. The first breakdown below this asset/liability dichotomy is by functional type of capital, with details of the instruments of investment (table 30.11), the resident sectors and contractual maturities involved.

While many types of instruments of investment can be identified, similar instruments are combined for analytical reasons and ease of reporting. Some of those instruments are:

*Equity capital* – which includes ordinary and participating preference shares, units in trusts and net equity in branches.

*Reinvestment of earnings of direct investors* – which refers to income retained within the enterprise from after-tax profits that is attributable to direct investors.

*Debt securities* – which include longer term, generally tradable security instruments such as bonds and debentures, with a contractual maturity of more than one year after issue, together with money market instruments (e.g. bills, commercial finance paper, negotiable certificates of deposit) with a contractual maturity of one year or less.

*Trade credits* – which cover the direct extension by suppliers and buyers for goods and services, including advances for work in progress or to be undertaken.

*Loans* – which cover the direct lending of funds either without a security evidencing the transaction, or with non-negotiable documentation. They include financial leases.

*Deposits* – which comprise both transferable and other deposits.

*Other assets and liabilities* – which consist of miscellaneous accounts in respect of interest, dividends, etc.

## Statistical overview

As shown in table 30.2, the balance on current account for 2003–04 was a deficit of \$47.4b, an increase of \$7.1b (18%) on the previous year. The deficit on goods and services was \$24.1b, an increase of \$5.5b on the 2002–03 deficit of \$18.6b. The main contributing factors were the decrease in goods credits of \$6.8b, down from \$116.0b in 2002–03 to \$109.2b in 2003–04, and the \$1.5b increase in services debits, up from \$32.9b in 2002–03 to \$34.4b in 2003–04. The net goods deficit rose by \$5.4b, the net services deficit by \$0.1b and the net income deficit by \$1.8b on the previous year.

The surplus on capital account increased by \$0.2b (21%) to \$1.2b in 2003–04.

The balance on financial account recorded a net inflow of \$47.1b, up \$6.9b (17%) on the previous year. Direct investment recorded a net outflow of \$14.8b, a \$24.6b turnaround on the net inflow of \$9.8b in 2002–03. Contributing to the net outflow were a rise in Australian direct investment abroad of \$16.2b to \$24.4b and a fall of \$8.3b in the net inflow of direct investment into Australia. The net inflow on portfolio investment increased \$57.5b, while other investment recorded a turnaround of \$27.4b to record a net outflow of \$11.3b in 2003–04. Reserve assets fell \$0.5b, while financial derivatives recorded a turnaround of \$0.9b to be \$0.9b in 2003–04.

### 30.2 BALANCE OF PAYMENTS, Summary

	1998–99	1999–2000	2000–01	2001–02	2002–03	2003–04
	\$m	\$m	\$m	\$m	\$m	\$m
<b>Current account</b>	<b>-33 610</b>	<b>-32 620</b>	<b>-18 021</b>	<b>-20 550</b>	<b>-40 322</b>	<b>-47 427</b>
<i>Goods and services</i>	-14 431	-14 589	649	-1 233	-18 639	-24 097
Credits	112 025	126 222	153 854	153 340	148 530	143 178
Debits	-126 456	-140 811	-153 205	-154 573	-167 169	-167 275
<i>Goods</i>	-12 647	-13 145	-217	-852	-18 317	-23 688
Credits	85 783	97 665	120 307	121 090	115 961	109 190
Debits	-98 430	-110 810	-120 524	-121 942	-134 278	-132 878
<i>Services</i>	-1 784	-1 444	866	-381	-322	-409
Credits	26 242	28 557	33 547	32 250	32 569	33 988
Debits	-28 026	-30 001	-32 681	-32 631	-32 891	-34 397
<i>Income</i>	-18 430	-18 249	-18 702	-19 300	-21 469	-23 301
Credits	10 288	13 769	16 278	15 672	15 310	15 831
Debits	-28 718	-32 018	-34 980	-34 972	-36 779	-39 132
<i>Current transfers</i>	-749	218	32	-17	-214	-29
Credits	4 498	4 625	4 453	4 280	4 233	4 273
Debits	-5 247	-4 407	-4 421	-4 297	-4 447	-4 302
<b>Capital and financial account</b>	<b>31 281</b>	<b>32 112</b>	<b>17 354</b>	<b>21 907</b>	<b>41 140</b>	<b>48 263</b>
<i>Capital account</i>	1 167	1 053	1 109	1 016	991	1 199
<i>Capital transfers</i>	1 186	1 136	1 182	1 186	1 103	1 230
Credits	2 197	2 335	2 442	2 543	2 404	2 629
Debits	-1 011	-1 199	-1 260	-1 357	-1 301	-1 399
Net acquisition/disposal of non-produced, non-financial assets	-19	-83	-73	-170	-112	-31
<i>Financial account</i>	30 114	31 059	16 245	20 891	40 149	47 062
<i>Direct investment</i>	4 747	9 804	-461	186	9 795	-14 766
Abroad	-3 253	-3 343	-14 353	-21 195	-8 156	-24 377
In Australia	8 000	13 147	13 892	21 381	17 951	9 612
Portfolio investment	6 455	13 033	19 404	11 207	19 899	77 366
Financial derivatives	2 748	470	-538	773	-63	881
Other investment	16 558	10 374	6 720	7 948	16 138	-11 291
Reserve assets	-394	-2 622	-8 880	777	-5 620	-5 127
<b>Net errors and omissions</b>	<b>2 329</b>	<b>508</b>	<b>667</b>	<b>-1 357</b>	<b>-818</b>	<b>-836</b>

Source: Balance of Payments and International Investment Position, Australia (5302.0).

Graph 30.3 illustrates the differing influences of the trade balance and the net income deficit on the balance on current account. The net income deficit rose from \$9.2 in 1987–88 to \$23.3b in 2003–04. The underlying level of net income continues to drive the level and direction of the current account deficit, as Australia continues to service its external liabilities. However, the trade deficit has fluctuated quite significantly over the past 16 years, moving from a deficit of \$2.3b in 1987–88 to a deficit of \$24.1b in 2003–04.

Table 30.4 shows the annual levels of Australia’s official reserve assets and both the end of year and period average exchange rates for the major currencies, special drawing rights, and the trade weighted index.

### International trade in goods and services (balance of payments basis)

Australia’s international trade in goods and services for the six years to 2003–04 is shown in tables 30.5 (exports or credits) and 30.6 (imports or debits). The tables provide both current price and chain volume measures.

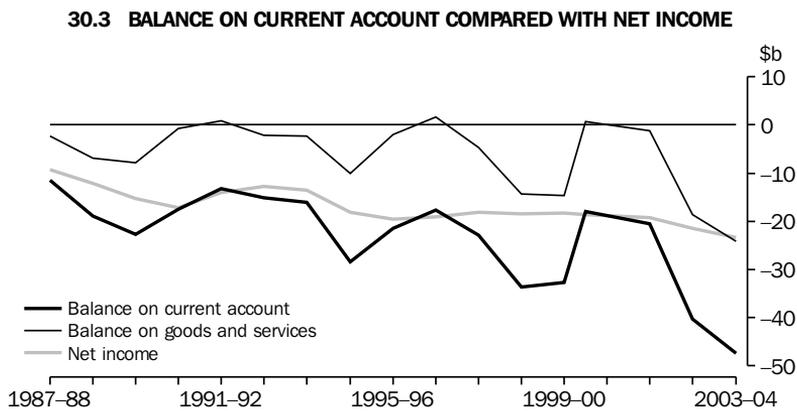
The components of merchandise goods shown in tables 30.5 and 30.6 are defined in terms of groupings of items in the United Nations Broad

Economic Categories (BEC) for credits, and a version of the BEC for Balance of Payments purposes modified for debits.

Chain volume measures of exports and imports remove the effects of price changes. They provide measures, in dollar values, which indicate changes in the actual volume of exports and imports.

The current price value of a transaction may be expressed conceptually as the product of a price and quantity. The value of the transaction in chain volume measures may then be thought of as being derived by substituting, for the current price, the corresponding price in the chosen reference year.

There are, however, many transactions recorded in statistics of international trade in goods and services for which it is not possible to apply such an approach. In such cases it is necessary to make assumptions and approximations (e.g. revaluing by means of the price index which is considered to be most closely related to the commodity involved). The published chain volume measures should be viewed in this light. For more information on chain volume measures refer to *Information Paper: Australian National Accounts, Introduction of Chain Volume and Price Indexes* (5248.0).



Source: *Balance of Payments and International Investment Position, Australia* (5302.0).

### 30.4 RESERVE ASSETS AND EXCHANGE RATES

	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
RESERVE ASSETS(a) (\$m)						
<b>Total reserve assets</b>	<b>-23 954</b>	<b>-27 948</b>	<b>-37 951</b>	<b>-37 435</b>	<b>-40 760</b>	<b>-50 343</b>
Monetary gold	-1 013	-1 233	-1 367	-1 445	-1 329	-1 473
Special drawing rights	-88	-141	-197	-216	-226	-256
Reserve position in IMF	-2 338	-2 225	-2 412	-2 992	-3 185	-2 497
<i>Foreign exchange</i>	<i>-20 515</i>	<i>-24 349</i>	<i>-33 975</i>	<i>-32 782</i>	<i>-36 020</i>	<i>-46 117</i>
Currency and deposits	-7 971	-9 148	-11 340	-11 761	-10 254	-23 420
Securities	-12 544	-15 143	-22 562	-21 137	-25 758	-22 695
Financial derivatives (net)	n.a.	-58	-73	116	-8	-2
EXCHANGE RATES						
End of period(a)						
United States dollar	0.6596	0.5986	0.5075	0.5648	0.6674	0.6889
United Kingdom pound	0.4188	0.3941	0.3603	0.3700	0.4038	0.3815
Euro	0.6379	0.6282	0.6002	0.5715	0.5840	0.5702
Japanese yen	79.66	63.19	62.94	67.48	79.99	74.82
Special drawing right	0.4932	0.4481	0.4076	0.4277	0.4761	0.4694
Period average(b)						
United States dollar	0.6276	0.6292	0.5379	0.5239	0.5847	0.7136
United Kingdom pound	0.3824	0.3947	0.3704	0.3632	0.3685	0.4102
Euro	..	..	0.6023	0.5850	0.5577	0.5981
Japanese yen	77.81	67.91	61.49	66.10	70.01	78.91
Special drawing right	0.4589	0.4642	0.4177	0.4135	0.4313	0.4933
TRADE-WEIGHTED INDEX OF VALUE OF THE AUSTRALIAN DOLLAR(c)						
End of period(a)	58.4	53.3	49.7	52.3	59.4	59.1
Period average(b)	56.0	55.2	50.3	50.7	53.5	61.5

(a) At 30 June. (b) Exchange rates and the trade-weighted index are provided by the Reserve bank of Australia in respect of each trading day. Period averages are derived from these rates. (c) May 1970 = 100.0. The trade weighted index is reweighted annually and on special occasions as required.

Source: *Balance of Payments and International Investment Position, Australia (5302.0)*.

In current price terms the balance on goods and services recorded a deficit of \$24.1b in 2003-04, an increase of \$5.5b (29%) on the \$18.6b deficit recorded in 2002-03. Between these two years, goods and services credits fell \$5.4b to \$143.2b (down 4%) while debits rose by \$0.1b to \$167.3b (up 0.1%).

Over the same period goods credits fell \$6.8b (6%) to \$109.2b, with rural goods falling \$1.0b and non-rural goods down by \$5.0b. Goods debits fell by \$1.4b (1%) to \$132.9b. Consumption goods

rose \$1.7b, capital goods rose \$0.4b, while intermediate and other goods fell \$3.0b.

Contributing to the fall in the intermediate and other goods were imports of parts for transport equipment, down \$0.7b to \$6.6b, and other goods down \$0.6b to \$5.1b in 2003-04.

