Australian Bureau of Statistics

6503.0

Reissue

Information Paper

Household Expenditure Survey and Survey of Income and Housing

User Guide

Australia

2003–04

New Issue

Information Paper

Household Expenditure Survey and Survey of Income and Housing

User Guide

Australia

2003–04

Dennis Trewin
Australian Statistician

AUSTRALIAN BUREAU OF STATISTICS

EMBARGO: 11.30AM (CANBERRA TIME) FRI 9 JUN 2006

ABS Catalogue No. 6503.0

Produced by the Australian Bureau of Statistics

INQUIRIES

- For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070 or Jan Gatenby on Canberra (02) 6252 6174.

CONTENTS

page

ABBREVIATIONS

ABS	Australian Bureau of Statistics
CAI	computer assisted interviewing
CPI	consumer price index
HEC	Household Expenditure Classification
HES	Household Expenditure Survey
HESCCL	Household Expenditure Survey Commodity Code List
mths	months
n.f.d.	not further defined
nec	not elsewhere classified
p	partial match
RSE	relative standard error
SE	standard error
SIH	Survey of Income and Housing
wks	weeks
yrs	years

INTRODUCTION

CHANGES IN THIS REISSUE

The Reissue of chapter '2.6 Benchmarks and weighting of survey results' is to correct the details of the age benchmarks which were previously incorrect.

INTRODUCTION

This User Guide contains details about the Household Expenditure Survey (HES) and the Survey of Income and Housing (SIH). These two surveys were conducted on an integrated basis for the first time in 2003–04. The SIH is now conducted every second year, with the HES combined with it for every third iteration, that is, once every six years.

The Guide includes information about the purpose of the surveys, their concepts and contents, and the methods and procedures used to collect the data and derive the estimates. Its purpose is to help users of the data to understand the nature of the surveys, their potential and their shortcomings in meeting user data needs.

The ABS would appreciate comments from users on the contents and presentation of information in this User Guide.

Comments should be sent to:

Jan Gatenby

Assistant Director, Living Conditions Section

Australian Bureau of Statistics

Locked Bag 10

Belconnen ACT 2616

email: jan.gatenby@abs.gov.au

PART 1 CONCEPTS AND DEFINITIONS

CONCEPTS AND DEFINITIONS

Part 1 of this User Guide describes the concepts and definitions used in the 2003–04 Household Expenditure Survey (HES) and 2003–04 Survey of Income and Housing (SIH) including:

- the data items of income, expenditure and wealth, or net worth
- summary statistics such as the Gini coefficient
- the units of analysis supported by the surveys, that is, households, income units and persons.

Definitions of words and expressions used in describing these surveys and their data are provided in the Glossary.

Changes to concepts and definitions introduced in 2003–04 are described in Part 4 'Changes from previous surveys'.

1.1 GROSS, DISPOSABLE AND FINAL INCOME

GROSS INCOME

In the Household Expenditure Survey (HES) and Survey of Income and Housing (SIH), gross income broadly refers to regular and recurring cash receipts from employment, investments and transfers from government, private institutions and other households. It is measured before income tax and the Medicare levy have been deducted.

Sources from which income may be received include:

- wages and salaries (whether from an employer or own corporate enterprise)
- profit/loss from own unincorporated business (including partnerships)
- investment income (interest, rent, dividends, royalties)
- government pensions and allowances
- private cash transfers (e.g. superannuation, regular workers' compensation, income from annuities, child support, and other transfers from other households).

Receipts which are excluded from income because they are not regular or recurring cash payments include the following:

- income in–kind including employee benefits such as the provision of a house or a car and employer contributions to pension and superannuation funds – however, income in–kind provided as part of a negotiated salary sacrifice arrangement can be regarded as cash or 'near cash' income and included within the scope of cash income; it is estimated that about two thirds of salary sacrificed income was included in the 2003–04 SIH estimate of gross income
- capital transfers such as inheritances and legacies, maturity payments on life insurance policies, lump sum compensation for injuries or other damage, capital repayment of loans from other households
- capital gains and losses, such as profit from buying and selling shares unless as a business
- receipts from running down assets (excluding receipts from pension funds), such as withdrawals from savings, loans and credit obtained.

More detail on the various components of gross income are included in section 1.4 'Components of income'.

DISPOSABLE INCOME

Disposable income is derived by deducting estimates of personal income tax and the Medicare levy from gross income. Disposable income better represents the economic resources available to meet the needs of households. Note that while child support and other transfers from other households are included in the income of the households receiving the transfers, they are not deducted from the disposable income of the households making the transfers.

FINAL INCOME

Final income is a measure that takes into account the impact of indirect government benefits (i.e. non–cash benefits) and indirect taxes on the economic wellbeing of households. For details see *Government Benefits, Taxes and Household Income, Australia* (cat. no. 6537.0).

COMPARISON WITH AUSTRALIAN SYSTEM OF NATIONAL ACCOUNTS

The concepts of income used in the HES and SIH have many similarities to the household income definition used in the Australian System of National Accounts (ASNA), but also differ in some respects. A detailed comparison of 1997–98 SIH and ASNA estimates was published as an appendix to the 1997–98 issue of *Income Distribution, Australia, 1997–98* (cat. no. 6523.0). Comparison of SIH data from 1994–95 to 2003–04

COMPARISON WITH AUSTRALIAN SYSTEM OF NATIONAL ACCOUNTS *continued*

with ASNA data indicated that the relationship between the two estimates had not changed significantly over that period.

CURRENT AND ANNUAL INCOME

Current income is the income being received by respondents at the time that data are collected from them. For wage and salary earners and recipients of government pensions and allowances such as Centrelink payments, current income is generally based on their most recent payment, as long as that payment is usual, that is, does not include irregular overtime, bonuses or other adjustments. For income received from business and investments, a longer time perspective is needed because this form of income is often received in quarterly or less frequent payments. If respondents are operating an unincorporated business or own income producing assets, such as rental property, shares or bank accounts, at the time that data are collected, they are regarded as having current income. Their current income is based on a full year's income from those business and investment sources.

Annual income provides a somewhat longer term perspective of income, providing data about income obtained from all sources over a period of a whole year. It has the advantage of being less sensitive to short term variations in income, such as a person having little or no current income for a short period of non–employment but for which they have adequate resources from past employment or prospective employment to avoid economic hardship. However, annual income has the potential to be limited in its relevance to the current situation of respondents, especially when analysing the combined income of a household which gained or lost adult members during the course of the year. There are also practical difficulties in collecting annual income, especially from respondents who may have had relatively short periods of time in different jobs, received Centrelink payments for relatively short periods of time, and so on.

A more detailed study of the differences between current and annual income is provided in Appendix 1 'Current and annual income'.

WEEKLY INCOME

Current income is collected using a number of different reporting periods, such as the whole financial year for own unincorporated business and investment income, and the usual payment for a period close to the time of interview for wages and salaries, other sources of private income and government pensions and allowances. The income reported is divided by the number of weeks in the reporting period. Estimates of weekly income from the HES and SIH therefore do not refer to a given week within the reference period of the survey.

1.3 EQUIVALISED HOUSEHOLD INCOME

EQUIVALISED HOUSEHOLD INCOME

A major determinant of economic wellbeing for most people is the level of income they and other family members in the same household receive. While income is usually received by individuals, it is normally shared between partners in a couple relationship and with dependent children. To a lesser extent, it may be shared with other children, other relatives and possibly other people living in the same household, for example through the provision of free or cheap accommodation. This is particularly likely to be the case for children other than dependants and other relatives with low levels of income of their own. Even when there is no transfer of income between members of a household, nor provision of free or cheap accommodation, members are still likely to benefit from the economies of scale that arise from the sharing of dwellings. Therefore household income measures are usually used for the analysis of people's economic wellbeing.

However, larger households normally require a greater level of income to maintain the same material standard of living as smaller households, and the needs of adults are normally greater than the needs of children. The income estimates are therefore adjusted by equivalence factors to standardise them for variations in household size and composition, while taking into account the economies of scale that arise from the sharing of dwellings. The resultant estimates are known as equivalised household income. Equivalised income is set to zero when the original, unequivalised income is negative, as it can be for own unincorporated business income or rental property income.

The concept of equivalised household income is applicable to both households and the persons comprising those households, that is, each person in a household has the same level of equivalised household income as the household itself. The difference between using households or persons as the unit of analysis is discussed in 1.10 'Household, income unit and person data'.

Published HES and SIH output includes estimates of equivalised disposable household income but not estimates of equivalised gross household income, although the latter can also be produced.

For more information on equivalised income see Appendix 2 'Equivalised household income'.

1.4 COMPONENTS OF INCOME

COMPONENTS OF INCOME

In the HES and SIH, income is collected by separate components. This section describes the definitions used for each of those components, and also describes some components of income that are not included in the aggregate income measures included in HES and SIH publications. Data for some of the excluded components are available from the surveys. Each of the detailed income data items available, and the alternate aggregate measures of income, are included in the data item list referred to in section 2.3 'Data collection and data item description'.

Wage and salary income

WAGE AND SALARY ESTIMATES

Wage and salary income is collected in the HES and SIH from each person aged 15 years and over who worked for an employer or in his/her own limited liability business. It comprises the gross cash income received as a return to labour from an employer or from a person's own incorporated business.

The aggregate current income estimates produced from the HES and SIH include the usual pay that survey respondents received in the most recent pay period. They include wages and salaries, tips, commissions, piecework payments, penalty payments and shift allowances, remuneration for time not worked (e.g. sick and holiday pay) and workers' compensation paid through the payroll. They do not include overtime if not worked on a regular basis, leave loadings, bonuses and the like. These receipts are excluded because they are not received each pay and therefore their inclusion would overstate the overall economic wellbeing of the recipient. However, estimates of leave loadings and other bonuses received on a regular basis are available separately.

The aggregate annual income estimates produced from SIH include total income from all jobs. Because the annual income estimates relate to a longer time period, they include the less regular receipts from irregular overtime, leave loading, bonuses and the like. Appendix 1 'Current and annual income' illustrates the differences between the current and annual estimates of wage and salary income.

SALARY SACRIFICED INCOME

The aggregate income estimates produced from the HES and SIH are essentially restricted to cash income for ease of collection, measurement and interpretation. It is often difficult for survey respondents to report the value of in–kind income received in the form of employer supplied housing, motor vehicle or superannuation contributions. However, in the case of negotiated salary sacrifice arrangements, the value of salary foregone to receive additional employer supplied benefits can be reported relatively easily by survey respondents. Furthermore, employees have a choice about taking the income as cash income or as employer supplied benefits. Therefore salary sacrificed income can be regarded as cash or 'near cash' income, and, in principle, is included in the scope of cash wages and salaries in the HES and SIH.

The SIH collected supplementary information about salary sacrificed income for the first time in 2003–04. In that year it was found that about two thirds of salary sacrificed income had been included by survey respondents when reporting the value of wages and salaries as included in the aggregate income estimates produced from the SIH and HES. Details about salary sacrificed income are available, both for that part included in the aggregate income estimates and that part that is not.

Wage and salary income continued

OTHER IN–KIND INCOME FROM EMPLOYMENT

While not included in aggregate estimates of wages and salaries, estimates are available from the HES of the difference between the full retail value of a good or service provided by an employer and the amount paid by the household member, with the exception of subsidies for goods and services which cannot be distinguished from refunds.

Own unincorporated business income

Own incorporated business income is collected from all persons aged 15 years and over who are working as owners or partners in unincorporated enterprises. Own business income is the share of profit/loss of the enterprise accruing to the person. Profit/loss consists of the value of the gross output of the enterprise after the deduction of operating expenses and an allowance for depreciation of assets used in producing the output. Losses occur when operating expenses and depreciation are greater than gross receipts and are treated as negative incomes.

Since profit or loss calculations are often only made by businesses on a quarterly or annual basis, it is not possible to collect data on current income in the same way as can be done for wages and salaries or current cash transfer income. Instead, survey respondents are requested to provide an estimate of the own business income they expect to receive in the current financial year. Responses are likely to be less accurate when collected early in the year and more accurate when collected later in the year, and there is some likelihood that responses will tend to be too optimistic or too pessimistic, resulting in some bias in the aggregate estimate. However, this methodology gives better results than the methodology used in surveys up to and including 2002-03 that simply extrapolated reported own business income from the previous financial year onto the current period. Under the previous methodology, estimates could also have a strong downwards bias, particularly for new businesses, but could also be significantly upwardly biased if the current business circumstances had turned down from the previous year. The new methodology results in far fewer households being recorded with current business incomes that are negative, zero or only slightly positive.

Investment income

Investment income includes interest and dividend income received as a result of the ownership of financial assets such as bank accounts and shares, and rent and royalty income received from the ownership of non–financial assets. The rent component of investment income is measured on a net basis, that is, gross rent less operating expenses and depreciation allowances. The other components, for which associated expenses are normally relatively small, are on a gross basis.

Rent comprises receipts from residential properties, other than owner–occupied dwellings, and from non–residential properties. Operating expenses deducted from gross rent include repairs and maintenance expenses, rates, interest payments and the like. If the operating expenses plus depreciation allowances are greater than the gross rent, net rent income is negative.

Current investment income is collected by asking survey respondents for an estimate of their total expected income in the financial year, as described above for own unincorporated business income.

Government pensions and allowances

Government pensions and allowances are cash transfer payments made by government to persons under social security and related government programs. They are primarily paid by Centrelink or the Department of Veterans' Affairs, and include pensions paid to aged persons, Newstart, benefits paid to veterans and their survivors, study allowances for students, family tax benefit, etc.

Receipts of family tax benefit are treated as income, regardless of whether they are received fortnightly or as a lump sum. However, they are only included in gross income if they are received fortnightly. To facilitate estimation, they are excluded from gross income if taken as a lump sum but these amounts are added to disposable income.

The one–off payment to seniors paid in 2000–01 and the one–off payments to families and carers paid in 2003–04 are included as income as they were primarily a supplement to existing income support payments. However, the aged persons' savings bonus and self–funded retirees' supplementary bonus, paid as part of the introduction of The New Tax System in 2000–01, are regarded as capital transfers as they were designed to help retired people maintain the value of their savings and investments following the introduction of the GST.

Values of family tax benefit paid as a lump sum and one–off payments regarded as income are annualised, that is, treated as though they were paid evenly through the year. Therefore the amount included in current weekly income is the total payment for the year divided by 52.14, the average number of weeks in a year. The payments are assigned to all respondents who would have met the eligibility criteria at the time that they were interviewed, even if the payments were only announced after the interview took place. (See also section 2.5 'Income tax and other modelled data items'.) If an annualised approach were not taken, a few respondents receiving the benefit would include a large amount in the current income, and most people eligible for the benefit would not include any payment because it was not received in the fortnight before the interview.

