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- For further information about these and related statistics, contact Harvey Bissett on Canberra 02 6252 5639 or any ABS office shown on the back cover of this publication.

NOTES

- ABOUT THIS ISSUE** This is the first issue of this publication. In addition to presenting a range of statistical information and commentary about the manufacturing industry, it provides background information on the classifications used and the variables presented. Comments on the content and usefulness of this publication, and suggestions for improvements are welcome. Comments can be provided to the Director, Manufacturing and Construction Statistics, Australian Bureau of Statistics, PO Box 10, Belconnen, ACT 2616, or telephone Canberra 02 6252 5654.
- FUTURE ISSUES** Future issues of this publication will be released on an annual basis with release intended toward the end of each calendar year. For example, the 1998 issue is scheduled for release in late 1998. Each issue will contain final results from the latest completed manufacturing survey along with the latest results from various other surveys. For example, the 1998 issue will contain final results from the 1996–97 Manufacturing Survey and 1997–98 data from various quarterly surveys.
- SOURCE MATERIAL** This publication brings together information from a variety of Australian Bureau of Statistics (ABS) and non-ABS sources. Though considerable explanatory material has been provided, it has not been feasible to explain every concept for every ABS series included. Readers who are interested in more comprehensive explanatory material than is provided here are encouraged to consult the relevant ABS publication or to contact the ABS.
- REFERENCING** Where ABS time series data have been presented in tables, only the most recent edition of the product or publication used as a source is listed. Earlier editions are available from ABS libraries and selected other libraries.
- UNPUBLISHED DATA** In addition to the data contained in this publication, more detailed industry information can often be made available on request. For example, data may be available at the Australian and New Zealand Standard Industrial Classification (ANZSIC) Group (3-digit level) or ANZSIC Class (4-digit level) for some of the annual data series. This is particularly true of chapter 2 of this publication.
- For further information about unpublished data relating to manufacturing, readers should consult John Ridley in the ABS Sydney office on 02 9268 4541.
- RELATED PUBLICATIONS** Current publications produced by the ABS are listed in the *Catalogue of Publications and Products* (Cat. no. 1101.0). The ABS also issues, on Tuesdays and Fridays, a *Release Advice* (Cat. no. 1105.0) which lists publications to be released in the next few days. The Catalogue and Release Advice are available from any ABS office.

PREFACE

PURPOSE OF THIS PUBLICATION

This publication presents a picture of Australian manufacturing in the mid-1990s with emphasis on most recent data and comparisons with the recent past. The main focus is on economic performance by Australian manufacturing as a whole and by the major industries within Australian manufacturing. Information is also provided on related aspects of manufacturing such as energy usage, composition of the workforce and costs incurred as a result of environmental protection activities. Material has been gathered from a range of Australian Bureau of Statistics (ABS) and non-ABS sources.

This publication will be released annually. However, future issues will not be simple updates of the material in this issue. While core material will be retained and updated each year, the content of future issues will vary as new data sources become available and as different aspects of manufacturing become topical. The ABS would appreciate any comments concerning the content of future issues.

FURTHER DETAILS MAY BE AVAILABLE FROM THE ABS

The data in this publication mostly relate to broad industries such as Food, beverage and tobacco manufacturing. Data for finer level industries (e.g. Wine manufacturing) may be available from the ABS on request, especially for much of the data in chapters 1 and 2. Chapter 1, provides information of the various levels of industry for which manufacturing data are compiled. A full list of manufacturing industries appears in the listing of the Australian and New Zealand Standard Industrial Classification at the back of this publication.

Similarly, while most of the data in this publication relate to Australia as a whole, an extensive range of data about manufacturing in individual States is also available in either published or unpublished form.

Much of the data in chapter 3 is based on quarterly surveys. A list of relevant publications appear in the Bibliography at the back of this publication. In general, sample sizes in these surveys are not large enough to allow reliable estimates for levels of industry finer than those shown in this publication.

STATISTICAL BUSINESS UNITS

Data in this publication relate to either manufacturing management units or to manufacturing establishments. Technical definitions of 'management unit' and 'establishment' appear in the Glossary.

Management unit statistics focus on businesses and business operations, particularly the financial aspects. The focus of these statistics is on profit levels, the main income and expense items which make up those profits, and on capital formation. Management unit statistics also include information on the value of assets and liabilities.

STATISTICAL BUSINESS
UNITS *continued*

While management unit statistics focus on business operations, establishment statistics focus more on the production and distribution processes. They address topics such as goods produced, exports, value added and prices of materials and goods.

A rule of thumb which can be applied to statistics about manufacturing is that management unit statistics are about the operations of manufacturing businesses (with the focus on the business as a whole); establishment statistics are about the operations of factories (with the focus on activities at the factory location). Because of the differences in scope explained below, aggregate management unit data will not be identical to aggregate establishment data.

SCOPE OF MANAGEMENT
UNIT STATISTICS

Management unit statistics for a given industry include all operations by management units which are primarily engaged in activities covered by that industry. A management unit is classified to the manufacturing industry if manufacturing is its primary income-earning activity. All operations (manufacturing and non-manufacturing) of a mainly manufacturing business would be included in management unit statistics for the manufacturing industry. This principle also applies to finer levels of industry classification.

SCOPE OF ESTABLISHMENT
STATISTICS

Following the same principle, establishment statistics for a particular industry include all operations by establishments which are primarily engaged in activities covered by that industry. For example, establishment statistics for the manufacturing industry would include all operations by establishments which are mainly engaged in manufacturing activities i.e. manufacturing activities are their main source of income. However, the operations of establishments which are not 'mainly engaged in manufacturing activities' will be excluded even when the parent management unit belongs to the manufacturing industry.

IMPLICATIONS OF UNIT
SCOPE DIFFERENCES

The choice of statistical unit can have subtle but important implications for interpreting the results from surveys.

For most businesses, it matters little whether the statistics are compiled for management units or for establishments. More than 90% of Australian manufacturers operate under a simple structure whereby a management unit (business) runs a single manufacturing establishment (factory). Operations by this type of business are relevant to both management unit statistics and establishment statistics and are therefore included in both.

The treatment of the operations of more complex businesses is not so straightforward. For example, a management unit which operates both a factory and a retail store, but which has manufacturing as its primary income source, will be classified as a manufacturing management unit. Operations of the management unit as a whole (employment, sales, profits and other data from both the factory and the store) will be included in manufacturing management unit statistics. For manufacturing establishment statistics, operations of the factory will be included but operations of the retail store will be excluded.

IMPLICATIONS OF UNIT
SCOPE DIFFERENCES

continued

On the other hand, a management unit which operates both a factory and a retail store but which has retailing as its primary income source will be classified to retail trade. Operations of this business will not be included in manufacturing management unit statistics. However, the operations of the factory will be included in manufacturing establishment statistics.

COVERAGE OF THE
STATISTICS

The business surveys from which data for nearly all tables in this publication have been compiled are sourced from the ABS Business Register. The Business Register does not include all businesses operating in Australia. Excluded are businesses which do not employ staff and which have not registered with the Australian Taxation Office as group employers.

Though these very small businesses are fairly numerous, their exclusion has very little effect on the statistics compiled for the manufacturing industry as a whole. It is estimated that if these businesses were to be included, the effect on results for total manufacturing would be less than 1%.

For some industries, particularly those like the clothing industry where numbers of small home-based businesses are involved, the underestimation from excluding non-employing businesses may be a little higher. However, no serious understatement of economic activity from this cause is likely for any manufacturing industry.

ABS publications draw extensively on information provided freely by individuals, businesses, governments and other organisations. Their continued cooperation is very much appreciated: without it, the wide range of statistics published by the ABS would not be available. Information received by the ABS is treated in strict confidence as required by the *Census and Statistics Act 1905*.

T.J. Skinner
Acting Australian Statistician

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LIST OF ABBREVIATIONS AND OTHER USAGES

ABBREVIATIONS

ABARE	Australian Bureau of Agricultural Resource Economics
ABS	Australian Bureau of Statistics
ACM	Australian Chamber of Manufactures
ASIC	Australian Standard Industrial Classification
ANZSIC	Australian and New Zealand Standard Industrial Classification
ASIC	Australian Standard Industry Classification
EAS	Economic Activity Survey
GDP	Gross Domestic Product
IGP	Industry Gross Product
mfg	manufacturing
OECD	Organisation for Economic Cooperation and Development
R&D	Research and development
TFP	Total factor productivity

SYMBOLS AND OTHER USAGES

Standard notations are used throughout this publication, with meanings as follows:

billion	thousand millions
kWh	kilo watt hours
m	million
m ³	cubic metres
n.a.	not available
n.e.c.	not elsewhere classified
n.e.s.	not elsewhere specified
n.p.	not available for publication
Tj	terajoule
*	data subject to sampling variability of between 25% and 50%
—	nil or rounded to zero

REFERENCE PERIODS

Yearly periods shown, for example, as 1996 refer to the year ended 31 December 1996. Those shown for example as 1996–97 refer to the year ended 30 June 1997.

ROUNDING

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

CHAPTER 1

PROFILE OF THE AUSTRALIAN MANUFACTURING INDUSTRY

WHAT IS THE MANUFACTURING INDUSTRY?

The range of activities Manufacturing is defined as the physical or chemical transformation of materials or components into new products, whether the work is performed by machinery or by hand (*Australian and New Zealand Standard Industrial Classification, ABS, 1993*, (ANZSIC) (Cat. no. 1292.0) p. 47). As well as the creation of new products, manufacturing includes a number of related service activities such as delivery, installation, repair and servicing of goods produced by the business. In addition, a number of other services are classified to manufacturing. For example, galvanising, annealing and plating of metals, elevator installation, spectacle lens grinding and tyre retreading are services which are classified to manufacturing.

Degree of transformation The manufacturing industry embraces production of thousands of different types of goods. These range from ships to sugar to sheep shearing equipment, and from micro circuits to motor vehicles to medicines. One view of manufacturing activity focuses on the extent of transformation involved from raw material to finished product. Some products are simple primary product manufactures such as flour, cheese, tanned hides and skins, and pig iron. Some are simply transformed manufactures such as basic metal shapes (billets, coils, ingots), portland cement, basic organic and inorganic chemicals (such as caustic soda). Others are moderately transformed manufactures such as wire rods, metal pipes and tubes, basic glass, soap and detergents, textile fabrics and tissue paper, while others are elaborately transformed manufactures such as prefabricated metal buildings, wire products, glassware, ceramic products, paints, medicines and perfumes.

Capital intensity Another view of the breadth of manufacturing activity concerns the degree of mechanisation involved in production. Manufacturing in Australia covers a wide range of situations from highly mechanised production lines using robotics to simple mechanical activities such as soft drink bottling or concrete mixing through to production of fine jewellery by hand.

In short, manufacturing covers a myriad of inputs, processes and products.

Industry classification Perhaps the most common way of viewing manufacturing statistics is through an industry classification. This publication extensively uses the Australian and New Zealand Standard Industrial Classification (ANZSIC) as the key framework for categorising and presenting information about the manufacturing industry.

The manufacturing industry is made up of those business units which earn the majority of their income from activities classified to Division C of the ANZSIC (see the explanation given in the Preface).

Industry classification *continued* The ANZSIC distinguishes four levels of industry classification to accommodate both broad analysis and fine dissection of statistical data about the Australian economy. The four levels constitute a hierarchy, with Division the broadest classification level, followed by Subdivision, Group and Class as increasingly finer dissections. To illustrate, a manufacturing example of the four levels is:

Division	Manufacturing
Subdivision	Metal product manufacturing
Group	Iron and steel manufacturing
Class	Steel pipe and tube manufacturing

A list of all manufacturing subdivisions, groups and classes is contained in the ANZSIC listing section of this publication.

ANZSIC Divisions Manufacturing as a whole comprises one of the 17 ANZSIC Divisions covering the Australian economy. Examples of other ANZSIC Divisions are Agriculture, Mining, Retail trade, Health and community services, and Construction.

ANZSIC Subdivisions There are nine subdivisions within the Manufacturing Division. Each represents a grouping of broadly related outputs and activities. Where numerical codes are used to identify ANZSIC Subdivisions, such codes are comprised of two digits. In the case of manufacturing, the digits 21 to 29 are used. For example Subdivision 28—Machinery and equipment manufacturing and Subdivision 23—Wood and paper product manufacturing.

ANZSIC Groups Each manufacturing subdivision is further divided into several groups of reasonably homogeneous industries. The ANZSIC Group level is distinguished by use of three-digit numerical codes, the first two digits designating the ANZSIC Subdivision to which the group belongs. For example, Group 212—Dairy product manufacturing belongs to ANZSIC Subdivision 21—Food, beverage and tobacco manufacturing.

ANZSIC Classes The fourth and finest level of dissection is the ANZSIC Class level. Each ANZSIC Group is divided into one or more classes. The ANZSIC Class level is distinguished by use of four-digit numerical codes, the first three digits designating the ANZSIC Group to which the class belongs. For example, Class 2122—Ice cream manufacturing belongs to Group 212—Dairy product manufacturing.

ANZSIC Classes *continued* In the ANZSIC, classes are created if certain criteria are met. The most important of these are that classes:

- represent recognisable segments of Australian industry;
- are consistent with the requirements of users of the statistics;
- are homogeneous in terms of activities, i.e. that classes are made up of business units which undertake similar economic activities;
- are economically significant; and
- wherever possible align with the corresponding international classification.

CHANGING FACE OF AUSTRALIAN MANUFACTURING—A HISTORICAL PERSPECTIVE

This section has been largely based on the analysis presented in the Productivity Commission report *The Changing of Australian Manufacturing—December 1996*, Authors Colin Clark, Timothy Geer and Barry Underhill. The material has been included in *Manufacturing, Australia* with the permission of the Productivity Commission. A section of the Productivity Commission analysis dealing with international productivity comparisons has been included under International Comparisons later in this chapter.

Broad influences—Second World War to date

The Second World War provided great stimulus to Australian manufacturing, which was still recovering from the Great Depression of the 1930s. The interruption to imports during the war meant a switch in demand to domestically produced goods. Rising expenditure associated with the war increased real income and demand and Australia became an important source of supply for a number of countries in the region. Through a combination of existing industries expanding, and diversifying, and the rapid development of new industries, Australia was able to produce a huge range of products including many types of munitions, ball bearings, machine tools, ships, aircraft, chemicals, textiles and optics.

After 1945, Australian manufacturing continued to grow steadily, boosted by the needs of postwar reconstruction in the northern hemisphere. The re-emergence of competition from manufactured imports in the late 1940s was effectively eliminated through increased protection. Manufacturing production grew strongly throughout the 1950s, especially in the automotive, household appliances and plastic products industries.

As Australia's trade links with Britain weakened during the 1950s and 1960s, Australian producers looked to Asia for new markets. Trade growth with Japan increased steadily and, by the mid-1960s, Japan was Australia's biggest customer for a wide range of primary products. Japan experienced a substantial trade deficit with Australia which it sought to redress by exporting more manufactured goods to Australia. Other developing Asian countries followed Japan's lead. Initially, the Asian economies exported labour intensive products such as clothing and footwear, but as their economies developed, they started to produce and export more technically advanced goods.

Broad influences—Second World War to date *continued*

The 1970s was a turbulent decade for Australian manufacturing. This was due to several factors, such as strengthening import competition across a range of industries, upward pressure being exerted on exchange rates by the mining boom and by the inflow of foreign capital, and upward pressure on wages (including campaigns for equal pay for women). All this occurred against a background of high rates of inflation.

Manufacturing in the 1980s was characterised by declining production in the earlier years, especially 1982–83 and 1983–84, followed by steady growth through to the end of the decade and another but less severe decline in the early 1990s. In the five years to 1996–97, manufacturing production continued to grow steadily.

The 'openness' of the Australian economy to world markets accelerated through the 1980s. Following its float in 1983, the Australian dollar depreciated by over 30% during 1985 and 1986, strengthening the international competitiveness of Australian manufactures. Australian manufacturing became increasingly export-oriented through the 1980s and 1990s. In 1984–85, approximately 16% of the sales from Australia's manufacturing firms were to overseas markets. A decade later, in 1994–95, this ratio had risen to 25%. Import penetration of Australian markets for manufactured goods rose more slowly over the same period, from 26% in 1984–85 to 35% by 1994–95.

Manufacturing's share of the Australian economy

As a proportion of the whole economy, employment in manufacturing industries peaked at roughly 27% around 1950, remaining high throughout the 1950s and 1960s. It fell to 20% in 1979 and thence to its present share of 14%. Production data tell a similar story. The share of Australian Gross Domestic Product (GDP) accounted for by manufacturing rose steadily until around 1960, then fell steadily from a peak of 26% in 1962–63 to 15% in 1994–95.

This relative decline did not mean that manufacturing production fell over that period in absolute terms. On the contrary, in real terms manufacturing production in 1994–95 was more than double that in 1962–63. However, other industries such as mining and the services sector grew even faster, expanding their share of total production at the expense of manufacturing. Production by the Australian services sector was over three times greater in 1994–95 than in 1962–63.

There has also been a noticeable shift in the way that Australian manufacturers organise their production. In the first half of this century, manufacturing absorbed a greater proportion of the Australian workforce than the proportion of GDP that it produced. In 1921, the share of total employment accounted for by manufacturing exceeded its GDP share by slightly more than 50%.

Manufacturing's share of the Australian economy
continued

Since then, Australian manufacturing has become progressively less labour-intensive with its labour share of GDP moving towards the average for the economy as a whole around 1960. This trend has continued over the past few decades. At present manufacturers use slightly fewer employees on average to produce a particular volume of goods or services than is the case for the economy as a whole. The above references to productivity are based on a crude measure only (one that does not distinguish between average working hours in different industries).

Structural change within manufacturing

Table 1.1 shows the share of overall manufacturing production (measured by constant price value added) and employment of each of the broad industries within manufacturing. It also shows trend growth rates over the 10 years from 1984–85 to 1994–95.

1.1 STRUCTURAL CHANGE

<i>Industry</i>	<i>Value added(a)</i>		<i>Employment</i>	
	<i>Share of total 1994–95</i>	<i>Trend growth per year 1984–85 to 1994–95</i>	<i>Share of total 1994–95</i>	<i>Trend growth per year 1984–85 to 1994–95</i>
	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>
Food, beverage and tobacco mfg	20.8	2.3	16.3	0.7
Textile, clothing, footwear and leather mfg	4.4	-2.4	9.2	-2.2
Wood and paper product mfg	5.4	0.3	6.5	-0.5
Printing, publishing and recorded media	8.9	1.9	9.9	1.0
Petroleum, coal, chemical and associated product mfg	11.1	2.7	9.5	0.3
Non-metallic mineral product mfg	5.0	1.4	4.7	-0.2
Metal product mfg	16.8	2.7	16.1	-0.7
Machinery and equipment mfg	23.0	1.8	20.4	-2.0
Other mfg	4.6	1.1	7.4	1.9
Total mfg	100.0	1.8	100.0	-0.4

(a) At constant (average 1989–90) prices.

Source: Productivity Commission 1996, p. 25.

The industry structure of Australian manufacturing reflects Australia's strengths as a resource-based economy. In 1994–95, almost half of the total production of Australian manufactures (in terms of constant price value added) was produced by the resource-based industries of Food, beverage and tobacco manufacturing, Metal product manufacturing and Petroleum, coal, chemical and associated product manufacturing. Combined, these industries employed 42% of the total manufacturing workforce. However, individually the largest of the broad manufacturing industries was Machinery and equipment manufacturing which accounted for 23% of manufacturing production and slightly more than 20% of the manufacturing workforce.

Structural change within
manufacturing *continued*

The industries with the fastest growing production between 1984–85 and 1994–95 were Metal product manufacturing, Petroleum, coal, chemical and associated product manufacturing, and Food, beverage and tobacco manufacturing. Conversely, production of the Textile, clothing, footwear and leather manufacturing industry declined over the period while the Wood and paper product manufacturing industry registered weak growth (average of 0.3% per year). Although overall manufacturing production grew at an annual trend rate of 1.8%, manufacturing employment actually declined slightly overall with five of the nine broad industries recording negative trend rates.

MANUFACTURING'S CONTRIBUTION TO TOTAL AUSTRALIAN PRODUCTION

This section presents information on the manufacturing industry contribution to the Australian economy. Industry shares are given for Australia and for States and Territories. The measure used to represent production is gross product at factor cost.

Australia Manufacturing contributed more to Australian production in 1995–96 than any other industry. However, the combined contribution of manufacturing and the other goods-producing industries was substantially less than the combined contribution of the services industries—see table 1.2.

Over the 10-year period to 1995–96, manufacturing's share of national production fell from 17.6% to 14.5%. However, this does not mean that production fell in absolute terms; rather manufacturing production did not grow as quickly as some other industries, particularly some of the service industries. On the contrary, manufacturing production grew by 23% in constant price terms between 1985–86 and 1995–96.

Over the 10-year period from 1985–86 to 1995–96, the proportion of national output accounted for by the goods-producing industries fell, while the contribution of the services industries grew. The fastest growing industries were finance and insurance (which increased its contribution from 1.2% to 3.9%), and property and business services (from 6.8% to 9.2%).

Table 1.2 shows industry percentage shares of the Australian gross product and of the State and Territory gross products for 1995–96.

1.2

INDUSTRY SHARES(a) OF TOTAL PRODUCTION—1995–96

<i>Industry</i>	<i>NSW</i>	<i>Vic.</i>	<i>Qld</i>	<i>SA</i>	<i>WA</i>	<i>Tas.</i>	<i>NT</i>	<i>ACT</i>	<i>Aust.</i>
<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>
Agriculture, forestry and fishing	2.6	3.4	4.1	6.0	6.2	6.7	4.9	0.1	3.7
Mining and services to mining	2.2	2.9	5.1	2.5	17.6	2.9	11.7	0.1	4.6
Manufacturing	15.1	18.0	11.9	17.0	9.8	14.3	5.0	2.5	14.5
Electricity, gas and water supply	2.9	3.3	3.3	2.8	2.7	5.7	2.0	1.9	3.1
Construction	6.6	5.6	7.3	5.8	7.8	6.3	9.1	7.2	6.5
Wholesale trade	6.7	6.5	5.6	5.1	5.5	4.5	3.8	2.3	6.0
Retail Trade	7.5	7.3	9.3	8.1	7.2	9.7	9.1	6.4	7.8
Transport and storage	5.2	4.5	6.6	5.6	4.4	4.2	5.7	3.1	5.1
Communication services	3.0	3.4	2.9	2.4	2.5	2.0	2.6	2.5	3.0
Finance and insurance	5.0	4.2	3.0	3.4	2.0	2.1	3.0	3.0	3.9
Property and business services	10.6	9.9	6.7	8.1	7.8	5.2	6.7	11.2	9.2
Government administration and defence	3.2	2.9	4.1	2.8	2.6	4.7	7.5	26.9	3.8
Education, health and community services	10.2	11.6	10.8	13.5	9.9	12.9	11.6	11.2	11.0
Other services(b)	6.5	6.0	7.4	6.3	5.2	6.3	9.5	8.0	6.4

(a) Percentages for industries listed do not sum to 100 because certain items are included in the calculation of State and national production but are not relevant to industry level. These items are ownership of dwellings and general government.

(b) Includes accommodation, cafes and restaurants; cultural and recreational services; and personal and other services.

Source: ABS, *Australian National Accounts: State Accounts, 1995–96*, (Cat. no. 5220.0).

States and Territories Of the industries listed in table 1.2, manufacturing was the single greatest contributor to total 1995–96 production in all States except Western Australia. In New South Wales, Victoria and South Australia, manufacturing contributed substantially more than the next largest industry—property and business services in New South Wales and education, health and community services in Victoria and South Australia. Queensland and Tasmania showed smaller differences in the contribution by manufacturing and the contribution by the next largest industry—education, health and community services.

In Western Australia, the mining industry was clearly the largest contributor to total 1995–96 production, followed by education, health and community services which contributed slightly more than the manufacturing industry. Manufacturing was a relatively small industry in the two Territories.

The absolute size of the manufacturing industry grew in all States and Territories over the 10 years to 1994–95. South Australian manufacturing experienced the fastest growth rate of any State, growing at an average annual rate of 3.9% compared with national manufacturing growth which averaged 2.1% per year over the same period. Average growth rates for other States were around 3.3% for Western Australia, 2.9% for Queensland, 2.3% for Tasmania, 2.0% for New South Wales and 1.1% for Victoria. Manufacturing in the Territories also grew in absolute terms over the 10 years to 1994–95, at around 3.4% per year in the Northern Territory and by 0.8% in the Australian Capital Territory.

States and Territories
continued

However, despite growth in absolute terms, the manufacturing industry share of total production fell in all States over the 10 years to 1994–95. Decreasing shares of production were also experienced to varying degrees by other goods-producing industries, with the notable exception of the mining industry in Western Australia which increased its share of Western Australian production from 12.3% to 17.6% over the period. However, in general, it was the services industries which grew fastest over the period and increased their shares of total production at the expense of the goods-producing industries. In particular, the finance and insurance industry exhibited rapid growth in all States with property and business services, communication services and other services growing at different rates from State to State.