More detailed information on exports and imports of goods, on a merchandise trade basis without adjustment for balance of payments purposes and trade in services, are shown later in this chapter.

### 30.5 GOODS AND SERVICES CREDITS

	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
	\$m	\$m	\$m	\$m	\$m	\$m
AT CURRENT PRICES						
<b>Goods and services credits</b>	<b>112 025</b>	<b>126 222</b>	<b>153 854</b>	<b>153 340</b>	<b>148 530</b>	<b>143 178</b>
<i>Goods credits</i>	85 783	97 665	120 307	121 090	115 961	109 190
General merchandise	78 323	90 110	112 897	113 471	107 269	101 231
Rural goods	21 862	23 617	29 164	30 085	25 484	24 473
Meat and meat preparations	4 008	4 467	5 796	6 246	5 655	5 752
Cereal grains and cereal preparations	5 046	4 941	5 937	6 481	4 487	5 087
Wool and sheepskins	2 583	2 963	3 897	3 687	3 545	2 791
Other rural	10 225	11 246	13 534	13 671	11 797	10 843
Non-rural goods	56 461	66 493	83 733	83 386	81 785	76 758
Metal ores and minerals	11 037	11 760	15 205	14 774	14 523	14 732
Coal, coke and briquettes	9 288	8 336	10 844	13 430	11 987	10 918
Other mineral fuels	4 461	9 082	13 464	10 940	11 049	8 758
Metals (excl. non-monetary gold)	6 984	8 810	10 146	9 650	8 711	7 765
Machinery	6 569	7 133	8 797	7 999	7 362	6 832
Transport equipment	3 343	4 597	5 041	5 686	6 273	5 175
Other manufactures	10 273	11 539	13 530	13 758	13 485	13 335
<i>Other non-rural (incl. sugar)</i>	4 506	5 236	6 706	7 149	8 395	9 243
Beverages	1 176	1 515	1 931	2 287	2 605	2 620
Sugar, sugar preparations and honey	1 472	1 229	1 330	1 610	1 363	n.p.
Other	1 858	2 492	3 445	3 252	4 427	n.p.
Other goods	7 460	7 555	7 410	7 619	8 692	7 959
<i>Services credits</i>	26 242	28 557	33 547	32 250	32 569	33 988
CHAIN VOLUME MEASURES(a)(b)						
<b>Goods and services credits</b>	<b>128 300</b>	<b>140 599</b>	<b>150 925</b>	<b>149 333</b>	<b>148 530</b>	<b>149 897</b>
<i>Goods credits</i>	98 510	109 042	115 583	116 200	115 961	116 569
General merchandise	89 405	99 781	107 402	108 246	107 269	108 318
Rural goods	26 203	28 866	30 274	29 222	25 484	26 513
Meat and meat preparations	5 057	5 160	5 835	5 591	5 654	5 415
Cereal grains and cereal preparations	6 771	6 757	6 485	6 596	4 487	6 081
Wool and sheepskins	4 145	4 862	5 076	4 426	3 545	3 618
Other rural	10 716	12 499	13 207	12 844	11 796	11 397
Non-rural goods	63 489	71 214	77 349	79 107	81 785	81 806
Metal ores and minerals	11 831	12 100	13 231	13 737	14 523	15 060
Coal, coke and briquettes	9 739	10 197	11 176	11 451	11 987	12 568
Other mineral fuels	9 442	11 164	12 005	11 801	11 049	9 556
Metals (excl. non-monetary gold)	7 895	8 681	8 746	9 364	8 711	7 409
Machinery	5 832	6 591	7 950	7 459	7 362	7 562
Transport equipment	3 751	5 116	5 039	5 472	6 273	5 654
Other manufactures	10 272	11 798	12 952	13 215	13 486	14 174
<i>Other non-rural (incl. sugar)</i>	4 671	5 784	6 394	6 776	8 395	9 823
Beverages	1 159	1 546	1 840	2 172	2 605	2 852
Sugar, sugar preparations and honey	1 330	1 435	1 133	1 284	1 363	n.p.
Other	2 151	2 803	3 390	3 270	4 426	n.p.
Other goods	9 253	9 443	8 155	7 886	8 694	8 249
<i>Services credits</i>	29 975	31 767	35 561	33 162	32 568	33 327

(a) Reference year is 2002-03. (b) Chain volume measures are not additive for most periods; the component measures do not sum to a total in the same way as the corresponding current price components do.

Source: *Balance of Payments and International Investment Position, Australia (5302.0)*.

### 30.6 GOODS AND SERVICES DEBITS

	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
	\$m	\$m	\$m	\$m	\$m	\$m
AT CURRENT PRICES						
<b>Goods and services debits</b>	<b>-126 456</b>	<b>-140 811</b>	<b>-153 205</b>	<b>-154 573</b>	<b>-167 169</b>	<b>-167 275</b>
<i>Goods debits</i>	-98 430	-110 810	-120 524	-121 942	-134 278	-132 878
General merchandise	-94 392	-106 749	-116 165	-116 802	-128 645	-127 796
Consumption goods	-28 041	-30 781	-35 775	-37 422	-41 228	-42 921
Food and beverages, mainly for consumption	-3 606	-3 943	-4 483	-4 687	-5 067	-5 168
Household electrical items	-2 245	-2 456	-3 000	-3 166	-3 657	-3 795
Non-industrial transport equipment	-7 231	-7 735	-9 627	-9 930	-11 302	-12 326
Textiles, clothing and footwear	-3 739	-4 232	-4 811	-4 849	-5 237	-5 078
Toys, books and leisure goods	-3 184	-3 238	-3 359	-3 494	-3 740	-3 595
Consumption goods n.e.s.	-8 036	-9 177	-10 495	-11 296	-12 225	-12 959
Capital goods	-23 058	-26 895	-25 739	-27 208	-31 554	-32 003
Machinery and industrial equipment	-9 226	-8 912	-8 876	-9 502	-11 007	-11 060
ADP equipment	-4 496	-4 912	-5 260	-5 055	-4 908	-5 138
Telecommunications equipment	-2 812	-4 150	-4 379	-3 643	-3 619	-4 104
Civil aircraft	-649	-1 414	-609	-1 513	-3 887	-3 061
Industrial transport equipment n.e.s.	-2 863	-4 181	-2 940	-3 613	-3 881	-4 035
Capital goods n.e.s.	-3 012	-3 326	-3 675	-3 882	-4 252	-4 605
Intermediate and other merchandise goods	-43 293	-49 073	-54 651	-52 172	-55 863	-52 872
Food and beverages, mainly for industry	-758	-731	-592	-577	-736	-625
Primary industrial supplies n.e.s.	-882	-1 117	-1 133	-1 117	-1 220	-1 077
Fuels and lubricants	-4 428	-7 450	-10 358	-8 823	-10 393	-9 897
Parts for transport equipment	-6 085	-6 874	-7 089	-6 827	-7 258	-6 551
Parts for ADP equipment	-1 944	-1 936	-2 255	-2 159	-2 011	-1 812
Other parts for capital goods	-7 692	-8 008	-9 072	-8 216	-8 605	-8 559
Organic and inorganic chemicals	-3 139	-3 572	-3 777	-3 447	-3 089	-3 047
Paper and paperboard	-1 978	-2 207	-2 311	-2 225	-2 326	-2 242
Textile yarn and fabrics	-2 006	-1 987	-1 863	-1 830	-1 839	-1 579
Iron and steel	-1 470	-1 509	-1 437	-1 765	-1 960	-2 026
Plastics	-1 889	-2 037	-2 193	-2 182	-2 478	-2 179
Processed industrial supplies n.e.s.	-10 140	-10 772	-11 251	-11 441	-12 238	-12 044
Other merchandise goods	-882	-873	-1 320	-1 563	-1 710	-1 234
Other goods	-4 038	-4 061	-4 359	-5 140	-5 633	-5 082
<i>Services debits</i>	-28 026	-30 001	-32 681	-32 631	-32 891	-34 397

For footnotes see end of table.

...continued

**30.6 GOODS AND SERVICES DEBITS — continued**

	1998–99	1999–2000	2000–01	2001–02	2002–03	2003–04
	\$m	\$m	\$m	\$m	\$m	\$m
<b>CHAIN VOLUME MEASURES(a)(b)</b>						
<b>Goods and services debits</b>	<b>-129 310</b>	<b>-145 931</b>	<b>-144 087</b>	<b>-147 311</b>	<b>-167 168</b>	<b>-189 061</b>
<i>Goods debits</i>	-98 735	-112 799	-111 597	-115 505	-134 278	-150 256
General merchandise	-94 123	-108 017	-107 040	-110 353	-128 646	-144 805
Consumption goods	-28 427	-32 003	-34 824	-35 943	-41 227	-46 823
Food and beverages, mainly for consumption	-3 710	-4 149	-4 533	-4 737	-5 066	-5 472
Household electrical items	-2 086	-2 354	-2 724	-2 905	-3 656	-4 348
Non-industrial transport equipment	-7 824	-8 320	-9 796	-9 664	-11 301	-12 965
Textiles, clothing and footwear	-3 876	-4 538	-4 709	-4 534	-5 236	-6 011
Toys, books and leisure goods	-3 126	-3 305	-3 104	-3 242	-3 739	-4 127
Consumption goods n.e.s.	-7 879	-9 379	-10 023	-10 892	-12 224	-13 900
Capital goods	-19 997	-24 869	-22 576	-24 563	-31 554	-37 605
Machinery and industrial equipment	-9 112	-9 037	-8 288	-8 760	-11 007	-12 276
ADP equipment	-2 272	-3 167	-3 383	-3 947	-4 908	-7 119
Telecommunications equipment	-2 386	-3 687	-3 831	-3 253	-3 618	-5 168
Civil aircraft	-712	-1 557	-605	-1 425	-3 887	-3 442
Industrial transport equipment n.e.s.	-2 981	-4 345	-2 878	-3 496	-3 881	-4 360
Capital goods n.e.s.	-3 190	-3 516	-3 558	-3 640	-4 252	-5 242
Intermediate and other merchandise goods	-45 998	-51 087	-49 838	-50 005	-55 862	-60 376
Food and beverages, mainly for industry	-625	-774	-725	-700	-736	-703
Primary industrial supplies n.e.s.	-897	-1 202	-1 116	-1 118	-1 221	-1 161
Fuels and lubricants	-9 823	-9 364	-9 232	-9 810	-10 393	-11 125
Parts for transport equipment	-6 433	-7 235	-6 888	-6 463	-7 257	-7 460
Parts for ADP equipment	-990	-1 260	-1 465	-1 699	-2 011	-2 502
Other parts for capital goods	-6 801	-7 688	-8 141	-7 522	-8 605	-10 373
Organic and inorganic chemicals	-2 965	-3 654	-3 378	-3 054	-3 088	-3 212
Paper and paperboard	-2 097	-2 374	-2 185	-2 077	-2 325	-2 513
Textile yarn and fabrics	-2 032	-2 115	-1 770	-1 743	-1 839	-1 818
Iron and steel	-1 548	-1 588	-1 460	-1 785	-1 959	-2 030
Plastics	-2 206	-2 431	-2 095	-2 054	-2 478	-2 491
Processed industrial supplies n.e.s.	-10 072	-10 957	-10 365	-10 640	-12 238	-13 529
Other merchandise goods	-852	-884	-1 216	-1 443	-1 710	-1 460
Other goods	-4 786	-4 794	-4 522	-5 173	-5 632	-5 452
<i>Services debits</i>	-30 893	-33 354	-32 690	-31 895	-32 892	-38 806

(a) Reference year for chain volume measures is 2002–03. (b) Chain volume measures are not additive for most periods; the component measures do not sum to a total in the same way as the corresponding current price components do.

Source: *Balance of Payments and International Investment Position, Australia (5302.0)*.