All pensions received from overseas are included under government pensions and allowances.

Other cash transfer income

Other cash transfer income include non–government pensions such as superannuation and life insurance pensions, regular annuity benefits, private scholarship or study allowances, workers' compensation not paid through the payroll, child support payments (non–government), and other regular transfers between households such as parental allowances paid to students living away from home.

Note that, while child support and other transfers from other households are included in the income of the households receiving the transfers, they are not deducted from the disposable income of the households making the transfers.

The surveys collect current transfer information by asking recipients what their last payment is and the period it covers. Assuming that transfer payments are fairly uniform, the last actual receipt is considered a good proxy for usual income.

Children's income

Estimates of the income of children aged less than 15 years are available from the HES only, but are not included in the aggregate estimates of income from the HES or the SIH. Income of children is collected from the first parent or guardian interviewed.

Income tax and Medicare levy

In the SIH and HES, estimates of income tax and the Medicare levy relate to the liability associated with the income being reported by respondents, regardless of when it is actually paid. In other words, an accrual rather than cash based concept is being used.

1.5 LOW INCOME HOUSEHOLDS

LOW INCOME HOUSEHOLDS

While income generally provides a useful indicator of economic wellbeing, there are some circumstances which present particular difficulties. Some households report extremely low and even negative income in the survey, which places them well below the safety net of income support provided by social security pensions and allowances such as those available from Centrelink. Households may underreport their incomes in the survey at all income levels, including low income households. However, households can correctly report low levels of income if they incur losses in their unincorporated business or have negative returns from their other investments.

For some time, the ABS has noted that households at the very lowest end of the income distribution have average expenditures higher than those households with somewhat higher average levels of income. Due to this observation, the ABS has adopted the practice of describing the characteristics of persons in the second and third deciles of the income distribution when describing the characteristics of low income people.

In order to gain a better understanding of the characteristics of households at the lowest end of the income distribution, the ABS has used data from the 2003–04 HES analysing the relationship between income, wealth and expenditure of these households. The estimates of income, net worth and expenditure have been adjusted for differences in household size and composition, that is, they are on an equivalised basis. The purpose of this is to maximise the comparability of the three aggregates. The process used to equivalise net worth and expenditure is same as that used in the equivalisation of income. For more information on equivalised income see Appendix 2.

In 2003–04, average expenditure by households in the lowest income decile was higher than the average expenditure by households in the second income decile. Households in the lowest income decile also had higher average net worth than households in the second decile. As might be expected, the households with relatively higher net worth also had relatively higher expenditure, even when they had similar income levels. In addition the gap between expenditure and income was markedly greater for households that owned an unincorporated business or rental property but had low income, strongly suggesting that these households had access to economic resources other than income, such as lines of credit.

Since the average level of expenditure of households in the lowest income decile was higher than that of households in the second income decile, it can be expected that the households in the lowest income decile had a higher average standard of living than the households in the second income decile.

However, it needs to be emphasised that nearly half the people living in households in the lowest income decile who did not own an unincorporated business or rental property were also in the lowest net worth quintile and had mean expenditure lower than the corresponding households in the second income decile. These people were likely to have had lower average standards of living than people in households in the second income decile. They predominantly relied on government pensions and allowances as their principal source of income and rented their dwellings. Lone person households were the most common households in this population, with over half being lone persons under 65 years of age. The next largest category was one parent families with dependent children.

LOW INCOME HOUSEHOLDS *continued*

It also needs to be emphasised that some households with low income that had their own unincorporated business or rental property would not have had access to other economic resources and would also have had low standards of living.

See Appendix 4 of *Household Wealth and Wealth Distribution, Australia, 2003–04* (cat. no. 6554.0) for a more detailed analysis of the income, expenditure and net worth of low income households.

1.6 GINI COEFFICIENT AND OTHER MEASURES OF INCOME DISTRIBUTION

GINI COEFFICIENT AND OTHER MEASURES OF INCOME DISTRIBUTION

There are many ways to illustrate aspects of the distribution of income and to measure the extent of income inequality. In the SIH, five main types of indicator are used – means and medians, frequency distributions, percentile ratios, income shares, and Gini coefficients. This section describes how these indicators are derived.

Mean and median

Mean household income (average household income) and median household income (the midpoint when all persons or households are ranked in ascending order of household income) are simple indicators that can be used to show income differences between subgroups of the population.

In most cases, equivalised disposable household income is used in published HES and SIH output when analysing income distribution. As described in section 1.3, equivalised household income can be viewed as an indicator of the economic resources available to each member of a household. For HES and SIH output, therefore, the mean and median values of equivalised disposable household income are always calculated with respect to the relevant number of persons, even where the table is describing households. Measures calculated in this way are sometimes known as person weighted measures. The method of calculation is described in section 2.7 'Calculation of population counts, means, medians and other estimates'.

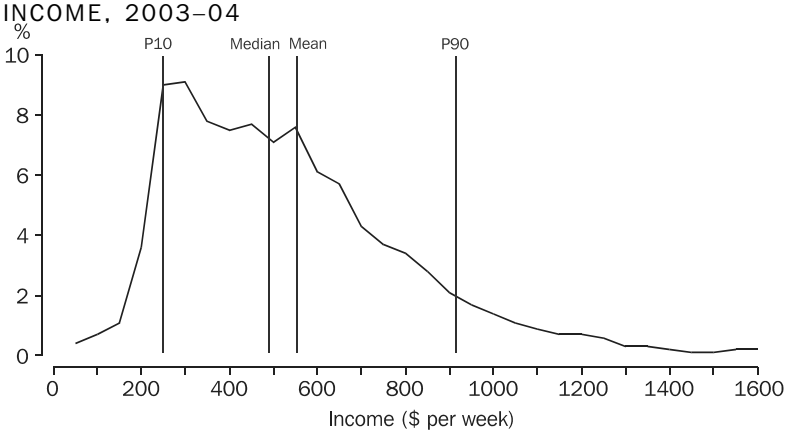
In some tables describing households, the mean and median of gross household income are also shown. These measures are calculated with respect to the relevant number of households, not persons. They are sometimes known as household weighted measures.

Frequency distribution

A frequency distribution illustrates the location and spread of income within a population. It groups the population into classes by size of household income and gives the number or proportion of people in each income range. A graph of the frequency distribution is a good way to portray the essence of the income distribution. Graph 1.6.1 below shows the proportion of people within $50 household income ranges.

Frequency distribution continued

1.6.1 DISTRIBUTION OF EQUIVALISED DISPOSABLE HOUSEHOLD INCOME, 2003–04



Note: Persons with an income between $25 and $1,625 are shown in $50 ranges on the graph
Source: Household Income and Income Distribution, Australia, 2003-04 (6523.0)

Frequency distributions can provide considerable detail about variations in the income of the population being described, but it is difficult to describe the differences between two frequency distributions. They are therefore often accompanied by other summary statistics, such as the mean and median. Taken together, the mean and median can provide an indication of the shape of the frequency distribution. As can be seen in the graph above, the distribution of income tends to be asymmetrical, with a small number of people having relatively high household incomes and a larger number of people having relatively lower household incomes. The greater the asymmetry, the greater will be the difference between the mean and the median.

Quantile measures

When persons (or any other units) are ranked from the lowest to the highest on the basis of some characteristic such as their household income, they can then be divided into equally sized groups. The generic term for such groups is quantiles.

QUINTILES, DECILES AND PERCENTILES

When the population is divided into five equally sized groups, the quantiles are called quintiles. If there are 10 groups, they are deciles, and division into 100 groups gives percentiles. Thus the first quintile will comprise the first two deciles and the first 20 percentiles.

Equivalised disposable household income is the income measure used to define the quantiles, and the quantiles each comprise the same number of persons, that is, they are person weighted.

HES and SIH publications frequently present data classified into income quintiles, supplemented by data relating to the 2nd and 3rd deciles combined. The latter is included to enable quintile style analysis to be carried out without undue impact from very low incomes which may not accurately reflect levels of economic wellbeing. (See section 1.5 'Low income households').

Quantile measures continued

UPPER VALUES, MEDIANS AND PERCENTILE RATIOS

In some analyses, the statistic of interest is the boundary between quantiles. This is usually expressed in terms of the upper value of a particular percentile. For example, the upper value of the first quintile is also the upper value of the 20th percentile and is described as P20. The upper value of the ninth decile is P90. The median of a whole population is P50, the median of the 3rd quintile is also P50, the median of the first quintile is P10, etc.

Percentile ratios summarise the relative distance between two points on the income distribution. To illustrate the full spread of the income distribution, the percentile ratio needs to refer to points near the extremes of the distribution, for example, the P90/P10 ratio. The P80/P20 ratio better illustrates the magnitude of the range within which the incomes of the majority of the population fall. The P80/P50 and P50/P20 ratios focus on comparing the ends of the income distribution with the midpoint.

Income shares

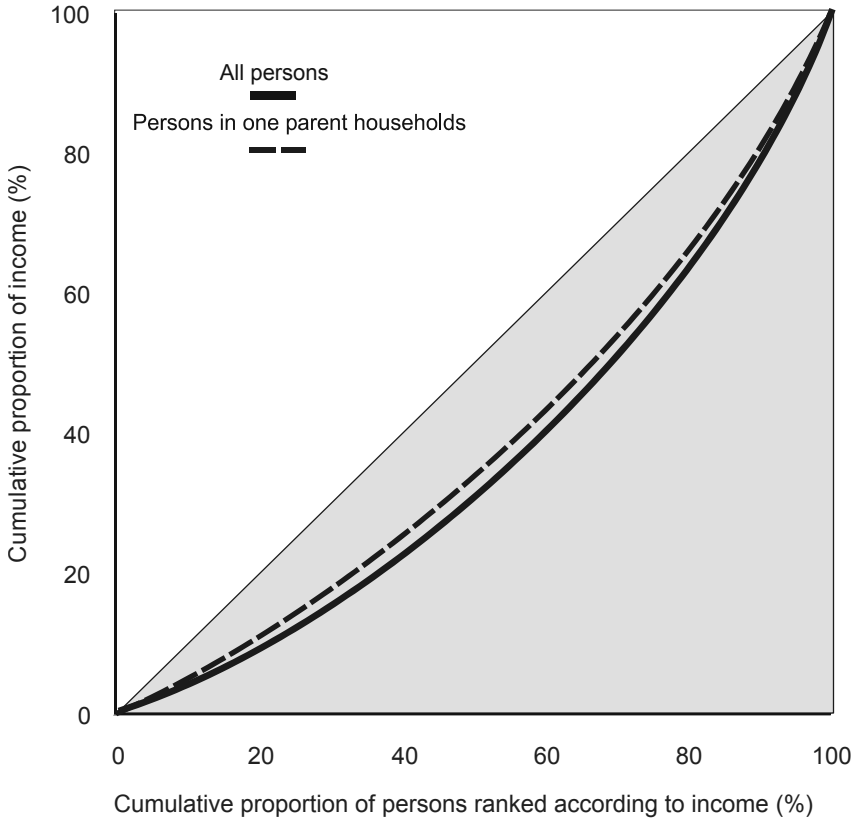
Income shares can be calculated and compared for each income quintile (or any other subgrouping) of a population. The aggregate income of the units in each quintile is divided by the overall aggregate income of the entire population to derive income shares.

Gini coefficient

The Gini coefficient is a single statistic which summarises the distribution of income across the population.

The Gini coefficient can best be described by reference to the Lorenz curve. The Lorenz curve is a graph with the horizontal axis showing the cumulative proportion of the persons in the population ranked according to household income and with the vertical axis showing the corresponding cumulative proportion of equivalised disposable household income. The graph then shows the income share of any selected cumulative proportion of the population, as can be seen below in graph 1.6.2.

1.6.2 LORENZ CURVES



Gini coefficient continued

If income were distributed evenly across the whole population, the Lorenz curve would be the diagonal line through the origin of the graph. The Gini coefficient is defined as the ratio of the area between the actual Lorenz curve and the diagonal (or line of equality) and the total area under the diagonal. The Gini coefficient ranges between zero when all incomes are equal and one when one unit receives all the income, that is, the smaller the Gini coefficient the more even the distribution of income.

Normally the degree of inequality is greater for the whole population than for a subgroup within the population because subpopulations are usually more homogeneous than full populations. This is illustrated in the graph above, which shows two Lorenz curves from the 2003–04 SIH. The Lorenz curve for the whole population of the survey is further from the diagonal than the curve for persons living in one parent, one family households, with at least one dependent child. Correspondingly, the calculated Gini coefficient for all persons was 0.294 while the coefficient for the persons in the one parent households included here was 0.247.

The Gini coefficient is discussed in more detail, along with the Theil index and Atkinson index, in Appendix 3 'Gini coefficient and other single statistic summaries of income distribution'.

1.7 EXPENDITURE

EXPENDITURE ESTIMATES

The HES produces estimates of average household expenditure on goods and services and selected other payments.

Acquisitions, payments and consumption approaches

Expenditure can be measured according to the following approaches.

- In the acquisitions approach, the full cost payable by the household of acquiring a good or service within a given period is collected. The full cost is collected regardless of whether the household actually paid for or consumed the good or service within the period.
- In the payments approach, the payments made by the household within a given period are collected. Payments include payments on outright purchases, deposits and loans for goods and services regardless of whether the goods and services were acquired or consumed during the period.
- In the consumption approach, an indicator of consumption is collected and a dollar value is derived. Consumption values are collected according to the use of a good or service during the given period regardless of whether the good or service was acquired or paid for during the period.

The HES has primarily adopted an acquisitions approach.

For many items, such as perishable foods, which are normally acquired, paid for and completely used within a relatively short period of time, the three approaches will provide nearly identical results. For other items such as durable items and items purchased on credit that are not fully consumed or paid for during the recall or reporting period, the situation is different. Estimates for individual households will vary according to the approach adopted. For groups of households, however, the estimates will 'average out' to a large extent, so that the estimates for groups of households can be said to be indicative of payments and consumption as well as acquisitions.

For example, the HES collects expenditure on acquisitions of washing machines over the three months prior to the HES interview. Say that we have a group of 1,000 households, and on average, 96% of them have washing machines. Of those who have washing machines, on average, over ten years, they fully consume their machine, acquire a new one and pay $700 for the machine in five equal instalments of $140.