INTERNATIONAL COMPARISONS

This section presents statistical data for selected Organisation for Economic Cooperation and Development (OECD) countries. Table 1.3 provides international comparisons of manufacturing value added as a percentage of national GDP for selected years during the 25 years from 1968 to 1993. Table 1.4 provides international comparisons of manufacturing employment in 1994 as a percentage of the total civilian workforce. The Total Factor Productivity section of this chapter reproduces the relevant parts of the Productivity Commission report *The Changing of Australian Manufacturing—December 1996*, Authors Colin Clark, Timothy Geer and Barry Underhill.

Manufacturing value added

Table 1.3 shows value added by the manufacturing industry as a percentage of GDP in 16 selected OECD countries. Data for other OECD countries were not included if data could not be obtained for all of the years shown. Exceptions were made for Canada, New Zealand and Mexico as data were available for most years.

Excluding Canada, New Zealand and Mexico for which not all relevant data are available, manufacturing's share of GDP fell in all selected countries except Finland and Turkey during the period 1968–93. Australian manufacturing's share of national GDP has been consistently below the overall OECD average over the whole of the period (falling from 24.8% in 1968 to 14.4% in 1993) and was also consistently below the average for the smaller OECD countries.

The fall in manufacturing's share of GDP in Australia was relatively greater than for any other country except the Netherlands. In 1993, of the listed countries, only Greece recorded a lower share of GDP for the manufacturing industry.

1.3

VALUE ADDED AS A PROPORTION OF NATIONAL GROSS DOMESTIC PRODUCT

	1968	1974	1984	1987	1990	1993
Country	%	%	%	%	%	%
Japan	34.8	33.6	29.7	28.5	29.1	26.8
Germany	37.6	36.0	31.0	31.4	30.6	26.2
Austria	32.7	30.8	26.6	25.9	25.7	23.5
Finland	21.0	26.3	23.3	22.5	20.4	21.1
Turkey	15.2	15.8	18.1	21.8	22.0	20.8
Italy	27.8	28.6	24.4	23.3	22.4	20.2
Mexico	n.a.	24.0	22.5	25.7	22.8	20.1
France	28.0	27.9	21.9	21.4	21.4	19.5
United Kingdom	27.7	27.1	21.1	21.3	20.3	18.1
Sweden	25.8	27.2	21.5	21.8	19.7	18.0
United States	27.6	23.4	20.7	19.7	18.8	18.0
Netherlands	31.0	25.0	17.8	18.0	19.0	17.6
New Zealand	n.a.	24.1	23.2	19.1	17.6	n.a.
Denmark	19.2	18.1	17.2	16.3	16.3	16.4
Canada	21.5	19.7	17.1	17.3	15.9	n.a. ¹
Australia	24.8	21.3	17.4	16.0	14.6	14.4
Greece	14.8	18.2	16.2	15.5	14.3	13.2
<i>Total OECD(a)</i>	<i>28.6</i>	<i>26.7</i>	<i>23.1</i>	<i>22.5</i>	<i>22.0</i>	<i>20.3</i>

(a) Includes some countries not listed. Also, data not available for some countries in some years. Therefore the countries included in the total are not always the same.

Source: OECD 1996, p. 67.

Manufacturing employment Table 1.4 shows the proportion of the civilian workforce employed in the manufacturing industry in 1994 for OECD countries.

The proportion of the Australian civilian workforce in manufacturing (13.2%) was well below the OECD average (18.0%) in 1994. Only Mexico and Turkey had lower proportions. Of the 24 OECD countries, only one (Germany) recorded more than 25% of its civilian workforce in the manufacturing industry, eight countries recorded between 20% and 25%, the bulk of countries recorded 15% to 20%, and four countries recorded 10% to 15%.

1.4

EMPLOYMENT AS A PROPORTION OF TOTAL CIVILIAN EMPLOYMENT—1994

<i>Country</i>	<i>%</i>
Germany	25.6
Switzerland	23.6
Austria	23.5
Japan	23.2
Italy	22.9
Finland	22.0
Denmark	20.8
Belgium	20.7
Portugal	20.4
Luxembourg	19.7
France	19.0
Ireland	18.2
United Kingdom	18.0
Sweden	17.3
Spain	16.8
United States	16.0
New Zealand	15.8
Iceland	15.5
Netherlands	15.5
Greece	15.3
Canada	14.4
Norway	14.4
Australia	13.2
Mexico	12.0
Turkey	10.9
<i>Total OECD</i>	<i>18.0</i>

Source: OECD 1996, p. 43.

Total factor productivity
growth

Table 1.5 compares growth rates in productivity for the Australian manufacturing sector with those of selected other OECD countries.

A note of caution is needed when looking at international comparisons of productivity. Comparisons can be quite problematic even at the total economy level due to differences in economic structure, statistical conventions (especially for measuring outputs and capital stock), state of the business cycle and government policies. Notwithstanding these difficulties, the OECD has recently compared the total factor productivity (TFP) performance of the manufacturing sectors of 14 OECD countries.

1.5 TOTAL FACTOR PRODUCTIVITY GROWTH IN FOURTEEN OECD COUNTRIES(a)

Country	1973-83	1983-93	1973-93
	%	%	%
Australia	1.4	1.7	1.5
United States	-0.2	2.1	1.3
Canada	-0.5	0.8	0.8
Japan	3.3	2.5	3.0
Germany (West)	1.3	1.2	1.2
France	1.9	1.6	1.6
Italy	3.2	3.2	3.2
Great Britain	-0.1	3.6	1.9
Netherlands	2.2	0.9	1.9
Belgium	4.1	2.4	3.6
Denmark	2.2	-0.6	0.8
Norway	0.8	0.5	0.3
Sweden	0.4	1.5	1.5
Finland	2.3	3.1	3.0
<i>OECD average(b)</i>	<i>1.1</i>	<i>2.1</i>	<i>1.8</i>

(a) Data for Germany and France refer to the period 1973-92. Data for Italy, the Netherlands and Norway refer to the period 1973-91. Data for Great Britain and Belgium refer to the period 1973-90.

(b) Weighted average listed countries constitute approximately 90% of OECD output. As the US accounts for over 35% of OECD output, the OECD average is heavily influenced by movements in the US rates of manufacturing TFP growth.

Source: Productivity Commission 1996, p. 33 based on OECD data.

Further TFP analysis for Australia alone, reveals considerable year-to-year volatility, with annual TFP growth rates for Australia's manufacturing sector moving between positive and negative values. Five-year moving averages have been calculated to remove some of the volatility. However, it is clear from these data that although Australian manufacturing TFP growth has picked up in recent years, even stronger rates of improvement have occurred in other years since 1974-75.

Consequently, it is too early to make definitive judgements about whether Australian manufacturers as a group have significantly improved their productivity performance in recent years including whether they have improved their performance relative to manufacturers in other OECD countries.

Note—more on total factor productivity

Readers wishing to know more about the TFP method of productivity comparison should contact Colin Clark, Industry Commission, PO Box 80, Belconnen ACT 2616.

RECENT GROWTH IN AUSTRALIAN MANUFACTURING INDUSTRY

This section on growth of the Australian manufacturing industry contains two parts. The first part presents Australian Bureau of Statistics' (ABS) management unit statistics by industry while the second presents ABS management unit statistics by size of business. Information on manufacturing growth also appears in other sections of this publication.

Analysis by industry This section presents statistics for sales of goods and services, cost of sales (see Glossary for definition) and trading profit. Trading profit represents profit from trading operations only. It does not take account of all business income and expense items. It ignores interest income and some sundry income sources. More importantly, it does not take account of labour costs, depreciation, interest expenses or some minor expense items. Analyses covering all income and expense items are contained in chapter 2. The statistics in this section relate to the performance of management units (businesses) as described in the Preface.

Growth rates by industry Table 1.6 shows that between 1992–93 and 1995–96, sales of goods and services by the manufacturing industry grew from \$172,775 million to \$204,191 million (up 18%). Over the same period, prices for Australian manufactured goods increased by approximately 6% which implies that the volume of goods and services produced by the manufacturing industry increased by around 11% over that period. Sales of goods and services by the manufacturing industry also grew between 1994–95 and 1995–96 (by 3.6%) while average prices increased by 2.5%, implying growth in the volume of goods and services produced of around 1%.

However, not all industry subdivisions behaved in the same manner. The largest percentage growth in sales of goods and services between 1992–93 and 1995–96 was by Machinery and equipment manufacturing (up 24%) and Metal manufacturing (up 23%). The least growth over the same period was by Non-metallic mineral product manufacturing (up 8%) and Petroleum, coal, chemical and associated product manufacturing (up 12%).

Between 1994–95 and 1995–96, five of the nine manufacturing subdivisions increased their sales of goods and services. The largest increase was by Metal product manufacturing (up 8%), followed by Printing, publishing and recorded media, and Petroleum, coal, chemical and associated product manufacturing (each up 6%). Decreases in sales of goods and services were recorded between 1994–95 and 1995–96 for Other manufacturing (down 5%), Wood and paper product manufacturing (down 3%), Textile, clothing, footwear and leather manufacturing (down 2%) and Non-metallic mineral product manufacturing (down 2%).

All industries recorded increases in trading profit between 1992–93 and 1995–96. For the manufacturing industry as a whole, the increase was 23%. The largest increases among the industry subdivisions were 37% by Metal product manufacturing and 35% by Machinery and equipment manufacturing. The smallest increase in trading profit over the period was the 8% increase for Textile, clothing, footwear and leather manufacturing.

Growth rates by industry
continued

Between 1994–95 and 1995–96, five of the nine industry subdivisions recorded increases in trading profit, as did manufacturing as a whole (by 3%). The largest increases were by Machinery and equipment manufacturing (up 7%), Metal product manufacturing (up 6%) and Petroleum, coal, chemical and associated product manufacturing (up 5%). The largest decrease was by Wood and paper product manufacturing (down 12%). Falls of 2% were recorded for Textile, clothing, footwear and leather manufacturing and for Non-metallic mineral product manufacturing.

1.6 SALES AND TRADING PROFITS

<i>Industry/period</i>	<i>Sales of goods and services</i>	<i>Cost of sales(a)</i>	<i>Trading profit</i>
	\$m	\$m	\$m
Food, beverage and tobacco mfg			
1992–93	37 376	27 433	9 943
1994–95	42 337	31 200	11 137
1995–96	44 208	32 750	11 458
Textile, clothing, footwear and leather mfg			
1992–93	8 546	5 835	2 711
1994–95	9 910	6 940	2 970
1995–96	9 672	6 747	2 925
Wood and paper product mfg			
1992–93	9 765	6 294	3 471
1994–95	11 812	7 294	4 518
1995–96	11 490	7 526	3 964
Printing, publishing and recorded media			
1992–93	11 243	6 219	5 024
1994–95	12 704	6 594	6 110
1995–96	13 411	7 114	6 297
Petroleum, coal, chemical and associated product mfg			
1992–93	31 323	23 946	7 377
1994–95	32 876	24 363	8 513
1995–96	34 992	26 015	8 977
Non-metallic mineral product mfg			
1992–93	8 791	5 732	3 058
1994–95	9 719	6 043	3 676
1995–96	9 516	5 923	3 593
Metal product mfg			
1992–93	28 129	20 181	7 948
1994–95	32 037	21 748	10 289
1995–96	34 690	23 802	10 888
Machinery and equipment mfg			
1992–93	32 968	23 691	9 277
1994–95	39 946	28 256	11 690
1995–96	40 832	28 346	12 486
Other mfg			
1992–93	4 634	3 048	1 586
1994–95	5 667	3 755	1 912
1995–96	5 379	3 478	1 901
Total mfg			
1992–93	172 775	122 380	50 395
1994–95	197 009	136 194	60 815
1995–96	204 191	141 701	62 490

(a) Data for 1994–95 and 1995–96 are as per the definition in the Glossary. 1992–93 data also include payroll tax and fringe benefits tax. Comparisons are only slightly affected as these items are small relative to the value of cost of sales.

Source: ABS, unpublished data, *Manufacturing Survey*.

Analysis by size of business This section presents management unit statistics about business growth or decline. The estimates have been compiled from the 1994–95 and 1995–96 Growth and Performance Surveys conducted by the ABS. These surveys adopt a longitudinal study approach (i.e. the same businesses reporting in both surveys) to measure changes in growth and performance over time. It is intended that the Growth and Performance Survey be conducted annually for a further three years.

Table 1.7 shows the proportion of businesses which are experiencing changes in employment levels and changes in income levels. Because there are many more small businesses in the manufacturing industry than large and medium-sized businesses, proportions for total businesses will naturally tend toward the results for small businesses. However, it is worth remembering that the ‘large businesses’, while few in number, accounts for 50% of total employment in manufacturing.

1.7 BUSINESSES, EMPLOYMENT AND INCOME CHANGE(a)—1995–96

<i>Business</i>	<i>Increasing employment</i>	<i>Increasing income</i>	<i>Static employment</i>	<i>Static income</i>	<i>Decreasing employment</i>	<i>Decreasing income</i>
	%	%	%	%	%	%
Micro	18.2	39.0	68.7	34.4	13.1	26.6
Other small	24.6	26.5	39.7	38.6	35.6	34.9
<i>Total small</i>	<i>21.6</i>	<i>32.4</i>	<i>53.6</i>	<i>36.6</i>	<i>24.9</i>	<i>31.0</i>
Medium-sized	25.5	34.2	48.0	46.4	26.5	19.3
Large	12.4	25.3	64.4	60.5	23.2	14.2
All businesses	21.9	32.5	53.0	38.3	25.0	29.2

(a) For this table, business size definitions are:
 Micro businesses—businesses which employ fewer than 5 people.
 Other small businesses—businesses which employ 5–19 people.
 Small businesses—businesses which employ fewer than 20 people.
 Medium-sized businesses—businesses which employ 20–199 people.
 Large businesses—businesses which employ 200 or more people.

Source: ABS, *Small and Medium Enterprises, Business Growth and Performance Survey, Australia, 1995–96* (Cat. no. 8141.0).

Employment Slightly more than half of the manufacturing businesses surveyed showed static employment levels from mid-1995 to mid-1996 (static levels means no more than 10% change in either direction). Of the proportion which did change, 53% decreased and 47% increased their employment levels.

There were substantial differences in the degree of change for different-sized manufacturing businesses. Between mid-1995 and mid-1996, slightly more small businesses lowered their employment levels than raised them. Of medium-sized businesses, about the same number lowered employment levels as raised them. However, for large businesses, a more pronounced result was evident with twice as many large businesses lowering employment levels as raising them.

Employment *continued* Comparing small businesses in the manufacturing industry with small businesses in the retailing industry shows that employment levels were static for 54% of small manufacturers and for 46% of small retailers. A higher proportion of small retailers increased employment (31%) than small manufacturers (22%), and conversely a higher proportion of small manufacturers decreased employment (25%) than small retailers (23%).

Income Income was more volatile than employment with a little under 40% of manufacturing businesses reporting static income levels between 1994–95 and 1995–96 (static levels means no more than 10% change in either direction). Of the slightly more than 60% of manufacturing businesses which did experience changed income levels, 53% had rises and 47% had falls.

As for employment, there were differing patterns evident for businesses of different sizes. Of micro manufacturing businesses, 39% experienced rises in income while 27% experienced falls. The opposite pattern pertained for other small manufacturing businesses, with 35% experiencing falls in income and 26% experiencing rises. More large and medium-sized manufacturing business experienced rises (25% and 34% respectively) than experienced falls (14% and 19% respectively).

Comparing small businesses in the manufacturing industry with small businesses in the retailing industry shows that income levels were static for 37% of small manufacturers and for 46% of small retailers. The proportion of small manufacturers experiencing income rises (32%) was very similar to the proportion of small retailers experiencing income rises (34%). However, a considerably higher proportion of small manufacturers experienced falls (31%) than small retailers experiencing falls (20%).

For all sizes of manufacturing business, a higher proportion experienced income rises than experienced employment rises.

MANUFACTURING ACTIVITY BY SIZE OF ESTABLISHMENT

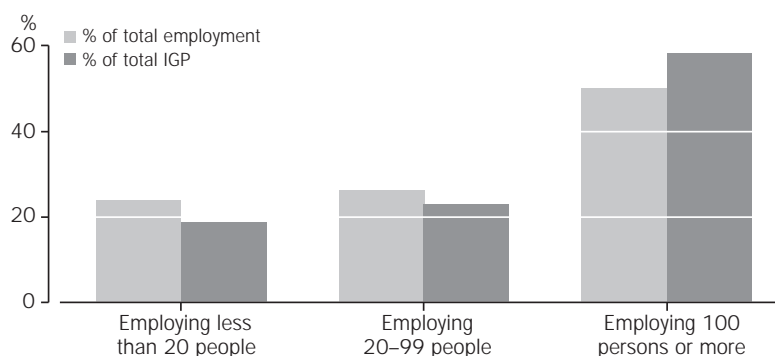
Statistics in this section are based on data for manufacturing establishments (as discussed in the Preface). It shows the extent to which the larger manufacturing establishments dominate their industries. The economic variables used to illustrate the contributions by establishment size are employment (at 30 June 1996), and 1995–96 Industry gross product (IGP), which measures the value added by an industry. Definitions are contained in the Glossary.

Dominance by large establishments The general pattern in Australian manufacturing industries is for a small number of large manufacturing establishments to dominate activity levels in their industries. Though relatively few in number, large manufacturing establishments (those employing 100 or more people) employ 50% of the manufacturing workforce and generate 58.3% of manufacturing IGP.

Dominance by large establishments *continued*

Establishments employing 20–99 people account for 26.2% of the manufacturing workforce and generate 23% of manufacturing IGP. The remaining 23.8% of the manufacturing workforce and 18.7% of manufacturing IGP are contributed by a large number of small establishments.

1.8 PRODUCTION AND EMPLOYMENT—1995–96



Source: ABS, *Manufacturing Industry, Australia, 1995–96* (Cat. no. 8221.0).

All manufacturing subdivisions (except Other manufacturing where small businesses are more dominant) tend to follow this pattern. The highest degree of industry dominance of IGP (value added) by large establishments is 76% for Food, beverage and tobacco manufacturing. Six of the nine manufacturing subdivisions have more than 50% of IGP contributed by large establishments and for two of the other three subdivisions this proportion is more than 40%. Large establishments generally contribute more to IGP than to employment levels. This means that generally value added per person employed in larger establishments is greater than in smaller establishments.

Note: Table 1.9 indicates that Metal product manufacturing is an exception to the pattern of large establishments generating more value added per person employed than smaller establishments. However, this result is influenced by the way in which unincorporated joint venture operations are included in the statistics (each venturer is included as a separate business unit, each reflecting its individual share of the operation). If each of these joint venture operations were to be treated as a single business unit in the statistics, it is highly probable that the Metal product manufacturing industry would reflect a similar dominance pattern to the other manufacturing industries.

1.9

INDUSTRY CONTRIBUTION, BY SIZE OF ESTABLISHMENT—1995–96

Industry	Employing less than 20 people		Employing 20–99 people		Employing 100 or more persons	
	Proportion of total employment	Proportion of total IGP	Proportion of total employment	Proportion of total IGP	Proportion of total employment	Proportion of total IGP
	%	%	%	%	%	%
Food, beverage and tobacco mfg	10.6	5.7	20.3	18.0	69.1	76.4
Textile, clothing, footwear and leather mfg	31.2	22.6	27.5	28.6	41.4	48.8
Wood and paper product mfg	34.0	17.3	27.1	29.5	39.0	53.2
Printing, publishing and recorded media	27.4	18.7	27.6	24.0	45.0	57.4
Petroleum, coal, chemical and associated product mfg	15.2	9.2	33.3	27.5	51.5	63.4
Non-metallic mineral product mfg	24.1	11.5	29.5	27.0	46.4	61.4
Metal product mfg	26.6	40.1	28.9	19.6	44.6	40.2
Machinery and equipment mfg	20.9	13.9	22.2	20.0	56.8	66.2
Other mfg	55.2	45.4	32.9	38.3	11.9	16.3
Total mfg	23.8	18.7	26.2	23.0	50.0	58.3

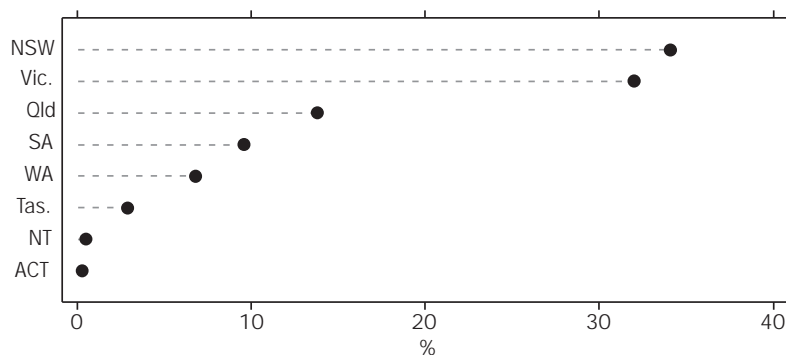
Source: ABS, Manufacturing Industry, Australia, 1995–96 (Cat. no. 8221.0).

WHERE IS MANUFACTURING CARRIED OUT?

This section is based on manufacturing establishment statistics. It shows how manufacturing activity is spread across and within Australia's States and Territories and shows which broad industries are of most importance to those States and Territories. The ABS industry classification system is explained in an earlier section of this chapter 'What is the Manufacturing Industry?'

The economic variables used to illustrate the geographic spread are employment (at 30 June 1996), 1995–96 turnover (total income from trading operations) and 1995–96 IGP which measures value added by the industry. IGP is the appropriate variable to represent production. Definitions of these variables are contained in the Glossary.

1.10 PRODUCTION—1995–96



Source: ABS, Manufacturing Industry, Australia, 1995–96 (Cat. no. 8221.0).

1.11 MANUFACTURING ACTIVITY

<i>State and Territory</i>	<i>Employment at 30 June 1996</i>	<i>1995-96 turnover</i>	<i>1995-96 IGP</i>
	<i>'000</i>	<i>\$ billion</i>	<i>\$ billion</i>
New South Wales	298	65.7	21.0
Victoria	292	63.7	19.7
Queensland	134	28.8	8.5
South Australia	86	18.0	5.9
Western Australia	69	15.1	4.2
Tasmania	22	4.8	1.8
Northern Territory	4	0.9	0.3
Australian Capital Territory	4	0.5	0.2
Australia	908	197.5	61.6

Source: ABS, Manufacturing Industry, Australia, 1995-96 (Cat. no. 8221.0).

New South Wales In 1995-96, New South Wales was the largest manufacturing State. In that year, manufacturing in New South Wales employed nearly 300,000 people and generated \$65.7 billion of turnover and \$21.0 billion of IGP. Of the manufacturing industries, the largest employers were Machinery and equipment manufacturing (63,100 people), Metal product manufacturing (51,200 people) and Food, beverage and tobacco manufacturing (47,500 people). The largest turnovers were generated by Metal product manufacturing (\$13.9 billion) and Food, beverage and tobacco manufacturing (\$13.0 billion) while the largest contributors to IGP were Metal product manufacturing (\$4.5 billion) and Machinery and equipment manufacturing (\$3.7 billion). Further information may be obtained from ABS, *Manufacturing Industry, New South Wales and Australian Capital Territory, 1995-96* (Cat. no. 8221.1).

Around 70% of New South Wales manufacturing activity takes place in the Sydney Statistical Division, where the largest employing manufacturing industry was Machinery and equipment manufacturing (50,800 people) in 1993-94, while the industry with the largest turnover was Petroleum, coal, chemical and associated product manufacturing (\$10.5 billion). The largest non-metropolitan manufacturing industry was Metal product manufacturing which employed around 27,800 people in non-metropolitan New South Wales. Food, beverage and tobacco manufacturing was almost as large with 21,000 employed. The largest non-metropolitan Statistical Divisions were Illawarra and Hunter, each at about 9% of New South Wales manufacturing. Metal product manufacturing was easily the largest industry in these Statistical Divisions, contributing 76% of manufacturing in Illawarra and 58% in Hunter.

Victoria In 1995–96, Victoria was the second largest manufacturing State with total production only slightly below that of New South Wales. In that year, manufacturing in Victoria employed a little over 290,000 people and generated approximately \$63.8 billion of turnover and \$19.7 billion of IGP. Of the manufacturing industries, the largest employers were Machinery and equipment manufacturing (71,300 people), Food, beverage and tobacco manufacturing (43,000 people), Metal product manufacturing (36,500 people) and Textile, clothing, footwear and leather manufacturing (36,000 people). Machinery and equipment manufacturing was responsible for the largest turnover (\$15.9 billion) and IGP (\$4.3 billion). Other major contributors to turnover and IGP were Food, beverage and tobacco manufacturing (\$12.8 billion and \$3.5 billion respectively) and Petroleum, coal, chemical and associated product manufacturing (\$10.8 billion and \$3.3 billion respectively). Further information may be found in ABS, *Manufacturing Industry, Victoria, 1995–96* (Cat. no. 8221.2).

Around 75% of Victorian manufacturing activity takes place in the Melbourne Statistical Division, where the largest employing manufacturing industry was Machinery and equipment manufacturing (almost 60,000 people) in 1993–94. It was also the industry with the largest turnover (\$12.8 billion). The largest Victorian non-metropolitan manufacturing industry was Food, beverage and tobacco manufacturing which employed around 18,700 people, considerably more than the next largest, Machinery and equipment manufacturing which employed just under 9,000. Of the non-metropolitan Statistical Divisions, Barwon Statistical Division had the largest manufacturing presence with over 14,000 employed in manufacturing and just under \$4.7 billion of turnover generated.