Table 30.7 presents various price indexes for Australia's trade in goods and services. The implicit price deflators (IPDs) are derived by dividing the current price measures by the corresponding chain volume measures. These IPDs reflect not only price change, but compositional effects from year to year.

Unlike IPDs, chain price indexes measure only the impact of a price change. The chain Laspeyres price index for goods and services credits fell 4.1% in 2003–04 to 95.9. The fall resulted from a stronger Australian dollar in 2003–04. The chain Laspeyres price index for goods and services debits fell 11.1% to 88.9.

Australia's terms of trade (derived by dividing the IPD for credits by the IPD for debits) rose by 8.0% in 2003–04, resulting from a 4.5% fall in the IPD for goods and services credits and a 11.5% fall in the IPD for goods and services debits (table 30.7).

## International investment position

Australia's net international investment position is the difference between the levels of Australia's foreign financial liabilities and the levels of its foreign financial assets. Historically, Australia has had a net liability position with the rest of the world.

Australia's net international investment position at 30 June 2004 was a net foreign financial liability of \$501.1b. This was up \$50.4b (11.2%) on the position a year earlier and resulted from net increases of \$14.1b in the level of foreign equity and \$36.3b in the level of foreign debt.

Graph 30.8 shows the components of Australia's international investment position between 30 June 1994 and 30 June 2004. It shows that the increase in net foreign liabilities primarily reflects increase in net foreign debt liabilities.

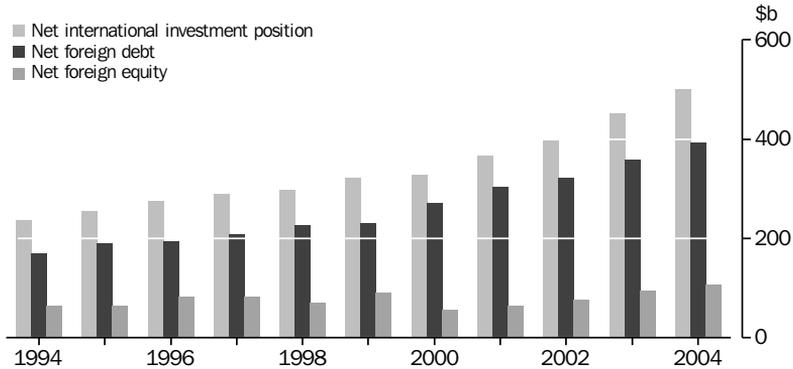
### 30.7 IMPLICIT PRICE DEFLATORS, PRICE INDEXES AND TERMS OF TRADE(a)

	1998–99	1999–2000	2000–01	2001–02	2002–03	2003–04
Implicit price deflators(b)						
Goods and services credits	87.3	89.8	101.9	102.7	100.0	95.5
Goods credits	87.1	89.6	104.1	104.2	100.0	93.7
Services credits	87.5	89.9	94.3	97.3	100.0	102.0
Goods and services debits	97.8	96.5	106.3	104.9	100.0	88.5
Goods debits	99.7	98.2	108.0	105.6	100.0	88.4
Services debits	90.7	89.9	100.0	102.3	100.0	88.6
Chain Laspeyres price indexes						
Goods and services credits	86.6	88.7	101.3	102.2	100.0	95.9
Goods credits	86.4	88.4	103.3	103.6	100.0	94.2
Services credits	87.2	89.6	94.2	97.2	100.0	102.0
Goods and services debits	95.4	95.0	105.3	104.4	100.0	88.9
Goods debits	97.0	96.7	107.0	105.1	100.0	88.9
Services debits	89.8	89.1	99.5	102.1	100.0	88.7
Terms of trade(c)						
Goods and services	89.3	93.0	95.9	97.9	100.0	108.0
Goods	87.3	91.2	96.4	98.7	100.0	105.9
Services	96.5	99.9	94.4	95.1	100.0	115.1

(a) Reference year for price and terms of trade indexes is 2002–03. (b) Derived by dividing the estimates at current prices in tables 30.5 and 30.6 by the chain volume measures in those tables. (c) Derived by dividing the IPDs for credits by the IPDs for debits.

Source: *Balance of Payments and International Investment Position, Australia (5302.0)*.

### 30.8 NET INTERNATIONAL INVESTMENT POSITION — 30 June



Source: *Balance of Payments and International Investment Position, Australia (5302.0)*.

Table 30.9 shows a reconciliation between opening and closing levels for foreign financial assets, foreign financial liabilities and Australia's net international investment position. Increases or decreases in these assets and liabilities are due to financial transactions (investment flows), price changes, exchange rate changes and other adjustments.

#### Foreign debt

Foreign debt is a subset of the financial obligations that make up a country's international investment position. It includes all the non-equity components of the net international investment position, that is, all recorded assets and liabilities other than equity securities and direct investment equity capital, including reinvested earnings.

The level of borrowing and other non-equity liabilities of Australian residents at a particular date make up Australia's foreign debt liabilities. The

level of Australian lending abroad and other non-equity assets at the same date are deducted from the level of borrowing to arrive at Australia's net foreign debt.

The level of net foreign debt at 30 June 2004 was \$393.5b, up \$36.3b (10.2%) on 30 June 2003. The increase during 2003-04 resulted from a \$75.5b (13.0%) increase in foreign debt liabilities partly offset by an increase of \$39.2b (17.7%) in foreign debt assets (table 30.10).

At 30 June 2004 the net foreign debt of the public sector (general government plus public financial and non-financial corporations) was \$6.2b, which accounted for 1.6% of total net foreign debt. Net foreign debt levels of private financial corporations and private non-financial corporations were \$314.0b (79.8% of total net foreign debt) and \$73.2b (18.6%) respectively (table 30.10).

### 30.9 INTERNATIONAL INVESTMENT POSITION

	Position at beginning of period \$m	Changes in position reflecting				Position at end of period \$m
		Transactions \$m	Price changes \$m	Exchange rate changes \$m	Other adjustments \$m	
<b>NET INTERNATIONAL INVESTMENT POSITION</b>						
<b>Total</b>						
2001-02	366 408	20 890	14 208	-3 208	79	398 377
2002-03	398 377	40 150	3 829	6 652	1 772	450 778
2003-04	450 778	47 062	10 724	-4 983	-2 435	501 146
<b>Equity</b>						
2001-02	63 835	-16 859	16 701	12 496	-992	75 178
2002-03	75 178	-8 533	2 823	23 032	1 087	93 588
2003-04	93 588	-2 976	17 647	491	-1 093	107 656
<b>Debt</b>						
2001-02	302 573	37 749	-2 492	-15 703	1 072	323 199
2002-03	323 199	48 684	1 005	-16 381	682	357 190
2003-04	357 190	50 038	-6 923	-5 474	-1 342	393 489
<b>FOREIGN ASSETS(a)</b>						
<b>Total</b>						
2001-02	-488 144	-53 802	46 553	11 981	50	-483 361
2002-03	-483 361	-32 287	4 518	20 255	-505	-491 378
2003-04	-491 378	-47 223	-31 086	-10 853	-2 741	-583 280
<b>Equity</b>						
2001-02	-294 304	-43 874	48 135	12 496	-450	-277 999
2002-03	-277 999	-25 209	9 973	23 032	671	-269 533
2003-04	-269 533	-33 098	-19 209	491	-860	-322 210
<b>Debt</b>						
2001-02	-193 840	-9 927	-1 581	-514	500	-205 363
2002-03	-205 363	-7 077	-5 453	-2 777	-1 175	-221 845
2003-04	-221 845	-14 125	-11 875	-11 344	-1 881	-261 070
<b>FOREIGN LIABILITIES(b)</b>						
<b>Total</b>						
2001-02	854 552	74 692	-32 345	-15 189	29	881 738
2002-03	881 738	72 437	-691	-13 604	2 276	942 156
2003-04	942 156	94 284	41 809	5 870	307	1 084 426
<b>Equity</b>						
2001-02	358 139	27 016	-31 434	—	-541	353 176
2002-03	353 176	16 675	-7 148	—	418	363 121
2003-04	363 121	30 120	36 856	—	-232	429 866
<b>Debt</b>						
2001-02	496 413	47 678	-910	-15 189	572	528 562
2002-03	528 562	55 762	6 458	-13 604	1 857	579 035
2003-04	579 035	64 163	4 954	5 870	539	654 560

(a) Assets include claims of Australian direct investment enterprises on direct investors abroad, which are classified as part of direct investment in Australia. (b) Liabilities include liabilities of Australian direct investors to direct investment enterprises abroad, which are classified as part of direct investment abroad.

Source: *Balance of Payments and International Investment Position, Australia (5302.0)*.

### 30.10 LEVELS OF FOREIGN DEBT — 30 June

	1999	2000	2001	2002	2003	2004
	\$m	\$m	\$m	\$m	\$m	\$m
<b>Foreign debt assets(a)</b>	<b>-129 150</b>	<b>-144 186</b>	<b>-193 840</b>	<b>-205 363</b>	<b>-221 845</b>	<b>-261 070</b>
<i>Public sector</i>	-40 770	-44 876	-63 432	-56 156	-55 869	-67 134
General government	-9 378	-9 219	-10 338	-10 869	-10 757	-9 996
<i>Financial corporations</i>	-30 470	-35 263	-46 151	-42 832	-43 377	-55 619
Central Bank	-22 883	-27 184	-37 040	-35 053	-37 641	-47 846
Central borrowing authorities	-385	-1 090	-1 426	-998	-568	-548
Other financial corporations	-7 203	-6 990	-7 685	-6 781	-5 168	-7 225
Non-financial corporations	-922	-393	-6 943	-2 455	-1 735	-1 519
<i>Private sector</i>	-88 380	-99 311	-130 408	-149 206	-165 976	-193 937
Financial corporations	-66 328	-75 689	-99 504	-120 990	-132 913	-158 818
Non-financial corporations	-22 052	-23 622	-30 904	-28 216	-33 063	-35 119
<b>Foreign debt liabilities(a)</b>	<b>359 839</b>	<b>416 825</b>	<b>496 413</b>	<b>528 562</b>	<b>579 035</b>	<b>654 560</b>
<i>Public sector</i>	75 279	63 413	69 255	67 912	64 840	73 346
General government	32 373	22 872	24 100	24 927	24 049	29 658
Debt domiciled abroad	2 176	1 567	1 453	1 573	1 557	1 314
Debt domiciled in Australia	30 197	21 305	22 647	23 354	22 493	28 344
<i>Financial corporations</i>	37 284	33 968	32 649	28 926	27 319	30 745
Central Bank	40	34	366	43	150	124
Debt domiciled abroad	—	—	317	—	—	—
Debt domiciled in Australia	40	34	49	43	150	124
Central borrowing authorities	32 772	29 060	27 622	24 906	23 955	27 171
Debt domiciled abroad	29 694	25 646	24 596	22 319	21 091	24 316
Debt domiciled in Australia	3 077	3 413	3 027	2 588	2 864	2 855
Other financial corporations	4 473	4 875	4 661	3 976	3 214	3 450
Debt domiciled abroad	4 473	4 875	4 492	3 976	3 214	3 366
Debt domiciled in Australia	—	—	169	—	—	84
Non-financial corporations	5 622	6 572	12 506	14 060	13 471	12 943
Debt domiciled abroad	5 463	6 340	12 012	13 521	13 036	12 112
Debt domiciled in Australia	159	232	494	538	436	831
<i>Private sector</i>	284 560	353 413	427 157	460 650	514 195	581 214
Financial corporations	209 734	269 917	328 001	365 419	408 215	472 852
Non-financial corporations	74 825	83 496	99 157	95 231	105 980	108 362
<b>Net foreign debt</b>	<b>230 689</b>	<b>272 639</b>	<b>302 573</b>	<b>323 199</b>	<b>357 190</b>	<b>393 489</b>
<i>Public sector</i>	34 509	18 537	5 823	11 756	8 970	6 212
General government	22 995	13 652	13 762	14 058	13 292	19 662
<i>Financial corporations</i>	6 814	-1 295	-13 502	-13 906	-16 058	-24 874
Central Bank	-22 843	-27 150	-36 674	-35 010	-37 491	-47 722
Central borrowing authorities	32 387	27 970	26 196	23 908	23 387	26 623
Other financial corporations	-2 730	-2 115	-3 024	-2 805	-1 955	-3 775
Non-financial corporations	4 700	6 179	5 563	11 605	11 736	11 424
<i>Private sector</i>	196 179	254 102	296 750	311 443	348 219	387 277
Financial corporations	143 406	194 228	228 497	244 429	275 302	314 035
Non-financial corporations	52 773	59 874	68 253	67 014	72 918	73 243

(a) Foreign debt levels between direct investors and direct investment enterprises are recorded on a gross basis for assets and liabilities.