Using the acquisitions approach, the number of households expected to report expenditure over a three month period is equal to 96% of 1,000 (i.e. 960) households divided by the number of three month periods in ten years (i.e. 40) which equals 24 households. Each of these households would have spent $700 and so aggregate expenditure would be equal to 24 multiplied by $700 which equals $16,800 every three months. This is divided by the number of weeks in three months (13) and by the number of households in the sample (1,000), to give average household expenditure of $1.29 per week.

Using the payments approach, the number of households expected to report expenditure over a three month period is equal to five times 96% of 1,000 households (since payments are made five times by each household) divided by the number of three month periods in ten years which equals 120 households. The payment of each of these households is equal to the total cost of the machine ($700) divided by the number of payments (5) which equals $140. Aggregate expenditure is equal to 120 households multiplied by $140 which equals $16,800 every three months. This is divided by the

Acquisitions, payments and consumption approaches continued

number of weeks in three months (13) and by the number of households in the sample(1,000), to again give average household expenditure of $1.29 per week.

Using the consumption approach, 96% of 1,000 households would report their ownership in the three month period. The value of consumption is assumed to be equal to the cost of using the washing machine over three months (which is equal to $700 divided by the number of three month periods in ten years, which equals $17.50). Aggregate expenditure is equal to 960 households multiplied by $17.50 which equals $16,800 every three months. This is divided by the number of weeks in three months (13) and by the number of households in the sample (1,000), to again give average household expenditure of $1.29 per week.

Recall periods and timing of expenditure

The total period covered by expenditure estimates is a function of the recall or reporting period at the time of interview and the timing of interviewing. For the HES, interviewing is conducted throughout the 12 months of the reference year, that is, the financial year to which the survey nominally relates (for example, 2003–04). For most types of expenditure, data are taken from diaries in which survey respondents record their expenditure over a two week period, beginning the day after interview. Diary derived estimates therefore refer almost entirely to expenditure during the reference year.

Estimates for infrequently purchased or more expensive items are derived from the household questionnaire (see section 2.3 'Data collection and data item description'), which collects expenditure information for goods and services on a recall basis. These less frequently occurring items are collected over periods longer than the two week diary reporting period so that sufficient numbers of households report expenditure to enable the calculation of reliable expenditure estimates. For example, in 2003–04, survey respondents were asked to recall how much they spent on furniture and appliances over the last 3 months, on motor vehicle registration over the last 12 months, and on house purchases over the last 3 years. For other items, such as insurance, rent and utilities bills, survey respondents are asked for the value of their last payment and the length of time to which it related.

The household expenditure classification referred to in section 2.3 'Data collection and data item description' indicates the items collected in the household questionnaire and their associated recall periods. In general, longer periods are used for items which are expensive, are acquired infrequently or are acquired at irregular intervals. Shorter periods are used for items which are purchased more frequently or are less significant and therefore not well remembered.

The use of different recall periods means that estimates for different expenditure items, in some cases, refer to different periods. The estimates of average expenditure on motor vehicle registration, for example, cover the 12 months prior to the beginning of interviewing to the end of interviewing (July 2002 to June 2004 for the 2003–04 HES). For house purchases, the period is three years prior to the beginning of interviewing to the end of interviewing (July 2000 to June 2004 for the 2003–04 HES). Household questionnaire derived estimates therefore refer to varying periods prior to the reference year as well as during the reference year.

Recall periods and timing of expenditure continued

Studies which use HES data tend to assume that all expenditure estimates refer only to the reference year itself. This is generally true for diary derived estimates but is a valid assumption for estimates derived from the household questionnaire only if expenditure prior to the reference year was the same as during the reference year.

For household questionnaire estimates, if the volumes or prices of purchases were lower during the period prior to the reference year, then average expenditure over the preceding period plus the reference year will be less than average expenditure over the reference year only. Similarly, if prices or volumes were higher during the preceding period, the HES estimate will overestimate average expenditure in the reference year. The longer the preceding period (which is equal to the length of the recall period), the greater the likelihood of discrepancy. In cases where expenditure is expected to have changed, researchers may wish to acknowledge or adjust for these differences.

Weekly household expenditure

Estimates of weekly expenditure do not refer to any given week but are weekly equivalents. They are derived by dividing reported expenditure for all members of the household by the number of weeks in the relevant recall or reporting period, as discussed above. For household questionnaire items, recall periods vary from the last three years to the last three months, and for some items the last payment is reported. For diary items, the reporting period is two weeks.

Expenditure for private purposes

The HES provides estimates of expenditure on goods and services used for private purposes. It therefore excludes expenditure for business and other investment purposes. Operating expenses of unincorporated businesses are either not collected or are deducted from reported expenditure. If survey respondents report business expenditure, it is picked up in questions in the household questionnaire or space provided in the diary, in which there is an opportunity to report amounts which 'have been or will be charged to a business'. If amounts have been or are going to be charged to a business, then these are deducted from expenditure during processing.

Deduction of refunds and trade–ins

The HES measures net or 'out of pocket' private expenditure on durable goods, non–durable goods and services for private purposes. Estimates therefore do not refer to the full costs of goods and services used but only the costs payable by the household for goods and services used.

In the case of a refund which is received or expected, the amount of the refund is deducted from expenditure to produce a net figure. For expenditure on visits to general practitioners, for example, Medicare and private health insurance refunds are deducted.

In the case of trade–ins, these amounts are also deducted from expenditure to produce a net figure. For example, if the cost of a motor vehicle is partially financed by a trade–in of another, the amount of the trade–in is deducted from the cost of the acquired vehicle.

In the case of the sale of land, houses and motor vehicles, the sale price net of outstanding loans is deducted from expenditure and in the case of houses and motor vehicles, amounts of successful insurance claims are deducted from expenditure. Deductions are made even if there is no expenditure on that item by the household. Sales and claims made in the recall period for items which are not replaced during that

Deduction of refunds and trade–ins continued

period are included to compensate for sales and claims made outside the recall period for items replaced during the recall period.

Where trade–ins, sales and insurance claims exceed the costs of acquisitions of the same expenditure item, expenditure is recorded as negative. For example, if someone sells a luxury motor vehicle and buys a less costly model, the amount of expenditure recorded in the HES would be negative.

Expenditure in–kind

Expenditure in–kind refers to items provided free or at a reduced cost by employers to employees for their own private use or withdrawn from own business for household consumption. It may also refer to items consumed by the household that have been produced by the household itself (for example, vegetables), or provided by another household. Generally, the aggregate estimates of expenditure on goods and services in the HES excludes expenditure in–kind. The only exception are incidental items of expenditure in–kind such as food and motor vehicle fuel reported in the diaries. They averaged $1.30 per week per household in the 2003–04 HES. However expenditure in–kind items such as provision of vehicles, housing, and assistance with telephone calls were collected and are available separately (see the data item list referred to in section 2.3 'Data collection and data item description').

Classification of expenditure

Expenditure is classified according to the Household Expenditure Classification (HEC) – see section 2.3 'Data collection and data item description'.

Most of the approximately 600 items included in the classification relate to expenditure on goods and services, which is the primary focus of the HES. The classification also includes ‘selected other payments’ which comprise income tax, repayments on mortgage principal for the household’s place of residence, other housing costs of a capital nature such as internal renovations, and superannuation and life insurance.

1.8 RELATIONSHIP BETWEEN RECORDED EXPENDITURE AND INCOME

RELATIONSHIP BETWEEN RECORDED EXPENDITURE AND INCOME

The HES provides information about both the income and the expenditure of households, but it would be misleading to regard the difference between average weekly income and the sum of the items of average weekly expenditure as a measure of saving.

First, to be properly understood, the concept of household saving needs to be articulated along with the concept of changes in household wealth or net worth, and all forms of income and expenditure need to be measured and classified consistently with these concepts. The HES does not attempt to do this. For example, the HES and SIH measure of income does not include capital gains or windfall gains such as inheritances. Rather, it focuses on the regular and recurring forms of income; expenditure on current consumption of goods and services; the major component of regular current transfers from households (income tax); and three major items of expenditure which can be regarded as investment expenditure ("mortgage repayments–principal (selected dwelling)", "other capital housing costs" and "superannuation and life insurance"). The three items of investment expenditure are included in the HES because they are a significant regular commitment of many households which have to be financed from regular income.

Second, there are significant timing differences between the different components of income and expenditure collected:

- expenditure does not cover all current payments because expenditure is collected on an acquisitions basis
- income does not cover all current receipts because it is collected on a usual receipts basis
- expenditure does not cover a common reference period because different recall periods are used for different expenditure items
- income does not cover a common reference period because different reference periods are used for different income sources.

HES and SIH income and HES expenditure estimates therefore do not balance for individual households or for groups of households and the difference between income and expenditure cannot be considered to be a measure of saving.

1.9 WEALTH OR NET WORTH

WEALTH OR NET WORTH

Household wealth is represented by the household's net wealth. In the SIH, the term 'net worth' is used in preference to 'wealth' because it more precisely reflects the nature of information captured in the SIH. Net worth is calculated as the difference between the stock of household assets and the stock of household liabilities. Net worth is positive when the value of household assets is more than the value of household liabilities. Likewise, net worth is negative when household liabilities exceed household assets.

While there may be individual ownership of assets, the benefit of asset ownership is shared at least to some extent between members of the household. Therefore it is household net worth that is of most interest in analysing the economic wellbeing of individuals.

Assets can take many forms including:

- produced tangible fixed assets that are used repeatedly and for more than one year, such as dwellings and their contents, vehicles and machinery and equipment used in businesses owned by households
- intangible fixed assets such as computer software and artistic originals
- business inventories of goods
- non–produced assets such as land
- financial assets such as bank deposits, shares, superannuation account balances and the outstanding value of loans made to other households or businesses.

Liabilities are primarily the value of loans outstanding including:

- mortgages
- study loans
- investment loans
- credit card debts
- debt on other loans such as personal loans to purchase vehicles.

In the 2003–04 HES and SIH, some asset and liability data were collected on a net basis rather than collecting for each component listed above. In relation to businesses, if a survey respondent owned or part owned a business, they were asked how much they would receive if they sold their share of the business and paid off any outstanding debts. For more details on various components of wealth see *Household Wealth and Wealth Distribution, Australia, 2003–04* (cat. no. 6554.0).

COMPARISON OF WEALTH BETWEEN SIH AND THE AUSTRALIAN SYSTEM OF NATIONAL ACCOUNTS

The concepts of net worth used in the HES and SIH have many similarities to the household net worth definition used in the Australian System of National Accounts (ASNA), but also differ in many respects.

The SIH wealth data are collected from individual households and can be used to analyse the distribution of wealth across the population and to compare levels of wealth between various population subgroups.

The ASNA records the net worth by using many different data sources and provides a comprehensive picture of the household sector as a whole, presented within a national accounting framework.

COMPARISON OF WEALTH BETWEEN SIH AND THE AUSTRALIAN SYSTEM OF NATIONAL ACCOUNTS *continued*

The sources of data used in the two data sets provide somewhat different decomposition of the aggregate amounts, and detailed item level comparisons between the data sets are difficult. It is therefore only possible to draw broad conclusions about the differences in aggregate wealth provided by the two data sets. A detailed comparison of 2003–04 SIH and ASNA net worth estimates has been published in an Appendix 3 of *Household Wealth and Wealth Distribution, Australia, 2003–04* (cat. no. 6554.0).

1.10 HOUSEHOLD, INCOME UNIT AND PERSON DATA

HOUSEHOLD, INCOME UNIT AND PERSON DATA

The HES and SIH collect information with respect to households and all the people comprising those households. It is therefore possible to produce aggregate data from the surveys with respect to households, with respect to persons, or with respect to combinations of persons within the household such as income units. Analysts can choose the unit of analysis most suitable to their purposes. The data item list referred to in section 2.3 'Data collection and data item description' shows which data items are available for each unit type supported by the HES and the SIH.

Households

A household consists of one or more persons, at least one of whom is at least 15 years of age, usually resident in the same private dwelling. The persons in a household may or may not be related. They must live wholly within one dwelling. A group of people who make common provision for food and other essentials of living but live in two separate dwellings are in two separate households.

Most of the published output from the HES and the SIH uses the household as the unit of analysis and relates to characteristics of the households.

Income units

An income unit is one person or a group of related persons within a household, whose command over income is assumed to be shared. Income sharing is assumed to take place within married (registered or de facto) couples, and between parents and dependent children. The income unit is similar, but not identical, to the unit used in determining the eligibility of people for many government pensions and allowances such as Centrelink payments.

Income data and selected income unit characteristics are available on an income unit basis from the SIH, although they are not included in any published output from the survey.

Persons

Data at the person level are available for each person aged 15 years and over usually resident in the households included in the HES and SIH. Data relating to children under the age of 15 are only available at the household level.

Units used in HES and SIH published output

In published HES output, the household is adopted as the basic unit of analysis of *expenditure data* because it is assumed that sharing of the use of goods and services occurs at this level. If smaller units, say persons, are adopted, then it is difficult to know how to attribute to individual household members the use of items purchased and often consumed collectively, such as food, accommodation and household goods. Similarly, estimates of net worth are published using the household as the basic unit of analysis.

Analysis of *income data* is also usually carried out using household income measures. As explained in section 1.3 'Equivalised household income', it is normally most appropriate to examine household income when considering economic wellbeing, because of the sharing that occurs between members of households. That section also explains that income comparisons are improved if the household income measure is adjusted to reflect the size and composition of the household.

Units used in HES and SIH published output continued

However, when analysing *income distribution*, it is the number of people who belong to households with particular characteristics, rather than the number of households with those characteristics, that is of primary interest. This leads to the preference for the equal representation of those persons in such analysis. For example, if the person is used as the unit of analysis rather than the household, then the representation in the income distribution of each person in a household comprising four persons is the same as that for each person in a household comprising two persons. In contrast, if the household were to be used as the unit of analysis, each person in the four person household would only have half the representation of each person in the two person household. Therefore, the income distribution measures from the SIH are all calculated with respect to persons, including children. Such measures are sometimes known as person weighted estimates because the unit of analysis is the person, even though all the characteristics being described are characteristics of the household to which the person belongs. The method of calculation is described in section 2.7 'Calculation of population counts, means, medians and other estimates'.