Queensland In terms of size of the manufacturing industry, Queensland was the third largest State in 1995–96 behind New South Wales and Victoria. Though considerably smaller than those two States, manufacturing in Queensland is nevertheless quite substantial in its own right. In 1995–96, Queensland manufacturing employed around 130,000 people and generated \$28.9 billion in turnover and \$8.6 billion of IGP. Largest employers among the manufacturing industries in Queensland in 1995–96 were Food, beverage and tobacco manufacturing (33,200 people), Metal product manufacturing (25,100 people) and Machinery and equipment manufacturing (23,500 people). Food, beverage and tobacco manufacturing (turnover of \$8.7 billion and IGP of \$2.1 billion) and Metal product manufacturing (turnover of \$6.8 billion and IGP of \$2.1 billion) also featured as the two largest industries for turnover and IGP as well as for employment. Further information may be found in ABS, *Manufacturing Industry, Queensland, 1995–96* (Cat. no. 8221.3).

Queensland *continued*

Manufacturing activity in Queensland is more dispersed than in most other States. Around 55% of Queensland manufacturing activity takes place in the Brisbane Statistical Division where, in 1993–94, the largest employing manufacturing industries were Food, beverage and tobacco manufacturing (15,800 people), Machinery and equipment manufacturing (13,800 people) and Metal product manufacturing (13,500 people). The largest non-metropolitan manufacturing industries were Food, beverage and tobacco manufacturing which employed around 19,700 people, considerably more than the next largest industry, Metal product manufacturing which employed just under 10,700. The largest non-metropolitan Statistical Divisions were Moreton Statistical Division where 15,800 people were employed in manufacturing and \$2.2 billion of turnover was generated, and Fitzroy Statistical Division where 7,500 people were employed in manufacturing and \$2.2 billion of turnover was generated.

South Australia

South Australia is the fourth largest manufacturing State. In 1995–96, the South Australian manufacturing industry employed over 85,000 people and generated \$18 billion of turnover and \$5.9 billion of IGP. The two largest industries in South Australia in 1995–96 were Machinery and equipment manufacturing (29,200 people employed, \$6.9 billion of turnover and \$2.1 billion of IGP) and Food, beverage and tobacco manufacturing (16,500 people employed, \$3.8 billion of turnover and \$1.2 billion of IGP). Further information can be found in ABS, *Manufacturing Industry, South Australia, 1995–96* (Cat. no. 8221.4).

Around 76% of South Australian manufacturing activity takes place in the Adelaide Statistical Division, giving South Australia the most centralised manufacturing operations of all the States. By far the largest industry in the Adelaide Statistical Division in 1993–94 was the Machinery and equipment manufacturing industry (26,900 people employed and \$6.2 billion of turnover). Next largest industry was Food, beverage and tobacco manufacturing (8,200 people employed and \$1.6 billion of turnover). The largest non-metropolitan manufacturing industries were Food, beverage and tobacco manufacturing which employed around 7,500 people and generated \$1.7 billion of turnover, and Metal product manufacturing which employed just over 4,200 people and generated \$1.3 billion of turnover. The largest Statistical Divisions outside Adelaide were Northern Statistical Division where 4,500 people were employed in manufacturing and \$1.4 billion of turnover was generated, and Outer Adelaide Statistical Division where 4,500 people were employed in manufacturing and \$0.8 billion of turnover was generated.

Western Australia Western Australia ranks fifth among the States of Australia in terms of size of the manufacturing industry. In 1995–96, the Western Australian manufacturing industry employed almost 69,000 people and generated \$15.1 billion of turnover and \$4.2 billion of IGP. The largest employing industries in Western Australia in 1995–96 were Metal product manufacturing (15,200 people), Food, beverage and tobacco manufacturing (12,800 people) and Machinery and equipment manufacturing (10,800 people). In terms of turnover and IGP generated, the largest industries were Metal product manufacturing (\$4.2 billion of turnover and \$0.8 billion of IGP), Food, beverage and tobacco manufacturing (\$3.0 billion of turnover and \$0.8 billion of IGP) and Petroleum, coal, chemical and associated product manufacturing (\$2.8 billion of turnover and \$0.7 billion of IGP). Further information may be found in ABS, *Manufacturing Industry, Western Australia, 1995–96* (Cat. no. 8221.5).

Around 70% of Western Australian manufacturing activity takes place in the Perth Statistical Division. The largest industries in the Perth Statistical Division in 1993–94 were the Machinery and equipment manufacturing industry (9,600 people employed and \$1.5 billion of turnover), Metal product manufacturing (8,500 people employed and \$1.5 billion of turnover) and Food, beverage and tobacco manufacturing (7,100 people employed and \$1.7 billion of turnover). The largest non-metropolitan manufacturing industries were Metal product manufacturing which employed 5,500 people and generated \$2.2 billion of turnover, and Food, beverage and tobacco manufacturing which employed around 3,600 people and generated \$0.9 billion of turnover. The largest Statistical Division outside Perth was South West Statistical Division where 9,600 people were employed in manufacturing and \$2.8 billion of turnover was generated.

Tasmania Tasmania has the smallest manufacturing industry of the Australian States. In 1995–96, it employed over 22,000 people and generated \$4.8 billion of turnover and \$1.8 billion of IGP. The largest manufacturing industries in Tasmania were Food, beverage and tobacco manufacturing (5,500 people employed, \$1.3 billion of turnover and \$0.4 billion of IGP) and Wood and paper product manufacturing (3,800 people employed, \$1.1 billion of turnover and \$0.5 billion of IGP). Further information can be obtained from ABS, *Manufacturing Industry, Tasmania, 1995–96* (Cat. no. 8221.6).

Around 35% of Tasmanian manufacturing activity takes place in the Greater Hobart Statistical Division. This makes Tasmania the least centralised of all of the States in terms of where manufacturing takes place. 1993–94 data show that, in terms of employment and turnover, the Greater Hobart Statistical Division, the Northern Statistical Division and the Mersey–Lyell Statistical Division are all around the same size. Manufacturing industry in the Southern Statistical Division is substantially smaller. In 1993–94, Food, beverage and tobacco manufacturing was the largest manufacturing industry in the Greater Hobart Statistical Division (employing 1,800 people and generating \$0.4 billion in turnover) and

Tasmania <i>continued</i>	also in Mersey–Lyell Statistical Division (employing 2,300 people and generating \$0.6 billion in turnover). Metal product manufacturing (employing 1,700 people and generating \$0.4 billion in turnover) was the largest industry in the Northern Statistical Division.
Northern Territory	Manufacturing is not a major activity in the Northern Territory. In 1995–96, the manufacturing industry employed approximately 3,500 people and generated \$0.9 billion of turnover and \$0.3 billion of IGP. The largest industry was Metal product manufacturing which employed 1,300 people and generated \$0.6 billion of turnover and \$0.2 billion of IGP. Further information can be obtained from ABS, <i>Manufacturing Industry, Australia, 1995-96</i> (Cat. no. 8221.0).
Australian Capital Territory	As in the Northern Territory, manufacturing is not a major activity in the Australian Capital Territory. In 1995–96, the manufacturing industry employed nearly 4,000 people and generated \$0.5 billion of turnover and \$0.2 billion of IGP. The largest industry was Printing, publishing and recorded media which employed 1,700 people and generated \$0.2 billion of turnover and \$0.1 billion of IGP. Further information may be obtained from ABS, <i>Manufacturing Industry, New South Wales and Australian Capital Territory, 1995–96</i> (Cat. no. 8221.1).

CHARACTERISTICS OF THE MANUFACTURING WORKFORCE

This section presents information about people employed in the manufacturing industry or who have recently left the manufacturing industry. The estimates include working proprietors as well as employees. The source of the data in this section is the ABS' Labour Force Survey.

Persons employed in the manufacturing industry	The manufacturing industry employed 13.8% of all persons employed in Australia at August 1997. Males outnumbered females by a ratio of almost 3 to 1 (74% males and 26% females).
Full-time versus part-time jobs	In August 1997, the vast majority of males employed in the manufacturing industry (95%) were employed full-time. The corresponding proportion for females was considerably lower (73%). The proportion of people with full-time jobs has fallen slightly in the past 10 years, from 97% for males and 79% for females.

Despite this decline in full-time employment, average hours worked per week in the manufacturing industry have risen markedly—from 37.7 hours in August 1987 to 41.0 hours per week in August 1997. A higher proportion of people worked more than 40 hours (29% in 1987; 37% in 1997) and a much higher proportion worked 49 hours or more (13% in 1987; 20% in 1997). There was also a small increase in the proportion working up to 30 hours (14% in 1987; 16% in 1997).

Full-time versus part-time jobs *continued* In August 1997, the length of the working week in manufacturing was:

- up to 30 hours for 12% of males and 29% of females;
- 30–40 hours for 26% of males and 34% of females;
- exactly 40 hours for 20% of males and 16% of females; and
- more than 40 hours for 42% of males and 20% of females.

Age profile Of the people employed in manufacturing in August 1997:

- 15% were aged 15–24
- 28% were aged 25–34
- 27% were aged 35–44
- 20% were aged 45–54
- 10% were aged 55 or more.

Manufacturing industry subdivisions

The largest manufacturing subdivisions in terms of employment were Machinery and equipment manufacturing (23% of all people employed in manufacturing), Food, beverage and tobacco manufacturing (16%), Metal product manufacturing (15%) and Printing, publishing and recorded media (11%). The largest employers of males were Machinery and equipment manufacturing (25% of all males employed in manufacturing), Metal product manufacturing (18%) and Food, beverage and tobacco manufacturing (16%). The largest employers of females were Textile, clothing, footwear and leather manufacturing (21% of all females employed in manufacturing), Printing, publishing and recorded media (18%) and Food, beverage and tobacco manufacturing (18%).

Comparisons with earlier periods are necessarily approximate due to changes in industry classifications used. However, in August 1987, relative industry sizes appear to have been very similar to August 1997. Machinery and equipment manufacturing was the largest employer in 1987 (23% all people employed in manufacturing) followed by Metal product manufacturing (17%) and Food, beverage and tobacco manufacturing (16%). The most substantial change was that in 1987; Textile, clothing, footwear and leather manufacturing was an even larger employer of females (27% of all females employed in manufacturing).

Further information on employment and other aspects of manufacturing industry subdivisions is included in chapter 2.

1.12 EMPLOYED PERSONS—AUGUST 1997

Industry	%
Food, beverage and tobacco mfg	16.1
Textile, clothing, footwear and leather mfg	9.0
Wood and paper product mfg	5.6
Printing, publishing and recorded media	11.3
Petroleum, coal, chemical and associated product mfg	8.8
Non-metallic mineral product mfg	3.9
Metal product mfg	15.3
Machinery and equipment mfg	22.7
Other mfg	7.3
Total mfg	100.0

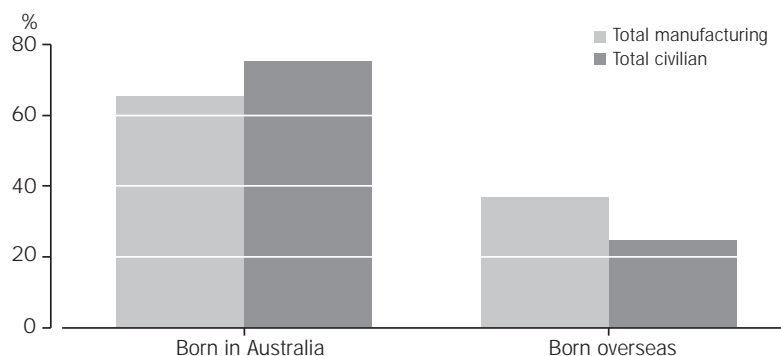
Source: ABS, *Labour Force, Australia, August 1997* (Cat. no. 6203.0).

Australian versus overseas-born

As graph 1.13 shows, 65% of people employed in the Australian manufacturing industry in August 1997 were Australian-born. The corresponding figure for all civilian industries was 75%. Of all males employed in the Australian manufacturing industry in August 1997, 67% were Australian-born. This represents an increase from 64% in August 1987. For females, the corresponding proportion was 61% in August 1997 which represents a decrease from 63% in August 1987.

Table 1.14 provides a breakdown of the manufacturing industry. It shows that in August 1997, over half of the people employed in the Textile, clothing, footwear and leather manufacturing industry were born outside Australia (51% of males in the industry and 53% of females). Other industries employing high proportions of people born outside Australia were Metal product manufacturing (41% of males, 43% of females and 41% overall) and Petroleum, coal, chemical and associated product manufacturing (37% of males, 46% of females and 39% overall).

1.13 EMPLOYED PERSONS, BIRTHPLACE—August 1997



Source: ABS, *Labour Force, Australia, August 1997* (Cat. no. 6203.0).

1.14 EMPLOYED PERSONS, BY BIRTHPLACE—AUGUST 1997

Industry	Proportion of all persons employed in the industry					
	Born in Australia			Born outside Australia		
	Males	Females	Persons	Males	Females	Persons
	%	%	%	%	%	%
Food, beverage and tobacco mfg	56.4	18.1	74.5	15.3	10.2	25.5
Textile, clothing, footwear and leather mfg	19.3	28.6	47.9	20.4	31.7	52.1
Wood and paper product mfg	61.0	13.4	74.4	22.8	2.8	25.6
Printing, publishing and recorded media	42.1	31.8	73.9	15.8	10.3	26.1
Petroleum, coal, chemical and associated product mfg	45.6	15.0	60.6	26.4	13.0	39.4
Non-metallic mineral product mfg	60.5	9.5	70.0	23.3	6.8	30.0
Metal product mfg	59.2	6.9	66.1	30.3	3.6	33.9
Machinery and equipment mfg	48.7	9.9	58.6	34.0	7.4	41.4
Other mfg	57.2	12.6	69.8	20.7	9.5	30.2
Total mfg	49.6	15.8	65.4	24.4	10.2	34.6
Total civilian	42.5	33.0	75.4	14.4	10.2	24.6

Source: ABS, unpublished data, Labour Force Survey, August 1997.

Persons previously employed in the manufacturing industry

Of the estimated 374,500 people who were unemployed in August 1997 but who had been employed full-time at some time during the previous two years, 69,400 (19%) had been last employed full-time in the manufacturing industry. This was the largest single industry of last employment with only retail trade (15%) being of similar size.

Of the estimated 69,400 people who had been last employed full-time in the manufacturing industry, 37,300 (54%) were laid off or retrenched, 14,400 (21%) left involuntarily for other reasons (such as poor health) and 17,700 (25%) left voluntarily.

1.15 UNEMPLOYED PERSONS—AUGUST 1997

Industry of last full-time job	Duration of unemployment				
	Under 1 year	Over 1 year	Males	Females	Persons
	'000	'000	'000	'000	'000
Agriculture, forestry and fishing	19.8	*3.2	15.7	7.2	23.0
Manufacturing	56.2	13.2	54.2	15.2	69.4
Construction	27.9	6.7	33.8	*0.8	34.6
Retail trade	49.6	7.3	34.9	21.9	56.9
Accommodation, cafes and restaurants	22.0	6.3	15.5	12.8	28.3
Property and business services	27.7	*3.8	18.7	12.7	31.5
Other industries	108.6	22.3	80.7	50.5	130.9

Source: ABS, Labour Force, Australia, August 1997 (Cat. no. 6203.0).

1.16 REASONS FOR LEAVING FULL-TIME JOB(a)—AUGUST 1997

Industry	Laid-off, retrenched			Job loser Total(b)			Job leaver			Total
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	Persons
	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
Manufacturing	30.2	7.0	37.3	40.6	11.1	51.7	13.6	4.1	17.7	69.4
Other	90.0	37.3	127.0	146.7	64.4	211.3	52.2	41.4	93.8	305.2
<i>Total</i>	<i>120.2</i>	<i>44.3</i>	<i>164.3</i>	<i>187.3</i>	<i>75.5</i>	<i>263.0</i>	<i>65.8</i>	<i>45.5</i>	<i>111.5</i>	<i>374.6</i>

(a) Unemployed persons who had worked full-time for two weeks or more in the last two years—August 1997.

(b) The difference between those job losers laid-off, retrenched and the total job losers are those persons who involuntarily left their job because of ill-health or injury; or the job was seasonal or temporary.

Source: ABS, *Labour Force, Australia, August 1997* (Cat. no. 6203.0).

ENVIRONMENTAL ISSUES

This section contains two parts. The first part presents an analysis by the Australian Bureau of Agricultural and Resource Economics (ABARE) of fuels used by manufacturers. It includes ABARE's projections of use to the year 2009–10. The second part is based on an ABS survey of manufacturing management units. It shows costs incurred by manufacturers for environmental protection measures during 1995–96.

Energy use This section is based on analysis by ABARE of past and future energy use by manufacturers. The data represent net energy use—that is energy consumed minus energy produced. The proportions and growth rates shown in the tables and mentioned in the commentary in this section are based on data measured in petajoules.

Growth in fuels used by manufacturers Net consumption of energy by the manufacturing industry has grown by 17% over the 15 years from 1979–80 to 1994–95. It is predicted to grow by a further 40% over the following 15 years to 2009–10. By way of comparison, manufacturing production increased by 26% over the 15 years from 1979–80 to 1994–95.

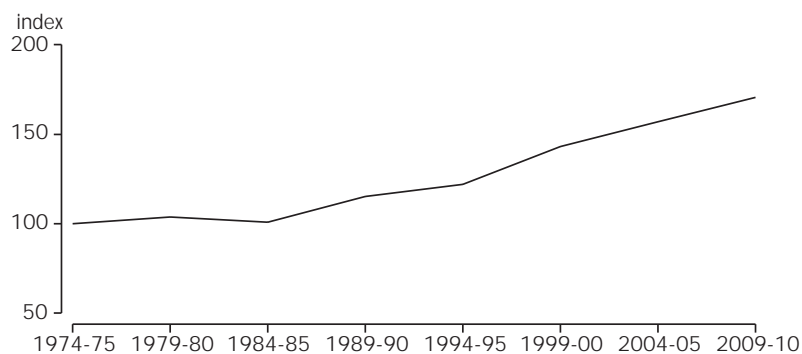
While energy use has grown over the past 20 years, manufacturing's share of total Australian fuel use has decreased from almost 35% to 26%. It is predicted by ABARE that manufacturing's share of Australian fuel use will remain at around 1994–95 proportions until at least 2009–10.

By far the largest single fuel type used by the manufacturing industry is refinery feedstock (51% of total fuel consumption by manufacturers in 1979–80, 53% in 1994–95 and predicted to be 52% in 2009–10). Refinery feedstock is used exclusively by the petroleum refining industry to produce petroleum fuels for use throughout the Australian economy and for export. Black coal, at 12% of energy consumption, was the second largest fuel source for manufacturing in 1979–80. By 1994–95, black coal's share had fallen to 9% and is predicted to fall slightly to

Growth in fuels used by manufacturers

around 8% by 2009–10. Relatively fast growing fuel sources for manufacturing industry are natural gas (7% in 1979–80, 11% in 1994–95 and predicted to be 15% by 2009–10) and electricity (4% in 1979–80, 7% in 1994–95 and predicted to be 8% by 2009–10).

1.17 PAST AND PROJECTED ENERGY USE



Base: 1974–75=100

Source: ABARE 1997, pp. 102–109.

1.18 ENERGY CONSUMPTION(a)

Period	Index of energy consumption by manufacturing	Proportion of total Australian consumption(b)
	1974–75 = 100	%
1974–75	100.0	34.4
1979–80	104.0	30.8
1984–85	100.7	27.7
1989–90	115.1	27.1
1994–95	122.1	26.0
1999–00	143.1	26.5
2004–05	157.1	26.1
2009–10	170.4	26.4

(a) Unit of measurement for energy consumption data used to compile this table is the petajoule. Data for periods 1994–95 and earlier are survey estimates. Data for later periods have been projected on the basis of survey results and other information.

(b) Total consumption is all consumption including residential consumption.

Source: ABARE 1997, pp. 102–109.

Energy consumption by industry within manufacturing

Due to the extent of the period covered in this analysis, the ABARE analysis is based on the Australian Standard Industrial Classification (ASIC), the industry classification which preceded the ANZSIC. At the broad industry levels presented here, the alignment of ASIC and ANZSIC categories is sufficiently close for the purpose of presenting long-term data.

In 1994–95, by far the largest net energy consumer among broad manufacturing industries was Metal product manufacturing, with 45% of total manufacturing energy consumption. By 2009–10, this industry is expected to have an even greater share, 53%. Within the Metal product manufacturing industry energy consumption is split approximately 60% to non-ferrous metals and 40% to ferrous metals. In gross terms,

Energy consumption by industry within manufacturing *continued*

in 1994–95, the Petroleum refining industry was the largest consumer of energy but because of its nature as a large producer of energy products, its net energy consumption is substantially less than that of Metal product manufacturing.

1.19 ENERGY CONSUMPTION, BY INDUSTRY(a)

Industry	Share of total Australian energy consumption	
	1994–95	Projected 2009–10
	%	%
Food, beverage and tobacco mfg	14.3	12.6
Textile, clothing, footwear and leather mfg	1.5	1.3
Wood, wood product, paper, printing, publishing and recorded media	6.3	5.3
Petroleum, coal, chemical and associated product mfg	22.7	19.9
Non-metallic mineral product mfg	8.4	7.3
Metal product mfg	45.1	52.6
Machinery and equipment mfg	1.8	1.6
Other mfg(b)	—	—
Total mfg	100.0	100.0

(a) Unit of measurement for energy consumption data used to compile this table is the petajoule. Data for 1994–95 are survey estimates. Data for 2009–10 have been projected on the basis of survey results and other information.

(b) Less than 0.05%.

Source: ABARE 1997, pp. 110–117.

Net energy consumption—
manufacturing industry by
State

In 1994–95, New South Wales manufacturing was by far the largest net energy consumer of the State manufacturing industries. However, by 2009–10, Western Australian manufacturing is expected to become the largest. All other States are expected to have a reduced share of net energy consumption of Australian manufacturing.

On a per person employed basis, Western Australian manufacturing was the highest energy-using State followed by Queensland. On this basis, Victoria was the lowest energy consumer.

1.20 ENERGY CONSUMPTION, BY STATE AND TERRITORY

State and Territory	Share of total Australian manufacturing energy consumption	
	1994–95	Projected 2009–10
	%	%
New South Wales (including Australian Capital Territory)	32.0	23.9
Victoria	20.3	17.4
Queensland	21.6	21.4
Western Australia	13.9	26.9
South Australia	7.0	5.6
Tasmania	3.4	3.3
Northern Territory	1.7	1.4
Australia	100.0	100.0

Source: ABARE 1997, pp. 102–109.

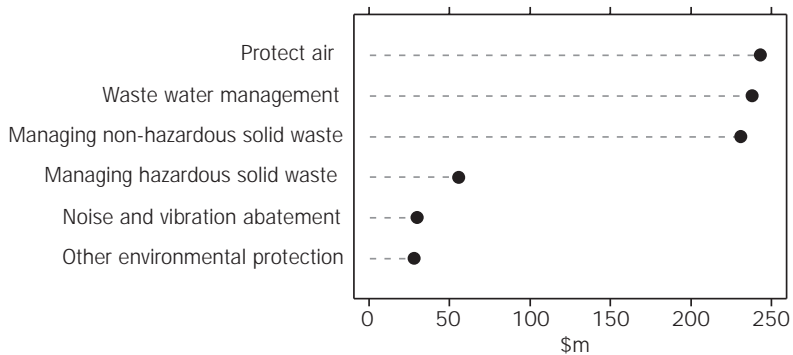
Expenditure by manufacturers to protect the environment	This section presents results from the 1995–96 Waste Management and Environmental Protection Expenditure Survey, which was the first such survey of manufacturers conducted by the ABS and some comparative data for 1994–95. Table 1.22 shows broad categories of expenditure by industry subdivision for 1994–95 and 1995–96. Data for the full range of capital expenditure items in the survey are presented in table 1.23.
Current expenditure on waste management and other environmental protection	Current expenditure on waste management and environmental protection was a relatively minor component of operating expenditure by manufacturers in 1995–96. Current expenditure on environmental protection of \$327 million was around 0.2% of total operating costs. Current expenditure costs were greatest for Food, beverage and tobacco manufacturers (\$70 million) and Metal product manufacturers (\$55 million). The major components of current expenditure on environmental protection for manufacturers were expenditure on management of non-hazardous solid wastes and expenditure on waste water management.
Capital expenditure for environmental protection	<p>Capital expenditure for environmental protection of \$432 million was around 4.1% of total 1995–96 capital expenditure by manufacturers. Industries undertaking most capital expenditure were Machinery and equipment manufacturers (\$114 million) and Metal product manufacturers (\$109 million).</p> <p>1995–96 capital expenditure on environmental protection by manufacturers was split fairly evenly between expenditure on end-of-line techniques and expenditure which resulted in changes in production methods (see the Glossary for definitions of these approaches). However, in most industries, expenditure on end-of-line techniques was greater than expenditure on change in production. The exception was Machinery and equipment manufacturing in which around \$100 million was spent on changes to production methods to protect air quality. The only other manufacturing industry to spend over \$100 million on capital equipment for environmental protection was Metal product manufacturing (main components being \$43 million on air protection equipment and \$25 million on waste water management equipment).</p>

1.21 ENVIRONMENTAL PROTECTION EXPENDITURE

Industry	1994-95		1995-96	
	Current expenditure \$ million	Capital expenditure \$ million	Current expenditure \$ million	Capital expenditure \$ million
Food, beverage and tobacco mfg	68	42	70	54
Textile, clothing, footwear and leather mfg	6	1	20	9
Wood and paper product mfg	13	13	39	70
Printing, publishing and recorded media	10	2	17	3
Petroleum, coal, chemical and associated product mfg	59	24	45	56
Non-metallic mineral product mfg	17	3	23	15
Metal product mfg	165	66	55	109
Machinery and equipment mfg	19	4	32	114
Other mfg	2	1	26	3
Total mfg	359	154	327	432

Source: ABS Environment protection expenditure, Australia, 1994-95 and 1995-96 (Cat. no. 4603.0).