Source: *Balance of Payments and International Investment Position, Australia (5302.0)*.

## Levels of foreign investment in Australia and Australian investment abroad

In table 30.11, levels of investment are categorised by direction (Australian investment abroad and foreign investment in Australia), type of investment (direct, portfolio, financial derivatives, other and reserve assets) and instrument.

Direct investment is a category of international investment that reflects the objective of obtaining a lasting interest by a resident in one economy in an enterprise in another economy, and implies a significant degree of influence by the investor in the management of the enterprise. A direct investment relationship is established when an investor, who is a resident in one economy, holds 10% or more of the ordinary shares or voting stock of an enterprise (direct investment enterprise) in another economy. The portfolio investment category covers investment in equity and debt securities other than direct investment, financial derivative assets, other investment assets and reserve assets.

The items Australian investment abroad and foreign investment in Australia in table 30.11 do not equate with foreign assets and liabilities respectively in table 30.9. The difference is due to netting of assets and liabilities in regard to direct investment, both abroad and in Australia. Debt claims by direct investment enterprises on their direct investors, separately identified in table 30.11, are netted off in that table against liabilities to direct investors. These items are not netted off in table 30.9.

At 30 June 2004 Australian investment abroad totalled \$557.3b, up \$91.8b (19.7%) on the level a year earlier. This rise was the net effect of a \$27.9b

increase in direct investment abroad, a \$38.2b increase in portfolio investment assets, a \$1.2b increase in financial derivative assets, a \$15.0b increase in other investment assets and a \$9.6b increase in reserve assets.

Foreign investment in Australia totalled \$1,058.5b at 30 June 2004, up \$142.2b (15.5%) on June 2003. This rise was due to a \$16.7b increase in direct investment in Australia, a \$126.6b increase in portfolio investment liabilities, a \$5.2b decrease in financial derivative liabilities and a \$4.1b increase in other investment liabilities.

## Ratios

Table 30.12 and graph 30.13 show the ratio of the current account deficit to gross domestic product (GDP) was 5.8% in 2003–04, an increase on the previous year, and above the average for the past 10 years (4.5%).

Graph 30.14 shows the ratio of Australia's net foreign liabilities (Australia's net international investment position) to GDP has risen for most years since 1994 and reached its highest level of 61.8% at 30 June 2004. The ratio of net foreign debt to GDP was 48.5% at 30 June 2004, an increase over the 47.2% recorded the previous year. The ratio of net foreign equity to GDP was 13.3% at 30 June 2004, up on the ratio at 30 June 2003 and above the average for the last 10 years (12.8%).

Table 30.12 shows the net investment income payable on net foreign debt as a percentage of goods and services credits was 8.5% in 2003–04. The ratio of net investment income payable on equity to goods and services credits was 7.4% in 2003–04, up from 6.4% the previous year.

**30.11 LEVELS OF AUSTRALIAN INVESTMENT ABROAD AND FOREIGN INVESTMENT IN AUSTRALIA — 30 June**

	1999	2000	2001	2002	2003	2004
	\$m	\$m	\$m	\$m	\$m	\$m
<b>Levels of Australian investment abroad</b>	<b>-313 359</b>	<b>-410 656</b>	<b>-466 710</b>	<b>-464 688</b>	<b>-465 523</b>	<b>-557 336</b>
<i>Direct investment abroad(a)</i>	-129 465	-178 304	-187 177	-161 229	-152 622	-180 535
Equity capital and reinvested earnings	-128 988	-179 805	-182 367	-161 318	-156 332	-183 046
Other capital	-477	1 502	-4 809	88	3 711	2 511
Claims on affiliated enterprises	-5 496	-6 496	-14 470	-9 742	-13 182	-14 072
Liabilities to affiliated enterprises	5 020	7 997	9 660	9 831	16 892	16 583
<i>Portfolio investment assets</i>	-87 196	-126 653	-148 854	-161 649	-158 252	-196 439
Equity securities	-67 025	-102 185	-111 936	-116 681	-113 201	-139 164
Debt securities	-20 171	-24 469	-36 918	-44 968	-45 051	-57 275
Financial derivative assets	-15 529	-18 659	-23 804	-30 250	-40 505	-41 672
<i>Other investment assets</i>	-57 215	-59 092	-68 924	-74 126	-73 384	-88 348
Trade credits	-10 106	-9 982	-9 393	-9 834	-10 629	-10 189
Loans and other assets	-39 587	-42 057	-49 162	-52 331	-49 816	-62 164
Currency and deposits	-7 522	-7 053	-10 369	-11 961	-12 940	-15 995
Reserve assets	-23 954	-27 948	-37 951	-37 435	-40 760	-50 343
<b>Levels of foreign investment in Australia</b>	<b>635 014</b>	<b>739 425</b>	<b>833 118</b>	<b>863 065</b>	<b>916 300</b>	<b>1 058 482</b>
<i>Direct investment in Australia(b)</i>	174 478	196 186	205 333	215 942	237 232	253 967
Equity capital and reinvested earnings	152 753	171 462	174 361	180 254	197 352	216 991
Other capital	21 725	24 724	30 972	35 688	39 879	36 976
Claims on direct investors	-6 785	-7 523	-11 774	-8 842	-8 963	-9 361
Liabilities to direct investors	28 510	32 247	42 746	44 530	48 843	46 337
<i>Portfolio investment liabilities</i>	348 145	419 867	483 345	486 110	493 328	619 904
Equity securities	134 226	166 659	183 778	172 922	165 768	212 875
Debt securities	213 919	253 209	299 566	313 187	327 559	407 029
Financial derivative liabilities	17 826	21 433	23 593	32 096	45 251	40 061
<i>Other investment liabilities</i>	94 565	101 939	120 847	128 917	140 490	144 550
Trade credits	7 685	3 708	3 297	3 154	4 006	3 004
Loans	41 361	53 588	56 041	64 605	67 746	60 110
Currency and deposits	35 347	39 508	56 756	57 703	65 391	78 198
Other liabilities	10 172	5 135	4 753	3 455	3 347	3 237

(a) Net direct investment abroad, after deduction of liabilities to direct investment enterprises abroad. (b) Net direct investment in Australia, after deduction of claims of Australian direct investment enterprises on direct investors.

Source: *Balance of Payments and International Investment Position, Australia (5302.0)*.

### 30.12 RATIOS

	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
	%	%	%	%	%	%
<b>To GDP</b>						
Current account	-5.7	-5.2	-2.7	-2.9	-5.3	-5.8
Goods and services	-2.4	-2.3	0.1	-0.2	-2.5	-3.0
Credits	18.9	20.2	22.9	21.5	19.6	17.7
Debits	-21.4	-22.5	-22.8	-21.6	-22.1	-20.6
Income	-3.1	-2.9	-2.8	-2.7	-2.8	-2.9
Net international investment position(a)	54.3	52.5	54.6	55.8	59.6	61.8
Net foreign equity	15.4	9.0	9.5	10.5	12.4	13.3
Net foreign debt	39.0	43.6	45.1	45.2	47.2	48.5
<b>To good and services credits</b>						
Net investment income	-16.4	-14.3	-12.1	-12.4	-14.2	-15.8
Net foreign equity	-7.0	-3.7	-2.6	-3.5	-6.4	-7.4
Net foreign debt	-9.4	-10.6	-9.5	-8.9	-7.8	-8.5

(a) These ratios are derived by expressing net foreign liabilities at end of year as a percentage of GDP at current prices for that year.

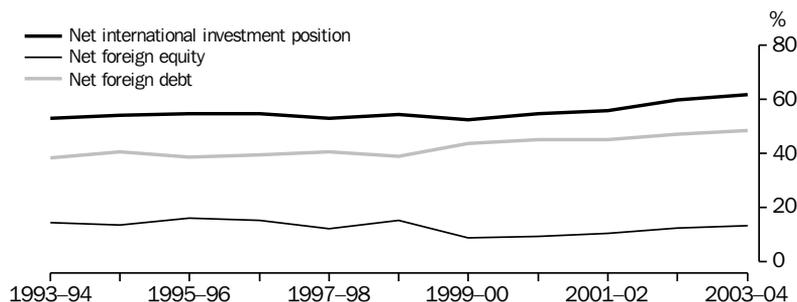
Source: Australian National Accounts: National Income, Expenditure and Product (5206.0); Balance of Payments and International Investment Position, Australia (5302.0).

### 30.13 RATIO OF BALANCE ON CURRENT ACCOUNT TO GDP



Source: Australian National Accounts: National Income, Expenditure and Product (5206.0); Balance of Payments and International Investment Position, Australia (5302.0).

### 30.14 RATIOS(a) OF NET INTERNATIONAL INVESTMENT POSITION TO GDP



(a) These ratios are derived by expressing net foreign liabilities at end of year as a percentage of GDP at current prices for that year.

Source: Australian National Accounts: National Income, Expenditure and Product (5206.0); Balance of Payments and International Investment Position, Australia (5302.0).

## International merchandise trade

International merchandise trade statistics cover all movable goods which add to (imports) or subtract from (exports) Australia's stock of material resources. The statistics are compiled from information submitted by importers and exporters to the Australian Customs Service. Some goods are excluded for conceptual or practical reasons, for example, those goods temporarily brought to Australia for subsequent forwarding to foreign destinations, and low-value imports and exports in the parcel post system.

The data about merchandise exports and imports are used in the compilation of the balance of payments. However, various adjustments relating to coverage, timing, classification and valuation are necessary to put international merchandise trade statistics on a balance of payments basis. Consequently, the merchandise exports and imports statistics, and the excess of exports (+) or imports (-), shown in this section differ from those shown in *International accounts*.

### Conceptual framework

Australia's international merchandise trade statistics are compiled in broad agreement with the UN recommendations for the compilation of international merchandise trade statistics. More information on the concepts, sources and methods used is included in *International Merchandise Trade, Australia: Concepts, Sources and Methods* (5489.0).

The UN recommendations state that merchandise trade covers all movable goods which add to (imports) or subtract from (exports) the stock of material resources of a country as a result of their movement into or out of the country.

The UN definition excludes:

- direct transit trade, that is, goods being transhipped or moved through Australia for purposes of transport only
- ships and aircraft moving through Australia while engaged in the transport of passengers or goods between Australia and other countries
- non-merchandise trade, consisting primarily of goods moving on a temporary basis (e.g. mobile equipment, goods under repair and goods for exhibition).

International merchandise trade statistics are compiled by the ABS from information submitted by exporters and importers or their agents to the Australian Customs Service.

### Classification

International merchandise trade is classified by commodity, by country of origin/destination, by Australian state of production/destination, and by industry of origin.

The international standard for the classification of internationally traded goods by commodity is the Harmonized System, a World Customs Organization classification which groups goods according to their component materials, from raw materials through to processed and manufactured products.

The ABS adopts this as the basis for exports classification using the Australian Harmonised Export Commodity Classification and for imports classification using the Combined Australian Customs Tariff Nomenclature and Statistical Classification (Customs Tariff).