1.11 REFERENCE PERSON

REFERENCE PERSON

In some analysis it is useful to describe a household or income unit using characteristics that are in essence attributes of persons. For example, the analyst may wish to classify households into 'older households' and 'younger households'. One approach often used is to designate one member of the household or income unit as the reference person, and assume that the characteristics of that person are descriptive of the household or income unit more generally. The reference person is chosen through a set of operating procedures designed to identify a person most likely to be representative of the household or income unit. Households or income units can then be classified according to the age of the reference person, occupation of the reference person, country of birth of the reference person, etc.

Household reference person

The reference person for each household is chosen by applying, to all household members aged 15 years and over, the selection criteria below, in the order listed, until a single appropriate reference person is identified:

- one of the partners in a registered or de facto marriage, with dependent children
- one of the partners in a registered or de facto marriage, without dependent children
- a lone parent with dependent children
- the person with the highest income
- the eldest person.

For example, in a household containing a lone parent with a non–dependent child, the one with the higher income will become the reference person. However, if both individuals have the same income, the elder will become the reference person.

Income unit reference person

The reference person for an income unit is the male partner in a couple income unit, the parent in a one parent income unit and the person in a one person income unit.

1.12 HOUSING STATISTICS

HOUSING UTILISATION

The concept of housing utilisation derived for SIH is based upon a comparison of the number of bedrooms in a dwelling with a series of household demographics such as the number of usual residents, their relationship to one another, age and sex. There is no single standard of measure for housing utilisation. However the Canadian National Occupancy Standard derived for SIH is widely used internationally.

The Canadian National Occupancy Standard for housing appropriateness is sensitive to both household size and composition. The measure assesses the bedroom requirements of a household by specifying that:

- there should be no more than two persons per bedroom
- children less than 5 years of age of different sexes may reasonably share a bedroom
- children less than 18 years of age and of the same sex may reasonably share a bedroom
- single household members 18 years and over should have a separate bedroom, as should parents or couples.
- a lone person household may reasonably occupy a bed sitter

Households living in dwellings where this standard cannot be met are considered to be overcrowded.

HOUSING COSTS AND HOUSING STRESS

Housing costs are the recurrent outlays by household members in providing for their shelter. The data collected on housing outlays in the SIH are limited to major cash outlays on housing, that is, mortgage repayments and property rates for owners, and rent.

Only payments which relate to the dwelling occupied by the household at time of interview, that is, a respondent's usual place of residence, are included. Housing costs only include mortgage/loan payments if the purpose of the loan at the time it was initially taken out was primarily to buy, build, add to or alter the occupied dwelling.

There are a number of limitations to the housing costs information obtained in the SIH, due to practical data collection considerations. These limitations should be especially borne in mind when comparing the housing costs of different tenure and landlord types, that is, when comparing the costs of owner occupiers with the costs of renting households, and when comparing the costs of households renting from state and territory housing authorities with the costs of other renters.

- Households are sometimes reimbursed some or all of their housing costs, but these reimbursements are not collected in the SIH. Commonwealth Rent Assistance (CRA), paid by the Australian Government to qualifying recipients of income support payments and family tax benefit, is the most important type of reimbursement of relevance to these statistics. Attempts to reliably collect this information in a household survey have not been successful. If rent assistance receipts were subtracted from gross housing costs, the housing costs of households receiving rent assistance are estimated to be about 30% lower on average, and the housing costs of all households renting from landlords other than the state/territory authorities would be about 10% lower on average.

HOUSING COSTS AND HOUSING STRESS *continued*

- Mortgage repayments made by owners with a mortgage include both the interest component and the principal or capital component. For many purposes it is more appropriate to consider repayments of principal as a form of saving rather than as a recurrent housing cost. It reflects the purchase of a housing asset by increasing the equity in the property held by the household and is an addition to the wealth of the occupants. The 2003–04 SIH indicates that about 40% of the housing costs of owners with a mortgage comprised repayments of the principal on loans. However, this split of loan repayments is not available from previous SIHs.
- A fuller measure of housing costs would include a range of outlays not collected in the SIH, but which are necessary to ensure that the dwelling can continue to provide an appropriate level of housing services. These include repairs, maintenance, body corporate fees and dwelling insurance, and are costs that tend to be incurred by owner occupier households but not by renting households. HES data shows that if these costs were added to SIH housing costs estimates, the estimates of average housing costs would be more than doubled for owners without a mortgage and would increase by about 15% for owners with a mortgage.

Housing costs and household income

Housing costs can be a major component of total living costs. Therefore housing costs are often analysed as a proportion of total income, sometimes referred to as affordability ratios. However, comparisons between these measures are subject to the limitations of housing cost estimates obtained in the SIH that are described in the previous paragraph. Housing affordability ratios derived from SIH data are further impacted by the inclusion of CRA in the value of income collected. CRA is estimated, on average, to represent about 8% of the reported income of households receiving CRA and nearly 2% of the reported income of all households renting from landlords other than the state/territory authorities.

To illustrate the difficulties discussed above, consider two households that are renting their dwellings. Both receive government pensions of $400 per week. One rents from a public housing authority and pays rent of $100 per week. The other pays $135 rent per week to a private landlord and receives Commonwealth Rent Assistance of $35. In SIH, the housing costs of the latter household would be recorded as $135 and their income would be recorded as $435. The couple renting from the public housing authority has a housing costs/income ratio of 25%. The housing costs/income ratio for the latter household would be derived as 31%. If CRA receipts are excluded from housing costs and income the housing costs/income ratio for the latter couple is also 25%, highlighting that there is no substantive difference between the housing costs or income situation of the two couples. This anomaly is of particular concern when considering changes in affordability ratios over time, since there has been a shift from providing public housing to providing CRA as a means of supplying affordable housing to low income people.

While housing costs can be a major component of total living costs, the difference between the housing costs of a larger household and a smaller household would not be expected to be as great as the difference in many other costs, such as food or clothing. In other words, larger households can be expected to experience economies of scale in the supply of housing. This means that if a larger household and smaller household both have the same standard of living, it could be expected that on average the larger household will have a lower housing costs/income ratio. Therefore relatively high

Housing costs and household income continued

housing costs/income ratios are more of a concern with respect to larger households than smaller households. This should be borne in mind when comparing ratios across different household sizes.

In comparing households' housing costs with their income, it should be borne in mind that households have a variety of housing preferences. Some people may choose to live in an area with high land values because it is close to their place of employment and therefore they have lower transport costs. Some people choose to incur relatively high housing costs because they prefer a relatively high standard of housing instead of other consumption possibilities. High mortgage repayments might reflect a choice to purchase a relatively expensive home, or pay off a mortgage relatively rapidly, as a form of investment.

Housing stress

Households with relatively low income and housing costs greater than a certain proportion of income, often 30%, are sometimes said to be in 'housing stress'. The ABS does not use that term in its published output from SIH to label all households meeting those criteria because of the lack of comparability of the housing affordability ratios across tenure and landlord types, and the difficulties of comparing across different household sizes, as described in the previous paragraphs.

1.13 DEPRIVATION AND FINANCIAL STRESS INDICATORS

INTRODUCTION

While income and wealth statistics can describe the economic resources available to people to provide command over goods and services in aggregate, and expenditure statistics can describe people's associated consumption patterns, there are other issues that are relevant to understanding living standards. For example, a person's poor state of health or limited access to education facilities may lead to greater expenditure addressing their particular situation, and relatively less expenditure on other basic necessities of life, than is achieved by other people who earn similar incomes or who are spending, in aggregate, about the same amount. In attempting to identify which households have the lowest economic wellbeing, it is therefore useful to also consider indicators that more directly identify households with poor economic outcomes. The HES collects data relating to deprivation and financial stress for this purpose.

DEPRIVATION INDICATORS

The specific indicators of deprivation – that is, the items of expenditure considered to be some of the 'basics of life' that deprived households may not be able to afford – are:

- could not afford a holiday for at least one week a year
- could not afford a night out once a fortnight
- could not afford friends or family over for a meal once a month
- could not afford a special meal once a week
- could only afford second hand clothes most of the time
- could not afford leisure or hobby activities.

These indicators were the six deprivation indicators, out of 37, collected for the *Deprivation Standards Project* (Travers and Robertson, 1995), that were most highly correlated with an alternative, factor–based index of deprivation compiled in that project report. This index was derived from a wide range of indicators including the 37 'basics of life', shortage of money (cash flow, access to finance, budget management), dissatisfaction with home and life, access to important places and perceptions of changes in standard of living.

It is important to note that the indicators included in the ABS survey are not the most fundamental 'basics of life' that were included in the full list of 37. When the social security clients surveyed for the *Deprivation Standards Project* (Travers and Robertson, 1995) were asked to rate the 37 'basics of life', only one of the six indicators used in the ABS survey – affording leisure or hobby activities – rated above the mean score of importance for that target group. Four of the six indicators selected by the ABS were ranked 30th or lower in order of importance in the Travers/Robertson report. However, the most highly ranked indicators in the Travers/Robertson report included such things as medical treatment and a bath or shower, where most clients had access to such goods and services. The six indicators included in the HES were highly correlated with the factor–based index and therefore act collectively as a point of differentiation between the deprived and the more fortunate in society.

Given the nature of the indicators chosen, care needs to be exercised in interpreting individual responses in isolation from other responses provided. All individuals have their own priorities and consumption preferences and may choose quite different patterns of expenditure from a socially accepted norm of the basics of life. For example, a household may observe that it 'cannot afford' items specified in one or more of the chosen indicators (e.g., meals out or hobbies) because it devotes a considerable

DEPRIVATION INDICATORS
continued

proportion of its budget to saving for an overseas holiday. If the household can afford an overseas holiday, however, it is difficult to envisage the household as deprived, even if it chooses to forego expenditure that other households might consider basic.

The relevance of the selected indicators as a measure of deprivation to selected population groups can also be tested by observing the take up rate of the indicators by households with higher incomes. In establishing whether households could afford each of the selected basics of life activities, the survey first asks whether or not households usually had the basic item and, if not, whether it was because they could not afford it or because they did not want it. Those households where age and disability support pensions are the principal source of income can be used as an example of where significant changes in income levels did not significantly increase the take up of some of these 'basics of life'. In the 1998–99 HES, the proportion of these pension recipients stating that they could not afford to have friends or family over for a meal drops from 13% in the lowest income quintile (i.e., the bottom 20% of households in terms of income) to 9% in the third quintile (i.e., the middle 20% of households in terms of income). At the same time, the proportion of these welfare recipient households engaging in this activity only rose from 52% in the lowest quintile to 54% in the third quintile. Largely offsetting the decrease in 'deprivation' as incomes rise was an increase in the number of households stating that they did not want this activity.

A similar pattern was observed in the 1998–99 HES for the criterion of having a special meal once a week, where an increase in take up of the activity, from 35% to 40% in moving from the lowest to the third quintile, was accompanied by a fall in the incidence of deprivation (from 22% to 14%) and an increase in those that identify as not wanting the activity (up from 22% to 30%). For the criterion of having a night out, the large fall in observed deprivation (from 33% to 15%) in moving from the lowest to the third quintile is accounted for by some increase in take up (from 29% to 36%) and a larger increase in those not wanting it (up from 19% to 28%). However, if only 36% of these income recipients in the third quintile engaged in the activity, nearly as many did not want it and only 15% said they can't afford it, there is a question of how ' basic' it is. It is possible that the answer of 'can't afford it' may be a default answer for lower income groups which do not need to consider preferences across a wide range of activities that cannot be afforded, but such a default response becomes less relevant as incomes rise. Therefore the deprivation indicators chosen may not be an independent test in themselves to benchmark against income, and the nature of the answers given may be very highly correlated to income levels.

It would be possible to apply preference weights to a wider group of expenditure items for each household to identify 'basic' items, based on each household's perceptions of importance, or develop weights for particular income and population groups, or overall population weights as was done in the *Deprivation Standards Project* (Travers and Robertson, 1995). However, the costs of collecting this additional information and the respondent burden in doing so was not considered warranted by the ABS. Instead, the ABS has focussed on compiling unweighted deprivation indicators most highly correlated with the Travers/Robertson factor–based index, together with unweighted financial stress indicators, so that wider perspectives on deprivation and financial stress can be considered.

FINANCIAL STRESS INDICATORS

The financial stress questions asked in the HES relate to cash flow problems and financial resources. The specific indicators are:

- household spends more money than it gets (over the past 12 months)
- unable to raise $2000 in a week for something important
- could not pay electricity, gas or telephone bills on time
- could not pay car registration or insurance on time
- pawned or sold something
- went without meals
- could not afford to heat home
- sought assistance from welfare/community organisations
- sought financial help from friends or family.

As with the six 'deprivation' indicators, the nine financial stress indicators also have to be used with caution. For example, the indicator "could not pay electricity, gas or telephone bills on time" was reported by a relatively large proportion of households in the higher income quintiles, which suggests that the item does not necessarily reflect absolute incapacity to pay so much as a short deferral of payment. For many people it might be chosen as a short term cash flow management technique if there is no immediate penalty when payment is made a little late. Similarly, the indicator that households have spent more than they received over the past 12 months is clouded by prospects for adjusting expenditure over time by saving/borrowing and on its own is not a good indicator. However, the higher incidence of such indicators for some groups of people would suggest that those groups have greater cash flow and financial resource problems than groups of people with a lower incidence.

It should also be noted that the preferences of households between some of the indicators are likely to be affected by the composition of the household. For example, households with children are probably less likely to choose to go without meals when short of money than are single person households.

Travers, P. and F. Robertson. November 1995, *Deprivation Standards Project*, The Flinders University of South Australia, Report prepared for the Department of Social Security

PART 2 SURVEY METHODOLOGY

SURVEY METHODOLOGY

Part 2 of this User Guide describes the methodology used for the 2003–04 Household Expenditure Survey (HES) and 2003–04 Survey of Income and Housing (SIH), including:

- information about the scope, coverage and samples
- data collection and processing
- benchmarks and weighting
- estimates and reliability of estimates.

Changes to survey methodology in 2003–04 are described in Part 4 Changes from previous surveys.

2.1 SCOPE AND COVERAGE

SCOPE

The surveys collect information by personal interview from usual residents of private dwellings in urban and rural areas of Australia, covering about 98% of the people living in Australia. Private dwellings are houses, flats, home units, caravans, garages, tents and other structures that were used as places of residence at the time of interview. Long–stay caravan parks are also included. These are distinct from non–private dwellings which include hotels, boarding schools, boarding houses and institutions. Residents of non–private dwellings are excluded.

The surveys also exclude:

- households which contain members of non–Australian defence forces stationed in Australia
- households which contain diplomatic personnel of overseas governments
- households in collection districts defined as very remote or Indigenous Communities – this has only a minor impact on aggregate estimates except in the Northern Territory where such households account for about 23% of the population.