1.22 ENVIRONMENTAL PROTECTION COSTS— 1995-96



Source: Waste management and environmental protection expenditure survey.

1.23 WASTE MANAGEMENT AND ENVIRONMENTAL PROTECTION EXPENDITURE—1995–96

<i>Capital expenditure to protect environment</i>	<i>\$ million</i>
End-of-line techniques	
Protect air	67
Waste water management	77
Managing non-hazardous solid waste	30
Managing hazardous solid waste	22
Noise and vibration abatement	14
Other environmental protection	5
<i>Total</i>	214
Change in production methods	
Protect air	141
Waste water management	38
Managing non-hazardous solid waste	26
Managing hazardous solid waste	2
Noise and vibration abatement	9
Other environmental protection	4
<i>Total</i>	218
Total	432

(a) Payments to local government, government contractors or agencies for removal and/or disposal of wastes or other environmental protection services (e.g. testing and monitoring of noise levels or emissions).

(b) Includes payments to private contractors for waste management and environmental protection services, e.g. environmental impact assessments, energy or environmental audits.

Source: Waste management and environmental protection expenditure survey.

CHAPTER 2

PERFORMANCE OF THE MANUFACTURING INDUSTRY

INTRODUCTION

Chapter 2 presents information about the performance of the manufacturing industry as a whole, and about the performance of industry subdivisions within manufacturing. Similar information is provided for other Australian and New Zealand Industrial Classification (ANZSIC) Divisions such as Wholesale trade, Construction and Mining. The source of the non-manufacturing data is the Economic Activity Survey (EAS) which is conducted annually by the Australian Bureau of Statistics (ABS).

Data presented in this chapter exclude operations of those unincorporated businesses which do not employ staff and which have not registered as group employers with the Australian Taxation Office. Although these very small businesses are fairly numerous, especially in industries such as Retail trade, Construction and Transport, their omission from the statistics is believed to have no serious effect on the reliability of the industry performance measures presented because they account for a very small proportion of total production.

A range of industry performance measures is presented, including standard accounting concepts such as the profitability ratio, the ratio of debt to equity and the current ratio. Definitions of the various economic variables and performance measures are included in the Glossary. Performance measures are compiled and presented uniformly to facilitate direct comparison of the relative performances of industries, as well as enabling readers to focus on individual industries. Corresponding information may also be available for finer levels of manufacturing industry.

TOTAL MANUFACTURING

Performance of manufacturing relative to other industries

Table 2.1 presents basic performance ratios for selected industries, including the manufacturing industry, for 1995–96. Of the 15 industries listed in table 2.1, the manufacturing industry ranks ninth in terms of the profit margin (operating profit before tax as a percentage of operating income) and sixth in terms of return on net worth (operating profit before tax as a percentage of net worth).

Apart from the Finance and insurance industry (for which data are not available) and Agriculture, forestry and fishing, all industries exhibited fairly similar ratios in 1995–96, for long-term debt to equity (non-current liabilities divided by net worth) and the current ratio (current assets divided by current liabilities) in 1995–96.

Between 1994–95 and 1995–96, the profit margin for the manufacturing industry fell from 8.1% to 6.6%. The fall in profit margin for manufacturing was greater than the fall for all industries in total (from 9.1% to 8.5%). In the three years from 1992–93 to 1995–96, manufacturing profit margins fell from 9.9% to 6.6%, a much larger fall than for all industries in total, which fell from 8.7% to 8.5%.

2.1

PERFORMANCE RATIOS—1995–96

<i>Industry</i>	<i>Profit margin</i>	<i>Return on net worth</i>	<i>Long-term debt to equity</i>	<i>Current ratio</i>	<i>Interest coverage</i>
	<i>%</i>	<i>%</i>	<i>times</i>	<i>times</i>	<i>times</i>
Agriculture, forestry and fishing	14.2	3.8	0.1	2.4	3.5
Mining	17.8	21.4	0.8	0.9	6.8
Manufacturing	6.6	15.6	0.4	1.3	5.1
Electricity, gas and water supply	13.0	5.7	0.5	1.0	2.1
Construction	4.5	34.7	0.9	1.1	4.6
Wholesale trade	3.0	23.1	0.5	1.3	3.9
Retail trade	2.6	29.7	0.7	1.1	3.1
Accommodation, cafes and restaurants	6.3	10.6	0.4	1.0	3.0
Transport and storage	6.1	9.9	0.7	0.8	2.9
Communication	14.4	19.4	0.5	0.8	5.5
Finance and insurance	24.7	10.2	n.a.	n.a.	1.7
Property and business services	13.8	13.6	0.6	1.1	2.9
Private community services(a)	9.1	14.4	0.4	1.2	5.5
Cultural and recreational services	6.5	10.3	0.7	0.9	3.2
Personal and other services	7.0	7.6	0.2	1.4	5.2
All industries	8.5	11.6	(b)0.3	(b)1.3	2.4

(a) Includes private education, health services and community services businesses, but excludes those in the public sector.

(b) Excludes finance and insurance businesses.

Source: ABS, *Business Operations and Industry Performance, Australia, Preliminary, 1995–96* (Cat. no. 8142.0)

Changes in performance by the manufacturing industry

Excluding some very small businesses (see paragraph two of the introduction), it is estimated that almost 51,000 manufacturing management units (businesses) were in operation at 30 June 1996. These manufacturing businesses employed approximately 970,000 people and, in 1995–96, generated sales of \$204 billion which was 3.4% higher than 1994–95 sales. They also generated \$3 billion in other income. However, between 1994–95 and 1995–96, increases in costs, especially interest (up 26.4%), labour costs (up 8.4%) and depreciation (up 11.7%) were greater than increases in income and as a result, operating profit before tax fell (by 16.2%).

Because sales increased but profits fell between 1994–95 and 1995–96, there was a substantial fall in the profit margin (from 8.1% to 6.6%). 1995–96 values for other key performance measures for the manufacturing industry were:

- return on assets 7.6%
- return on net worth 15.6%
- long-term debt to equity 0.4
- current ratio 1.3
- interest coverage 5.1

2.2 INDUSTRY PERFORMANCE

	1994-95	1995-96	Relative change
	\$ million	\$ million	%
Income statement			
Sales of goods and services	197 009	203 724	3.4
Less cost of sales	136 194	141 300	3.7
Trading profit	60 815	62 424	2.6
<i>Plus interest</i>	629	819	30.3
<i>Plus other operating income</i>	1 863	2 146	15.2
<i>Less labour costs</i>	36 278	39 322	8.4
<i>Less depreciation</i>	5 649	6 309	11.7
<i>Less other operating expenses</i>	2 681	2 960	10.4
Earnings before interest and tax	18 700	16 797	-10.2
<i>Less interest expenses</i>	2 627	3 320	26.4
Operating profit before tax	16 073	13 477	-16.2
Balance sheet			
Current assets	n.a.	72 540	n.a.
Non-current assets	n.a.	105 728	n.a.
<i>Total assets</i>	<i>n.a.</i>	<i>178 268</i>	<i>n.a.</i>
Current liabilities	n.a.	55 546	n.a.
Non-current liabilities	n.a.	36 442	n.a.
<i>Total liabilities</i>	<i>n.a.</i>	<i>91 987</i>	<i>n.a.</i>
Net worth	n.a.	86 281	n.a.
Capital outlays			
Net capital expenditure	n.a.	10 574	n.a.

Source: ABS, unpublished data, Manufacturing Survey.

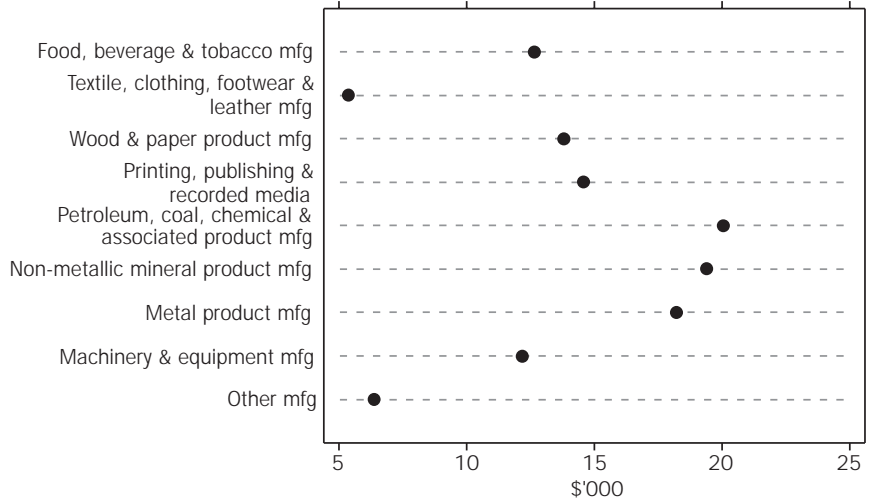
Industry subdivisions within manufacturing

Below is a comparison of some key elements of the 1995-96 performance of industry subdivisions within manufacturing. Further detail about performance by industry subdivisions appears in the remaining sections of this chapter which examine performance by individual industry subdivisions.

In 1995-96, manufacturing businesses generated almost \$13.5 billion in profits. This represented, on average, almost \$14,000 per person employed in manufacturing and \$66 profit for every thousand dollars of sales. Performance varied widely within the manufacturing industry. As shown by graph 2.3, Petroleum, coal, chemical and associated product manufacturing businesses generated a little over \$20,000 per person employed while Textile, clothing, footwear and leather manufacturing businesses generated around \$5,400 per person employed.

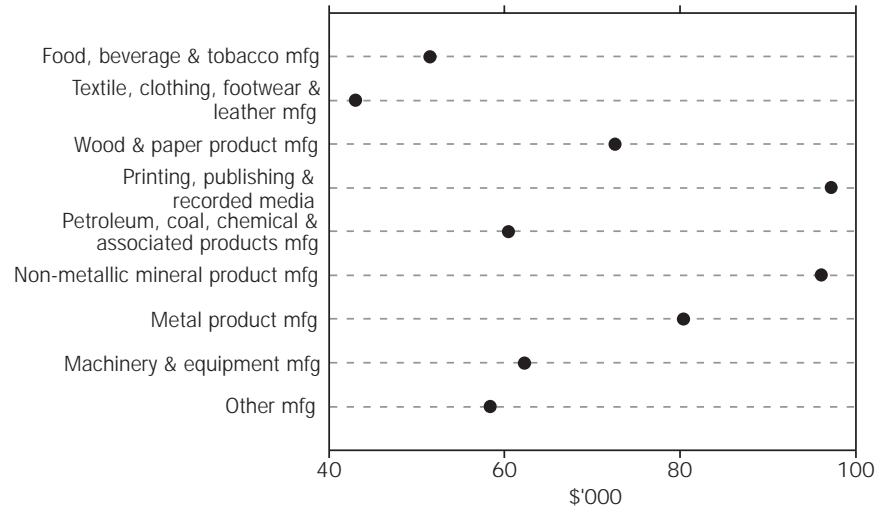
Similarly a variety of results are shown by profits generated per thousand dollars of sales. Businesses in the Printing, publishing and recorded media industry generated, on average, almost \$100 of profits per thousand dollars of sales while Textile, clothing, footwear and leather manufacturing businesses generated around \$43 of profits per thousand dollars of sales.

2.3 PROFITS PER PERSON EMPLOYED—1995-96



Source: ABS, unpublished data, Manufacturing Survey.

2.4 PROFITS PER THOUSAND DOLLARS OF SALES—1995-96



Source: ABS, unpublished data, Manufacturing Survey.

FOOD, BEVERAGE AND TOBACCO MANUFACTURING

Establishments Table 2.5 presents data for the 10 largest (in terms of turnover) of the 23 industry classes within the Food, beverage and tobacco manufacturing industry. These classes accounted for around two-thirds of the turnover of the industry.

2.5 INDUSTRY COMPOSITION—1995–96

	Employment at end of June(a)	Turnover
	no.	\$ million
Meat processing	27 467	5 917
Dairy product mfg n.e.c.	7 827	3 208
Fruit and vegetable processing	11 196	3 003
Food mfg n.e.c.	13 123	2 755
Milk and cream processing	6 689	2 720
Sugar mfg	6 694	2 534
Beer and malt mfg	3 598	2 506
Prepared animal and bird feed mfg	3 876	2 325
Soft drink, cordial and syrup mfg	5 963	2 048
Cereal food and baking mix mfg	5 652	1 862
Balance of food, beverage and tobacco mfg	67 844	13 944
Total food, beverage and tobacco mfg	159 929	42 821

(a) Includes working proprietors.

Source: ABS, *Manufacturing Industry, Australia, 1995–96* (Cat. no. 8221.0).

Businesses In June 1996, the Food, beverage and tobacco manufacturing industry contained around 4,200 businesses which employed around 180,000 people. With almost \$44 billion in sales, the industry ranked first in value of sales among the nine manufacturing industry subdivisions.

Its other 1995–96 rankings were second in the number of persons employed, third in operating profit before tax but eighth in terms of its profit margin (operating profit before tax as a proportion of sales).

For the Food, beverage and tobacco manufacturing industry in 1995–96, cost of sales was 74% of the value of sales and labour costs were a further 16%. As table 2.6 shows, even though sales increased between 1994–95 and 1995–96 (by 4.4%), operating profit before tax fell by almost 20% leading to a fall in profit margin from 6.6% to 5.1%. 1995–96 values for other key performance measures for the Food, beverage and tobacco manufacturing industry were:

- return on assets 6.4%
- return on net worth 13.7%
- long-term debt to equity 0.3
- current ratio 1.0
- interest coverage 3.6

Businesses *continued* Out of the manufacturing subdivisions, the Food, beverage and tobacco manufacturing subdivision had the lowest current ratio at 30 June 1996 with current liabilities slightly exceeding current assets.

2.6 FOOD, BEVERAGE AND TOBACCO MANUFACTURING

	1994-95	1995-96	Change
<i>Industry performance</i>	\$ million	\$ million	%
<i>Income statement</i>			
Sales of goods and services	42 337	43 852	3.6
Less cost of sales	31 200	32 482	4.1
Trading profit	11 137	11 370	2.1
<i>Plus interest income</i>	172	160	-6.7
<i>Plus other operating income</i>	299	355	18.4
<i>Less labour costs</i>	6 660	7 197	8.1
<i>Less depreciation</i>	1 119	1 215	8.6
<i>Less other operating expenses</i>	321	337	4.9
Earnings before interest and tax	3 509	3 137	-10.6
<i>Less interest expenses</i>	690	880	27.5
Operating profit before tax	2 818	2 256	-19.9
<i>Balance sheet</i>			
Current assets	n.a.	13 170	n.a.
Non-current assets	n.a.	22 060	n.a.
<i>Total assets</i>	<i>n.a.</i>	<i>35 230</i>	<i>n.a.</i>
Current liabilities	n.a.	13 203	n.a.
Non-current liabilities	n.a.	5 586	n.a.
<i>Total liabilities</i>	<i>n.a.</i>	<i>18 789</i>	<i>n.a.</i>
Net worth	n.a.	16 441	n.a.
<i>Capital outlays</i>			
Net capital expenditure	n.a.	2 016	n.a.

Source: ABS, unpublished data, Manufacturing Survey.

TEXTILE, CLOTHING, FOOTWEAR AND LEATHER

Establishments Table 2.7 presents data for the 10 largest (in terms of turnover) of the 19 industry classes within the Textile, clothing, footwear and leather manufacturing industry. These classes accounted for a little over 75% of the turnover of the industry.

2.7 INDUSTRY COMPOSITION—1995–96

	<i>Employment at end of June(a)</i>	<i>Turnover</i>
	<i>no.</i>	<i>\$ million</i>
Women's and girls' wear mfg	11 098	1 529
Men's and boys' wear mfg	8 674	781
Leather tanning and fur dressing	2 892	761
Synthetic fibre textile mfg	4 053	673
Clothing mfg n.e.c.	9 076	659
Made-up textile product mfg	5 707	625
Textile floor covering mfg	2 725	571
Footwear mfg	5 518	565
Knitting mill product mfg n.e.c.	2 003	536
Sleepwear, underwear and infant clothing mfg	4 718	522
Balance of textile, clothing, footwear and leather mfg	17 389	2 304
Total textile, clothing, footwear and leather mfg	73 853	9 528

(a) Includes working proprietors.

Source: ABS, *Manufacturing Industry, Australia, 1995–96* (Cat. no. 8221.0).

Businesses In June 1996, the Textile, clothing, footwear and leather manufacturing industry contained around 6,500 businesses which employed around 76,000 people. With \$9.6 billion in sales, the industry ranked seventh in value of sales among the nine manufacturing industry subdivisions. Its other 1995–96 rankings were sixth in terms of number of people employed, eighth in value of operating profit before tax and ninth in terms of profit margin (operating profit before tax as a proportion of sales).

For the Textile, clothing, footwear and leather manufacturing industry in 1995–96, cost of sales was 69% of sales and labour costs were a further 23%. As table 2.8 shows, sales decreased between 1994–95 and 1995–96 (by 3.1%) and operating profit before tax fell by relatively more (by 16.2%). This led to a fall in profit margin from 4.9% to 4.3%. 1995–96 values for other key performance measures for the Textile, clothing, footwear and leather manufacturing industry were:

- return on assets 7.1%
- return on net worth 18.8%
- long-term debt to equity 0.5
- current ratio 1.4
- interest coverage 3.4

The Textile, clothing, footwear and leather manufacturing industry had the lowest interest coverage ratio of the manufacturing subdivisions during 1995–96.

2.8 TEXTILE, CLOTHING, FOOTWEAR AND LEATHER MANUFACTURING

	1994–95	1995–96	Change
<i>Industry performance</i>	\$ million	\$ million	%
<i>Income statement</i>			
Sales of goods and services	9 910	9 606	-3.1
Less cost of sales	6 940	6 655	-4.1
Trading profit	2 970	2 950	-0.7
<i>Plus interest income</i>	24	28	17.3
Plus other operating income	163	167	2.7
Less labour costs	2 197	2 190	-0.3
Less depreciation	191	229	19.8
Less other operating expenses	129	141	9.5
Earnings before interest and tax	641	586	-8.6
Less interest expenses	148	173	16.8
Operating profit before tax	493	413	-16.2
<i>Balance sheet</i>			
Current assets	n.a.	3 665	n.a.
Non-current assets	n.a.	2 179	n.a.
<i>Total assets</i>	<i>n.a.</i>	<i>5 843</i>	<i>n.a.</i>
Current liabilities	n.a.	2 570	n.a.
Non-current liabilities	n.a.	1 071	n.a.
<i>Total liabilities</i>	<i>n.a.</i>	<i>3 642</i>	<i>n.a.</i>
Net worth	n.a.	2 202	n.a.
<i>Capital outlays</i>			
Net capital expenditure	n.a.	208	n.a.

Source: ABS, unpublished data, Manufacturing Survey, 1997.

WOOD AND PAPER PRODUCT

Establishments Table 2.9 presents data for the six largest (in terms of turnover) of the 12 industry classes within the Wood and paper product manufacturing industry. These classes accounted for a little over 75% of the turnover of the industry.

2.9 INDUSTRY COMPOSITION—1995–96

	<i>Employment at end of June(a)</i>	<i>Turnover</i>
	<i>no.</i>	<i>\$ million</i>
Pulp, paper and paperboard mfg	5 786	2 462
Wooden structural component mfg	15 922	1 764
Corrugated paperboard container mfg	5 542	1 498
Timber resawing and dressing	6 169	995
Fabricated wood mfg	4 219	882
Log sawmilling	7 571	799
Balance of wood and paper product mfg	15 755	2 741
Total wood and paper product mfg	60 964	11 141

(a) Includes working proprietors.

Source: ABS, *Manufacturing Industry, Australia, 1995–96* (Cat. no. 8221.0).

Businesses In June 1996, the Wood and paper product manufacturing industry contained around 4,600 businesses which employed approximately 60,000 people. With almost \$11.5 billion in sales, the industry ranked sixth in value of sales among the nine manufacturing industry subdivisions. Its other 1995–96 rankings were seventh in terms of number of people employed, seventh in value of operating profit before tax but fourth in terms of profit margin (operating profit before tax as a proportion of sales).

For the Wood and paper product manufacturing industry in 1995–96, cost of sales was 65% of sales and labour costs were a further 21%. As table 2.10 shows, sales decreased between 1994–95 and 1995–96 (down 3.0%) and operating profit before tax fell by relatively much more (down 37.4%). This led to a fall in profit margin from 11.1% to 7.3%. 1995–96 values for other key performance measures for the Wood and paper product manufacturing industry were:

- return on assets 7.6%
- return on net worth 16.4%
- long-term debt to equity 0.5
- current ratio 1.1
- interest coverage 4.0

2.10 WOOD AND PAPER PRODUCT

	1994-95	1995-96	Change
<i>Industry performance</i>	<i>no.</i>	<i>\$ million</i>	<i>%</i>
<i>Income statement</i>			
Sales of goods and services	11 812	11 455	-3.0
Less cost of sales	7 294	7 503	2.9
Trading profit	4 518	3 953	-12.5
<i>Plus interest income</i>	26	40	50.3
<i>Plus other operating income</i>	110	146	32.8
Less labour costs	2 446	2 365	-3.3
Less depreciation	414	385	-7.2
Less other operating expenses	240	284	18.1
Earnings before interest and tax	1 553	1 105	-28.9
Less interest expenses	224	273	22.1
Operating profit before tax	1 330	832	-37.4
<i>Balance sheet</i>			
Current assets	n.a.	3 675	n.a.
Non-current assets	n.a.	7 286	n.a.
<i>Total assets</i>	<i>n.a.</i>	<i>10 961</i>	<i>n.a.</i>
Current liabilities	n.a.	3 245	n.a.
Non-current liabilities	n.a.	2 653	n.a.
<i>Total liabilities</i>	<i>n.a.</i>	<i>5 898</i>	<i>n.a.</i>
Net worth	n.a.	5 064	n.a.
<i>Capital outlays</i>			
Net capital expenditure	n.a.	836	n.a.

Source: ABS, unpublished data, Manufacturing Survey, 1997.

PRINTING, PUBLISHING AND RECORDED MEDIA

Establishments Table 2.11 presents data for the seven industry classes (ranked in order of turnover) within the Printing, publishing and recorded media industry.

2.11 INDUSTRY COMPOSITION—1995–96

	<i>Employment at end of June(a)</i>	<i>Turnover</i>
	<i>no.</i>	<i>\$ million</i>
Printing	36 956	4 962
Newspaper printing or publishing	25 725	3 929
Book and other publishing	6 987	1 483
Other periodical publishing	5 514	1 152
Paper stationery mfg	6 726	987
Recorded media manufacturing and publishing	1 904	611
Services to printing	6 353	555
Total printing, publishing and recorded media	90 164	13 680

(a) Includes working proprietors.

Source: ABS, *Manufacturing Industry, Australia, 1995–96 (Cat. no. 8221.0)*.

Businesses In June 1996, the Printing, publishing and recorded media industry contained around 6,300 businesses which employed around 89,000 people. With \$13.4 billion in sales, the industry ranked fifth in value of sales among the nine manufacturing industry subdivisions. Its other 1995–96 rankings were fifth in terms of number of people employed, fifth in value of operating profit before tax but first in terms of profit margin (operating profit before tax as a proportion of sales).

For the Printing, publishing and recorded media industry in 1995–96, cost of sales was 53% of sales and labour costs were a further 28%. As table 2.12 shows, sales increased between 1994–95 and 1995–96 (up 5.6%) but operating profit before tax fell (down 8.6%). This led to a fall in profit margin from 11.1% to 9.6%. 1995–96 values for other key performance measures for the Printing, publishing and recorded media industry were:

- return on assets 6.1%
- return on net worth 12.2%
- long-term debt to equity 0.6
- current ratio 1.3
- interest coverage 5.7

Out of the manufacturing subdivisions, the Printing, publishing and recorded media industry had the lowest percentage return on assets and the lowest percentage return on net worth for 1995–96 and (with the exception of the relatively small Other manufacturing subdivision), the highest long-term debt to equity ratio at 30 June 1996.