The ABS also classifies export and import statistics according to:

- the UN Standard International Trade Classification (SITC Rev. 3) which groups goods according to the degree of processing they have undergone, from food and crude raw materials through to highly transformed manufactures
- the UN Classification by BEC which classifies international trade for the purposes of general economic analysis according to the main end use of the commodities traded.

Commodity statistics in this section are presented according to SITC Rev. 3.

### Valuation

For exports, the point of valuation adopted is free-on-board (f.o.b.) at the Australian port of shipment, while the basis of valuation is 'transactions value', that is, the actual price at which the goods are sold.

For imports, the point of valuation is the point of containerisation (in most cases), or f.o.b. at the customs frontier of the exporting country or the port of loading, whichever comes first. The basis of valuation is the customs value. For transactions between independent buyers and sellers, this will

generally be the price actually payable. Where traders are not independent (e.g. if they are related or affiliated in some way), an appropriate customs value may be determined.

### Total merchandise exports and imports

Australia's international merchandise trade balance in 2003–04 was a record deficit of \$22.1b. This followed a deficit of \$17.7b in 2002–03. The previous highest deficit was \$12.8b in 1999–2000. In 2003–04 there was a substantial fall in exports, down 6% to \$108.9b, and a smaller fall in imports, down 2% to \$131.0b. Table 30.15 and graph 30.16 show the value of total merchandise exports and imports since 1998–99.

**30.15 TOTAL MERCHANDISE EXPORTS AND IMPORTS**

	Exports	Imports	Merchandise trade balance(a)
	\$m	\$m	\$m
1998–99	85 991	97 611	-11 620
1999–2000	97 286	110 078	-12 792
2000–01	119 539	118 317	1 222
2001–02	121 108	119 649	1 459
2002–03	115 479	133 129	-17 650
2003–04	108 906	131 020	-22 114

(a) A negative sign indicates that merchandise imports exceed merchandise exports.

Source: *International Trade in Goods and Services, Australia* (5368.0).

### Merchandise exports and imports by commodity

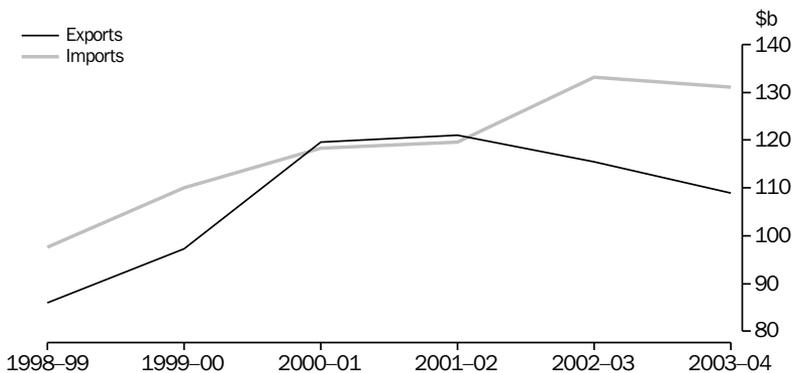
In 2003–04 exports decreased by \$6.6b (6%) to \$108.9b. The SITC sections with the largest decreases were:

- mineral fuels, lubricants and related materials, down \$3.4b (14%)
- machinery and transport equipment, down \$1.6b (12%)
- manufactured goods classified chiefly by material, down \$1.3b (10%)
- crude materials, inedible, except fuels, down \$0.7b (3%).

These decreases were partly offset by increases in:

- commodities and transactions not classified elsewhere, up \$0.4b (3%)
- chemicals and related products n.e.s., up \$0.2b (4%).

**30.16 TOTAL MERCHANDISE EXPORTS AND IMPORTS**



Source: *International Trade in Goods and Services, Australia* (5368.0).

In 2003–04 imports decreased by \$2.1b (2%) to \$131b. Apart from small increases in chemicals and related products (up \$51m) and animal and vegetable oils, fats and waxes (up \$4m) all other SITC sections recorded decreases. The largest decreases were in:

- commodities and transactions not classified elsewhere, down \$0.8b (22%)
- mineral fuels, lubricants and related materials, down \$0.5b (5%)
- manufactured goods classified chiefly by material, down \$0.3b (2%)
- machinery and transport equipment, down \$0.3b (0.5%).

The value of merchandise exports and imports by commodity for 2002–03 and 2003–04, and their share of total merchandise trade for 2003–04, are shown in table 30.17.

Australia's most valuable export commodities for 2003–04, and their principal markets, were:

*Coal, \$10.8b* – 10% of total exports: Japan (43% of total coal exports), the Republic of (South) Korea (12%), India (9%) and Taiwan (6%).

*Non-monetary gold, \$5.7b* – 5% of total exports: India (47% of total non-monetary gold exports), United Kingdom (22%) and the Republic of (South) Korea (13%).

*Iron ore, \$5.2b* – 5% of total exports: Japan (39% of total iron ore exports), China (36%) and the Republic of (South) Korea (14%).

*Crude petroleum products, \$4.6b* – 4% of total exports: the Republic of (South) Korea (22% of total crude petroleum product exports), Singapore (21%), China (14%) and the United States of America (11%).

Between 2002–03 and 2003–04 the commodities that recorded the largest falls in the value of exports were crude petroleum, down \$1.2b (21%), and coal, down \$1.0b (9%). These falls were partly offset by rises in the value of exports of medicaments, up \$0.4b (26%), and wheat, up \$0.4b (12%).

Table 30.18 lists the highest value exports for 2002–03 and 2003–04, and their share of total merchandise exports for 2003–04.

### 30.17 MERCHANDISE EXPORTS AND IMPORTS, By commodity(a)

Standard International Trade Classification (SITC)	Exports			Imports		
	2002–03	2003–04	Share of total for 2003–04	2002–03	2003–04	Share of total for 2003–04
	\$m	\$m	%	\$m	\$m	%
Food and live animals	18 400	18 221	16.7	5 109	5 016	3.8
Beverages and tobacco	2 724	2 700	2.5	1 062	900	0.7
Crude materials, inedible, except fuels	21 466	20 789	19.1	1 954	1 931	1.5
Mineral fuels, lubricants and related materials	23 803	20 434	18.8	10 600	10 092	7.7
Animal and vegetable oils, fats and waxes	324	358	0.3	364	368	0.3
Chemical and related products, n.e.s.	5 094	5 298	4.9	15 024	15 075	11.5
Manufactured goods classified chiefly by material	12 608	11 357	10.4	16 073	15 759	12.0
Machinery and transport equipment	13 530	11 942	11.0	60 636	60 355	46.1
Miscellaneous manufactured articles	4 414	4 278	3.9	18 716	18 706	14.3
Commodities and transactions not classified elsewhere in the SITC(b)(c)	13 118	13 528	12.4	3 592	2 817	2.2
<b>Total</b>	<b>115 479</b>	<b>108 906</b>	<b>100.0</b>	<b>133 129</b>	<b>131 020</b>	<b>100.0</b>

(a) Excludes commodities subject to a confidentiality restriction. (b) Includes commodities subject to a confidentiality restriction. (c) Includes small value export entries that cannot yet be allocated by commodity.

Source: *International Trade in Goods and Services, Australia* (5368.0).

### 30.18 MERCHANDISE EXPORTS OF MAJOR COMMODITIES

Commodity (SITC 3-digit code)	2002–03	2003–04	Share of total merchandise exports 2003–04
	\$m	\$m	%
Coal, not agglomerated (321)	11 940	10 893	10.0
Gold, non-monetary (excl. gold ores and concentrates) (971)	5 584	5 651	5.2
Iron ore and concentrates (281)	5 342	5 216	4.8
Petroleum oils and oils obtained from bituminous minerals, crude (333)	5 882	4 643	4.3
Meat of bovine animals, fresh, chilled or frozen (011)	3 907	3 917	3.6
Aluminium (684)	4 059	3 803	3.5
Aluminium ores and concentrates (incl. alumina) (285)	3 590	3 710	3.4
Wheat (incl. spelt) and meslin, unmilled (041)	3 036	3 398	3.1
Motor vehicles principally designed for transport of persons (excl. public-transport type, incl. racing cars) (781)		2 927	2.7
Alcoholic beverages (112)(a)	2 575	2 594	2.4
Wool and other animal hair (incl. wool tops) (268)(a)	3 300	2 489	2.3
Natural gas (343)	2 607	2 175	2.0
Medicaments (incl. veterinary medicaments) (542)	1 725	2 167	2.0
Petroleum oils, oils from bituminous minerals (not crude); preparations, with 70% or more by weight of these oils (334)	2 453	1 978	1.8
Meat and edible meat offal (excl. bovine), suitable or fit for human consumption, fresh, chilled or frozen (012)	1 661	1 704	1.6
Ores and concentrates of base metal (excl. iron, copper, nickel, aluminium, uranium and thorium) (287)	1 220	1 321	1.2
Copper (682)	1 327	1 286	1.2
Copper ores and concentrates; copper mattes, cement copper (283)	1 051	1 243	1.1
Milk and cream and milk products (excl. butter and cheese) (022)	1 346	1 241	1.1
Total of all other commodities(b)	50 078	46 549	41.7
<b>Total</b>	<b>115 479</b>	<b>108 906</b>	<b>100.0</b>

(a) Excludes commodities subject to a confidentiality restriction. (b) Includes commodities subject to a confidentiality restriction.

Source: *International Trade in Goods and Services, Australia* (5368.0).

Australia's most valuable commodity imports for 2003–04, and their principal sources, were:

*Passenger motor vehicles, \$11.2b* – 9% of total imports: Japan (57% of total passenger motor vehicle imports), Germany (15%), and the Republic of (South) Korea and South Africa (each 5%).

*Crude petroleum oils, \$6.3b* – 5% of total imports: Vietnam (25% of total crude petroleum imports), Indonesia and Malaysia (each 18%) and the United Arab Emirates (9%).

*Computing equipment, \$5.1b* – 4% of total imports: China (27% of total computing equipment imports), Malaysia (16%), the United States of America (12%) and Singapore (10%).

*Medicaments, \$4.9b* – 4% of total imports: United Kingdom (22% of total medicaments imports), the United States of America (15%) and Germany (10%).

Between 2002–03 and 2003–04 the commodities that recorded the largest falls in the value of imports were aircraft and parts, down \$1.7b (30%), and crude petroleum oils, down \$1.5b (19%). These falls were partly offset by rises in motor vehicles, up \$0.9b (9%), and non-crude petroleum, up \$0.9b (37%).

Table 30.19 lists the highest value imports for 2002–03 and 2003–04, and their share of total merchandise imports for 2003–04.