For most states and territories the exclusion of people in very remote areas has only a minor impact on any aggregate estimates that are produced because they only constitute a small proportion of the population. Very remote and remote areas are defined by the assignment of an Accessibility/Remoteness Index of Australia (ARIA) score. ARIA is a remoteness value (a continuous variable between 0 and 15) that measures the physical distance which separates people in a particular area and where their goods, services and opportunities for social interaction may be accessed. The range of ARIA scores have been categorised as follows:

- Least Remote: Defined as having an ARIA score less then 5.95.
- Remote: Defined as having an ARIA score greater than or equal to 5.95 but less than 10.5.
- Very Remote: Defined as having an ARIA score greater than or equal to 10.5.

The ARIA categories and how ARIA scores are calculated are further explained in the *Australian Standard Geographical Classification (ASGC)* (cat. no. 1216.0).

Note that the population benchmarks used to calibrate the survey estimates relate to a slightly different population to that defined here as the scope of the survey. In particular, the benchmark population does not exclude the collection districts defined as very remote or Indigenous Communities, but for the Northern Territory only the benchmark population excludes the collection districts defined in the 1996 Population Census as remote and sparsely populated (see 2.6 'Benchmarks and weighting of survey results').

COVERAGE

Information was collected only from usual residents. Usual residents were residents who regarded the dwelling as their own or main home. Others present were considered to be visitors and were not asked to participate in the survey.

2.2 SELECTED SAMPLES AND FINAL SAMPLES

SAMPLE DESIGN

The samples were designed to produce reliable estimates for broad aggregates for households resident in private dwellings aggregated for Australia, for each state and for the capital cities in each state and territory. More detailed estimates should be used with caution, especially for Tasmania, the Northern Territory and the Australian Capital Territory (see 2.8 'Reliability of estimates').

The SIH sample was designed in conjunction with the HES. In the combined sample, some dwellings were selected to complete both the SIH questionnaire and the HES questionnaire, while other dwellings were selected to complete the SIH questionnaire only. Dwellings were selected through a stratified, multistage cluster design from the private dwelling framework of the ABS Population Survey Master Sample. Selections were distributed randomly across a twelve month enumeration period so that the survey results are representative of income and expenditure patterns across the year.

SELECTED DWELLINGS, SAMPLE LOSS AND SELECTED HOUSEHOLDS

In 2003–04, 16,554 dwellings were initially selected for the combined sample. When field work commenced some dwellings selected for inclusion in the HES and SIH samples were found to have no possibility of delivering a survey response. Collectively these are referred to as sample loss, and are composed of the following groups:

- dwellings which are out of scope of the surveys; under construction, demolished, or converted to non–private dwellings or non–dwellings
- private dwellings which:
  - are vacant
  - contain only:
    - out of scope residents (e.g. dwellings occupied by foreign diplomats and their dependants); or
    - visitors.

In 2003–04 sample loss was 2,067 dwellings, 12.5% of the initially selected sample.

Sometimes dwellings that have been selected for inclusion in a survey are found to comprise more than one actual dwelling because, for example, an additional residence such as a 'granny flat' has been added to the original dwelling. In such cases, each actual dwelling becomes a separate household. Occasionally the residents of a selected dwelling request that their details be provided separately from other dwelling residents, for privacy reasons. In 2003–04, a separate household was created for each such group of residents. In 2003–04, 51 selected dwellings were split into 2 households, 2 into 3, and 1 into 4.

The net result of these activities was that 14,545 households were approached to complete the HES and/or SIH.

RESPONDING HOUSEHOLDS AND FINAL SAMPLE

Households selected for inclusion in the surveys can be categorised as responding or non–responding households. Responding households are either fully responding or partially responding. In the HES and the SIH, information missing from partially responding households is imputed, as described in 2.4 'Data processing'.

Non–responding households include:

- households affected by death or illness of a household member

RESPONDING HOUSEHOLDS AND FINAL SAMPLE *continued*

- households in which the significant person(s) in the household did not respond because they could not be contacted, had language problems or refused to participate
- households in which the significant person(s) did not respond to key questions.

The table 2.2.1 shows the differences between the number of households selected for inclusion in the surveys and the number of responding households included in the final samples.

TABLE 2.2.1 SELECTED AND REPSONDING HOUSEHOLDS

	Households approached	*Non-response*	*Final sample*
HES sample (ie included in HES and SIH)	9 753	2 796	6 957
SIH sample			
-included in HES and SIH	9 753	2 425	7 328
-included in SIH only	4 792	759	4 033
-Total	**14 545**	**3 184**	**11 361**

Of the 9,753 households initially selected for inclusion in both the HES and the SIH, 6,957 (71%) responded with sufficient information to be included in the final HES and SIH samples and an additional 371 responded with sufficient information to be included in the final SIH sample but not the final HES sample. Of the 4,792 households initially selected for inclusion in the SIH only, 4,033 (84%) responded with sufficient information to be included in the final SIH sample. In aggregate, 11,361 households were included in the final SIH sample, representing an overall response rate of 78%.

Tables 2.2.2 and 2.2.3 show the distribution of the final samples between states and territories and between capital cities and the balance of state.

TABLE 2.2.2 FINAL NUMBER OF HOUSEHOLDS IN HES AND SIH SAMPLES

	CAPTIAL CITY		BALANCE OF STATE		TOTAL	
	HES	*SIH*	*HES*	*SIH*	*HES*	*SIH*
	no.	no.	no.	no.	no.	no.
NSW	1 199	1 537	545	1 093	1 744	2 630
Vic.	1 087	1 690	445	696	1 532	2 386
Qld	579	845	308	1 151	887	1 996
SA	581	890	283	367	864	1 257
WA	475	950	254	490	729	1 440
Tas.	416	423	139	400	555	823
NT	301	335	76	87	377	422
ACT	269	407	. .	. .	269	407
Aust.	**4 907**	**7 077**	**2 050**	**4 284**	**6 957**	**11 361**

. . not applicable

RESPONDING HOUSEHOLDS AND FINAL SAMPLE *continued*

TABLE 2.2.3 FINAL NUMBER OF PERSONS IN SIH SAMPLE(a)

	CAPITAL CITY	*BALANCE OF STATE*	*TOTAL*
	no.	no.	no.
NSW	3 131	2 117	5 248
Vic.	3 474	1 338	4 812
Qld	1 607	2 236	3 843
SA	1 713	701	2 414
WA	1 909	929	2 838
Tas.	811	739	1 550
NT	666	161	827
ACT	783	. .	783
Aust.	**14 094**	**8 221**	**22 315**

. . not applicable
(a) Number of persons aged 15 years and above

2.3 DATA COLLECTION AND DATA ITEM DESCRIPTION

INTERVIEW PROCEDURES

Experienced ABS interviewers were employed to collect HES and SIH data. They were given comprehensive training and were provided with detailed written instructions to complement the survey documents.

Information for each household was collected using:

- a household level computer assisted interview questionnaire which collected information on:
  - household characteristics and certain assets and liabilities for all households
  - expenditure common to all household members (e.g. health service payments), and irregular or infrequent expenditure (e.g. household appliances and holidays overseas) for households selected for the HES
- an individual level computer assisted interview questionnaire which collected information on:
  - income, certain assets and liabilities, and personal characteristics from each usual resident aged 15 years and over in all households
  - certain additional data for each usual resident aged 15 years and over in households selected for the HES
  - children's income and financial stress data for certain adults in households selected for the HES
- a personal diary in which usual residents aged 15 years and over in households selected for the HES recorded their expenditure over two weeks.

Interviewers maintained contact with households over a series of visits, as follows.

- In an initial contact interview, the interviewer obtained information on the numbers and characteristics of people usually resident in the dwelling. If a responsible adult was not available, the interviewer called back at another time. The interviewer also arranged a convenient time to call back to talk with all the usual residents of the dwelling as a group in a placement interview. If that was not possible, then additional interviews were arranged to ensure that all usual residents were covered by the survey.
- In the placement interview(s), the interviewer:
  - completed one household questionnaire for each household
  - completed an individual questionnaire for each usual resident aged 15 years and over
  - provided each usual resident aged 15 years and over of households selected for the HES with a diary in which they were asked to record details of each purchase they made over the following two weeks, starting the day after the interview.
- If a usual resident could not be present for the initial placement interview, or for reasons of confidentiality requested to have a private interview, the interviewer returned at an agreed time and added the person's information to his or her household's household questionnaire and completed the person's individual questionnaire.
- Three diary visits were performed. The first was between two and four days after the placement interview to ensure that survey participants were not having difficulties. The second was to pick up the first week's diary and to drop off the second. The third was at the end of the diary keeping period, and was to pick up the second diary and thank participants for their help in providing HES information.

DATA COLLECTION INSTRUMENTS

A representation of the computer assisted interview questionnaires used in the HES and SIH, and a copy of the diaries placed with respondents to the HES, can be downloaded as separate pdf files from the "Details" tab of the website entry for this publication.

DATA ITEMS AVAILABLE

A listing of all the data items available from the HES and the SIH is presented in Appendix 4. The Household Expenditure Classification (HEC) used to classify the HES expenditure data is available in Appendix 5, and the HEC coding list is presented in Appendix 6. For more details about the data items, see Part 3 Data Availability.

2.4 DATA PROCESSING

DATA PROCESSING METHODS

Computer based systems were used to process the data from the 2003–04 HES and SIH with a program known as BLAISE. It was necessary to employ a variety of methods to process and edit the data which reflected the different questionnaires used to collect data from the household, individual and diary components of the surveys. These processes are outlined below.

Coding and input editing of household and individual questionnaires

Internal system edits were applied in the computer-assisted interview (CAI) questionnaires to ensure the completeness and consistency of the responses being provided. The interviewer could not proceed from one section of the interview to the next until responses had been appropriately completed.

A number of range and consistency edits were programmed into the CAI questionnaire. Edit messages automatically appeared on the screen if the information entered was either outside the permitted range for a particular question, or contradicted information already recorded. These edit queries were resolved on the spot with respondents.

Data from the CAI questionnaires were electronically loaded to the processing database on receipt in the ABS office in each State or Territory. There, checks were made to ensure data for all relevant questions were fully accounted for and that returns for each household and respondent were obtained. Problems identified by interviewers were resolved by office staff, where possible, based on other information contained in the schedule, or on the comments provided by interviewers.

Computer-assisted coding was performed on responses to questions on country of birth, occupation and industry of employment to ensure completeness. Data on relationships between household members were used to delineate families and income units within the household, and to classify households and income units by type.

Data capture and coding of individual HES diaries

HES diaries were collected from respondents two weeks after the initial household interview. They were then dispatched to the appropriate ABS office in each State or Territory. All reported expenditures in the diaries were entered into the BLAISE Diary Processing System. The BLAISE system helped operators to code diary items into HEC codes. A trigram coder enabled operators to select the appropriate good or service from an alphabetically ordered pick list of options. The system also deleted expenditure recorded in the diaries on items covered by the household questionnaire. For example, the household questionnaire collected information on mains gas payments so any payments coded to HEC code 0201010201 (Mains Gas - selected dwelling) were automatically deleted.

The complete list of items classified to each expenditure code is called the HEC coding list and is available for researchers who need a detailed knowledge of the content of each expenditure code (see 2.3 'Data collection and data item description'). For example, a researcher may need to know the contents of HEC code 0309030101 Potato crisps and other savoury confectionery which the HEC coding list shows to contain Burger rings, Cheezels, chips (crisps), corn chips, Le snack, pretzels, Twisties and many others. During coding of data, there was a level of manual involvement in adding codes to the coding list for goods not already listed and for variant spelling and punctuation of reported expenditures.

Additional editing

A range of processes were applied to the diary information to check that specific values were correctly coded if they were unusually high or low; that errors had not occurred in coding; and that relationships between household and diary information were consistent. A Query Resolution System ensured that:

- an accurate record of decisions was made in resolving the queries;
- coding of products was consistent;
- the HEC coding list was updated for unusual or unknown products;
- coders could continue to process diaries if they could not resolve an issue within a short time.

A range of edits was also applied to the household, individual and diary information to double check that logical sequences had been followed in the questionnaires; that specific values lay within expected ranges; and that relationships between items were consistent.

Unusually high expenditure and income values (termed statistical outliers) were investigated to determine whether there had been errors in entering the data. Such values were also examined for their effect on total income and expenditure estimates for Australia, but no action was deemed necessary.

Imputation for missing records and values

Some households did not supply all the required information but supplied sufficient information to be retained in the sample. Such partial response occurs when:

- income or other data in a questionnaire are missing from one or more non-significant person's records because they are unable or unwilling to provide the data
- all key questions are answered by the significant person(s) but other questions are not answered
- not every person aged 15 or over residing in the household responds but the significant person(s) provide answers to all key questions
- diaries are not all fully completed, but sufficient information is provided.

In the first and second cases of partial response above, the data provided are retained and the missing data are imputed by replacing each missing value with a value reported by another person (referred to as the donor).

For the third type of partial response, the data for the persons who did respond are retained, and data for each missing person are provided by imputing data values equivalent to those of a fully responding person (donor).

For the fourth type of partial response, the diary information provided is used to represent the missing information. For example, if the first week of diary entries is provided but not the second week then the first week of expenditure is used to represent expenditure for the second week.

Donor records are selected by finding fully responding persons with matching information on various characteristics, such as state, sex, age, labour force status, income and expenditure, as the person with missing information. As far as possible, the imputed information is an appropriate proxy for the information that is missing. Depending on which values are to be imputed, donors are randomly chosen from the pool of individual

Imputation for missing records and values continued

records with complete information for the block of questions where the missing information occurs.

2.5 INCOME TAX AND OTHER MODELLED DATA ITEMS

MODELLED DATA ITEMS

Some data items of interest cannot reliably be collected from respondents, and some cannot be collected at all. However, in some cases it is possible to utilise other information provided by respondents as a basis for estimating the data items of interest. The process is referred to as modelling.

Income tax and the Medicare levy

As described in section 1.1, disposable income is calculated by deducting income tax (including the Medicare levy) from gross income. The model is based on the liability rules described in Tax Pack for the year concerned, the income reported by respondents, and other relevant information reported by respondents.

Estimates of income tax are modelled, rather than collected from respondents, for a number of reasons.