2.12 PRINTING, PUBLISHING AND RECORDED MEDIA

	1994-95	1995-96	Change
<i>Industry performance</i>	<i>\$ million</i>	<i>\$ million</i>	<i>%</i>
<i>Income statement</i>			
Sales of goods and services	12 704	13 411	5.6
Less cost of sales	6 594	7 114	7.9
Trading profit	6 110	6 297	3.1
<i>Plus interest</i>	35	52	46.4
<i>Plus other operating income</i>	94	186	98.2
Less labour costs	3 499	3 766	7.6
Less depreciation	380	455	19.8
Less other operating expenses	706	731	3.5
Earnings before interest and tax	1 653	1 582	-4.3
Less interest expenses	226	278	22.8
Operating profit before tax	1 427	1 304	-8.6
<i>Balance sheet</i>			
Current assets	n.a.	6 047	n.a.
Non-current assets	n.a.	15 208	n.a.
<i>Total assets</i>	<i>n.a.</i>	<i>21 254</i>	<i>n.a.</i>
Current liabilities	n.a.	4 496	n.a.
Non-current liabilities	n.a.	6 034	n.a.
<i>Total liabilities</i>	<i>n.a.</i>	<i>10 531</i>	<i>n.a.</i>
Net worth	n.a.	10 724	n.a.
<i>Capital outlays</i>			
Net capital expenditure	n.a.	378	n.a.

Source: ABS, unpublished data, Manufacturing Survey.

PETROLEUM, COAL, CHEMICAL AND ASSOCIATED PRODUCT

Establishments Table 2.13 presents data for the 10 largest (in terms of turnover) of the 23 industry classes within the Petroleum, coal, chemical and associated product manufacturing industry. These classes accounted for a little over 66% of the turnover of the industry.

2.13 INDUSTRY COMPOSITION—1995–96

	<i>Employment at end of June(a)</i>	<i>Turnover</i>
	<i>no.</i>	<i>\$ million</i>
Petroleum refining	3 564	6 460
Medicinal and pharmaceutical product mfg	11 362	3 780
Plastic injection moulded product mfg	15 643	2 151
Synthetic resin mfg	4 391	2 093
Plastic bag and film mfg	6 557	1 567
Paint mfg	5 131	1 506
Inorganic industrial chemical mfg n.e.c.	3 667	1 477
Organic industrial chemical mfg n.e.c.	1 954	1 257
Soap and other detergent mfg	3 560	1 215
Pesticide mfg	1 527	979
Balance of petroleum, coal, chemical and associated product mfg	31 756	10 145
Total petroleum, coal, chemical and associated product mfg	89 112	30 251

(a) Includes working proprietors

Source: ABS, *Manufacturing Industry, Australia, 1995–96 (Cat. no. 8221.0)*.

Businesses In June 1996, the Petroleum, coal, chemical and associated product manufacturing industry contained around 3,000 businesses which employed approximately 105,000 people. With \$35 billion in sales, the industry ranked third in value of sales among the nine manufacturing industry subdivisions. Its other 1995–96 rankings were fourth in terms of number of people employed, fourth in value of operating profit before tax and sixth in terms of profit margin (operating profit before tax as a proportion of sales).

For the Petroleum, coal, chemical and associated product manufacturing industry in 1995–96, cost of sales was 74% of sales and labour costs were a further 15%. As table 2.14 shows, sales increased between 1994–95 and 1995–96 (up 6.5%) but operating profit before tax fell (down 22.2%). This led to a fall in profit margin from 8.1% to 6.0%. 1995–96 values for other key performance measures for the Petroleum, coal, chemical and associated product manufacturing industry were:

- return on assets 8.0%
- return on net worth 17.7%
- long-term debt to equity 0.5
- current ratio 1.3
- interest coverage 5.1

2.14 PETROLEUM, COAL, CHEMICAL AND ASSOCIATED PRODUCT

	1994-95	1995-96	Change
<i>Industry performance</i>	<i>\$ million</i>	<i>\$ million</i>	<i>%</i>
<i>Income statement</i>			
Sales of goods and services	32 876	35 010	6.5
Less cost of sales	24 363	26 027	6.8
Trading profit	8 513	8 983	5.5
<i>Plus interest income</i>	83	99	20.2
<i>Plus other operating income</i>	373	397	6.4
Less labour costs	4 422	5 156	16.6
Less depreciation	1 009	1 191	18.1
Less other operating expenses	406	506	24.6
Earnings before interest and tax	3 132	2 626	-16.2
Less interest expenses	415	513	23.5
Operating profit before tax	2 717	2 113	-22.2
<i>Balance sheet</i>			
Current assets	n.a.	11 626	n.a.
Non-current assets	n.a.	14 667	n.a.
<i>Total assets</i>	<i>n.a.</i>	<i>26 293</i>	<i>n.a.</i>
Current liabilities	n.a.	8 794	n.a.
Non-current liabilities	n.a.	5 549	n.a.
<i>Total liabilities</i>	<i>n.a.</i>	<i>14 343</i>	<i>n.a.</i>
Net worth	n.a.	11 950	n.a.
<i>Capital outlays</i>			
Net capital expenditure	n.a.	1 592	n.a.

Source: ABS, unpublished data, Manufacturing Survey.

NON-METALLIC MINERAL PRODUCT

Establishments Table 2.15 presents data for the six largest (in terms of turnover) of the 11 industry classes within the Non-metallic mineral product manufacturing industry. These classes accounted for over 80% of the turnover of the industry.

2.15 INDUSTRY COMPOSITION—1995-96

	Employment at end of June(a)	Turnover
	no.	\$ million
Concrete slurry mfg	4 373	1 792
Concrete product mfg n.e.c.	7 278	1 297
Glass and glass product mfg	5 261	1 164
Cement and lime mfg	2 506	1 095
Non-metallic mineral product mfg n.e.c.	4 238	804
Clay brick mfg	4 170	700
Balance of non-metallic mineral product mfg	7 778	1 396
Total non-metallic mineral product mfg	35 604	8 248

(a) Includes working proprietors.

Source: ABS, *Manufacturing Industry, Australia, 1995-96* (Cat. no. 8221.0).

Businesses In June 1996, the Non-metallic mineral product manufacturing industry contained around 2,300 businesses which employed around 47,000 people. With \$9.5 billion in sales, the industry ranked eighth in value of sales among the nine manufacturing industry subdivisions. Its other 1995-96 rankings were ninth in terms of number of people employed, sixth in value of operating profit before tax but second in terms of profit margin (operating profit before tax as a proportion of sales).

For the Non-metallic mineral product manufacturing industry in 1995-96, cost of sales was 62% of sales and labour costs were a further 22%. As table 2.16 shows, sales decreased between 1994-95 and 1995-96 (down 2.1%) and operating profit before tax fell by relatively much more (down 25.1%). This led to a fall in profit margin from 12.3% to 9.4%. 1995-96 values for other key performance measures for the Non-metallic mineral product manufacturing industry were:

- return on assets 7.5%
- return on net worth 15.1%
- long-term debt to equity 0.5
- current ratio 1.2
- interest coverage 5.2

2.16 NON-METALLIC MINERAL PRODUCT—1995–96

	1994–95	1995–96	Change
<i>Industry performance</i>	<i>\$ million</i>	<i>\$ million</i>	<i>%</i>
<i>Income statement</i>			
Sales of goods and services	9 719	9 516	-2.1
Less cost of sales	6 043	5 923	-2.0
Trading profit	3 676	3 593	-2.3
<i>Plus interest income</i>	33	28	-16.5
<i>Plus other operating income</i>	135	143	6.5
Less labour costs	1 884	2 059	9.3
Less depreciation	460	442	-3.8
Less other operating expenses	118	131	11.5
Earnings before interest and tax	1 382	1 131	-18.2
Less interest expenses	162	217	33.8
Operating profit before tax	1 220	915	-25.1
<i>Balance sheet</i>			
Current assets	n.a.	3 680	n.a.
Non-current assets	n.a.	8 513	n.a.
<i>Total assets</i>	<i>n.a.</i>	<i>12 193</i>	<i>n.a.</i>
Current liabilities	n.a.	2 995	n.a.
Non-current liabilities	n.a.	3 126	n.a.
<i>Total liabilities</i>	<i>n.a.</i>	<i>6 121</i>	<i>n.a.</i>
Net worth	n.a.	6 072	n.a.
<i>Capital outlays</i>			
Net capital expenditure	n.a.	278	n.a.

Source: ABS, unpublished data, Manufacturing Survey, 1997.

METAL PRODUCT

Establishments Table 2.17 presents data for the 10 largest (in terms of turnover) of the 21 industry classes within the Metal product manufacturing industry. These classes accounted for a little over 80% of the turnover of the industry.

2.17 INDUSTRY COMPOSITION—1995–96

	<i>Employment at end of June(a)</i>	<i>Turnover</i>
	<i>no.</i>	<i>\$ million</i>
Basic iron and steel mfg	20 877	9 144
Alumina production	6 174	3 183
Aluminium smelting	5 460	3 875
Copper, silver, lead and zinc smelting, refining	3 187	2 802
Structural steel fabricating	17 327	2 669
Fabricated metal product mfg n.e.c.	19 208	2 093
Sheet metal product mfg n.e.c.	13 504	1 787
Architectural aluminium product mfg	12 447	1 729
Basic non-ferrous metal mfg n.e.c.	1 981	1 669
Aluminium rolling, drawing, extruding	4 248	1 398
Balance of metal product mfg	40 581	7 169
Total metal product mfg	144 994	37 518

(a) Includes working proprietors.

Source: ABS, *Manufacturing Industry, Australia, 1995–96* (Cat. no. 8221.0).

Businesses In June 1996, the Metal product manufacturing industry contained around 8,400 businesses which employed around 153,000 people. With almost \$35 billion in sales, the industry ranked fourth in value of sales among the nine manufacturing industry subdivisions. Its other 1995–96 rankings were third in terms of number of people employed, largest in value of operating profit before tax and third in terms of profit margin (operating profit before tax as a proportion of sales).

For the Metal product manufacturing industry in 1995–96, cost of sales was 69% of sales and labour costs were a further 18%. As table 2.18 shows, sales increased between 1994–95 and 1995–96 (up 8.2%) and operating profit before tax fell by 10.2%. This led to a fall in profit margin from 9.6% to 8.0%. 1995–96 values for other key performance measures for the Metal product manufacturing industry were:

- return on assets 7.8%
- return on net worth 13.0%
- long-term debt to equity 0.3
- current ratio 1.6
- interest coverage 6.8

Of the manufacturing subdivisions, the Metal product manufacturing industry had the highest current ratio and the lowest long-term debt to equity ratio at 30 June 1996.

2.18 METAL PRODUCT

	1994-95	1995-96	Change
<i>Industry performance</i>	<i>\$ million</i>	<i>\$ million</i>	<i>%</i>
<i>Income statement</i>			
Sales of goods and services	32 037	34 654	8.2
Less cost of sales	21 748	23 806	9.5
Trading profit	10 289	10 848	5.4
<i>Plus interest income</i>	75	136	80.3
<i>Plus other operating income</i>	236	225	-4.5
Less labour costs	5 904	6 408	8.5
Less depreciation	1 047	1 257	20.1
Less other operating expenses	228	276	20.8
Earnings before interest and tax	3 421	3 268	-4.5
Less interest expenses	319	483	51.2
Operating profit before tax	3 102	2 785	-10.2
<i>Balance sheet</i>			
Current assets	n.a.	11 653	n.a.
Non-current assets	n.a.	24 032	n.a.
<i>Total assets</i>	<i>n.a.</i>	<i>35 685</i>	<i>n.a.</i>
Current liabilities	n.a.	7 438	n.a.
Non-current liabilities	n.a.	6 854	n.a.
<i>Total liabilities</i>	<i>n.a.</i>	<i>14 292</i>	<i>n.a.</i>
Net worth	n.a.	21 392	n.a.
<i>Capital outlays</i>			
Net capital expenditure	n.a.	3 995	n.a.

Source: ABS, unpublished data, Manufacturing Survey.

MACHINERY AND EQUIPMENT

Establishments Table 2.19 presents data for the 10 largest (in terms of turnover) of the 28 industry classes within the Machinery and equipment manufacturing industry. These classes accounted for almost 70% of the turnover of the industry.

2.19 INDUSTRY COMPOSITION—1995–96

	<i>Employment at end of June(a)</i>	<i>Turnover</i>
	<i>no.</i>	<i>\$ million</i>
Motor vehicle mfg	21 022	9 538
Automotive component mfg n.e.c.	21 384	3 169
Household appliance mfg	12 698	2 222
Electrical equipment mfg n.e.c.	15 032	2 124
Telecommunication, broadcasting and transceiving equipment mfg	6 888	2 054
Industrial machinery and equipment mfg n.e.c.	14 289	1 765
Shipbuilding	6 672	1 628
Electronic equipment mfg n.e.c.	9 811	1 574
Electric cable and wire mfg	4 404	1 452
Computer and business machine mfg	3 134	1 374
Balance of machinery and equipment mfg	86 840	11 925
Total machinery and equipment mfg	202 174	38 824

(a) Includes working proprietors.

Source: ABS. *Manufacturing Industry, Australia, 1995–96* (Cat. no. 8221.0).

Businesses In June 1996, the Machinery and equipment manufacturing industry contained around 9,000 businesses which employed approximately 208,000 people. With almost \$41 billion in sales, the industry ranked second in value of sales among the nine manufacturing industry subdivisions. Its other 1995–96 rankings were largest in terms of number of people employed, second in value of operating profit before tax and fifth in terms of profit margin (operating profit before tax as a proportion of sales).

For the Machinery and equipment manufacturing industry in 1995–96, cost of sales was 69% of sales and labour costs were a further 21%. As table 2.20 shows, sales increased between 1994–95 and 1995–96 (up 2.2%) and operating profit before tax fell by 3.1%. This led to a fall in profit margin from 6.5% to 6.2%. 1995–96 values for other key performance measures for the Machinery and equipment manufacturing industry were:

- return on assets 9.1%
- return on net worth 22.1%
- long-term debt to equity 0.4
- current ratio 1.5
- interest coverage 6.9

Businesses *continued* Of the manufacturing subdivisions, (with the exception of the relatively small Other manufacturing subdivision), the Machinery and equipment manufacturing industry had the highest return on assets and the highest return on net worth for 1995–96. It also had the highest interest coverage for 1995–96.

2.20 MACHINERY AND EQUIPMENT

	1994–95	1995–96	Change
<i>Industry performance</i>	<i>\$ million</i>	<i>\$ million</i>	<i>%</i>
<i>Income statement</i>			
Sales of goods and services	39 946	40 840	2.2
Less cost of sales	28 256	28 313	0.2
Trading profit	11 690	12 527	7.2
<i>Plus interest income</i>	169	267	58.2
<i>Plus other operating income</i>	404	467	15.5
<i>Less labour costs</i>	7 859	8 760	11.5
<i>Less depreciation</i>	937	1 045	11.5
<i>Less other operating expenses</i>	461	478	3.7
Earnings before interest and tax	3 006	2 978	-1.0
<i>Less interest expenses</i>	382	434	13.4
Operating profit before tax	2 624	2 544	-3.1
<i>Balance sheet</i>			
Current assets	n.a.	17 216	n.a.
Non-current assets	n.a.	10 732	n.a.
<i>Total assets</i>	<i>n.a.</i>	<i>27 948</i>	<i>n.a.</i>
Current liabilities	n.a.	11 501	n.a.
Non-current liabilities	n.a.	4 958	n.a.
<i>Total liabilities</i>	<i>n.a.</i>	<i>16 459</i>	<i>n.a.</i>
Net worth	n.a.	11 489	n.a.
<i>Capital outlays</i>			
Net capital expenditure	n.a.	1 147	n.a.

Source: ABS, unpublished data, Manufacturing Survey.

OTHER MANUFACTURING

Establishments Table 2.21 presents data for the 9 industry classes within the Other manufacturing industry. By far the largest industry class within Other manufacturing is the Wooden furniture and upholstered seat manufacturing industry (43% of turnover of Other manufacturing and 52% of employment).

2.21 INDUSTRY COMPOSITION—1995–96

	Employment at end of June(a)	Turnover
	no.	\$ million
Wooden furniture and upholstered seat mfg	26 295	2 385
Furniture mfg n.e.c.	5 883	699
Manufacturing n.e.c.	5 603	581
Sheet metal furniture mfg	3 015	394
Mattress mfg (except rubber)	2 410	384
Jewellery and silverware mfg	3 060	299
Prefabricated metal building mfg	1 399	277
Toy and sporting good mfg	2 182	241
Prefabricated building mfg n.e.c.	1 054	233
Total other mfg	50 902	5 493

(a) Includes working proprietors.

Source: ABS, *Manufacturing Industry, Australia, 1995–96* (Cat. no. 8221.0).

Businesses In June 1996, the Other manufacturing industry contained around 6,500 businesses which employed approximately 49,000 people. With almost \$5.4 billion in sales, the industry ranked lowest in value of sales among the nine manufacturing industry subdivisions. Its other 1995–96 rankings were eighth in terms of number of people employed, lowest in value of operating profit before tax and seventh in terms of profit margin (operating profit before tax as a proportion of sales).

For the Other manufacturing industry in 1995–96, cost of sales was 65% of sales and labour costs were a further 26%. As table 2.22 shows, sales decreased between 1994–95 and 1995–96 (down 5.0%) and operating profit before tax fell by 8.2%. This led to a small fall in profit margin from 6.0% to 5.8%. 1995–96 values for other key performance measures for the Other manufacturing industry were:

- return on assets 11.0%
- return on net worth 3.1%
- long-term debt to equity 0.6
- current ratio 1.4
- interest coverage 5.5

Businesses *continued* Of the manufacturing subdivisions, the Other manufacturing industry had the highest percentage return on assets and the highest percentage return on net worth for 1995–96 but also had the highest long-term debt to equity ratio at 30 June 1996.

2.22 OTHER MANUFACTURING

	1994–95	1995–96	Change
<i>Industry performance</i>	\$ million	\$ million	%
<i>Income statement</i>			
Sales of goods and services	5 667	5 381	-5.0
Less cost of sales	3 755	3 478	-7.4
Trading profit	1 911	1 903	-0.4
Plus interest income	11	9	-17.1
Plus other operating income	50	60	21.6
Less labour costs	1 407	1 421	1.0
Less depreciation	92	90	-2.3
Less other operating expenses	72	77	7.1
Earnings before interest and tax	402	385	-4.3
Less interest expenses	60	70	17.9
Operating profit before tax	342	314	-8.2
<i>Balance sheet</i>			
Current assets	n.a.	1 810	n.a.
Non-current assets	n.a.	1 054	n.a.
<i>Total assets</i>	<i>n.a.</i>	<i>2 864</i>	<i>n.a.</i>
Current liabilities	n.a.	1 304	n.a.
Non-current liabilities	n.a.	611	n.a.
<i>Total liabilities</i>	<i>n.a.</i>	<i>1 916</i>	<i>n.a.</i>
Net worth	n.a.	948	n.a.
<i>Capital outlays</i>			
Net capital expenditure	—	125	—

Source: ABS, unpublished data, Manufacturing Survey.

CHAPTER 3

LATEST INDICATORS

INTRODUCTION

Chapter 3 provides indicative information about the manufacturing industry from a number of surveys. Although a picture of the manufacturing industry can be built up from these surveys, readers should be aware that these results though generally consistent, are not always identical.

There are several reasons why these small differences arise.

- *Sampling variability*: The surveys obtain information from samples of manufacturers and thus, the results are subject to sampling error (see the Glossary for explanation).
- *Scope differences*: While most surveys are set up to provide estimates for the whole manufacturing industry, some are constrained by practical considerations to estimate for a different population. For example, the quarterly Company Profits Survey estimates profits data only for incorporated businesses (companies) which employ more than 30 people.

Readers should also note that monthly and quarterly information provided by businesses is often preliminary in nature, and when summed may differ from data collected in the annual surveys.

Key features of the different surveys are mentioned in the relevant sections of this chapter. However, no attempt has been made to provide exhaustive explanatory or definitional material. Readers wishing to pursue finer details of the various surveys should consult the explanatory notes to the relevant publications.

PRODUCTION

This section presents information on the amount of production carried out by manufacturers. The variable used to measure production is gross product at factor cost which measures the value added by manufacturers to the materials and services which they purchase. Data are presented in constant price terms (average 1989–90 prices). Thus, changes shown in tables 3.1 and 3.2 represent changes in volume of production.

Manufacturing compared to other industries

Manufacturing has the highest production of the industries shown in table 3.1. However, with 1.1% growth between 1995–96 and 1996–97, it ranks tenth in terms of growth rates between those two years. Manufacturing production growth was substantially lower than growth by Communication services (11.8%) and Finance and insurance (5.8%). The only industry not to show growth between 1995–96 and 1996–97 was Education where production fell by 2.1%.

Manufacturing compared to other industries *continued*

Looking at longer term growth rates (between 1986–87 and 1996–97), the manufacturing industry ranks last of all the industries. Over those ten years, manufacturing production grew by 22% but this was well below the average growth of these industries over the period (44%). In terms of production, the fastest growing industries over the ten years were Communication services (162%), Finance and insurance (58%) and Mining (56%).

3.1 PRODUCTION LEVELS—SELECTED INDUSTRIES

Industry	1995–96	1996–97	Change
	\$ billion	\$ billion	%
Mining	18.1	18.6	2.8
Manufacturing	60.5	61.1	1.1
Electricity, gas and water supply	14.1	14.3	1.5
Construction	27.0	28.2	4.2
Wholesale trade	44.9	46.0	2.4
Retail trade	31.4	31.6	0.9
Transport	24.9	25.3	1.8
Communication services	15.8	17.6	11.8
Finance and insurance	24.6	26.1	5.8
Property and business services	35.5	37.0	4.1
Education	19.6	19.2	-2.1
Health and community services	23.3	23.5	0.9
Other services	16.9	17.4	2.7

Source: ABS, Australian National Accounts: National Income, Expenditure and Product, June Quarter 1997 (Cat. no. 5206.0).

Manufacturing subdivisions

Five of the nine manufacturing subdivisions experienced production growth between 1995–96 and 1996–97. The highest growth was by Wood and paper product manufacturing (7.3%) followed by Machinery and equipment manufacturing (4.7%). The largest falls in production levels between 1995–96 and 1996–97 were by Non-metallic mineral products (-3.1%) and by Printing, publishing and recorded media (-2.5%).

Over the ten years 1986–87 to 1996–97, production levels rose for all manufacturing subdivisions except Textiles, clothing, footwear and leather manufacturing. For that industry, 1996–97 production levels were almost 14% below those of 1986–87. The largest increase in production levels over the ten years was by Machinery and equipment manufacturing which grew by almost 40%. Other manufacturing subdivisions which experienced production growth in excess of 20% over the ten years were Petroleum, coal, chemical and associated product manufacturing (26.6%), Metal product manufacturing (22.6%) and Food, beverage and tobacco manufacturing (21.6%).

3.2 PRODUCTION LEVELS

<i>Industry</i>	1995-96	1996-97	Change
	\$ billion	\$ billion	%
Food, beverage and tobacco mfg	12.8	12.7	-0.4
Textile, clothing, footwear and leather mfg	2.7	2.8	4.3
Wood and paper product mfg	3.1	3.3	7.3
Printing, publishing and recorded media	5.6	5.4	-2.5
Petroleum, coal, chemical and associated product mfg	6.4	6.4	0.2
Non-metallic mineral product mfg	2.6	2.5	-3.1
Metal product mfg	9.9	9.7	-1.7
Machinery and equipment mfg	15.0	15.7	4.7
Other mfg	2.4	2.5	2.3
Total mfg	60.5	61.1	1.1

Source: ABS, Australian National Accounts: National Income, Expenditure and Product, June Quarter 1997 (Cat. no. 5206.0).

SALES AND OUTPUT OF GOODS

This section presents summary information on manufacturers' sales and output of goods for the past two financial years. Sales data are presented in two forms. Those in current prices reflect the prices actually paid by customers. Those in constant prices reflect an adjustment to remove the effects of price changes, expressing values in 1989-90 prices. Current price data are used to measure levels and year-to-year changes in the value of goods while constant price data are used to estimate year-to-year changes in the volume of goods. Output of goods (sales of goods plus increase (or less decrease) in stocks of goods) is also presented in 1989-90 prices.

A guide to changes in price levels can be obtained by comparing changes to sales measured in current prices with changes to sales measured in constant prices. The next paragraph gives an example of this. However, readers should note that these implied price changes are not identical to the price changes shown in table 3.14. The differences in values arise from differences in what is being measured. This section covers price changes relating to all sales of manufactured goods whereas the price changes referred to in table 3.14 relate to manufacturers' sales excluding sales to other businesses in the same industry.

In current price terms, manufacturers' sales of goods in 1996-97 were almost 2% higher than in 1995-96 (see table 3.3). In constant prices, the increase in sales was also almost 2%. This implies that average prices charged by manufacturers in 1996-97 were virtually the same as those charged during 1995-96. However, outcomes differed by industry. For example, for the Food, beverage and tobacco manufacturing industry, current price sales increased by 2.2% and sales at constant prices sales increased by 1.0% reflecting a slight rise in average industry prices. On the other hand, for Wood and paper products manufacturing, current price sales increased by 6.8% and sales at constant prices increased by 10.1%, reflecting a fall in average industry prices of around 3%.