### 30.19 MERCHANDISE IMPORTS OF MAJOR COMMODITIES

Commodity (SITC 3-digit code)			Share of total
	2002–03	2003–04	merchandise
	\$m	\$m	imports
			2003–04
			%
Motor vehicles principally designed for transport of persons (excl. public-transport type, incl. racing cars) (781)	10 283	11 217	8.6
Petroleum oils and oils obtained from bituminous minerals, crude (333)	7 814	6 321	4.8
Automatic data processing machines & units thereof, magnetic, optical readers; data transcribers & processors (752)	4 871	5 127	3.9
Medicaments (incl. veterinary medicaments) (542)	4 241	4 898	3.7
Telecommunications equipment, nes; parts, and accessories of radio, television, video & similar apparatus, n.e.s. (764)	4 238	4 359	3.3
Aircraft and associated equipment; spacecraft (incl. satellites and spacecraft launch vehicles; parts thereof) (792)	5 481	3 818	2.9
Petroleum oils, oils from bituminous minerals (not crude); preparations, with 70% or more by weight of these oils (334)(a)	2 409	3 311	2.5
Motor vehicles for the transport of goods and special purpose motor vehicles (782)	2 888	3 116	2.4
Gold, non-monetary (excl. gold ores and concentrates) (971)	2 959	2 544	1.9
Parts and accessories (excl. covers, cases and the like) for use with office & automatic data processing mach. (759)	2 376	2 148	1.6
Parts, nes and accessories of the motor vehicles of Groups 722, 781, 782 and 783 (784)	2 311	2 109	1.6
Paper and paperboard (641)	2 076	2 029	1.6
Measuring, checking, analysing and controlling instruments and apparatus, n.e.s. (874)	1 881	1 961	1.5
Electrical machinery and apparatus, n.e.s. (778)	1 895	1 799	1.4
Civil engineering and contractors' plant and equipment (723)	1 541	1 731	1.3
Furniture and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings (821)	1 487	1 584	1.2
Baby carriages, toys, games and sporting goods (894)	1 715	1 581	1.2
Internal combustion piston engines, and parts thereof, n.e.s. (713)	1 697	1 577	1.2
Heating and cooling equipment, and parts thereof, n.e.s. (741)	1 521	1 555	1.2
Household type, electrical and non-electrical equipment, n.e.s. (775)	1 459	1 483	1.1
Sound recorders or reproducers; television image and sound recorders or reproducers; prepared unrecorded media (763)	1 090	1 321	1.0
Televisions (incl. video monitors & projectors) (761)	1 068	1 305	1.0
Total of all other commodities(b)	65 831	64 126	48.9
<b>Total</b>	<b>133 129</b>	<b>131 020</b>	<b>100.0</b>

(a) Excludes commodities subject to a confidentiality restriction. (b) Includes commodities subject to a confidentiality restriction.

Source: *International Trade in Goods and Services, Australia* (5368.0).

### Merchandise exports and imports by country

For exports, country refers to the country to which the goods were consigned at the time of export. For imports, country refers to the country of origin of the goods, that is, where the majority of processing of the goods takes place.

In 2003–04 Australia recorded a merchandise trade deficit of \$22.1b which was an increase of \$4.5b on the deficit of \$17.7b in 2002–03. The following trading partners largely contributed to this increased deficit:

- *Singapore* – trade deficit of \$2.1b, a turnaround of \$2.3b on the previous year's surplus due to a \$1.6b decrease in exports and a \$0.7b increase in imports. The main commodities contributing to the decrease in exports are petroleum, petroleum products and related materials (down \$0.9b) and non-monetary gold (down \$0.3b). The increase in imports was due mainly to petroleum, petroleum products and related materials (up \$0.9b).
- *United Kingdom* – trade deficit of \$0.3b, a turnaround of \$1.8b on the previous year's surplus due to a \$2.1b decrease in exports and a \$0.3b decrease in imports. The main commodities contributing to the decrease in exports are non-monetary gold (down \$0.9b)

and special transactions and commodities not classified according to kind (down \$0.8b). The decrease in imports was spread across many commodities.

- *Japan* – trade surplus fell by \$1.7b to \$3.7b due to a \$1.9b decrease in exports. For exports, decreases were recorded for petroleum, petroleum products and related materials (down \$0.5b) coal, coke and briquettes (down \$0.3b) gas, natural and manufactured (down \$0.3b) and non-ferrous metals (down \$0.2b) which were partly offset by an increase in exports of meat and meat preparations (up \$0.4b).

Improvements in the balance of trade were recorded with the following countries:

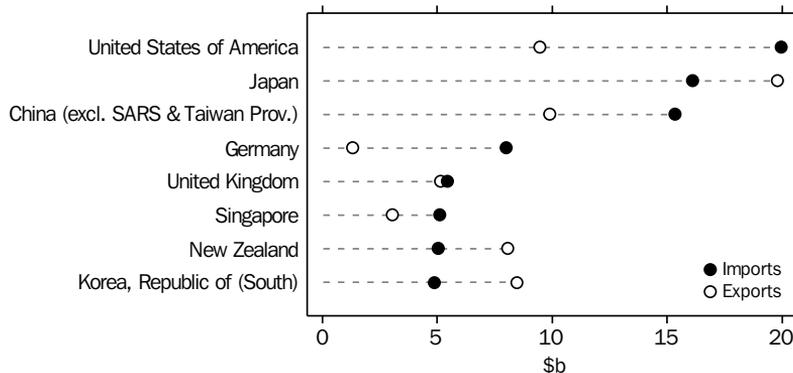
- *United States of America* – trade deficit fell by \$1.6b due to a \$2.6b decrease in imports partly offset by \$0.9b decrease in exports. This decrease in imports is largely due to a decrease in imports of aircraft and associated equipment and parts (down \$1.7b) after an unusually high figure in 2002–03.
- *India* – trade surplus increased by \$2.3b due to a \$2.3b increase in exports. Non-monetary gold (up \$2.3b) was the major contributor to the increase in exports.

Graph 30.20 shows Australian merchandise exports and imports by value for Australia's top trading partners. Graph 30.21 shows the countries with which Australia has the highest net merchandise trade balance (surplus or deficit).

Table 30.22 shows total merchandise exports and imports for the last two financial years and the merchandise trade balance in 2003–04 for Australia's top trading partners. Statistics are also provided for the following country grouping:

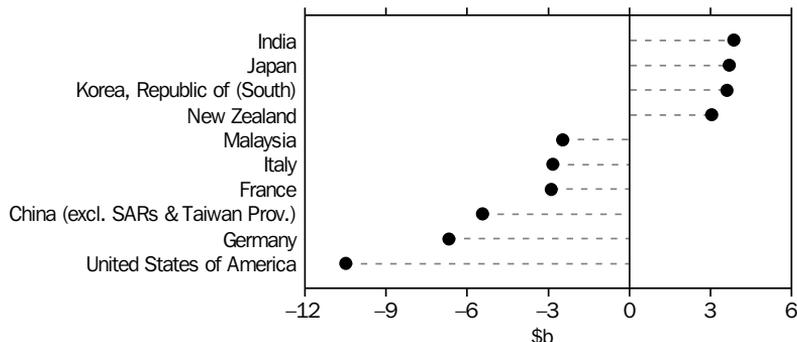
- *APEC* – Brunei Darussalam, Canada, Chile, China, Hong Kong (SAR of China), Indonesia, Japan, Republic of (South) Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, Philippines, Russian Federation, Singapore, Taiwan, Thailand, United States of America and Vietnam. Peru, Russian Federation and Vietnam are included from 1998–99.
- *ASEAN* – Brunei Darussalam, Burma, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand and Vietnam. Burma and Laos are included from July 1997. Cambodia is included from April 1999.
- *EU* – Austria, Belgium, Denmark, Finland, France, Germany, Greece, Republic of Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom.
- *OECD* – Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Republic of Ireland, Italy, Japan, Republic of (South) Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States of America. Czech Republic and Hungary are included from January 1996 and Republic of (South) Korea and Poland are included from 1996–97.

### 30.20 MERCHANDISE EXPORTS AND IMPORTS, Selected countries — 2003–04



Source: *International Trade in Goods and Services, Australia* (5368.0).

### 30.21 MERCHANDISE TRADE BALANCE(a), Selected countries — 2003–04



(a) A negative amount indicates that merchandise imports exceed merchandise exports.

Source: *International Trade in Goods and Services, Australia (5368.0)*.

### Merchandise exports and imports by industry of origin

Table 30.23 shows Australia's merchandise trade statistics classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC). The statistics are compiled by allocating international trade data for a commodity to an ANZSIC industry of origin category, based upon the industry which predominantly produces that commodity in Australia as defined by the ANZSIC.

The majority of exports in 2003–04 were classified to Manufacturing, \$62.2b (57% of total exports) and Mining, \$28.5b (26% of total exports). Most ANZSIC subdivisions recorded decreases in 2003–04 with the largest being in Oil and gas extraction, down \$1.9b (20%), Machinery and equipment manufacturing, down \$1.7b (11%), and Coal mining, down \$1.0b (9%).

The majority of imports were classified to Manufacturing, \$122.9b (94% of total imports) which remained stable compared with the previous year. The Agriculture, forestry, fishing and hunting division decreased by 22% and the Mining division decreased by 16%. The ANZSIC subdivisions recording the largest movements were Oil and gas extraction, down \$1.4b (18%), and Petroleum, coal, chemical and associated product manufacturing, up \$0.8b (4%).

### International trade price indexes

The export price index for goods (all groups) decreased by 8.2% in 2003–04 (table 30.24). In percentage terms, the largest decreases were in Beverages and tobacco (down 13.5%) Mineral fuels, lubricants and other related materials (13.4%) and Miscellaneous manufactured articles (13.1%).

Between 1998–99 and 2003–04 the all groups export price index increased by 7.1%. In percentage terms, the largest increases were in Mineral fuels, lubricants and related materials (up 16.5%) and Manufactured goods classified chiefly by materials (15.9%).

The import price index for goods (all groups) decreased by 10.9% in 2003–04 (table 30.25). In percentage terms, the largest decreases were in Miscellaneous manufactured articles (down 13.4%) Machinery and transport equipment (13.0%) and Mineral fuels, lubricants and other related materials (10.7%).

Between 1998–99 and 2003–04 the all groups import price index decreased by 6.3%, even though the largest percentage change for a commodity was an increase of 84.0% for Mineral fuels, lubricants and other related materials.

### 30.22 MERCHANDISE EXPORTS AND IMPORTS, By country and country group(a)

	Exports		Imports		Balance of trade
	2002-03	2003-04	2002-03	2003-04	2003-04
	\$m	\$m	\$m	\$m	\$m
Belgium-Luxembourg	840	668	1 153	1 239	-571
Brazil	413	510	490	494	16
Canada	1 837	1 806	1 755	1 818	-12
China (excl. SARs & Taiwan Prov.)	8 803	9 912	13 789	15 339	-5 427
Denmark	125	167	770	857	-690
Egypt(a)	370	649	20	36	613
Fiji	543	429	222	210	219
Finland	457	575	680	651	-76
France	1 172	925	3 781	3 816	-2 891
Germany	1 585	1 309	7 952	7 985	-6 676
Hong Kong (SAR of China)	3 214	2 751	1 234	1 202	1 549
India	2 576	4 861	979	1 000	3 861
Indonesia	2 911	2 983	4 600	3 766	-783
Iran	407	125	40	43	82
Iraq	360	315	37	—	315
Ireland	183	171	1 607	1 686	-1 515
Israel	194	160	481	470	-310
Italy	1 861	1 376	4 148	4 216	-2 840
Japan	21 727	19 798	16 337	16 101	3 697
Korea, Republic of (South)	9 115	8 473	4 753	4 878	3 595
Kuwait	518	580	184	110	470
Malaysia	2 146	2 225	4 261	4 705	-2 480
Mexico	430	340	572	603	-263
Netherlands	1 364	1 363	1 283	1 197	166
New Zealand	8 127	8 080	5 019	5 056	3 024
Pakistan	285	439	192	161	278
Papua New Guinea	950	808	1 502	1 417	-609
Philippines	1 091	931	839	762	169
Saudi Arabia	1 991	1 992	1 284	756	1 236
Singapore	4 658	3 056	4 370	5 107	-2 051
South Africa	1 314	1 429	1 060	1 246	183
Spain	668	650	1 047	1 103	-453
Sweden	211	223	1 810	1 739	-1 516
Switzerland	378	181	1 230	1 190	-1 009
Taiwan	4 310	3 701	3 376	3 395	306
Thailand	2 479	2 465	3 471	3 675	-1 210
Turkey	298	277	223	262	15
United Arab Emirates	1 234	1 184	755	742	442
United Kingdom	7 234	5 132	5 769	5 430	-298
United States of America	10 365	9 453	22 494	19 945	-10 492
Vietnam	472	511	2 505	2 023	-1 512
Others countries(b)	6 262	5 923	5 055	4 589	1 334
<b>Total</b>	<b>115 479</b>	<b>108 906</b>	<b>133 129</b>	<b>131 020</b>	<b>-22 114</b>
APEC	83 022	77 692	92 245	91 094	-13 402
ASEAN	13 855	12 263	20 749	20 555	-8 292
EU	15 864	12 722	31 397	31 026	-18 304
OECD	68 360	61 263	84 750	81 861	-20 598

(a) Exports of alumina to Egypt are excluded from its country total and included in the 'Other Countries' category. (b) Others include: all countries not displayed in table; Zone of Co-op A-Timor Gap; Destination or Origin Unknown; International Waters; No country details; Confidentialised alumina exports; and Ship and aircraft stores.