- As noted in section 1.4, an accruals approach is taken to estimating these items. The estimates should therefore relate to the tax liability being incurred with respect to the income being reported by the respondent in the survey. For estimates of current income (see section 1.2 'Current, annual and weekly income'), the current income tax liability is calculated as though the current income is the average income for the whole year. If actual income fluctuates during the year, respondents are unlikely to have an actual income tax assessment that is relevant to the required estimate.
- In addition to income changes during the course of the year, full year income tax assessments may be affected by changes in family or other circumstances of the respondent which are not described in the survey, and are best ignored when deriving an income tax estimate to use with the other survey data.
- Income tax assessments are only made after the end of the financial year, and therefore are not yet available at the time that current income is collected from respondents.
- The income tax assessment of respondents may be affected by certain expenditures which they make, such as donations to charities, or other particular circumstances which are not captured in the survey. For many purposes it is desirable to exclude the impact on tax liabilities of specific influences which are not captured in the survey.
- The HES and SIH provide sufficient relevant information to allow a relatively comprehensive model to be constructed.

One–off payment to seniors and one–off payments to families and carers

The one–off payment to seniors paid in 2000–01 and the one–off payments to families and carers paid in 2003–04 are included as income as they were primarily a supplement to existing income support payments. As described under Government pensions and allowances in section 1.4 'Components of income', an annualised approach is taken to these payments. The annualised approach requires the estimates to be modelled rather than collected from respondents, since in all cases the payments were only announced late in the financial year and so respondents could not know that they would receive the payments.

In the model, the payments are assigned to all respondents who it is expected would have met the eligibility criteria at the time that they were interviewed. In the case of the one–off payment to seniors, payments were assigned to all recipients of age pension, wife pension, carer payment, widow allowance, disability support pension, mature age allowance and service pension, providing they were at least 65 years old if male, and at

One–off payment to seniors and one–off payments to families and carers continued

least 61 years old if female. The one off payment to families was assigned to recipients of family tax benefit (one payment was assigned for each dependent child) and persons under 18 living at home and receiving youth allowance. The one off payment to carers was assigned to recipients of carer payment and carer allowance.

Final income

The methodology used to estimate final income is described separately in *Government Benefits, Taxes and Household Income, Australia* (cat. no. 6537.0).

2.6 BENCHMARKS AND WEIGHTING OF SURVEY RESULTS

BENCHMARKS AND WEIGHTING

Weighting is the process of adjusting results from a sample survey to infer results for the total in scope population whether that be persons, income units or households. To do this, a 'weight' is allocated to each sample unit e.g. a person or a household. The weight is a value which indicates how many population units are represented by the sample unit. The first step in calculating weights for each unit is to assign an initial weight, which is the inverse of the probability of being selected in the survey. For example, if the probability of a household being selected in the survey was 1 in 600, then the household would have an initial weight of 600 (that is, it represents 600 households).

The initial weights are then calibrated to align with independent estimates of the population of interest, referred to as 'benchmarks'. Weights calibrated against population benchmarks ensure that the survey estimates conform to the independently estimated distribution of the population rather than to the distribution within the sample itself.

The HES and SIH are benchmarked to the in scope estimated resident population (ERP) and the estimated number of households in the population.

The benchmarks used in the calibration of the final weights for the 2003–04 SIH were the same as those used for earlier SIHs:

- number of persons aged 15 and over –
  - by state or territory by age (15–24, 25–34, 35–44, 45–54, 55–64, 65+ except for NT where the age groups are 15–24, 25–44, 45+) by sex;
  - by state or the ACT by labour force status ('Employed', 'Unemployed' and 'Not in the labour force');
  - by state by capital city/balance of state;
- numbers of children under age 15 –
  - by state or territory by age (0–4, 5–14)
- numbers of households –
  - by household composition (number of adults (1,2 or 3+) and whether or not the household contains children)

The person and household benchmarks are based on estimates of numbers of persons and households in Australia. The benchmarks are adjusted to include persons and households residing in private dwellings only and therefore do not, and are not intended to, match estimates of the Australian resident population published in other ABS publications.

2.7 CALCULATION OF POPULATION COUNTS, MEANS, MEDIANS AND OTHER ESTIMATES

COUNTS

Counts of income units or households are derived by summing the weights assigned to each income unit or household record of interest. Counts of persons can also be obtained this way if only persons over 15 years of age are required. However, there are not separate records for persons under the age of 15, and therefore counts of persons including those under 15 years have to be derived by first multiplying each household weight by the number of persons in the household and then summing the products.

MEANS

The mean, or average, value of a data item (such as household expenditure on footwear) is usually calculated by selecting all the survey records for the population of interest (such as all households in Victoria), multiplying the value of the data item in each record by the weight of the record and summing the resultant products, and then dividing the total by the sum of the weights of the records. However, for some purposes means are required with respect to all people in the population, including those under the age of 15. As for the derivation of population counts, it is then necessary to use household records, multiplying the household weights by the number of persons. As described under means and medians in section 1.6 'Gini coefficient and other measures of income distribution', so–called person weighted measures are often used to summarise equivalised household income.

MEDIANS

Medians divide the population of interest into halves. To identify the median record, the population is first ranked in ascending order according to the data item of interest. Except for person weighted measures of household variables, the weights of the records are then accumulated until half the population is accounted for. The record at which this occurs is the median record, and its value for the data item of interest is the median value. For person weighted measures of household variables, the household weights are multiplied by the number of persons in the household before accumulation.

OTHER ESTIMATES

An analagous approach is used for other quantile measures.

Calculation of the Gini coefficient is included in Appendix 3 'Gini coefficient and other single statistic summaries of income distribution'.

2.8 RELIABILITY OF ESTIMATES

RELIABILITY OF ESTIMATES

The estimates from the HES and SIH are subject to two types of error, non–sampling and sampling error. These are discussed below.

Comparisons between estimates from surveys conducted in different periods, for example, comparison of 2003–04 SIH estimates with 2002–03 SIH estimates, are also subject to the impact of any changes made to the way the survey is conducted. See part 4 'Changes from previous surveys'.

Non–sampling error

Non–sampling error can occur in any collection, whether the estimates are derived from a sample or from a complete collection such as a census. Sources of non–sampling error include non–response, errors in reporting by respondents or recording of answers by interviewers and errors in coding and processing the data.

Non–sampling errors are difficult to quantify in any collection. However, every effort is made to reduce non–sampling error to a minimum by careful design and testing of the questionnaire, training of interviewers and data entry staff and extensive editing and quality control procedures at all stages of data processing.

One of the main sources of non–sampling error is non–response by persons selected in the survey. Non–response occurs when people cannot or will not cooperate or cannot be contacted. Non–response can affect the reliability of results and can introduce a bias. The magnitude of any bias depends upon the level of non–response and the extent of the difference between the characteristics of those people who responded to the survey and those who did not.

The following methods were adopted to reduce the level and impact of non–response:

- face–to–face interviews with respondents
- the use of interviewers who could speak languages other than English, where necessary
- follow–up of respondents if there was initially no response
- imputation of missing values
- ensuring that the weighted data is representative of the population (in terms of demographic characteristics) by aligning the estimates with population benchmarks.

Sampling error

The HES and SIH estimates are based on information obtained from the occupants of samples of dwellings. Therefore, the estimates are subject to sampling variability and may differ from the figures that would have been produced if information had been collected for all dwellings. One measure of the likely difference is given by the standard error (SE), which indicates the extent to which an estimate might have varied because only a sample of dwellings was included. There are about two chances in three that the sample estimate will differ by less than one SE from the figure that would have been obtained if all dwellings had been included, and about 19 chances in 20 that the difference will be less than two SEs. Another measure of the likely difference is the relative standard error (RSE), which is obtained by expressing the SE as a percentage of the estimate.

For estimates of population sizes, the size of the SE generally increases with the level of the estimate, so that the larger the estimate the larger the SE. However, the larger the sampling estimate the smaller the SE in percentage terms (RSE). Thus, larger sample estimates will be relatively more reliable than smaller estimates.

Sampling error continued

Estimates with RSEs of 25% or more are not considered reliable for most purposes. Estimates with RSEs greater than 25% but less than or equal to 50% are annotated by an asterisk to indicate they are subject to high SEs and should be used with caution. Estimates with RSEs of greater than 50%, annotated by a double asterisk, are considered too unreliable for general use and should only be used to aggregate with other estimates to provide derived estimates with RSEs of 25% or less.

Estimates of RSEs are provided on the ABS web site for all tables included in the published output from the HES and SIH (see Part 3 'Data availability'). The RSEs have been derived using the group jackknife method. If needed, SEs can be calculated using the estimates and RSEs.

RSES OF COMPARATIVE ESTIMATES

Proportions and percentages, which are formed from the ratio of two estimates, are also subject to sampling errors. The size of the error depends on the accuracy of both the numerator and the denominator. For proportions where the denominator is an estimate of the number of households in a grouping and the numerator is the number of households in a sub–group of the denominator group, the formula for the RSE is given by:

$$RSE\%\left(\frac{x}{y}\right) = \sqrt{[RSE\%(x)]^2 - [RSE\%(y)]^2}$$

The difference between survey estimates is also subject to sampling variability. An approximate SE of the difference between two estimates (x–y) may be calculated by the formula:

$$SE(x-y) = \sqrt{[SE(x)]^2 + [SE(y)]^2}$$

This approximation can generally be used whenever the estimates come from different samples, such as two estimates from different years or two estimates for two non–intersecting subpopulations in the one year. If the estimates come from two populations, one of which is a subpopulation of the other, the standard error is likely to be lower than that derived from this approximation, but there is no straightforward way of estimating how much lower.

PART 3 DATA AVAILABILITY

DATA AVAILABILITY

Part 3 of this User Guide describes the range of data available from the 2003–04 HES and SIH in both published and unpublished form. More detailed information can also be obtained by telephoning the Living Conditions Client Services team on (02) 6252 5424.

3.1 PUBLICATIONS

PUBLICATIONS

The publications available from the 2003–04 HES and SIH are listed below. All can be downloaded free of charge from the ABS website.

Household Expenditure Survey and Survey of Income and Housing User Guide (cat. no. 6503.0) describes the definitions, concepts, methodology and estimation procedures used in the surveys. It also contains a list of the SIH and HES output items and the Household Expenditure Classification.

Household Expenditure Survey: Summary of Results (cat. no. 6530.0) contains summary tables of the 2003–04 HES results. Includes tables of expenditure on broad categories of goods and services by such characteristics as household income quintile group; household net worth quintile group; principal source of household income; state of residence; family composition of household; tenure type; and age of the reference person. State and capital city versions of the tables included in this publication are also available.

Household Expenditure Survey: Detailed Expenditure Items (cat. no. 6535.0.55.001) contains tables of household expenditure at the finest level of detail for goods and services (over 600 categories). Tables are cross classified by income quintile, state/territory and capital city.

Household Income and Income Distribution (cat. no. 6523.0) presents estimates of the income, net worth and other characteristics of households and persons resident in private dwellings in Australia, compiled from the 2003–04 SIH. It includes estimates of the distribution of household income across the population.

Household Income and Income Distribution: Detailed tables (cat. no. 6523.0.55.001) contains information on the income and characteristics of households and persons resident in private dwellings in Australia, compiled from the SIH. The tables provide more detailed dissections (such as by age of persons in the household) and additional classifications to those included in *Household Income and Income Distribution* (cat. no. 6523.0).

Household Wealth and Wealth Distribution (cat. no. 6554.0) presents data from the SIH on estimates of household net worth, or wealth, classified by various characteristics, including summary measures of the distribution of household net worth in Australia.

Housing Occupancy and Costs (cat. no. 4130.0.55.001) contains data from the SIH on Australian housing costs and relates these to characteristics of occupants and dwellings such as tenure, family composition of household, dwelling structure, age, income and principal source of income. It also includes value of dwelling estimates for capital cities, and information on recent home buyers.

The Effects of Government Benefits and Taxes on Household Income (cat. no. 6537.0) describes the results of a study which uses HES data in conjunction with other data such as government finance statistics to calculate the effects of government benefits and taxes on household income. It provides estimates of government cash benefits received (e.g. age pension and unemployment benefits), personal taxes paid, indirect benefits received (from government spending on health, education, welfare and housing) and indirect taxes paid (e.g. goods and services tax) by households, classified by selected characteristics. Expected to be released in December 2006.

3.2 SPECIAL DATA SERVICES

SPECIAL DATA SERVICES

The published data are only a small portion of the data collected in the surveys. The ABS offers specialised consultancy services to assist clients with more complex statistical information needs. Clients may wish to have the unit record data analysed according to their own needs, or require tailored tables incorporating data items and populations as requested by them. A wide range of data items are available – the detailed list of possible data items is contained in Appendix 4.

Tables and other analytic outputs can be made available electronically or in printed form. However, as the level of detail or disaggregation increases with detailed requests, the number of contributors to data cells decreases. This may result in some requested information not being able to be released due to confidentiality or sampling variability constraints. All specialist consultancy services attract a service charge, and clients will be provided with a quote before information is supplied. For further information, contact ABS information consultants on 1300 135 070. For clients with specific requirements, customised tables can be produced.

3.3 SUPPORTING MATERIAL

SUPPORTING MATERIAL

Other material is available to assist clients in analysing the data from the survey. This includes:

- a representation of the computer assisted interview questionnaires used in the HES and SIH, and a copy of the diaries placed with respondents to the HES, which can be downloaded as separate pdf files from the "Details" tab of the website entry for this publication.
- the Household Expenditure Classification (HEC) which is used to classify the HES expenditure data is presented in Appendix 5. Appendix 5 also contains a concordance between the 2003–04 items and 1998–99 items so that changes in the classification can be readily identified, and information on the collection method used for each item. There were three different collection methods – these were to collect the expenditure data through a computer assisted household interview questionnaire (using a variety of recall periods), to collect it in the paper diary, or to derive it using modelling techniques.
- the HEC coding list, which lists the products included in the detailed HEC codes, is presented in Appendix 6.

3.4 CONFIDENTIALISED UNIT RECORD FILES (CURFS)

CONFIDENTIALISED UNIT RECORD FILES (CURFS)

For clients wanting to produce their own tabulations and conduct manipulations of survey estimates a file containing unit records relating to almost all the survey respondents can be supplied. To protect the confidentiality of individual persons and households some data items are removed from the file and the level of detail for some items is reduced.

Four microdata files are available from these surveys:

- a basic HES CURF available on CD–ROM or through the Remote Access Data Laboratory (RADL),
- a basic SIH CURF available on CD–ROM or through the RADL,
- an expanded HES CURF accessible only through the RADL, and
- an expanded SIH CURF accessible only through the RADL.