The largest current price sales increases between 1995–96 and 1996–97 were by Wood and paper product manufacturing (6.8%) and Machinery and equipment manufacturing (6.6%). The largest falls in current price sales between 1995–96 and 1996–97 were in Non-metallic mineral product manufacturing (4.5%), mainly reflecting a fall in building activity and Metal product manufacturing (2.4%).

3.3 SALES OF GOODS AT CURRENT PRICES

<i>Industry</i>	1995–96	1996–97	Change
	'000	'000	%
Food, beverage and tobacco mfg	42 874.6	43 804.0	2.2
Textile, clothing, footwear and leather mfg	8 796.2	9 171.5	4.3
Wood and paper product mfg	12 323.2	13 156.5	6.8
Printing, publishing and recorded media	9 596.1	9 702.8	1.1
Petroleum, coal, chemical and associated product mfg	34 435.8	34 413.7	-0.1
Non-metallic mineral product mfg	10 114.1	9 654.8	-4.5
Metal product mfg	32 767.0	31 989.0	-2.4
Machinery and equipment mfg	36 361.4	38 763.2	6.6
Other mfg	6 225.2	6 528.9	4.9
Total mfg	193 493.6	197 184.4	1.9

Source: ABS, *Stocks and Sales, Selected Industries, Australia, December Quarter 1997* (Cat. no. 5629.0); ABS, unpublished data, *Stocks and Sales Survey, 1996–97*.

When using constant price data, any change in output must necessarily reflect changes in the volume of output, since prices have been held constant. By this measure, the volume of manufacturers' output increased by 1.2% between 1995–96 and 1996–97. The largest increases were by Wood and paper product manufacturing (8.0%) and Machinery and equipment manufacturing (6.1%). The largest falls were by Non-metallic mineral product manufacturing (6.1%) and Printing, publishing and recorded media (2.3%).

3.4 SALES AND OUTPUT AT CONSTANT PRICES

<i>Industry</i>	<i>Constant price sales</i>		<i>Constant price output</i>	
	1995–96	1996–97	1995–96	1996–97
	\$ million	\$ million	\$ million	\$ million
Food, beverage and tobacco mfg	36 141	36 495	36 393	36 651
Textile, clothing, footwear and leather mfg	7 869	8 132	7 926	8 206
Wood and paper product mfg	10 501	11 558	10 665	11 521
Printing, publishing and recorded media	7 424	7 303	7 471	7 302
Petroleum, coal, chemical and associated product mfg	30 899	30 960	31 117	30 739
Non-metallic mineral product mfg	8 772	8 285	8 788	8 251
Metal product mfg	30 543	30 379	30 668	30 305
Machinery and equipment mfg	32 237	34 250	32 330	34 301
Other mfg	5 386	5 571	5 432	5 550
Total mfg	169 772	172 933	170 789	172 825

Source: ABS, *Stocks and Sales, Selected Industries, Australia, December Quarter 1997* (Cat. no. 5629.0); ABS, unpublished data, *Stocks and Sales Survey, 1996–97*.

EMPLOYEES AND THEIR EARNINGS

In presenting data for employees only, this section differs from others in this publication. Other sections present data for total employment which includes working proprietors and partners of unincorporated manufacturing businesses as well as employees.

This section presents average weekly earnings for employees, covering wages and salaries, overtime and penalty pay. Chapter 2 presents labour costs in a wider context including not only the wages and salaries etc. covered in this section but also such labour costs as redundancy payments, workers' compensation premiums and superannuation contributions by employers.

Employees Table 3.5 shows the average number of paid employees in Australian manufacturing over the years ended May 1996 and May 1997. The number of employees in Australian manufacturing fell by 1.6% between the two years. This contrasts with a small growth (0.7%) in the number of employees in all industries between the two years.

At the State level, changes in the average number of paid employees between year ended May 1996 and May 1997 were as follows:

- New South Wales recorded a fall of 7.2% for manufacturing, but a rise of 1.5% for all industries;
- Victoria recorded a rise of 1.3% for manufacturing and a rise of 0.7% for all industries;
- Queensland recorded a rise of 0.7% for manufacturing, but a fall of 0.1% for all industries;
- South Australia recorded a rise of 2.3% for manufacturing, but a fall of 4.7% for all industries;
- Western Australia recorded a rise of 2.0% for manufacturing and a rise of 2.7% for all industries;
- Tasmania recorded a fall of 1.9% for manufacturing, but a rise of 5.4% for all industries;
- the Northern Territory recorded a rise of 5.6% for manufacturing and a rise of 11.5% for all industries; and
- the Australian Capital Territory recorded a fall of 16.4% for manufacturing and a fall of 2.6% for all industries.

3.5

WAGE AND SALARY EARNERS, BY STATE AND TERRITORY

<i>State and Territory</i>	<i>Average for year to</i>		<i>Change</i>
	<i>May 1996</i>	<i>May 1997</i>	
	<i>no.</i>	<i>no.</i>	<i>%</i>
New South Wales	316.0	293.4	-7.2
Victoria	319.8	323.8	1.3
Queensland	133.7	134.6	0.7
South Australia	84.4	86.4	2.3
Western Australia	69.9	71.3	2.0
Tasmania	22.3	21.9	-1.9
Northern Territory	3.2	3.3	5.6
Australian Capital Territory	4.4	3.7	-16.4
Australia	953.6	938.4	-1.6

Source: ABS, *Wage and Salary Earners, Australia, June Quarter 1997 (Cat. no. 6248.0)*.

Full-time and part-time

The number of paid employees in Australian manufacturing fell slightly (by 0.9%) between May 1996 and May 1997 while the number for all industries fell by 0.1% over the same period. The manufacturing industry estimates behaved in the opposite manner to the estimates for the total of all industries. In manufacturing the number of part-time employees rose by 2.0% while the number of full-time employees fell by 1.3%. For all industries, the number of part-time employees fell by 1.8% while the number of full-time employees rose by 0.6%.

3.6

WAGE AND SALARY EARNERS

<i>Industry</i>	<i>Manufacturing</i>	<i>Total all industries</i>
May 1996 ('000)		
Full-time	851.3	4 736.7
Part-time	106.6	2 147.6
May 1997 ('000)		
Full-time	840.6	4 765.9
Part-time	108.7	2 108.4
Change (%)		
Full-time	-1.3	0.6
Part-time	2.0	-1.8
Total	-0.9	-0.1

Source: ABS, *Wage and Salary Earners, Australia, June Quarter 1997 (Cat. no. 6248.0)*.

Average weekly earnings of employees

Average weekly earnings statistics represent average gross (before tax) earnings of employees excluding retrospective pay, pay in advance, leave loadings and severances and redundancy payments.

All employees

In May 1997, average earnings in manufacturing (\$656.90) were substantially higher than the average in all industries (\$577.50). The higher overall average in manufacturing is mainly a result of manufacturing having relatively more male employees and relatively more of full-time employees than most other industries.

All employees *continued* However, between May 1996 and May 1997, manufacturing average earnings grew at a slower rate than overall average earnings (1.0% for manufacturing; 2.3% for all industries). Earnings of male employees rose 0.5% for manufacturing and 2.2% for all industries. Earnings of female employees rose 6.6% for manufacturing and 3.7% for all industries.

Full-time adult employees In May 1997 average ordinary time earnings of \$665.00 for males and \$553.50 for females for manufacturing employees were well below the averages for all industries (\$740.70 and \$620.30 respectively). Manufacturing average earnings also grew at a slower rate between May 1996 and May 1997 than overall average earnings.

The fall in total average earnings between May 1996 and May 1997 (from \$710.70 to \$707.80) while average ordinary time earnings rose over the same period indicates a reduced amount of overtime being worked. This is especially true of male employees (female ordinary time average and total average growth rates were very similar).

Female and male earnings ratio The ratio of average female earnings to average male earnings rose substantially in the manufacturing industry (from 69% of average male earnings in May 1996 to 74% in May 1997). However, this primarily reflected more females in full-time work in 1997, rather than wage and salary increases. If full-time employees only are considered, the ratio of average female ordinary time earnings to average male ordinary time earnings in the manufacturing industry moved much less markedly, from 82% in May 1996 to 83% in May 1997.

3.7 AVERAGE WEEKLY EARNINGS

	<i>Manufacturing</i>		<i>All industries</i>	
	<i>May 1996</i>	<i>May 1997</i>	<i>May 1996</i>	<i>May 1997</i>
<i>Employees</i>	\$	\$	\$	\$
Males	703.40	706.80	671.50	686.30
Females	488.10	520.50	441.10	457.40
Persons	650.60	656.90	564.40	577.50

Source: ABS, *Labour Force, Australia, May 1997* (Cat. no. 6203.0).

3.8 AVERAGE WEEKLY EARNINGS, BY FULL-TIME EMPLOYEES

	<i>Manufacturing</i>		<i>All industries</i>	
	<i>May 1996</i>	<i>May 1997</i>	<i>May 1996</i>	<i>May 1997</i>
<i>Earnings</i>	\$	\$	\$	\$
Ordinary time				
Males	653.60	665.00	715.80	740.70
Females	539.10	553.50	594.10	620.30
Persons	630.20	639.20	672.60	696.60
Total				
Males	745.90	743.50	774.20	795.80
Females	573.50	588.70	607.90	634.80
Persons	710.70	707.80	715.20	736.80

Source: ABS, *Average Weekly Earnings, States and Australia, May 1997* (Cat. no. 6302.0).

CAPITAL EXPENDITURE

Capital expenditure by the manufacturing industry fell by 3.2% between 1995–96 and 1996–97. Expenditure on buildings and structures grew by almost 30%, but expenditure on equipment, plant and machinery fell by almost 8%.

Two manufacturing subdivisions recorded large increases in capital expenditure, Non-metallic mineral product manufacturing (up 45%) and Machinery and equipment manufacturing (up 21.2%). The largest decreases were by Metal product manufacturing (down 30.8%), Printing, publishing and recorded media (down 18.9%) and Wood and paper product manufacturing (down 17.2%).

The subdivisions with the largest capital expenditure in 1995–96 were Metal product manufacturing (21% of total manufacturing), Food, beverage and tobacco manufacturing (18%) and Petroleum, coal, chemical and associated product manufacturing (16%). However, the composition had changed by 1996–97 such that the three largest subdivisions were Food, beverage and tobacco manufacturing (20%), Machinery and equipment manufacturing (19%) and Petroleum, coal, chemical and associated product manufacturing (16%).

3.9 PRIVATE NEW CAPITAL EXPENDITURE

<i>Industry</i>	1995–96	1996–97	Change
	<i>\$ million</i>	<i>\$ million</i>	<i>%</i>
Food, beverage and tobacco mfg	1 895	1 991	5.1
Textile, clothing, footwear and leather mfg	271	251	-7.4
Wood and paper product mfg	1 112	921	-17.2
Printing, publishing and recorded media	673	546	-18.9
Petroleum, coal, chemical and associated product mfg	1 719	1 650	-4.0
Non-metallic mineral product mfg	756	1 096	45.0
Metal product mfg	2 192	1 517	-30.8
Machinery and equipment mfg	1 611	1 952	21.2
Other mfg	227	203	-10.6
Total mfg	10 457	10 127	-3.2
Of which			
Buildings and structures	1 294	1 681	29.9
Equipment, plant and machinery	9 163	8 446	-7.8

Source: ABS, *Private New Capital Expenditure and Expected Expenditure, Australia, June Quarter 1997* (Cat. no. 5625.0).

COMPANY PROFITS

This section presents data for company profits. The information has been compiled from the Australian Bureau of Statistics' quarterly Survey of Company Profits. That survey includes only companies which employ more than 30 people (it excludes all companies employing 30 or fewer people and all unincorporated businesses regardless of size). Thus, it presents different profits data to those presented in chapter 2 where data for all manufacturing businesses were included. This section is primarily intended to provide indications of the direction and magnitude of changes to industry profits, though it also gives an approximate guide to profit levels.

Manufacturing industry profits fell markedly (by almost 23%) between 1994-95 and 1996-97. A fall of 17.2% occurred between 1994-95 and 1995-96 and then another but smaller fall (6.6%) between 1995-96 and 1996-97. All manufacturing subdivisions recorded lower profits in 1996-97 than in 1994-95 except Food, beverage and tobacco manufacturing.

The fall of almost 23% in manufacturing industry profits over the two years is a weaker result than for most of the industries surveyed. Mining profits grew by 27%, Construction industry profits by 45% and Transport and storage industry profits by 45%. Other industries with declining profits over the two years included Wholesale trade (down 15%) and Retail trade (down 16%).

All manufacturing subdivisions which experienced profit falls over the two years recorded falls in excess of 20% except for Machinery and equipment manufacturing (17% fall) and Petroleum, coal, chemical and associated product manufacturing (12% fall). The largest profit declines were for Textile, clothing, footwear and leather manufacturing (57% fall) and Non-metallic mineral product manufacturing (47% fall). For most industries, the percentage fall between 1995-96 and 1996-97 was not as great as the percentage fall between 1994-95 and 1995-96.

3.10 PROFITS BEFORE INCOME TAX

Industry	1994-95	1995-96	1996-97	Change between	
				1994-95 and 1995-96	1995-96 and 1996-97
	\$ million	\$ million	\$ million	%	%
Food, beverage and tobacco mfg	2 252	2 291	2 269	1.7	-1.0
Textile, clothing, footwear and leather mfg	469	269	202	-42.6	-24.9
Wood and paper product mfg	983	731	632	-25.6	-13.5
Printing, publishing and recorded media	1 411	1 127	1 098	-20.1	-2.6
Petroleum, coal, chemical and associated product mfg	2 165	2 114	1 905	-2.4	-9.9
Non-metallic mineral product mfg	1 132	754	604	-33.4	-19.9
Metal product mfg	2 364	1 656	1 507	-29.9	-9.0
Machinery and equipment mfg	2 170	1 774	1 801	-18.2	1.5
Other mfg	64	56	43	-12.5	-23.2
Total mfg	13 011	10 771	10 061	-17.2	-6.6

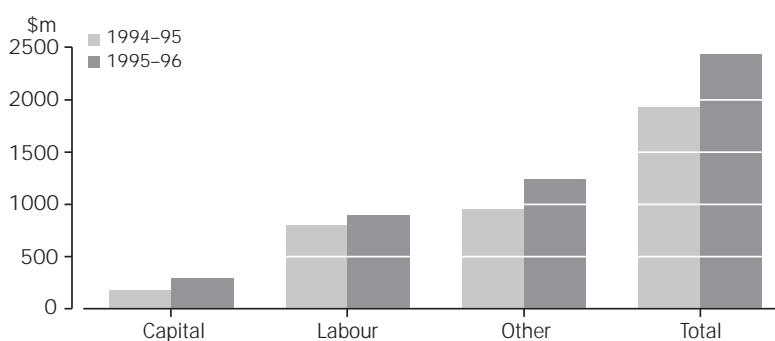
Source: ABS, Company Profits, Australia, June Quarter 1997 (Cat. no.5651.0).

RESEARCH AND EXPERIMENTAL DEVELOPMENT EXPENDITURE

In 1995-96, the manufacturing industry spent \$2.4 billion on research and experimental (R&D) development, an increase of 26% over the previous year. Manufacturing industry was responsible for 57% of the amount spent by all industries in 1995-96, a slight increase on the 55% recorded for 1994-95.

Manufacturing industry R&D expenditure comprised 88% current expenditure and 12% capital expenditure. The same proportions were also recorded for the total of all industries. Of the total current expenditure for the manufacturing industry, 42% related to labour costs.

3.11 R&D EXPENDITURE



Source: ABS, Research and Experimental Development, Business Enterprises, Australia, 1995-96 (Cat. no. 8104.0).

Manufacturing subdivisions With \$1.13 billion, Machinery and equipment manufacturing was by far the largest manufacturing subdivision in terms of R&D expenditure in 1995–96. This industry contributed 47% of the total spent by manufacturers. Expenditure was principally current expenditure (93%) with capital expenditure accounting for the remainder. Current expenditure was split 47% to labour costs and 53% to other costs. Within the Machinery and equipment manufacturing industry, 42% of expenditure was by Electronic equipment and Electrical equipment and appliance manufacturers; and 36% by Motor vehicle and other transport equipment manufacturers. The remainder was contributed by Photographic and scientific equipment manufacturing and Industrial machinery and equipment manufacturing.

Other industries with more than 10% of total manufacturing R&D expenditure in 1995–96 were Petroleum, coal, chemical and associated product manufacturing (14%), Metal product manufacturing (14%) and Food, beverage and tobacco manufacturing (12%).

3.12 EXPENDITURE ON RESEARCH AND EXPERIMENTAL DEVELOPMENT

Industry	1993–94	1994–95				1995–96
	Total expenditure \$ million	Total expenditure \$ million	Capital expenditure \$ million	Labour costs \$ million	Other current expenditure \$ million	Total expenditure \$ million
Food, beverage and tobacco mfg	140.2	141.8	77.6	77.9	137.1	292.6
Textile, clothing, footwear and leather mfg	18.0	28.0	1.2	9.3	10.6	21.0
Wood and paper product mfg	106.2	79.3	n.p.	n.p.	142.4	182.1
Printing, publishing and recorded media	10.8	15.1	2.8	10.7	6.8	20.3
Petroleum, coal, chemical and associated product mfg	272.9	320.1	49.3	136.9	161.7	348.0
Non-metallic mineral product mfg	31.3	45.3	n.p.	n.p.	36.9	80.3
Metal product mfg	301.9	324.1	41.8	120.6	172.6	335.0
Machinery and equipment mfg	823.7	958.7	76.8	494.0	559.4	1 130.2
Other mfg	14.6	19.2	2.1	9.2	9.2	20.5
Total mfg	1 719.6	1 931.6	298.4	894.8	1 236.8	2 429.9

Source: ABS, *Research and Experimental Development, Business Enterprises, Australia, 1995–96* (Cat. no. 8104.0).

Expenditure by State A little over 1% of R&D expenditure by Australian manufacturers was spent overseas. Of the expenditure which took place in Australia, State shares were Victoria (40%), New South Wales (33%), Queensland (10%), Western Australia (8%), South Australia (7%), and Tasmania and the Territories (2% in combination). Since Victoria accounted for around 32% of manufacturing production in 1995–96, this result reflects a strong performance by Victoria in R&D expenditure.

Expenditure by State *continued* In 1995–96, Machinery and equipment manufacturing was by far the largest manufacturing subdivision in terms of R&D expenditure in New South Wales (44% of total manufacturing), Victoria (50%), Queensland (41%) and South Australia (64%). The second largest contributing industry in these States was Petroleum, coal, chemical and associated product manufacturing (New South Wales, Victoria and South Australia) and Food, beverage and tobacco manufacturing (Queensland).

Metal product manufacturing had the largest R&D expenditure within Western Australia manufacturing, slightly more than Machinery and equipment manufacturing.

Expenditure by size of business Large businesses (businesses employing more than 100 people) were responsible for 77% of 1995–96 R&D expenditure by manufacturers, medium-sized businesses (employment of 20–99 people) were responsible for 14% and small businesses (employing fewer than 20 people) accounted for the remaining 9%.

ARTICLES PRODUCED BY MANUFACTURERS

Table 3.13 shows production of selected manufactured commodities.

Slightly more than half of the selected commodities recorded increased production for 1996–97 compared to 1995–96. The largest increases were 10.0% by Flour, 8.9% by Polyethylene bottles (up to two litres) and 8.8% by Tobacco and cigarettes. Largest falls were 24.7% by Superphosphates, 9.6% by Domestic clothes washing machines and 9.3% by Footwear.

However, most commodities recorded lower production levels in 1996–97 compared to 1994–95. Largest falls were recorded for Man-made woven fabric (down 23.2%), Wool woven fabric (down 23.1%), Clay bricks (down 21.1%) and Wool yarn (down 20.8%). Largest rises from 1994–95 to 1996–97 were Cotton woven fabric (up 16.7%) and Flour (up 14.8%).

3.13 PRODUCTION OF SELECTED MANUFACTURED COMMODITIES

<i>Commodity</i>	<i>Unit of quantity</i>	<i>1994-95</i>	<i>1995-96</i>	<i>1996-97</i>
Red meat	'000 t	2 776	2 653	2 723
Chicken meat	'000 t	467	481	496
Flour of wheat or of meslin	'000 t	1 355	1 414	1 556
Prepared foods from cereals	'000 t	100	100	101
Biscuits	'000 t	138	143	139
Chocolate base confectionery	'000 t	110	114	109
Other confectionery	'000 t	72	73	72
Malt	'000 t	559	566	570
Beer	million L	1 788	1 742	1 735
Tobacco and cigarettes	'000 t	23.1	20.4	22.2
Man-made fibre woven fabric	'000 m ²	185 170	149 066	142 194
Cotton woven fabric	'000 m ²	51 937	63 886	60 616
Cotton yarn	t	37 642	36 954	39 853
Wool yarn	t	23 095	20 073	18 284
Wool woven fabric	'000 m ²	8 190	6 524	6 300
Textile floor coverings	'000 m ²	47 258	42 682	44 681
Footwear	million pairs	15.7	15.1	13.7
Newsprint	'000 t	423	445	422
Wood pulp	'000 t	1 009	986	949
Unlaminated particle board	'000 m ³	845	804	775
Paperboard containers	million t	n.a.	1 091	1 138
Plastics in primary forms	'000 t	1 239	1 221	1 236
Rigid PVC tubes, pipes and hoses	'000 t	95.3	90.4	97.2
Polyethylene bottles up to 2 litres	million	n.a.	1 821.5	1 983.0
Paint	million L	202	182	195
Superphosphates	'000 t	1 590	1 697	1 277
Cement, Portland	'000 t	7 124	6 396	6 702
Clay bricks	million	1 860	1 453	1 468
Ready mixed concrete	million m ³	15.9	14.6	15.4
Basic iron, spiegeleisen and sponge iron(a)	'000 t	7 449	7 554	7 345
Blooms and slabs(a)	'000 t	7 807	7 950	7 776
Insulated wire	'000 t	73.7	72.9	73.6
Cars and station wagons	'000	301	303	304
Vehicles for goods and materials	'000	26.8	25.5	26.7
Refrigerators, domestic	'000	408	414	398
Water heaters	'000	650	589	617
Clothes washing machines, domestic	'000	305	297	268
Electric motors	'000	3 101	2 875	2 670
Electricity	'000 million kWh	165	168	168
Gas	'000 TJ	629	621	637

(a) This data item comprises production of BHP Steel only

Source: ABS, *Manufacturing Production, Australia (Cat. no. 8301.0)*.

PRICE CHANGES OF ARTICLES PRODUCED AND MATERIALS USED

This section presents information on changes in price for articles produced by Australian manufacturers and changes in price of materials used in processing by Australian manufacturers. Price changes are net for the industry shown.

Price changes being on a net basis means that changes shown in table 3.12 cover all goods produced by an industry except goods which are sold or transferred to establishments in the same industry. For example, the price changes shown in table 3.12 for the Textile manufacturing industry cover all goods produced by establishments in the Textile manufacturing industry except those goods which are sold or transferred to other establishments in the Textile manufacturing industry. The same principle applies to other industries and to the manufacturing industry as a whole. Thus, the price changes shown in table 3.14 for the manufacturing industry cover all goods produced by manufacturing establishments except those goods which are sold or transferred to other manufacturing establishments.

The price movements in table 3.15 are also on a net basis. This means, for example, that the price changes shown in table 3.15 for the Textile manufacturing industry cover all materials used by establishments in the Textile manufacturing industry except those which were purchased or transferred from other establishments in the Textile manufacturing industry. Again, the same principle applies to other industries and to the manufacturing industry as a whole.

Information on price movements of articles produced by manufacturers are not yet available on an Australian and New Zealand Standard Industrial Classification (ANZSIC) basis. As a result changes are presented in table 3.12 on an Australian Standard Industrial Classification basis. Information on an ANZSIC basis will become available later in 1998.

Changes in price for articles
produced

Between 1994–95 and 1995–96, all manufacturing industries recorded increases in price for the goods they produced. Largest increases were recorded for Paper, paper products, printing and publishing (up 6.2%) and Petroleum and coal products (up 3.4%).

However, between 1995–96 and 1996–97, while most industries recorded price increases, three industries recorded falls. Largest price increases between 1995–96 and 1996–97 were recorded by Petroleum and coal products (up 4.1%) and Paper, paper products, printing and publishing (up 2.0%). Falls were recorded by Basic metal products (down 5.7%), Basic chemicals and other chemical products (down 0.8%) and Transport equipment (down 0.4%).