Source: *International Trade in Goods and Services, Australia* (5368.0).

### 30.23 MERCHANDISE EXPORTS AND IMPORTS, By industry of origin

Industry of origin	Exports			Imports		
	2001-02 \$m	2002-03 \$m	2003-04 \$m	2001-02 \$m	2002-03 \$m	2003-04 \$m
<b>Agriculture, forestry, fishing and hunting</b>						
Agriculture	10 643	8 544	8 409	575	870	678
Services to agriculture; hunting and trapping	1 710	1 249	1 061	8	8	8
Forestry and logging	100	116	125	6	7	6
Commercial fishing	972	929	724	164	181	141
<b>Total</b>	<b>13 425</b>	<b>10 838</b>	<b>10 319</b>	<b>753</b>	<b>1 066</b>	<b>832</b>
<b>Mining</b>						
Coal mining	13 407	11 943	10 896	12	13	13
Oil and gas extraction	9 298	9 346	7 466	6 904	7 893	6 488
Metal ore mining	9 541	9 716	9 842	173	191	228
Other mining	261	255	255	171	163	202
<b>Total</b>	<b>32 507</b>	<b>31 261</b>	<b>28 460</b>	<b>7 259</b>	<b>8 260</b>	<b>6 931</b>
<b>Manufacturing</b>						
Food, beverage and tobacco	17 538	15 721	15 363	5 387	5 961	5 905
Textile, clothing, footwear and leather	2 740	2 759	2 171	7 420	7 842	7 372
Wood and paper products	1 783	1 883	1 870	3 473	3 759	3 708
Printing, publishing and recorded media	577	585	550	2 020	2 193	2 048
Petroleum, coal, chemical and associated products	8 182	8 028	7 827	20 052	21 247	22 071
Non-metallic mineral products	332	325	300	1 472	1 630	1 608
Metal products	20 301	19 518	18 803	8 416	9 925	9 609
Machinery and equipment	16 714	15 814	14 122	59 155	66 285	66 144
Other manufacturing	944	1 176	1 217	3 767	4 199	4 401
<b>Total</b>	<b>69 111</b>	<b>65 810</b>	<b>62 224</b>	<b>111 162</b>	<b>123 041</b>	<b>122 867</b>
<b>Other(a)(b)</b>	<b>6 066</b>	<b>7 571</b>	<b>7 903</b>	<b>475</b>	<b>763</b>	<b>389</b>
<b>Total</b>	<b>121 108</b>	<b>115 479</b>	<b>108 906</b>	<b>119 649</b>	<b>133 129</b>	<b>131 020</b>

(a) Includes exports which cannot yet be allocated by industry of origin. (b) Includes commodities subject to a confidentiality restriction.

Source: ABS data available on request, *International Trade*.

### 30.24 EXPORT PRICE INDEX(a), Index numbers based on SITC

Commodity (SITC)	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
Food and live animals	96.6	95.7	109.6	118.9	109.3	100.7
Beverages and tobacco	128.3	131.5	137.8	142.8	143.8	124.4
Crude materials, inedible, except fuels	84.0	82.6	95.7	99.0	97.0	90.0
Mineral fuels, lubricants and other related materials	119.7	127.1	162.7	164.7	160.9	139.4
Chemicals and related products, n.e.s.	96.2	102.5	119.9	113.0	100.4	97.2
Manufactured goods classified chiefly by materials	86.8	101.0	116.7	105.1	102.1	100.6
Machinery and transport equipment	97.7	98.8	104.1	105.6	100.6	89.8
Miscellaneous manufactured articles	111.7	112.5	118.4	119.2	104.5	90.8
<b>All groups</b>	<b>95.7</b>	<b>98.0</b>	<b>114.8</b>	<b>116.7</b>	<b>111.7</b>	<b>102.5</b>

(a) Reference year 1989-90 = 100.0.

Source: *International Trade Price Indexes, Australia (6457.0)*.

### 30.25 IMPORT PRICE INDEX(a), Index numbers based on SITC

Commodity (SITC)	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
Food and live animals chiefly for food	125.1	116.9	121.4	122.5	125.1	116.9
Beverages and tobacco	130.5	127.0	128.5	132.9	139.9	134.1
Crude materials, inedible, except fuels	119.8	124.9	139.9	124.9	123.1	112.2
Mineral fuels, lubricants and other related materials	84.9	135.4	188.0	158.4	174.9	156.2
Animal and vegetable oils, fats and waxes	178.2	138.5	122.6	122.1	141.0	134.9
Chemicals and related products n.e.s.	114.2	111.0	128.1	128.5	120.2	113.2
Manufactured goods classified chiefly by material	122.6	120.2	131.3	133.9	129.2	118.9
Machinery and transport equipment	121.9	119.4	129.7	128.2	118.7	103.3
Miscellaneous manufactured articles	127.9	126.1	140.0	143.0	132.1	114.4
Commodities and transactions n.e.c.	91.9	89.8	99.6	110.8	115.4	110.2
<b>All groups</b>	<b>119.9</b>	<b>120.2</b>	<b>134.3</b>	<b>132.3</b>	<b>126.0</b>	<b>112.3</b>

(a) Reference year 1989-90 = 100.0.

Source: *International Trade Price Indexes, Australia (6457.0)*.

## International trade in services

International trade in services covers all services rendered by Australian residents to non-residents (exports) and by non-residents to residents (imports), where services are broadly defined as products other than tangible goods. As international trade in services cover a diverse range of activities, a variety of data sources and methods are used to compile estimates of the different service types.

### Conceptual framework

Australia's international trade in services statistics are compiled in accordance with the fifth edition of the International Monetary Fund's *Balance of Payments Manual, fifth edition*. More information on the concepts, sources and methods used to produce Australia's international trade in services statistics is included in *Balance of Payments and International Investment Position, Australia: Concepts, Sources and Methods, 1998* (5331.0).

### Classification

The international standard for the classification of international trade in services is defined in the BPM5 framework. This framework has been further elaborated in the 'Extended Balance of Payments Services Classification', as detailed in the UN publication *Manual on Statistics of International Trade in Services, 2002*.

International trade in services statistics are compiled for transportation, travel, communications, construction, computer and information services, royalties and licence fees, other business services, personal, cultural and recreational services and government services. Some information is also available by partner country and state.

### Statistical overview

In current price terms, Australia's international trade in services balance in 2003-04 recorded a deficit of \$0.4b, an increase of \$0.1b on the \$0.3b deficit recorded in 2002-03. Services exports (credits) rose by \$1.4b (4.4%) to \$34.0b and services imports (debits) rose by \$1.5b to \$34.4b (4.6%). Table 30.26 provides details of Australia's international trade in services, by service type.

The largest country contributor to the overall net deficit on services was the United States of America with a deficit of \$0.9b. Net deficits were recorded for most European trading partners, with Switzerland recording the largest at \$0.6b. Australia recorded a net surplus with a number of its Asian trading partners, the largest being with Japan at \$1.3b. Australia also recorded a net surplus of \$0.5b with New Zealand. Tables 30.27 and 30.28 provides details of Australia's international trade in services, by partner country and country groups.

### 30.26 INTERNATIONAL TRADE IN SERVICES, By service type

	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
	\$m	\$m	\$m	\$m	\$m	\$m
<b>EXPORTS</b>						
Transportation services	6 803	6 865	8 062	7 665	7 467	7 564
Passenger	5 604	5 848	7 024	6 664	6 547	6 655
Freight	1 199	1 017	1 038	1 001	920	909
Other	(a)n.p.	(a)n.p.	(a)n.p.	(a)n.p.	(a)n.p.	(a)n.p.
Travel services	11 944	13 139	15 507	15 645	15 452	17 122
Business	1 009	1 040	1 206	1 156	1 122	1 288
Personal	10 935	12 099	14 301	14 489	14 330	15 834
Communications services	1 239	1 470	1 397	927	1 083	882
Construction services	18	23	68	101	85	78
Insurance services	859	766	709	673	673	686
Financial services	716	886	920	966	984	1 004
Computer and information services	676	719	826	981	1 091	1 128
Royalties and licence fees	488	572	626	515	618	603
Other business services	2 552	2 904	3 185	3 391	3 704	3 592
Merchanting and other trade-related	586	501	489	549	509	584
Operational leasing	8	15	16	26	25	23
Miscellaneous business, professional and technical	1 958	2 388	2 680	2 816	3 170	2 985
Personal, cultural and recreational services	388	478	1 514	568	610	497
Government services n.e.i.	559	735	733	788	802	832
<b>Total</b>	<b>26 242</b>	<b>28 557</b>	<b>33 547</b>	<b>32 250</b>	<b>32 569</b>	<b>33 988</b>
<b>IMPORTS</b>						
Transportation services	9 367	10 018	11 352	10 776	10 960	11 590
Passenger	3 485	3 876	4 337	4 182	4 248	4 784
Freight	5 009	5 257	5 991	5 626	5 808	6 052
Other	873	885	1 024	968	904	754
Travel services	9 044	9 836	11 072	10 918	11 012	12 140
Business	2 239	2 536	2 786	2 701	2 677	2 949
Personal	6 805	7 300	8 286	8 217	8 335	9 191
Communications services	1 467	1 666	1 770	1 451	1 407	898
Construction services	—	—	—	—	—	—
Insurance services	922	902	878	856	856	874
Financial services	468	605	592	612	585	576
Computer and information services	424	666	849	884	967	1 024
Royalties and license fees	1 692	1 805	1 706	1 791	1 828	2 028
Other business services	3 253	3 046	3 069	3 812	3 746	3 602
Merchanting and other trade-related	329	221	248	334	369	239
Operational leasing	1 034	942	1 011	948	955	954
Miscellaneous business, professional and technical	1 890	1 883	1 810	2 530	2 422	2 409
Personal, cultural and recreational services	756	808	767	882	846	909
Government services n.e.i.	633	649	626	649	684	756
<b>Total</b>	<b>28 026</b>	<b>30 001</b>	<b>32 681</b>	<b>32 631</b>	<b>32 891</b>	<b>34 397</b>

(a) Not available for published but included in totals where applicable, unless otherwise indicated.

Source: *Balance of Payments and International Investment Position, Australia (5302.0)*.