The expanded CURFs contain more detailed data for some variables than the basic CURFs, as well as some additional variables.

The RADL is a secure on–line data query service that clients can access via the ABS website. Because the CURFs are kept within the ABS environment, the ABS is able to release more detailed data via the RADL than can be made available on CD–ROM. Further information about this facility is available on the ABS website <http://www.abs.gov.au> (see Services We Provide, CURFs).

A second version of the HES CURFs will be released in 2007 incorporating the estimates produced in the study of the effects of government benefits and taxes on household income.

Clients interested in finding out more about the CURFs should contact the CURF Management Unit by email (curf.management@abs.gov.au) or by phone ((02) 6252 5853).

CHANGES FROM PREVIOUS SURVEYS

The 2003–04 SIH and HES introduced a number of major changes. The changes were largely designed to improve survey quality but may impact on the comparability between the 2003–04 estimates and earlier data. It is generally not possible to quantify the extent of the discontinuity. Part 4 of this User Guide outlines the main changes.

4.1 INTEGRATION OF HES AND SIH

INTEGRATION OF HES AND SIH IN 2003–04

The 2003–04 SIH was integrated with the 2003–04 HES. This integration was achieved by selecting a subsample of the households in the SIH survey and asking them the additional questions required for HES purposes. The HES subsample comprised 6,957 of the 11,361 households responding to the SIH. The main advantages of integrating the surveys are:

- respondent burden is lower,
- the data collection costs are lower, and
- the resultant dataset is richer because HES and SIH results are more comparable than previously.

However, in order to achieve this integration, some changes were required to both surveys which impact on comparability with previous surveys.

In addition, it is possible that the integration of the surveys affected the non–response bias in the SIH. The response rates for the HES subsample are lower than achieved in the SIH–only sample component because of the reluctance of some respondents to provide the extra information required in the HES part of the survey. The non respondents to the 2003–04 survey may therefore have different characteristics to the non respondents of previous SIHs, resulting in different non–response biases.

4.2 INTRODUCTION OF ADDITIONAL DATA ITEMS

ADDITIONAL DATA ITEMS

The 2003–04 survey introduced a number of data items that had not been collected in previous surveys. Some of these had previously been collected in either SIH or HES, and others were new to both surveys. The major additions are outlined below.

Items new to both SIH and HES

WEALTH

Previous surveys collected information on the estimated value of owner occupied dwellings and some information on household loans. The 2003–04 SIH and HES collected, for the first time, a comprehensive range of information about the assets and liabilities of each household, enabling the estimation of each household's wealth or net worth. The items collected are outlined in section 1.9 'Wealth or net worth'. As well as providing valuable information about the economic resources of each household, the collection of the wealth information may have improved the reporting of the associated income streams. These items will be collected in the 2005–06 SIH and then again in the 2009–10 SIH/HES.

SALARY SACRIFICE AND SALARY PACKAGING

The 2003–04 SIH and HES also collected information relating to salary sacrifice and other forms of salary packaging. The items collected can be found in the data item list in Appendix 4. None of the information has been included in income aggregates or used to adjust reported information on cash income, but the items are available for customised data requests and to researchers using the confidentialised unit record files from the survey. It should be noted that survey respondents reported that about two thirds of salary sacrificed income had actually been included in their reported 'cash' income from wages and salaries (and therefore included in aggregate income estimates).

ALTERNATIVE INCOME MEASURES

The integration of the SIH and the HES has necessitated a number of changes to the content of income items. In addition, some improvements have been made in the estimation of current income from investments and unincorporated business (see section 4.5 'Changes in survey methodology'). Where possible, supplementary data items have been included which replicate the content of the items that have been included on previous HES and SIH files. The SIH files include two income aggregates, "Total current weekly income from all sources" and "Total current weekly income from all sources (prev SIH basis)". The only difference between these two aggregates is the estimation method used for current income from investments and unincorporated business (described further in section 4.5 'Changes in survey methodology'). The HES files also include a third aggregate "Total current weekly income from all sources (prev HES basis)". This aggregate differs from the 'prev SIH basis' estimate in that it includes employee income from regular bonuses, some miscellaneous income in kind reported in HES diaries, and income of children under 15.

HOUSING UTILISATION

A new data item has been introduced which uses the Canadian National Occupancy Standard to determine the number of bedrooms required by a household based on the age, sex and family relationships of the household members and compares it with the number of bedrooms in the dwelling the household is occupying. For more information on the Canadian National Occupancy Standard, see Section 1.12 'Housing Statistics'.

Items new to both SIH and HES continued

ADDITIONAL HOUSING COST ITEMS

The definition of housing costs used in the 2003–04 issue of *Housing Occupancy and Costs, Australia* (cat. no. 4130.0.55.001) has remained consistent with that used previously, ie for renters it consists of rent payments, and for owners it consists of rate payments and any mortgage or unsecured loan payments if the initial purpose was primarily to buy, build, add to or alter the dwelling. However, some additional items relating to housing costs were collected to enable alternative estimates of housing costs to be constructed. These include:

- information on body corporate payments,
- more detail on loan repayments enabling the split of repayments into principal and interest components,
- information on water consumption charges for all tenure types,
- where a payment has been refunded by a business or someone outside the household, the amount of the refund was collected, and
- where loans were used for multiple purposes, details of all purposes were collected, so repayments can be allocated to each purpose in accordance with the percentage split of the original loan amount by purpose.

PAYMENTS TO NON HOUSEHOLD MEMBERS

The financial resources available to certain persons can be affected by regular payments that they may make to provide support for persons outside the household. In previous SIH cycles, details of payments for child support were collected. In 2003–04, additional data on payments of alimony to former spouse and payments to family members not in the household were also collected.

INTEREST PAID ON MONEY BORROWED TO PURCHASE SHARES

As noted in Section 1.4 Components of income, income from rent is collected net of the expenses incurred in deriving that income, but income from other investments is collected on a gross basis. In 2003–04, the amount of interest paid on money borrowed to purchase shares was collected and may be used to adjust dividend income from shares.

MODULE IMPUTATION FLAGS

Imputation flags have been derived for each module in the questionnaire and indicate for each record whether there were any questions imputed. Referring to the contents of the questionnaire module can provide an indication of the extent to which particular data items may have included imputed data. For more information on imputation, see section 2.4 'Data processing'.

Items new to HES

PREVIOUS FINANCIAL YEAR INCOME

Previous Household Expenditure Surveys collected detailed income information on a current basis only. However, the SIH has always collected detailed information on both a current and a previous financial year basis by source. The integration of the two surveys means that this information is now also collected in the HES.

GOVERNMENT PENSIONS AND ALLOWANCES

The integration of the HES and SIH resulted in some extra components of income from government pensions and allowances being collected explicitly. For example, wife pension and carer payment were collected separately (previously these had been combined in the HES), and income from Department of Veterans' Affairs service pension, disability pension and war widow(er)'s pension were collected separately (previously these had been combined as income from Department of Veterans' Affairs pensions in the HES).

REMOTENESS

A new geographic variable which categorises locations according to their remoteness has been introduced (this item was introduced in SIH output from 2002–03). Locations are categorised as least remote, remote and very remote based on their Accessibility/Remoteness Index of Australia (ARIA) score. For more information on Remoteness and ARIA see *Australian Standard Geographical Classification (ASGC)* (cat. no. 1216.0).

Items new to SIH

INCOME FROM INVESTMENTS

In previous SIHs, only the total amount of interest earned from financial institutions, debentures and bonds, trusts and loans to persons outside the household was collected. In 2003–04, information on interest earned was collected separately for each of the four investment types.

INCOME FROM OTHER SOURCES

In 2003–04, income from scholarships was collected (previously it was part of "other income"). In addition, income from workers' compensation and accident compensation was collected separately instead of collecting the combined income from these two sources.

EDUCATION

Data on the highest year of school completed was not collected in previous SIHs, but has been included in the 2003–04 SIH.

4.3 REMOVAL OF DATA ITEMS IN 2003–04

DATA ITEMS REMOVED

A few data items collected in previous surveys were not collected in 2003–04. These include:

- information on whether or not people surveyed had a disability or health condition and the extent of the disability/health condition (previously collected in HES)
- the number of registered cars and motor cycles (previously collected in HES)
- income unit level tenure (previously collected in SIH) – in 2003–04 tenure is available at the household level only
- labour force status in each of the 7 months prior to the interview (previously available in SIH)
- full time/part time status in each of the 7 months prior to the interview (previously available in SIH) and
- month left school (previously available in SIH).

4.4 CHANGES IN CONCEPTS, DEFINITIONS AND CLASSIFICATIONS IN 2003–04

CONCEPTS AND DEFINITIONS

In previous SIHs, the household reference person was chosen from an income unit within the household that had the highest tenure type. Tenure type has been collected for households but not for income units in the 2003–04 SIH. The tenure type of income units is therefore no longer used in determining which person in the household is to be designated as household reference person. This is consistent with the definition used in previous cycles of the HES.

In previous HESs, gross income included a number of additional components. These were income from regular bonuses, income of children under 15 and income in–kind relating to incidental items such as food and motor vehicle fuel reported in the diaries. As a result of the integration of HES and SIH, these items are no longer in included in aggregate income estimates, but are available separately.

CLASSIFICATIONS

Minor changes were made to the Household Expenditure Classification (HEC) to update the classification and to provide additional detail for a few items. The new categories relate to set top boxes and T–shirts and extra detail is provided on toiletries and some sporting equipment. Record players, tape decks and kitchen furniture no longer have separate categories.

In the published output from the surveys, the data item "family composition of household" replaces the item "household composition". The new item better meets user requirements for the treatment of households with dependent children.

4.5 CHANGES IN SURVEY METHODOLOGY IN 2003–04

CHANGES IN METHODOLOGY IN 2003–04

There were a number of changes to the survey methodology introduced in 2003–04. Some of these were a consequence of the integration of the HES and SIH. The main changes which could impact on all data items were:

- previous SIH cycles had selected dwellings from those that had been respondents for eight months in the Monthly Population Survey (MPS), whereas in 2003–04 the SIH sample was drawn from dwellings not recently included in an ABS household survey (possible change in response bias)
- the sample size of the SIH was increased from 10,211 households (comprising 19,400 persons aged 15 and over) in 2002–03 to 11,361 households (comprising 22,315 persons aged 15 and over) in 2003–04 (lower sample error)
- interviewer use of a laptop computer – while the 1998–99 HES also used this collection method, the 2003–04 survey is the first SIH to use computer assisted interviewing (this may have improved data capture)
- the HES sample weights were calibrated to the same set of independent demographic benchmarks as the SIH and were calibrated to SIH estimates of the number of households by tenure type and SIH estimates of aggregate household income by state and territory and broad source of income
- editing and imputation procedures were changed – in particular because the SIH sample is no longer drawn from households who have participated in the MPS, responses given in the MPS are no longer available as a basis for imputation.

The changes in survey methodology relating to specific data items were:

- current income from own unincorporated business and investments was measured using respondents' estimates of expected income in the current financial year, whereas previously these data items were estimated based only on information about reported income for the previous financial year – this change had a significant impact on the coverage of such income streams in current income measures
- the collection of details about the assets and liabilities of the household may have improved the quality of reporting of associated income streams
- the instrument wording has been changed to explicitly ask that reported dividends include the value of imputation credits – previously this direction was only included in interviewer instructions
- expenditure on pay TV and internet service provider accounts were specifically collected in the household questionnaire on a 'last payments' basis, resulting in more reliable expenditure data for these items than was previously obtained when estimates were based on expenditure in the two week diary period
- expenditure data relating to the purchase of dwellings was collected with respect to the previous 3 years – previously this expenditure had been collected in the HES in relation to the previous 2 years
- information relating to some household loans was collected using a different methodology – for those loan accounts that have a redraw facility and have regular income (such as wages) deposited into them, respondents were not asked to provide a 'usual repayment' – instead they were asked to provide the amount that the principal outstanding usually decreases by in a 6 month period and this was used in conjunction with information collected on interest to derive a repayment amount
- changes to the derivation process used to estimate income tax liability in the HES to only use data items available in the SIH

CHANGES IN METHODOLOGY IN 2003–04 *continued*

- details of previous financial year income were collected form all persons – in previous SIHs this information was not collected from people who had only arrived in Australia in the current financial year
- details of hours worked were collected from all employed persons – in previous SIHs, this information was only available for employees
- unlike previous SIHs, data on repayments and principal outstanding on mortgages for other purposes (ie for purposes other than building, buying, altering or adding to the selected dwelling) excludes mortgages that were used for business or investment purposes.

4.6 AGGREGATE IMPACT OF THE 2003–04 CHANGES TO SIH ON INCOME MEASURES

IMPACT ON INCOME BY SOURCE

The changes in methodology between 2002–03 and 2003–04 outlined in sections 4.1 to 4.5 have impacted on the comparison of the 2003–04 results with those for earlier cycles. While not all impacts can be quantified, the potential significance of the impacts on various sources of income are discussed below.

For wages and salaries, no obvious impacts were detected. Average wages and salaries in the 2003–04 results are 4.8% higher than in 2002–03, in line with the increase in average total weekly earnings reported in ABS business surveys. For selected distributional measures of gross wage and salary income (the Gini and the quintile income shares) the distributions in the two years are very similar.

For government pensions and allowances, no obvious impacts were detected. For 2003–04, the coverage of survey reported benefits compared to the benefits and allowances paid by government was slightly above the longer term average in cycles from the mid to late 1990s, but within one standard error of that average. Therefore, while a benefit benchmark had been introduced for the 1999–00 and 2000–01 cycles (when coverage fell significantly), no benchmark was used in either 2002–03 or 2003–04.

For investment income, the change in 2003–04 to ask about current income, rather than imputing the income on a 'no change' assumption from reported income for the previous financial year, has been significant. In the 2002–03 results, the imputed total current investment income estimate was $16.2 billion. This simple imputation methodology, which had been used since the mid 1990s as the practical approximation to measuring current investment income, did not always result in year to year movements that were consistent with the related property income series in the household income account of the Australian System of National Accounts. This was particularly so for the current income imputed estimates for 2002–03. In 2003–04, respondents reported investment income amounts earned in 2002–03 at $19.8 billion, and current income in 2003–04 at $22.3 billion. The year on year movement between the current and previous year investment incomes reported in 2003–04 is broadly in line with the related national accounts series. The difference between the imputed amount for 2002–03 and the subsequently reported amount for that year contributes about $9 to the increase between the results for 2002–03 and 2003–04 in average gross weekly household incomes.