3.14 PRICES OF ARTICLES PRODUCED

<i>Industry</i>	<i>Change from</i>	<i>Change from</i>
	<i>1994-95 to</i>	<i>1995-96 to</i>
	<i>1995-96</i>	<i>1996-97</i>
	<i>%</i>	<i>%</i>
Food, beverages and tobacco	2.3	1.0
Textiles	0.7	0.4
Clothing and footwear	2.7	1.2
Wood, wood products and furniture	0.8	0.7
Paper, paper products, printing and publishing	6.2	2.0
Basic chemicals and other chemical products	3.0	-0.8
Petroleum and coal products	3.4	4.1
Non-metallic mineral products	0.3	0.6
Basic metal products	2.5	-5.7
Fabricated metal products	2.6	1.2
Transport equipment	1.4	-0.4
Other machinery and equipment	1.0	1.0
Miscellaneous mfg	3.0	1.0
Total mfg	2.5	0.5

Source: ABS, Price Indexes of Articles Produced by Manufacturing Industry, Australia, (Cat. no. 6412.0).

Changes in price for materials used

Between 1994-95 and 1995-96, most manufacturing industries recorded increases in price levels for materials which they used in production. Largest increases were recorded for Paper and paper products (up 13.0%) and Printing and publishing (up 12.9%). A few industries recorded falls over this period, the largest being 6.7% by Leather and leather product manufacturing.

However, between 1995-96 and 1996-97, most industries recorded price falls. Only one industry recorded an increase in price levels for materials which they used in production (Petroleum and coal product manufacturing which rose by 13.3%). Of the industries which recorded falls, largest falls were recorded by Paper and paper products (down 10.4%), Textiles and textile products (down 7.8%) and Printing and publishing (down 7.3%).

3.15 PRICE CHANGES FOR MATERIALS USED

<i>Industry</i>	<i>Change from 1994-95 to 1995-96</i>	<i>Change from 1995-96 to 1996-97</i>
<i>Industry</i>	<i>%</i>	<i>%</i>
Food, beverages and tobacco	0.6	-4.9
Textiles and textile product	-2.1	-7.8
Knitting mills and clothing	2.0	-4.9
Footwear	2.1	-0.7
Leather and leather products	-6.7	-0.1
Sawmilling and timber products	2.4	-0.3
Paper and paper products	13.0	-10.4
Printing and publishing	12.9	-7.3
Petroleum and coal products	3.3	13.3
Chemicals	5.6	-2.8
Rubber and plastics	2.7	-7.0
Non-metallic mineral products	-0.6	-0.5
Basic metal products	5.7	-6.3
Fabricated metal products	4.1	-2.3
Transport equipment and parts	-0.9	-4.4
Electronic equipment and other machinery	1.2	-4.8
Other mfg	0.5	-1.7
Total mfg	2.3	-3.7

Source: ABS, Price Indexes of Articles Produced by Manufacturing Industry, Australia (Cat. no. 6412.0).

CHAPTER 4

INTERNATIONAL TRADE

This chapter deals with international trade aspects of the Australian manufacturing industry. This chapter focuses on trading aspects. Other articles which look at international aspects of Australian manufacturing appear in chapter 1 of this publication. (See the sections *Changing Face of Australian Manufacturing—A Historical Perspective*.)

This chapter shows the extent of export activity and import competition for manufacturing industries, it presents information on performance by businesses which undertake direct export compared to performance by businesses which do not export and identifies the major manufactured commodities exported from and imported into Australia.

EXPORTS AND IMPORTS BY INDUSTRY

Table 4.1 provides an approximate measure of import penetration of Australian markets. There are several classification, valuation and transaction timing differences affecting the various data sources for the table. As a result, the total market estimates and import penetration estimates should be regarded as only approximate. Also, exports data as shown in table 4.1 exclude approximately \$1 billion (around 2%) of exports which cannot be allocated to industry because of Australian Bureau of Statistics confidentiality provisions. Industries most affected by the understatement of exports data are Food, beverage and tobacco product manufacturing, Wood and paper product manufacturing, Petroleum, coal chemical and associated product manufacturing, and Metal product manufacturing.

This section is based on 'industry of origin'. This concept allocates traded commodities back to the industry of original manufacture. However, it is not always known which industry actually produced a particular set of traded commodities. For statistical purposes, commodities are allocated to the industry in which most of that type of goods are produced, and therefore the industry most likely to have been the source.

Note: Some exports commodity data cannot be allocated to an industry of origin for confidentiality reasons. As a result, exports by industry data are understated by the value of exports of those commodities. Most industries are unaffected. The exceptions are data for Food, beverage and tobacco manufacturing, Wood and paper product manufacturing, Metal product manufacturing, and Petroleum, coal, chemical and associated product manufacturing which are slightly affected.

4.1

IMPORT PENETRATION OF AUSTRALIAN MARKET

<i>Industry/period</i>	<i>Manufacturers' sales(a)</i>	<i>Exports by industry of origin(b)</i>	<i>Imports by industry of origin(b)</i>	<i>Total Australian market(c)</i>	<i>Estimated import penetration(d)</i>
	<i>\$ million</i>	<i>\$ million</i>	<i>\$ million</i>	<i>\$ million</i>	<i>%</i>
Food, beverage and tobacco mfg					
1995-96	42 875	10 971	3 263	35 167	9
1996-97	43 804	11 011	3 396	36 189	9
Textile, clothing, footwear and leather mfg					
1995-96	8 796	2 723	5 280	11 353	47
1996-97	9 172	2 816	5 289	11 645	45
Wood and paper product mfg					
1995-96	12 323	989	2 696	14 030	19
1996-97	13 157	1 044	2 495	14 608	17
Printing, publishing and recorded media					
1995-96	9 596	415	1 627	10 808	15
1996-97	9 703	409	1 597	10 891	15
Petroleum, coal, chemical and associated product mfg					
1995-96	34 436	5 102	12 507	41 841	30
1996-97	34 414	5 367	12 516	41 563	30
Non-metallic mineral product mfg					
1995-96	10 114	392	1 011	10 733	9
1996-97	9 655	377	1 020	10 298	10
Metal product mfg					
1995-96	32 767	16 442	5 072	21 397	24
1996-97	31 989	14 697	4 886	22 178	22
Machinery and equipment mfg					
1995-96	36 361	10 967	40 144	65 538	61
1996-97	38 763	12 006	40 423	67 180	60
Other mfg					
1995-96	6 225	741	1 945	7 429	26
1996-97	6 529	707	2 153	7 975	27
Total mfg					
1995-96	193 494	48 741	73 545	218 298	34
1996-97	197 184	48 434	73 775	222 525	33

(a) Includes direct exports by manufacturers.

(b) Commodity exports and imports are classified to the industry most likely to have manufactured the commodity.

(c) Manufacturers sales minus exports plus imports.

(d) Imports as a proportion of the estimated total Australian market.

Source: ABS, *International Merchandise Trade, Australia, June Quarter 1997 Cat. no. 5422.0*.

Exports by industry of origin At \$48.4 billion, total exports for the manufacturing industry of origin remained virtually unchanged (down 0.6%) in 1996-97 compared to 1995-96.

Five of the industry subdivisions recorded increases in exports between the two years, the largest percentage increases being by Machinery and equipment manufacturing (up 10.9%), Wood and paper product manufacturing (up 5.6%) and Petroleum, coal, chemical and associated product manufacturing (up 5.2%). Largest decreases were by Metal product manufacturing (down 10.6%) and Other manufacturing (down 4.6%).

Exports by industry of origin
continued Despite the fall in exports between 1995–96 and 1996–97, Metal product manufacturing with \$14.7 billion of exports (30% of total manufactured exports) remained the largest exporting manufacturing industry of origin. Other industries of origin with more than \$10 billion of exports were Machinery and equipment manufacturing (\$12.0 billion) and Food, beverage and tobacco manufacturing (\$11.0 billion).

Imports by industry of origin Total imports for the manufacturing industry of origin remained virtually unchanged (up 0.3%) in 1996–97 compared to 1995–96. With imports of \$73.8 billion, Australian manufacturing experienced a trade deficit of \$25.4 billion against the rest of the world.

By far the largest category of goods imported was that originating in the Machinery and equipment manufacturing industry (\$40.4 billion) followed next in size by goods originating in the Petroleum, coal, chemical and associated product manufacturing industry (\$12.5 billion).

Largest increases between 1995–96 and 1996–97 were by Food, beverage and tobacco manufacturing (up 4.1%) and by the Other manufacturing industry (up 10.7%). Largest falls were by Wood and paper product manufacturing (down 7.5%) and Metal product manufacturing (down 3.7%)

Market size by industry of origin By adding imports to manufacturers' sales and deducting exports, an estimate of the size of the Australian market for goods (by industry of origin) can be deduced. Table 4.4 contains such estimates for 1995–96 and 1996–97. By this method, it is estimated that the total Australian domestic market for manufactured goods in 1996–97 was \$222.5 billion which was \$4.1 billion (1.9%) higher than the previous year.

The industry (of origin) with the largest Australian market for its products was the Machinery and equipment manufacturing industry (estimated 1996–97 market size \$67.2 billion), followed by Petroleum, coal, chemical and associated product manufacturing industry (\$41.6 billion) and Food, beverage and tobacco manufacturing \$36.2 billion).

The market for goods from seven of the nine manufacturing subdivisions grew between 1995–96 and 1996–97. Largest growth was for Wood and paper product manufacturing (up 4.1%), Metal product manufacturing (up 3.6%) and the Other manufacturing industry (up 7.3%). The two subdivisions with smaller markets in 1996–97 than 1995–96 were Non-metallic mineral product manufacturing (down 4.1%) and Petroleum, coal, chemical and associated product manufacturing (down 0.6%).

Import penetration Imports are estimated to satisfy 33% of the Australian market for manufactured goods. Greatest import penetration for an industry (of origin) was for Machinery and equipment manufacturing where an estimated 60% of the market in 1996–97 was satisfied by imports. Import penetration was also high for Textile, clothing, footwear and leather manufacturing (45%). Highest domestic share of the market occurred for Food, beverage and tobacco manufacturing where, for 1996–97, imports made up only 9% of the market.

PERFORMANCE OF DIRECT EXPORTERS

This section presents a range of statistics about manufacturing establishments which shed light on the performance of exporters. Key performance indicators are shown for direct exporters and non-exporters. Direct exporters are those manufacturers who are involved in export of goods which they have produced. Not all exports are directly exported by manufacturers. Substantial export of Australian-manufactured goods is undertaken by non-manufacturers.

Proportion who export In 1995–96, 13% of manufacturing establishments directly exported some proportion of their goods. Because there are many more small establishments in the manufacturing industry than large ones, this overall proportion is similar to the proportion for small establishments (11%). For large establishments, the proportion directly exporting is much larger (57%). For the purposes of this analysis, 'large' establishments are those which employ 100 or more people at 30 June of the reference year with the balance being 'small' establishments.

Of large establishments, more than half were direct exporters in five of the nine industry subdivisions. More than 40% were involved in three of the remaining four subdivisions. Only in Printing, publishing and recorded media was the proportion less than 20%. Given that the two largest components of the Printing, publishing and recorded media are general printing and newspaper printing or publishing, low export participation rates are to be expected.

For smaller establishments, the corresponding proportions were much lower than they were for large establishments. In five out of nine industry subdivisions, fewer than 10% of smaller establishments were involved in direct exporting. The largest proportion in any subdivision was 26% in Petroleum, coal, chemical and associated product manufacturing.

Proportion of goods exported In this section the term 'sales' is used to cover both those goods sold and/or exported directly by the establishment which produced them and those goods produced by an establishment then transferred elsewhere within the business for sale and/or export.

Direct exports overall accounted for 16% of sales of goods produced by the manufacturing industry. The overall proportion tends toward the proportion for large establishments because, despite their relatively small numbers, they tend to dominate economic activity in most manufacturing industries.

Direct exports contributed the largest proportion of sales for Metal product manufacturing (30%). The proportions for large and small establishments were very similar in that industry (32% and 28%, respectively).

4.2 EXPORTING MANUFACTURERS—1995–96

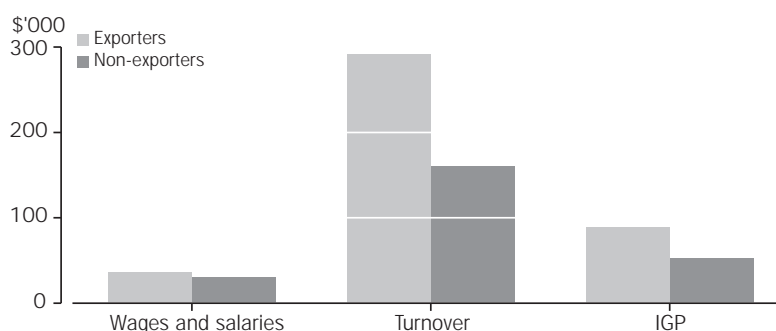
<i>Industry</i>	<i>Proportion of establishments which export</i>			<i>Exports as a proportion of sales of goods</i>		
	<i>Employment under 100</i>	<i>Employment of 100 or more</i>	<i>Total</i>	<i>Employment under 100</i>	<i>Employment of 100 or more</i>	<i>Total</i>
	<i>%</i>	<i>%</i>	<i>\$'000</i>	<i>%</i>	<i>%</i>	<i>\$'000</i>
Food, beverage and tobacco mfg	17	58	21	15	19	18
Textile, clothing, footwear and leather mfg	9	63	10	8	17	13
Wood and paper product mfg	5	48	6	9	4	6
Printing, publishing and recorded media	11	17	11	7	1	4
Petroleum, coal, chemical and associated product mfg	26	68	29	9	10	10
Non-metallic mineral product mfg	8	48	10	2	5	3
Metal product mfg	6	63	8	28	32	30
Machinery and equipment mfg	16	68	18	10	18	15
Other mfg	7	43	7	3	6	4
Total mfg	11	57	13	13	17	16

Source: ABS, unpublished data, Manufacturing Survey.

Performance measures This analysis, based on data, for manufacturing establishments compares performance of direct exporters and non-exporters in terms of turnover per person employed and industry gross product (IGP) per person employed (IGP is the statistical measure of production). Wages and salaries per person employed are also compared. Profits are not directly measurable for establishments but IGP less wages and salaries can be regarded as an approximate indicator of pre-tax profits for performance comparison purposes.

In 1995–96, turnover per person employed averaged \$291,000 for manufacturers who exported and \$160,000 for non-exporting manufacturers. Similarly, production (IGP) per person employed averaged \$89,000 for manufacturers who exported and \$52,000 for manufacturers who did not export. Turnover and production per person employed were consistently higher and, in some cases, much higher for direct exporters than they were for non-exporters. The only exception was the Non-metallic mineral product manufacturing industry.

4.3 PERFORMANCE OF EXPORTING MANUFACTURERS, PER PERSON EMPLOYED—1995-96



Source: ABS, unpublished data, Manufacturing Survey.

The greatest differentials between averages for direct exporters and non-exporters were found in Metal product manufacturing where exporters averaged \$413,000 turnover and \$127,000 IGP per person employed, and non-exporters averaged \$139,000 and \$44,000 respectively.

An indicator of relative profitability (IGP less wages and salaries) showed a similar pattern as for turnover and IGP, with only Non-metallic mineral product manufacturing having higher profitability per person for non-exporters and Textile, clothing, footwear and leather manufacturing showing virtually the same profitability for the two groups. For the total manufacturing industry, IGP less wages and salaries was \$53,000 per person employed for direct exporters and \$22,000 for non-exporters.

Wages and salaries per person employed was greater for direct exporters in every industry subdivision, with differences averaging around \$7,000 per person.

4.4 PERFORMANCE OF EXPORTING MANUFACTURERS—1995-96

Industry	Wages and salaries per person employed			Turnover per person employed			IGP per person employed		
	Direct exporters	Non-exporters	Total	Direct exporters	Non-exporters	Total	Direct exporters	Non-exporters	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Food, beverage and tobacco mfg	33.8	29.9	31.9	297	232	265	79	63	71
Textile, clothing, footwear and leather mfg	28.8	21.3	24.5	167	100	129	50	35	41
Wood and paper product mfg	37.1	28.2	30.7	268	149	182	95	51	63
Printing, publishing and recorded media	38.4	32.8	33.6	200	143	151	93	68	71
Petroleum, coal, chemical and associated product mfg	41.7	33.3	38.1	401	246	335	110	77	96
Non-metallic mineral product mfg	37.5	33.2	34.6	196	248	231	80	81	81
Metal product mfg	46.5	26.6	35.1	413	139	256	127	44	80
Machinery and equipment mfg	35.1	31.6	33.5	240	133	190	68	50	59
Other mfg	28.9	22.7	23.9	142	98	106	53	37	40
Total mfg	36.4	29.6	32.5	291	160	216	89	52	68

Source: ABS, unpublished data, Manufacturing Survey.

EXPORTS AND IMPORTS OF MANUFACTURED GOODS

This section shows 1996–97 levels of imports and exports for major commodity groupings. Table 4.5 shows 1996–97 exports of major manufactured products i.e. manufactured commodities with exports valued at \$400 million or more. Table 4.6 shows 1996–97 imports of major manufactured products i.e. manufactured commodities with imports valued at \$400 million or more.

Comparison of 1996–97 exports data with corresponding data from ten years earlier shows that exports overall have increased by around 120% in current prices and by around 100% in constant prices over those ten years. Of the major manufactured commodities in table 4.5, the greatest growth, in current price terms, over the ten years was recorded for Milk, cream and milk products (except butter and cheese) for which the value of exports in 1996–97 was 4.6 times the value of 1986–87 exports (i.e. exports were up by 360%). Other commodities with the most growth in current price exports over the ten years were Cars and other road vehicles (up 310%), Office machines and automatic data processing equipment (up 300%) and Machinery specialised for particular industries (up 270%).

Specific factors are not available to bring the commodity export values to an exact constant prices basis. However an approximation of constant price movements can be achieved by application of the most relevant industry deflator. This method indicates that the volume of exports of these same commodities has also grown substantially over the ten years to 1996–97. Estimates for ten-year growth to 1996–97 at constant prices are:

- Milk, cream and milk products (except butter and cheese)—up 200%
- Cars and other road vehicles—up 180%
- Office machines and automatic data processing equipment—up 180%
- Machinery specialised for particular industries—up 140%.

4.5

EXPORTS OF MAJOR MANUFACTURED COMMODITIES—1996-97

<i>Commodity</i>	<i>Unit value</i>
Gold, non-monetary (excluding gold ores and concentrates)	4 717
Alumina	2 540
Aluminium	2 414
Meat of bovine animals, fresh, chilled or frozen	2 109
Petroleum products	1 922
Cars and other road vehicles (including air-cushion vehicles)	1 828
Iron and steel	1 618
Office machines and automatic data processing machines	1 616
Machinery specialised for particular industries	1 155
Milk and cream and milk products other than butter or cheese	1 058
Power generating machinery and equipment	917
Crustaceans, molluscs and aquatic invertebrates (except canned or bottled)	797
Fruit and nuts, fresh, dried or preserved and fruit preparations (including fruit juices)	637
Aircraft and associated equipment, spacecraft (including satellites) and spacecraft launch vehicles	624
Meat of sheep and goats, fresh, chilled or frozen	556
Wood in chips or particles	516
Cheese and curd	476
Plastics in primary and non-primary form	450
Nickel and nickel alloys, unwrought	439

Source: ABS, International Merchandise Trade, Australia, June Quarter 1997 (Cat. no. 5422.0).

4.6

IMPORTS OF MAJOR MANUFACTURED COMMODITIES—1996–97

	<i>Unit value</i>
Passenger motor vehicles (other than public transport type vehicles), station wagons and racing cars	4 651
Automatic data processing machines and units thereof	3 718
Telecommunication equipment n.e.s. and parts n.e.s. and accessories	2 431
Organic chemicals	2 040
Medical and pharmaceutical products	1 996
Parts and accessories for office and automatic data processing machines	1 942
Articles of apparel and clothing accessories	1 842
Aircraft and associated equipment, spacecraft (including satellites) and spacecraft launch vehicles	1 828
Paper and paperboard and articles of paper pulp, or paper or of paperboard	1 770
Motor vehicles for the transport of goods	1 622
Parts and accessories of motor vehicles and tractors, track-laying and wheeled	1 622
Plastics in primary and non-primary form	1 575
Electrical machinery and apparatus n.e.s.	1 367
Measuring, checking, analysing and controlling instruments and apparatus n.e.s.	1 306
Iron and steel	1 296
Machinery and equipment specialised for particular industries and parts thereof	1 197
Civil engineering and contractors' plant and equipment	1 097
Internal combustion piston engines, and parts thereof n.e.s.	998
Chemical materials and products n.e.s.	969
Baby carriages, toys, games and sporting goods	944
Television and radio broadcast receivers	864
Printed matter	856
Pumps, centrifuges, filtering or purifying apparatus and parts thereof	851
Electrical apparatus for switching or protecting electrical circuits	821
Manufactures of base metals n.e.s.	759
Household type electrical and non-electrical equipment n.e.s.	726
Rubber tyres, interchangeable tyre treads, tyre flaps and inner tubes for wheels of all kinds	716
Inorganic chemicals	700
Woven cotton fabrics or man made textile materials (excluding narrow or special fabrics)	679
Fish, crustaceans, molluscs and aquatic invertebrates and preparations thereof	604
Photographic and cinematographic supplies	579
Ships, boats (including hovercraft) and floating structures	552
Textile yarn	493
Tractors, track-laying and wheeled	488
Glass, glassware and pottery	470
Clay and refractory construction materials and mineral manufactures n.e.s.	456

Source: ABS, International Merchandise Trade, Australia, June Quarter 1997 (Cat. no. 5422.0).

APPENDIX**LIST OF MANUFACTURING INDUSTRIES**

ANZSIC DIVISION, SUBDIVISION, GROUP AND CLASS TITLES AND CODES

C	Manufacturing
21	Food, Beverage and Tobacco Manufacturing
211	Meat and Meat Product Manufacturing
2111	Meat Processing
2112	Poultry Processing
2113	Bacon, Ham and Smallgood Manufacturing
212	Dairy Product Manufacturing
2121	Milk and Cream Processing
2122	Ice Cream Manufacturing
2129	Dairy Product Manufacturing n.e.c.
213	Fruit and Vegetable Processing
2130	Fruit and Vegetable Processing
2140	Oil and Fat Manufacturing
215	Flour Mill and Cereal Food Manufacturing
2151	Flour Mill Product Manufacturing
2152	Cereal Food and Baking Mix Manufacturing
216	Bakery Product Manufacturing
2161	Bread Manufacturing
2162	Cake and Pastry Manufacturing
2163	Biscuit Manufacturing
217	Other Food Manufacturing
2171	Sugar Manufacturing
2172	Confectionery Manufacturing
2173	Seafood Processing
2174	Prepared Animal and Bird Feed Manufacturing
2179	Food Manufacturing n.e.c.
218	Beverage and Malt Manufacturing
2181	Soft Drink, Cordial and Syrup Manufacturing
2182	Beer and Malt Manufacturing
2183	Wine Manufacturing
2184	Spirit Manufacturing
219	Tobacco Product Manufacturing
2190	Tobacco Product Manufacturing
22	Textile, Clothing, Footwear and Leather Manufacturing
221	Textile Fibre, Yarn and Woven Fabric Manufacturing
2211	Wool Scouring
2212	Synthetic Fibre Textile Manufacturing
2213	Cotton Textile Manufacturing
2214	Wool Textile Manufacturing
2215	Textile Finishing
222	Textile Product Manufacturing
2221	Made-Up Textile Product Manufacturing
2222	Textile Floor Covering Manufacturing
2223	Rope, Cordage and Twine Manufacturing
2229	Textile Product Manufacturing n.e.c.

ANZSIC DIVISION, SUBDIVISION, GROUP AND CLASS TITLES AND CODES *continued*

223	Knitting Mills
2231	Hosiery manufacturing
2232	Cardigan and Pullover Manufacturing
2239	Knitting Mill Product Manufacturing n.e.c.
224	Clothing Manufacturing
2241	Men's and Boy's Wear Manufacturing
2242	Women's and Girl's Wear Manufacturing
2243	Sleepwear, Underwear and Infant Clothing Manufacturing
2249	Clothing Manufacturing n.e.c.
225	Footwear Manufacturing
2250	Footwear Manufacturing
226	Leather and Leather Product Manufacturing
2261	Leather Tanning and Fur Dressing
2262	Leather and Leather Substitute Product Manufacturing
23	Wood and Paper Product Manufacturing
231	Log Sawmilling and Timber Dressing
2311	Log Sawmilling
2312	Wood Chipping
2313	Timber Resawing and Dressing
232	Other Wood Product Manufacturing
2321	Plywood and Veneer Manufacturing
2322	Fabricated Wood Manufacturing
2323	Wooden Structural Component Manufacturing
2329	Wood Product Manufacturing n.e.c.
233	Paper and Paper Product Manufacturing
2331	Pulp, Paper and Paperboard Manufacturing
2332	Solid Paperboard Container Manufacturing
2333	Corrugated Paperboard Container Manufacturing
2334	Paper Bag and Sack Manufacturing
2339	Paper Product Manufacturing n.e.c.
24	Printing, Publishing and Recorded Media
241	Printing and Services to Printing
2411	Paper Stationery Manufacturing
2412	Printing
2413	Services to Printing
242	Publishing
2421	Newspaper Printing or Publishing
2422	Other Periodical Publishing
2423	Book and Other Publishing
243	Recorded Media Manufacturing and Publishing
2430	Recorded Media Manufacturing and Publishing
25	Petroleum, Coal, Chemical and Associated Product Manufacturing
251	Petroleum Refining
2510	Petroleum Refining
252	Petroleum and Coal Product Manufacturing n.e.c.
2520	Petroleum and Coal Product Manufacturing n.e.c.