### 30.27 SERVICE EXPORTS, By country and country group(a)

	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03
	\$m	\$m	\$m	\$m	\$m	\$m
Belgium and Luxemburg	129	100	95	111	115	137
Brunei Dar-es-Salaam	17	25	19	21	34	27
Canada	359	349	379	429	416	399
Central America and Caribbean	14	40	320	6	24	14
Chile	12	28	11	13	16	10
China (excl. SARs and Taiwan Prov.)	485	573	701	868	921	976
Fiji	122	149	190	142	114	131
France	191	265	290	366	357	377
Germany	725	732	768	856	803	761
Greece	60	64	78	77	61	54
Hong Kong (SAR of China)	1 033	964	981	1 179	1 421	1 308
Indonesia	933	835	787	869	986	972
Ireland, Republic of	94	126	165	216	220	318
Italy	251	288	271	294	238	252
Japan	3 520	3 253	3 344	3 699	3 465	3 377
Korea, Republic of (South)	614	449	597	744	818	837
Malaysia	774	659	754	852	839	885
Mexico	5	19	10	13	13	14
Netherlands	272	275	300	308	271	285
New Zealand	1 825	1 806	2 056	2 284	2 190	2 339
Papua New Guinea	341	287	380	390	355	289
Philippines	193	168	174	157	141	118
Russian Federation	60	45	56	73	63	45
Singapore	1 199	1 339	1 659	2 119	2 242	2 089
South Africa	167	217	183	219	183	236
Sweden	188	258	285	230	181	179
Switzerland	280	300	313	382	384	397
Taiwan	536	453	420	444	379	352
Thailand	356	347	429	492	472	479
United Kingdom	2 487	2 837	3 105	3 569	3 595	3 672
United States of America	4 108	4 351	4 758	6 191	5 016	5 187
Vietnam	n.a.	103	99	111	156	200
Africa n.e.s.	122	114	134	182	272	129
America n.e.s.	265	327	296	194	137	155
Asia n.e.s.	980	1 023	1 208	1 508	1 527	1 594
Europe n.e.s.	554	665	763	1 080	924	938
Oceania n.e.s.	216	245	235	208	228	229
International institutions	—	—	—	—	—	—
Unallocated	1 719	2 163	1 946	2 628	2 637	2 663
<b>Total</b>	<b>25 206</b>	<b>26 242</b>	<b>28 557</b>	<b>33 547</b>	<b>32 250</b>	<b>32 471</b>
ASEAN	3 571	3 487	3 933	4 640	4 879	4 763
EU	4 678	5 219	5 494	6 200	5 980	6 187
OECD	15 478	15 780	16 844	19 790	18 212	18 612

(a) At the time of compilation, final country data for 2003-04 were not available for inclusion.

Source: ABS web site <<http://www.abs.gov.au>>, International trade theme page, feature article 'International Trade in Services by Partner Country'.

**30.28 SERVICE IMPORTS, By country and country group(a)**

	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03
	\$m	\$m	\$m	\$m	\$m	\$m
Belgium and Luxemburg	95	70	91	58	36	41
Brunei Dar-es-Salaam	10	30	24	36	42	53
Canada	322	319	389	392	387	412
Central America and Caribbean	219	222	238	255	260	252
Chile	62	40	38	61	76	70
China (excl. SARs and Taiwan Prov.)	595	615	608	676	808	923
Fiji	248	318	354	321	326	385
France	393	351	381	425	419	538
Germany	709	841	872	1 149	1 274	1 175
Greece	237	234	267	281	278	202
Hong Kong (SAR of China)	1 255	1 158	1 273	1 683	1 968	1 664
Indonesia	682	583	526	571	633	523
Ireland, Republic of	178	153	181	229	252	225
Italy	526	459	421	436	457	446
Japan	1 285	1 697	2 239	2 494	2 196	2 100
Korea, Republic of (South)	315	205	206	335	302	409
Malaysia	690	744	744	918	790	692
Mexico	20	22	33	29	35	39
Netherlands	468	499	597	518	398	557
New Zealand	1 351	1 355	1 546	1 669	1 649	1 809
Papua New Guinea	226	150	162	176	162	169
Philippines	225	159	171	184	169	180
Russian Federation	62	57	45	159	130	52
Singapore	1 216	1 571	1 916	2 305	2 369	2 450
South Africa	194	189	172	190	229	291
Sweden	161	88	82	101	73	86
Switzerland	619	727	751	920	1 012	996
Taiwan	182	119	136	136	129	173
Thailand	494	533	626	754	794	812
United Kingdom	3 630	3 233	3 661	3 771	3 556	3 686
United States of America	5 585	5 602	6 231	6 442	6 069	6 067
Vietnam	n.a.	278	213	245	267	336
Africa n.e.s.	184	269	420	361	334	278
America n.e.s.	223	160	165	157	147	169
Asia n.e.s.	738	733	870	1 147	1 245	1 524
Europe n.e.s.	895	1 021	902	975	1 190	1 121
Oceania n.e.s.	223	217	230	255	311	346
International institutions	—	1	1	1	—	—
Unallocated	1 895	3 000	2 219	1 862	1 842	1 638
<b>Total</b>	<b>26 398</b>	<b>28 026</b>	<b>30 001</b>	<b>32 681</b>	<b>32 631</b>	<b>32 909</b>
ASEAN	3 340	3 913	4 240	5 028	5 079	5 047
EU	6 856	6 284	6 869	7 326	7 206	7 405
OECD	16 503	16 499	18 430	19 768	19 028	19 362

(a) At the time of compilation, final country data for 2003-04 were not available for inclusion.

Source: ABS web site <<http://www.abs.gov.au>>, International trade theme page, feature article 'International Trade in Services by Partner Country'.

## Globalisation

### Foreign ownership of equity in Australia

The total value of equity on issue by Australian enterprise groups at 30 June 2004 stood at \$1,391b (table 30.29). Of this total, 66% related to shares or equivalent equity interests issued by non-financial corporations. Banks accounted for a further 14% of total equity issued, and the other financial enterprises, including life offices and superannuation funds (but excluding non-bank deposit taking institutions), also accounted for 17%. Lesser amounts were issued by non-bank deposit taking institutions (3% of the total) and the central bank (1%).

Of the total equity on issue by Australian enterprise groups at 30 June 2004, non-residents held equity valued at \$430b (31%), while residents held \$961b (69%).

Although the proportion of equity held by non-residents has remained relatively stable, the total value of equity on issue has increased by 24%, from \$1,118b to \$1,391b, over the period from 30 June 2000 to 30 June 2004.

Analysed by sectoral components, the value of equity on issue by non-financial corporations rose 16% to \$916b over the period 30 June 2000 to 30 June 2004, while the proportion held by non-residents rose from 35% to almost 37%.

The amount issued by banks has increased by 37% between 30 June 2000 and 30 June 2004, while the proportion of non-resident holdings of the total equity issued by banks has risen from 26% to 28% over the same period.

The value of equity issued by life offices, superannuation funds and other financial enterprises increased by 46% over the period from 30 June 2000 to 30 June 2004, with foreign ownership of this equity falling from 12% at 30 June 2000 to 11% at 30 June 2004.

**30.29 FOREIGN OWNERSHIP OF EQUITY(a), By sectoral components — 30 June**

	Units	2000	2001	2002	2003	2004
<b>Non-financial corporations(b)</b>						
Amount issued(c)	\$b	791.8	804.9	764.5	761.0	915.5
Amount held by rest of world	\$b	278.9	278.8	267.4	284.7	338.0
Proportion of foreign ownership	%	35.2	34.6	35.0	37.4	36.9
<b>Banks</b>						
Amount issued(c)	\$b	138.5	178.1	189.9	180.9	189.1
Amount held by rest of world	\$b	35.9	52.8	57.5	51.0	52.7
Proportion of foreign ownership	%	25.9	29.6	30.3	28.2	27.9
<b>Non-bank deposit taking institutions</b>						
Amount issued(c)	\$b	15.7	20.3	25.3	34.3	37.1
Amount held by rest of world	\$b	4.1	4.2	4.6	7.4	12.4
Proportion of foreign ownership	%	26.1	20.7	18.2	21.6	33.4
<b>Other financial enterprises(d)</b>						
Amount issued(c)	\$b	161.8	189.2	195.1	199.4	236.9
Amount held by rest of world	\$b	19.3	22.4	23.7	20.0	26.8
Proportion of foreign ownership	%	11.9	11.8	12.1	10.0	11.3
<b>Central bank</b>						
Amount issued(e)(f)	\$b	10.4	12.3	11.4	11.7	12.5
Total amount issued	\$b	1 118.2	1 204.8	1 186.2	1 187.3	1 391.1
Total amount held by rest of world	\$b	338.2	358.2	353.2	363.1	429.9
Proportion of foreign ownership	%	30.2	29.7	29.8	30.6	30.9

(a) Equity includes units in trusts. (b) Includes private non-financial corporations, and Commonwealth, state and local public non-financial corporations. (c) These estimated market values are considered to be of poor quality. They should be used cautiously. (d) Includes life offices and superannuation funds, central borrowing authorities, and other financial enterprises. (e) Net asset values. (f) There is no foreign ownership in this component.

Source: Australian National Accounts: Financial Accounts (5232.0); Balance of Payments and International Investment Position, Australia (5302.0).

## Australian outward foreign affiliates trade

Data on Australian outward foreign affiliates trade are part of a new suite of globalisation statistics being developed by the ABS. Sales of goods and services may be effected not only through transactions between residents and non-residents which are recorded in the balance of payments accounts, but also through direct investment enterprises or affiliates established in foreign countries. Globalisation statistics also measure the trade activity of foreign-owned enterprises in a host economy. Data on the trade activity of majority foreign-owned affiliates in the compiling economy are referred to as *inward foreign affiliates trade*, and data relating to foreign affiliates majority owned by residents of the compiling economy are referred to as *outward foreign affiliates trade*.

Table 30.30 provides details of the characteristics of foreign affiliates of Australian enterprise groups in 2002–03, classified by region and by industry of foreign affiliate.

Some of the main findings relating to 2002–03 are:

- Australian enterprise groups had 4,012 affiliates abroad employing 321,924 staff.
- Foreign affiliates of Australian resident enterprise groups generated \$142.3b in sales revenue for goods and services.
- Manufacturing was the dominant industry with sales revenue of \$36.7b (26% of total sales) and employing 120,368 staff (37% of total employment).
- Finance and insurance generated the most revenue from the sales of services, accounting for 40% of services revenue.
- Manufacturing and wholesale and retail trade accounted 87% of goods sold and 86% of goods purchased.
- Foreign affiliates in Asia-Pacific accounted for 58% of employment by foreign affiliates, with the Americas 22% and Europe 20%.
- Total remuneration per employee was similar for employees of foreign affiliates domiciled in Europe and the Americas and was substantially higher for these two regions compared with Asia-Pacific.

### 30.30 FOREIGN AFFILIATES OF AUSTRALIAN ENTERPRISE GROUPS, Selected characteristics — 2002–03

	Foreign affiliates no.	Employment no.	Wages and salaries \$m	Sales of goods \$m	Sales of services \$m	Purchases of goods \$m	Purchases of services \$m
REGION(a)							
Europe(b)	976	64 928	4 297	16 771	14 464	12 211	7 140
Asia-Pacific	1 708	186 239	5 515	35 902	20 053	24 051	12 369
Americas	1 328	70 757	4 190	24 366	30 765	14 724	21 109
<b>Total</b>	<b>4 012</b>	<b>321 924</b>	<b>14 002</b>	<b>77 039</b>	<b>65 282</b>	<b>50 987</b>	<b>40 618</b>
INDUSTRY(c)							
Mining	130	13 030	353	4 936	235	2 199	821
Manufacturing	1 281	120 368	5 017	35 956	738	23 835	3 255
Construction	76	11 002	370	(d)(e)n.p.	(d)(e)n.p.	1 509	182
Wholesale trade	520	23 586	1 146	21 784	404	13 909	2 359
Retail trade	119	22 221	511	(d)(e)n.p.	(d)(e)n.p.	6 320	116
Transport and storage	102	7 481	286	(d)(e)n.p.	(d)(e)n.p.	495	465
Finance and insurance	463	51 407	3 028	232	26 017	671	8 562
Property and business services	466	40 278	1 859	2 319	12 069	1 482	(d)n.p.
Health and community services	48	4 683	122	(d)—	327	81	(d)n.p.
Other(f)	807	27 868	1 309	11 812	25 491	487	25 857
<b>Total</b>	<b>4 012</b>	<b>321 924</b>	<b>14 002</b>	<b>77 039</b>	<b>65 282</b>	<b>50 987</b>	<b>40 618</b>

(a) Where foreign affiliate resides. (b) Includes Africa. (c) Industry of foreign affiliate. (d) Not published separately, included in Other. (e) The value of total sales of goods and services is; \$2,230m for Construction, \$9,706m for Retail trade, and \$1,345m for Transport and storage. (f) Includes Agriculture, forestry and fishing; Electricity, gas and water supply; Accommodation, cafes and restaurants; Communication services; Education; Cultural and recreational services; and Personal and other services.

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