ANZSIC DIVISION, SUBDIVISION, GROUP AND CLASS TITLES AND CODES *continued*

253	Basic Chemical Manufacturing
2531	Fertiliser Manufacturing
2532	Industrial Gas Manufacturing
2533	Synthetic Resin Manufacturing
2534	Organic Industrial Chemical Manufacturing n.e.c.
2535	Inorganic Industrial Chemical Manufacturing n.e.c.
254	Other Chemical Product Manufacturing
2541	Explosive Manufacturing
2542	Paint Manufacturing
2543	Medicinal and Pharmaceutical Product Manufacturing
2544	Pesticide Manufacturing
2545	Soap and Other Detergent Manufacturing
2546	Cosmetic and Toiletry Preparation Manufacturing
2547	Ink manufacturing
2549	Chemical Product Manufacturing n.e.c.
255	Rubber Product Manufacturing
2551	Rubber Tyre Manufacturing
2559	Rubber Product Manufacturing n.e.c.
256	Plastic Product Manufacturing
2561	Plastic Blow Moulded Product Manufacturing
2562	Plastic Extruded Product Manufacturing
2563	Plastic Bag and Film Manufacturing
2564	Plastic Product Rigid Fibre Reinforced Manufacturing
2565	Plastic Foam product Manufacturing
2566	Plastic Injection Moulded Product Manufacturing
26	Non-Metallic Mineral Product Manufacturing
261	Glass and Glass Product Manufacturing
2610	Glass and Glass Product Manufacturing
2621	Clay Brick Manufacturing
2622	Ceramic Product Manufacturing
2623	Ceramic Tile and Pipe Manufacturing
2629	Ceramic Product Manufacturing n.e.c.
263	Cement, Lime, Plaster and Concrete Product Manufacturing
2631	Cement and Lime Manufacturing
2632	Plaster Product Manufacturing
2633	Concrete Slurry Manufacturing
2634	Concrete Pipe and Box Culvert Manufacturing
2635	Concrete Product Manufacturing n.e.c.
264	Non-Metallic Mineral Product Manufacturing n.e.c.
2640	Non-Metallic Mineral Product Manufacturing n.e.c.
27	Metal Product Manufacturing
271	Iron and Steel Manufacturing
2711	Basic Iron and Steel Manufacturing
2712	Iron and Steel Casting and Forging
2713	Steel Pipe and Tube Manufacturing
272	Basic Non-Ferrous Metal Manufacturing
2721	Alumina Production

ANZSIC DIVISION, SUBDIVISION, GROUP AND CLASS TITLES AND CODES *continued*

2722	Aluminium Smelting
2723	Copper, Silver, Lead and Zinc Smelting, Refining
2729	Basic Non-Ferrous Metal Manufacturing n.e.c.
273	Non-Ferrous Basic Metal Product Manufacturing
2731	Aluminium Rolling, Drawing, Extruding
2732	Non-Ferrous Metal Rolling, Drawing, Extruding n.e.c.
2733	Non-Ferrous Metal Casting
274	Structural Metal Product Manufacturing
2741	Structural Steel Fabricating
2742	Architectural Aluminium Product Manufacturing
2749	Structural Metal Product Manufacturing n.e.c.
275	Sheet Metal Product Manufacturing
2751	Metal Container Manufacturing
2759	Sheet Metal Product Manufacturing n.e.c.
276	Fabricated Metal Product Manufacturing
2761	Hand Tool and General Hardware Manufacturing
2762	Spring and Wire Product Manufacturing
2763	Nut, Bolt, Screw and Rivet Manufacturing
2764	Metal Coating and Finishing
2765	Non-Ferrous Pipe Fitting Manufacturing
2769	Fabricated Metal Product Manufacturing n.e.c.
28	Machinery and Equipment Manufacturing
281	Motor Vehicle and Part Manufacturing
2811	Motor Vehicle Manufacturing
2812	Motor Vehicle Body Manufacturing
2813	Automotive Electrical and Instrument Manufacturing
2819	Automotive Component Manufacturing n.e.c.
282	Other Transport Equipment Manufacturing
2821	Shipbuilding
2822	Boatbuilding
2823	Railway Equipment Manufacturing
2824	Aircraft Manufacturing
2829	Transport Equipment Manufacturing n.e.c.
283	Photographic and Scientific Equipment Manufacturing
2831	Photographic and Optical Good Manufacturing
2832	Medical and Surgical Equipment Manufacturing
2839	Professional and Scientific Equipment Manufacturing n.e.c.
284	Electronic Equipment Manufacturing
2841	Computer and Business Machine Manufacturing
2842	Telecommunication, Broadcasting and Transceiving Equipment Manufacturing
2849	Electronic Equipment Manufacturing n.e.c.
285	Electrical Equipment and Appliance Manufacturing
2851	Household Appliance Manufacturing
2852	Electric Cable and Wire Manufacturing
2853	Battery Manufacturing
2854	Electric Light and Sign Manufacturing
2859	Electrical Equipment Manufacturing n.e.c.

ANZSIC DIVISION, SUBDIVISION, GROUP AND CLASS TITLES AND CODES *continued*

286	Industrial Machinery and Equipment Manufacturing
2861	Agricultural Machinery Manufacturing
2862	Mining and Construction Machinery Manufacturing
2863	Food Processing Machinery Manufacturing
2864	Machine Tool and Part Manufacturing
2865	Lifting and Material Handling Equipment Manufacturing
2866	Pump and Compressor Manufacturing
2867	Commercial Space Heating and Cooling Equipment Manufacturing
2869	Industrial Machinery and Equipment Manufacturing n.e.c.
29	Other Manufacturing
291	Prefabricated Building Manufacturing
2911	Prefabricated Metal Building Manufacturing
2919	Prefabricated Building Manufacturing n.e.c.
292	Furniture Manufacturing
2921	Wooden Furniture and Upholstered Seat Manufacturing
2922	Sheet Metal Furniture Manufacturing
2923	Mattress Manufacturing (Except Rubber)
2929	Furniture Manufacturing n.e.c.
294	Other Manufacturing
2941	Jewellery and Silverware Manufacturing
2942	Toy and Sporting Good Manufacturing
2949	Manufacturing n.e.c.

Source: ABS, *Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 (Cat. no. 1292.00)*.

GLOSSARY

Averaged hours worked	Aggregate hours worked by a group divided by the number of persons in that group.
Capital expenditure	Acquisition of fixed tangible assets (e.g. plant and machinery), property and intangible assets (e.g. computer software, patents and licences) including those assets acquired under a finance lease. Also includes work done by own employees or proprietors of the business for its own use or for rental or lease purposes.
Change in production	Includes purchases (primarily for waste management and environmental protection reasons) of new technologies in which waste management and environmental protection aspects are integrated within a changed production process.
Closing stocks	The value of all stocks of finished goods, work-in-progress, raw materials, fuels, containers and packaging as at the end of the financial year. Businesses are asked to value their stocks for statistical purposes using the same method as for their balance sheet.
Constant prices	Data are presented in constant prices to represent the volume of goods and services produced. By analysing year-to-year movements in constant price terms, changes in manufacturing activity levels can be analysed without distortions caused by price changes.
Cost of sales	The sum of purchases, selected expenses and the opening stocks minus closing stocks. Selected expenses include payments made for services provided by other businesses such as freight and cartage; repair and maintenance; rent, leasing and hiring of plant, motor vehicles or land and buildings; office supplies and services; telephone and postage; advertising, accounting and legal services; work performed on a contract, subcontract or commission basis; and charges by government such as rates and motor vehicle registration charges. 1992–93 cost of sales data in this publication also include payroll tax and fringe benefits tax.
Current assets	The book value of current assets as at the end of the financial year. This includes cash on hand, stocks, trade debtors and other accounts receivable.
Current liabilities	The book value of current liabilities as at the end of the financial year. This includes provisions for taxation, leave, claims, trade creditors and other accounts payable, and bank overdrafts.
Current ratio	The number of times current assets cover current liabilities, i.e. the value of current assets divided by the value of current liabilities. This liquidity measure indicates ability to meet immediate financial obligations from current assets.
Depreciation	Includes depreciation allowed on buildings and other fixed tangible assets.

Dividends received	Payments received from related and unrelated businesses.
End-of-line techniques	Expenditure on filters and other 'add-on' equipment or modifications which are designed to reduce the level of emissions to the environment or to treat wastes prior to release but do not irreversibly affect the original production process. This category also includes capital works such as waste water dams, levees, holding tanks etc.
Employed	<p>Persons aged 15 and over who, during the reference week:</p> <ul style="list-style-type: none"> ■ worked for one hour or more for pay, profit, commission or payment in kind in a job or business, or on a farm (comprising employees, employers and own account workers); or ■ worked for one hour or more without pay in a family business or on a farm (i.e. contributing family workers); or ■ were employees who had a job but were not at work and were: on paid leave; on leave without pay for less than four weeks up to the end of the reference week; stood down without pay because of bad weather or plant breakdown at their place of employment for less than four weeks up to the end of the reference week; on strike or locked out; on workers' compensation and expected to be returning to their job; or receiving wages or salary while undertaking full-time study; or ■ were employers, own account workers or contributing family workers who had a job, business or farm, but were not at work.
Employee	A person who works for a public or private employer and receives remuneration in wages, salary, commission, tips, piece-rates or pay in kind, or in their own business, either with or without employees, if that business was incorporated.
Employment at end of June	The number of working proprietors, working partners, permanent, part-time, temporary and casual employees, and managerial and executive employees working for an establishment during the last pay period ending in June. Employees absent on paid or prepaid leave are included, as are employees on workers' compensation who continue to be paid through the payroll system. Non-salaried directors, self-employed persons such as consultants, contractors and persons paid solely by commission without a retainer, and volunteer workers are excluded.
Enterprise group	A unit covering all the operations in Australia of one or more legal entities under common ownership and/or control. It covers all the operations in Australia of legal entities which are related in terms of the current Corporations Law (as amended by the <i>Corporations Legislation Amendment Act 1991</i>). These may be legal entities such as trusts and partnerships as well as companies. Majority ownership is not required for control to be exercised.

Environmental taxes, levies, fines and licences	Includes pollution control licence fees, waste disposal/landfill levies specified in government rates, environmental levies paid to water authorities and any penalties paid for emissions to air, water or soil.
Establishment	The establishment is the smallest accounting unit of a business, within a State or Territory, controlling its productive activities and maintaining a specified range of detailed data enabling value added to be calculated. In general, an establishment covers all operations at a physical location, but may consist of a group of locations provided that all are within the same State or Territory. The majority of establishments operate at one location only.
Full-time employees	Permanent, temporary and casual employees who normally work the agreed or award hours for a full-time employee in their occupation and who received pay for any part of the reference period. If agreed or award hours do not apply, employees are regarded as full-time if they ordinarily work 35 hours or more per week.
Full-time workers	Employed persons who usually worked 35 hours or more a week (in all jobs) and others who, although usually working less than 35 hours a week, worked 35 hours or more during the reference week.
Gross earnings	Payments to employees before tax and other items (such as superannuation) are deducted. They comprise amounts paid from interstate or overseas; ordinary time and overtime earnings; over award payments; penalty payments, shift and other remunerative allowances; commissions and retainers; bonuses and similar payments; payments under incentive or piecework; payments under profit-sharing schemes; leave loadings; annual and long service leave payments; sick leave payments; advance and retrospective payments; salaries and fees paid to company directors, members of boards, committees, commissions, councils, etc.; amounts paid to employees on workers' compensation who continue to be paid through the payroll; and severance, termination and redundancy payments.
Gross output	Sales of goods and services plus government subsidies plus capital work done for own use plus closing stocks minus opening stocks.
Gross product at factor cost	The value of gross output minus the value of intermediate inputs. Very similar to industry gross product (see method of derivation below).
Industry class	Within Australian New Zealand Standard Industrial Classification (ANZSIC), there is a structure comprising four levels ranging from industry division (broadest level) to the industry class (finest level). At the industry class level, the activities are narrowly defined and recognised by a four-digit code, e.g. industry class 2331 for Pulp paper and paperboard manufacturing. Information on the structure of the ANZSIC is contained on pages 9–10 and in the appendix beginning on page 87.

Industry Gross Product Industry Gross Product (IGP) is very similar to the national accounting measure gross product at factor cost which is the official statistical measure of production. IGP for an industry is a measure of the value which is added by the industry's production processes to the raw materials and services which are input to those processes. Another way of describing IGP is the value of an industry's output minus the value of intermediate inputs.

The formula used to calculate IGP is as follows. Definitions of the relevant component items also appear in this Glossary.

Calculation of IGP = Turnover
+ Change in stocks
– Purchases of materials, fuels and goods
– Selected expenses
= Establishment value added
– Fringe benefits tax
– Payroll tax
– Other operating expenses
= Industry Gross Product

Industry group This is the intermediate level within the manufacturing industry division of Australian New Zealand Standard Industrial Classification (ANZSIC) and is recognised by a three-digit code, e.g. industry group 233 for Paper and paper product manufacturing. It gives more detail than the industry subdivision and is created in a way that groups like industry classes together. Information on the structure of the ANZSIC is contained on pages 9–10 and in the appendix beginning on page 87.

Industry of origin This concept allocates traded commodities back to the industry of original manufacture. However, it is not always known which industry actually produced a particular set of traded commodities. For statistical purposes, commodities are allocated to the industry in which most of that type of good is produced and therefore, the industry most likely to have been the source.

Industry subdivision This is the broadest level category within the manufacturing industry division of Australian New Zealand Standard Industrial Classification (ANZSIC) and is recognised by a two-digit code, e.g. industry subdivision 23 for Wood and paper product manufacturing. Industry subdivisions are built up from industry groups which, in turn, are built up from industry classes. Information on the structure of the ANZSIC is contained on pages 9–10 and in the appendix beginning on page 87.

Industry subdivision The following list gives the manufacturing industry subdivision codes and their descriptions:
continued

- 21 Food, beverage and tobacco manufacturing
- 22 Textile, clothing, footwear and leather manufacturing
- 23 Wood and paper product manufacturing
- 24 Printing, publishing and recorded media
- 25 Petroleum coal, chemical and associated product manufacturing
- 26 Non-metallic mineral product manufacturing
- 27 Metal product manufacturing
- 28 Machinery and equipment manufacturing
- 29 Other manufacturing

Insurance premiums Payments in respect of different types of insurance, excluding workers' compensation costs (included in labour costs) and compulsory third party motor vehicle insurance premiums (included in selected expenses).

Interest coverage The number of times over that businesses can meet their interest expenses from their earnings before interest, i.e. the value of earnings before interest and tax divided by the value of interest expenses.

Interest expenses Includes interest paid on loans from banks, finance companies, insurance companies and related companies.

Interest income Includes interest received from bank accounts, loans and finance leases, and earnings on discounted bills.

Intermediate inputs Purchases plus selected expenses.

Job leavers Unemployed persons who have worked full-time for two weeks or more in the past two years and left that job voluntarily, that is, because of unsatisfactory work arrangements/pay/hours; the job was seasonal, temporary or a holiday job and they left that job to return to studies; their last job was running their own business and they closed down or sold that business for reasons other than financial difficulties; or any other reason.

Job losers Unemployed persons who have worked full-time for two weeks or more in the past two years and left that job involuntarily, that is, were laid off or retrenched from that job; left that job because of their own ill-health or injury; the job was seasonal, temporary or a holiday job and they did not leave that job to return to studies; or their last job was running their own business and the business closed down because of financial difficulties.

Labour costs Wages and salaries (including severance and termination pay), superannuation contributed by employers, workers' compensation premiums, payroll tax and fringe benefits tax. 1992-93 labour costs data in this publication do not include the latter two items.

Labour costs for Research and Development	Wages and salaries, overtime allowances, penalty rates, leave loadings, bonuses, commission payments, all paid leave, employer contributions to superannuation and pension schemes, payroll tax, fringe benefits tax, payments to contract staff on the payroll, severance, termination and redundancy payments and workers' compensation insurance for staff engaged in research and experimental development activities.
Large business	In table 1.5, large businesses (excluding agriculture) are defined as employing 200 or more people. However, in all other tables large businesses are defined as having more than 100 employees.
Long-term debt to equity	The value of non-current liabilities divided by the value of net worth
Management unit	The management unit is the highest-level unit within a business, having regard to industry homogeneity, for which accounts are maintained. In nearly all cases, the management unit is simply the legal entity which owns the business (that is, company, partnership, trust, sole operator, etc.). In the case of large diversified businesses, however, there may be more than one management unit, each coinciding with a 'division' or 'line of business'. A division or line of business is recognised where separate and comprehensive accounts are compiled for it.
Manufacturing establishment	An establishment predominantly engaged in manufacturing activities. The data collected for such establishments cover all activities of the establishment (including non-manufacturing activities). Conversely, there are some establishments predominantly engaged in non-manufacturing activities which also undertake limited manufacturing activities and which are excluded.
Manufacturing management unit	A management unit predominantly engaged in manufacturing activities. The data collected for such management units cover all activities of the management unit (including in respect of non-manufacturing activities). Conversely, there are some management units predominantly engaged in non-manufacturing activities which have establishments engaged in manufacturing activities and which are excluded.
Medium business	In table 1.5, medium-sized businesses (excluding agriculture) are defined as employing 20–99 people.
Micro business	For this publication, micro businesses (excluding agriculture) are defined as employing less than five people.
Net worth	Total assets minus total liabilities and is equal to the interests of shareholders or other owners in the assets of the business.
New capital expenditure	Refers to the acquisition of new tangible assets either on own account or under a finance lease and includes major improvements, alterations and additions. In general, this is expenditure charged to fixed tangible assets accounts excluding expenditure on second-hand assets unless these are imported for the first time.

Non-current assets	The book value of non-current assets as at the end of the financial year. Includes plant and machinery needed for normal operations, capitalised interest, property and goodwill.
Non-current liabilities	The book value of non-current liabilities as at the end of the financial year. Includes bank loans, debentures and unsecured notes.
Number of employees	All wage and salary earners who received pay for any part of the relevant pay period. All permanent, temporary, casual, managerial and executive employees are included. Part-time and casual employees who may have received pay for only a few hours during the reference period are included. Employees on paid leave and those employees on workers' compensation who continue to be paid through the employer's payroll are also included. Casual employees who work on an irregular basis and who were not paid for the relevant pay period, employees on leave without pay, on strike or stood down without pay for the whole of the pay period are excluded.
Operating profit before tax (OPBT)	Operating profit before tax: a measure of profit before extraordinary items are brought into account and prior to the deduction of income tax and appropriations to owners (e.g. dividends paid).
Opening stocks	The value of all stocks of finished goods, work-in-progress, raw materials, fuels, containers and packaging as at the beginning of the financial year. Businesses are asked to value their stocks for statistical purposes using the same method as for their balance sheet.
Operating expenses	The total expenses of a business, excluding extraordinary items.
Operating income	The total income of a business, excluding extraordinary items.
Other environmental protection activities	Includes measures to protect the environment from radiation; protection of soil and groundwater, and measures to protect native plants, animals and habitats.
Other operating expenses	Includes all operating expenses not included under other categories of expense such as purchases, selected expenses, cost of sales, labour costs, depreciation. Also excludes income tax and extraordinary expenses. Examples of expenses which are included in other operating expenses are advertising expenses, accounting and legal expenses, cleaning expenses, printing costs (except for publishers), rates, telephone and postage charges, travelling and entertainment expenses, and management fees.
Other operating income	Includes government subsidies, royalty income, dividends received, net profit (or loss) on the sale of fixed tangible assets and net profit (or loss) on foreign exchange transactions. It excludes unrealised gains or losses, and extraordinary profits or losses such as those associated with the sale of a segment of the business or goodwill revaluations.

Other small businesses	For table 1.5, other small businesses (excluding agriculture) are defined as businesses employing 5–19 people.
Own account capital work	Capitalised work done by employees in manufacturing, constructing or installing assets (including computer software developed in house) for use by the business or for renting or leasing to other businesses. This item is valued at the capitalised value of the materials, and wages and salaries involved.
Part-time employees	Permanent, temporary and casual employees who are not classified as full-time employees as defined.
Profit margin	The percentage of operating income available as operating profit, i.e. the value of operating profit before tax (OPBT) multiplied by 100 and the result divided by the value of operating income.
Purchases	Purchases of materials, components, supplies, consumables, containers, packaging materials, electricity, fuels (except for motor vehicles) and water. It also includes purchases of goods for resale without processing.
Research and development activity	In the business context is 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. Research and development (R&D) activity extends to modifications to existing products/processes. R&D activity ceases and pre-production begins when work is no longer experimental.
Research and development expenditure on waste management and environmental protection	Includes wages and salaries of employees engaged in research and development (R&D) as well as payments made to private businesses for R&D relating to the prevention, reduction or elimination of pollution or any other degradation of the environment.
Return on assets	Operating profit before tax (OPBT) as a percentage of the total book value of assets, i.e. the value of OPBT multiplied by 100 and the result divided by the value of total assets.
Return on net worth	Operating profit before tax (OPBT) as a percentage of the shareholders' funds, i.e. the value of OPBT multiplied by 100 and the result divided by the value of net worth.
Royalty expenses	Payments made by a business for the use of rights owned by another business or person. Included in other operating expenses.
Sales of goods and services	Includes sales of goods whether or not manufactured by the business, sales or transfers to related businesses, all repair and service income and fees, income from rent, leasing and hiring, contract, subcontract and commission revenue, and management fees. Rent, leasing and hiring income is revenue derived from the ownership of land, buildings, vehicles, machinery or equipment, excluding income from finance leases.

Sampling error Most of the estimates in this publication are based on information gained from sample surveys. Because the entire population of businesses was not surveyed to obtain these estimates, they are subject to sampling error, i.e. the imprecision which arises when a sample of businesses is not perfectly representative of the population of businesses from which the sample was drawn.

Selected expenses Includes payments made for services provided by other businesses (including self-employed persons) such as rent, leasing and hiring of plant, motor vehicles, land and buildings; freight and cartage expenses; office supplies and services; telephone and postage; advertising, accounting and legal services; repairs and maintenance; work performed on a contract, subcontract or commission basis; and charges by government such as rates and motor vehicle registration.

Small business For this publication, small businesses (excluding agriculture) are defined as employing less than 20 people.

Trading profit A measure of profit directly attributable to trading in goods and services. It is derived by deducting the cost of sales from sales of goods and services.

Turnover Sales (exclusive of excise and sales tax) of goods whether produced by the establishment or not, plus transfers out of goods to other establishments of the same business, plus bounties and subsidies on production, plus all other operating income from outside the establishment (such as commission income, repair and service income, and rent, leasing and hiring income), plus capital work done by an establishment's own employees for the business' own use, or for rental or lease. Receipts from interest, royalties dividends and the sale of fixed tangible assets are excluded.

Note: Transfers to other establishments of the same business referred to in the definition of turnover are valued, for statistical purposes, at prices commensurate with the prices which would have been received if the establishments concerned had been under separate ownership, that is, at commercial selling price. A significant proportion of the commodities manufactured by some industries is manufactured on commission for non-manufacturing businesses from materials owned and supplied by those businesses. In these circumstances, the manufacturing turnover figures do not reflect the gross value of those commodities but only the commission earned relating to them.

Unemployed	<p>Persons aged 15 and over who were not employed during the reference week, and:</p> <ul style="list-style-type: none"> ■ had actively looked for full-time or part-time work at any time in the four weeks up to the end of the reference week and; ■ were available for work in the reference week, or would have been available except for temporary illness (i.e. lasting for less than four weeks to the end of the reference week); or ■ were waiting to start a new job within four weeks from the end of the reference week and would have started in the reference week if the job had been available then; or ■ were waiting to be called back to a full-time or part-time job from which they had been stood down without pay for less than four weeks up to the end of the reference week (including the whole of the reference week) for reasons other than bad weather or plant breakdown.
Unemployed persons classified by industry and occupation	<p>Unemployed persons who had worked full-time for two weeks or more in the last two years are classified according to the industry and occupation of their most recent full-time job.</p>
Value added	<p>Turnover, plus the increase (or less the decrease) in the value of stocks, less purchases, transfers in and selected expenses.</p>
Wages and salaries	<p>The gross wages and salaries (including capitalised wages and salaries) of all employees of the establishment. The item includes severance, termination and redundancy payments, but excludes reimbursements or allowances to employees for travel, entertainment, etc. For the 1995–96 collection, provisions for employee entitlements (e.g. provisions for annual leave and leave bonus, long service leave, sick leave and severance, termination and redundancy payments) are excluded. The drawings of working proprietors are also excluded.</p>
Wages and salaries to turnover ratio	<p>The wages and salaries paid by manufacturing establishments which operated during the year ended 30 June as a proportion of the turnover of manufacturing establishments which operated during the same year.</p>

LIST OF REFERENCES

ABARE Australian Bureau of Agriculture and Resource Economics

ABS Australian Bureau of Statistics

OECD Organisation for Economic Co-operation and Development

Where ABS time series data has been presented in tables, only the latest edition of the product used to extract the data is listed as source material and in the references below. Earlier editions of the product are available from ABS libraries and selected other libraries.

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