The change in methodology to capture reported current income was expected to produce a one–off break in the level of the household income series. It is also expected to provide a significant improvement in the future investment income and total income series. However, from the testing that has been undertaken, it is not obvious that the change in methodology has significantly affected income distribution measures. For the Gini and the quintile income shares, the change in gross household income distributions by excluding investment income is very similar for 2002–03 and 2003–04. Increasing the 2002–03 imputed investment income amounts by the ratio of reported to imputed incomes results in very little change to the selected income distribution measures for 2002–03.

As for investment income, for income from own unincorporated business (business income) there was a change in 2003–04 to ask about current income, rather than imputing the income on a 'no change' assumption from reported income for the

IMPACT ON INCOME BY SOURCE *continued*

previous financial year. In the 2002–03 results, the imputed total current business income estimate was $33.2 billion. This did not reflect the decline in the related national accounts series for mixed income of households (adjusted to deduct depreciation and interest payments). In 2003–04, respondents reported business income amounts earned in 2002–03 at $28.0 billion, and current income in 2003–04 at $31.2 billion. The year on year movement between the current and previous year business incomes reported in 2003–04 is broadly in line with the related national accounts series. The difference between the imputed amount for 2002–03 and the subsequently reported amount for that year contributes about –$13 to the change between the results for 2002–03 and 2003–04 in average gross weekly household incomes.

Together the improved methodology for both investment income and own unincorporated business income largely offset each other in mean income terms when comparing 2003–04 to 2002–03.

Income from superannuation, annuities or allocated pensions (other than government benefits such as the age pension) is higher in 2003–04 than in 2002–03. These amounts have been recorded in previous survey cycles as current income amounts, and no explicit change in methodology affects the reporting of these values. However, it is possible that changes in non–response have impacted on the series, or that the reporting of superannuation assets in conjunction with income has improved the quality of reporting. The increase in gross weekly household incomes from superannuation etc. of about $7 between 2002–03 and 2003–04 is statistically significant (the difference is about 3 standard errors). It is also likely that the reported superannuation assets are an underestimate of the total value of these assets and it may be that the superannuation income series, although higher than previously reported, is still a somewhat conservative measure.

IMPACT ON SUMMARY MEASURES

Inspection of the Gini coefficient and other income distribution measures draws attention to the question of whether all these changes have introduced significant discontinuities into the time series of the summary measures.

4.6.1 INEQUALITY MEASURES(a)

	Gini	*P90/P10*	*P80/P20*	*Share of lowest income quintile*	*Share of second and third income deciles*	*Share of third income quintile*	*Share of highest income quintile*
1994–95	0.302	3.77	2.56	7.9	10.8	17.7	37.8
1995–96	0.296	3.73	2.58	8.1	11.0	17.7	37.3
1996–97	0.292	3.66	2.53	8.3	11.0	17.8	37.1
1997–98	0.303	3.77	2.56	7.9	10.8	17.7	37.9
1999–2000	0.310	3.89	2.64	7.7	10.5	17.7	38.4
2000–01	0.311	3.98	2.63	7.7	10.5	17.6	38.5
2002–03	0.309	4.00	2.63	7.7	10.6	17.6	38.3
2003–04	0.294	3.70	2.49	8.2	10.9	17.9	37.4

(a) See Section 1.6 and Appendix 3 for a description of these measures.

As can be seen from the inequality measures shown in table 1, there appears to have been a large decline in measured inequality in 2003–04. Some of this decline is likely to

IMPACT ON SUMMARY MEASURES *continued*

be a result of the methodological changes introduced in 2003–04 and some a result of factors that may have caused a genuine decrease in inequality.

Table 2 illustrates the impacts of those factors for which the summary measures can be re–estimated for 2003–04. These are further discussed below.

TABLE 4.6.2 IMPACT OF INEQUALITY MEASURES

	Gini	*P90/P10*	*P80/P20*	*Share of lowest income quintile*	*Share of second and third income deciles*	*Share of third income quintile*	*Share of highest income quintile*
Initial estimate							
1. Based on whole sample	0.294	3.70	2.49	8.2	10.9	17.9	37.4
2. Based on HES sample	0.290	3.68	2.47	8.3	11.0	18.0	37.1
3. Based on SIH only sample	0.301	3.77	2.50	8.2	10.8	17.7	38.0
Impact of changes in survey							
4. Revert to old methodology for current period business and investment income	0.297	3.72	2.49	8.0	10.9	17.9	37.6
Impact of real world changes							
5. Remove one-off payments to families and carers (otherwise as for line 4)	0.302	3.81	2.55	7.9	10.7	17.8	37.8
6. Impose personal tax regime of 2002–03 (otherwise as for line 4)	0.297	3.70	2.49	8.1	10.9	17.9	37.5

IMPACT OF SURVEY CHANGES

New data and methodology for current period business and investment income

The one factor which allows precise quantification is the introduction of reported current year income for own unincorporated business income and investment income. It increases mean household income by $16.54 (or 1.5%) per week. The impact on the income distribution measures can be seen by comparing lines 1 and 4 of table 2, with the Gini coefficient increasing from 0.294 to 0.297 and P90/P10 increasing from 3.70 to 3.72. However, P80/P20 and the income share of the second and third equivalised disposable household income deciles do not change.

While reported current business and investment income may contain an overly optimistic assessment from some respondents (especially those interviewed early in the financial year), the results of the new methodology appear significantly more credible than the estimates based the old methodology. In particular, it reduces the number of households with gross household income below $20 per week by 55,000 (69%). Therefore it is believed that the new methodology is significantly superior.

But clearly the introduction of the new methodology leads to a series break. It is not known whether the difference between the two methodologies would be of the magnitude shown here for all years, or whether it would vary substantially with changes in the business cycle.

Integrating SIH and HES, and SIH no longer being run using the outgoing sample of the MPS

Lines 2 and 3 of table 2 decompose line 1 into results based on the HES sample only and results from the SIH only sample. The differences in the Gini coefficient and the income shares going to the third quintile and the highest quintile are statistically significant at about the 90% confidence level. This implies that there is a high probability that including HES with the SIH is having a noticeable impact on the income inequality measures.

Integrating SIH and HES, and SIH no longer being run using the outgoing sample of the MPS continued

If there is a substantial impact on the measures from combining the HES and the SIH, there is also likely to be a substantial impact from moving from an MPS based survey to a survey of dwellings not recently included in an ABS household survey. Differences in non–response rates also indicate that this is likely. Non–response in the SIH only sample of 2003–04 is significantly less than for the 2002–03 SIH and for the 2003–04 HES sample. However, the high non–response in the HES sample is not necessarily for the same reasons as the non–response experienced in the previous MPS–based income surveys, and therefore the non–response impact is likely to be different between the two.

Changes in imputation and editing practices

The major identifiable element of this aspect is the loss of capacity to impute using MPS information. Such imputation was particularly important for lone person and single parent households. But there is no obvious way to quantify the impact.

IMPACT OF REAL WORLD CHANGES

The one–off payments to families and carers has had a substantial impact on income inequality. These payments were modelled in SIH. A comparison of lines 4 and 5 in table 2 shows the impact. Without the one–off payments, the Gini coefficient would be 0.007 higher, P90/P10 would be 0.009 higher, etc.

One–off payments to families and carers

Tax changes

In 2003–04, marginal rate thresholds were increased for personal income tax, and there were other changes to other parts of the tax system such as the aged person's rebate. A comparison of lines 4 and 6 in table 2 shows the results of retaining the 2002–03 tax rates for 2003–04 income. There is not a significant impact on income inequality.

CONCLUSION

There are substantial changes in the income inequality measures between 2002–03 and 2003–04.

The Gini coefficient declined from 0.309 in 2002–03 to 0.294 in 2003–04, a drop of 0.015. The previous largest annual movement was 0.011, between 1996–97 and 1997–98. The P90/P10 ratio declined by 0.30, with the previous largest annual movement being 0.11. The other measures had changes of similar magnitude.

Adjusting the income estimates to retain constant methodology for current year business and investment income reduces the difference in the Gini coefficient to 0.012 and the difference in P90/P10 to 0.28, still greater than any historic change.

On their own, the one–off payments to families and carers have resulted in the Gini coefficient being 0.005 lower than it would otherwise have been, and P90/P10 being 0.09 higher.

These two factors do not entirely explain the change in inequality. Therefore it is difficult to assess the changes in income distribution over time. However, it appears that there has been no significant change in income inequality from the mid 1990s to 2003–04.

It should be noted that the methodology of the 2003–04 SIH, including the collection of household asset and liability information, is being retained for the 2005–06 SIH, except that there will be no HES subsample in 2005–06. The next HES subsample will be included in 2009–10.

4.7 SUMMARY OF CHANGES IN EARLIER SURVEYS

INTRODUCTION

This section outlines the main changes in comparability of expenditure collections since 1984 and the income collections since 1994–95. Changes introduced in 2003–04 are not included as they are discussed in sections 4.1 to 4.6. Changes prior to 2003–04 have been much less significant than the recent changes. Some of the differences which should be taken into account when performing comparisons of survey results over time are presented in this section.

The final sample size of HES cycles from 1984 and SIH cycles from 1994–95 is shown in table 4.7.1. The sample size can give an indication of the reliability of the estimates produced from the surveys.

TABLE 4.7.1 PREVIOUS HES AND SIH SAMPLE SIZES

	Capital city	*Balance of state*	*Total*
HES			
1984	6 896	2 675	9 571
1988–89	5 263	2 142	7 405
1993–94	6 107	2 282	8 389
1998–99	4 795	2 098	6 893
2003–04	4 907	2 050	6 957
SIH			
1994–95	4 438	2 381	6 819
1995–96	4 588	2 375	6 963
1996–97	4 715	2 530	7 245
1997–98	4 649	2 376	7 025
1999–2000	4 327	2 310	6 637
2000–01	4 397	2 389	6 786
2002–03	6 657	3 554	10 211
2003–04	7 077	4 284	11 361

SIH CHANGES

The SIH cycles from 1994–95 to 2002–03 are very comparable. These files were reprocessed in 2003 to apply consistent demographic benchmarks to all years, and to incorporate the latest demographic estimates in the benchmarks. Changes over this period are generally minor and are summarised below:

- an extra benchmark was used in the weighting process in 1999–2000 and 2000–01 to compensate for an apparent fall in the coverage of government benefit payments in those years
- any changes to government pensions and allowances have been incorporated
- the 2nd edition of the Australian Standard Classification of Occupations (cat. no. 1220.0) was introduced from 1996–97 for coding of occupation.

In addition, the item nature of occupancy was replaced by tenure type from 1995–96. Prior to 1995–96 owner occupiers were classified as either owners or purchasers. A purchaser had a mortgage or loan secured against the dwelling, and the loan was used to purchase or build the dwelling. An owner had no loan secured against the dwelling for the purpose of building or purchasing. From 1995–96, owner occupiers are classified as owners without a mortgage and owners with a mortgage. This change to the classification was made to reflect the increasing diversity in financial instruments, in particular the increasing use of loans secured against dwellings being used for non–housing purposes. Such secured loans have implications for the security of tenure and a household with such a loan is classified as an owner with a mortgage in the new classification.

HES CHANGES

Comparability in the concepts, classifications and methodology employed in the HES was maintained where possible between 1984 and 1998–99. However some changes were made to incorporate new standards and to improve data quality. In particular the Household Expenditure Classification (HEC) was introduced in 1998–99 – it replaced the Household Expenditure Commodity Code List (HESCCL) which had been in use since 1984. The changes involved updating the classification to include new items of expenditure, and restructuring the classification. At the most detailed level, the HESCCL used in 1993–94 had 463 categories while the HEC used in 1998–99 had 609 categories. Despite the changes, 78% of categories at the published level were unchanged between 1993–94 and 1998–99, and there were only minor changes at the major group level of the classification.

Other significant differences over this period are as follows:

- independent estimates of the number of households in Australia were incorporated into the weighting system from 1993–94; prior to this, the number of households estimated from the HES differed from actual household counts – for example, in 1988–89 the HES estimate of the number of households was 5.4 million, while the actual number of households in Australia at that time was estimated to be 5.9 million
- more extensive use was made of imputation from 1993–94
- any changes to government pensions and allowances have been incorporated
- the item nature of occupancy was replaced by tenure type from 1998–99 (see details of this change above)
- the 2nd edition of the *Australian Standard Classification of Occupations* (cat. no. 1220.0) was introduced in 1998–99 for coding of occupation
- in 1993–94 and previous surveys, the definition of dependent children aged 15 and over included full–time students aged 15 to 20 who had a parent or other relative in the household (but no partner or child of their own); in 1998–99 this was changed to include full–time students aged 15–24 who have a parent in the household (but no partner or child of their own)
- industry of employment was first collected in 1998–99
- in the 1984 HES negative incomes were set to zero whereas in all subsequent HES cycles they have been left as negative
- income tax in both the 1984 and 1988–89 HES was based on reported data with non–response imputed whereas in more recent HES cycles (and all SIH cycles) income tax has been entirely imputed using the relevant taxation criteria and the income and other characteristics of household members as reported in the survey.

More information on the comparability between the 1998–99 HES and previous HES cycles can be found in the 1998–99 issue of *Household Expenditure Survey: User Guide* (cat. no. 6527.0).

APPENDIX 1 CURRENT AND ANNUAL INCOME

INTRODUCTION

The SIH produces estimates of 'current' income and estimates of full year, or annual, income with respect to the 'previous financial year'. 'Current' income refers to income being received at the time the data were collected from respondents. Current income provides the most up to date information available and in some cases the most accurate information available. But it also has some disadvantages. This Appendix discusses the differences in 'current' and 'annual' income measures and presents alternative estimates relating to 'previous financial year' income.

Table A1.2 in this appendix compares current gross income with previous financial year gross income for common reference years. For example, the previous financial year income for reference year 1995–96 is compiled from data collected in the 1996–97 SIH, whereas the current income for reference year 1995–96 is compiled from data collected in the 1995–96 SIH.

WAGE AND SALARY INCOME

For wage and salary income, table A1.2 in this appendix shows that, for each reference year, aggregate income collected on a previous financial year basis was greater than aggregate income collected on a current basis.

Current wage and salary income relates to usual income from the last payment received by the respondent. The reference period for any individual respondent is likely to be the previous week, fortnight or month, depending on the length of the pay period for the job(s) in which the respondent is employed. The length of the reference period is collected in the survey so that the value can be scaled to a common basis such as dollars per week or dollars per year (as presented in table A1.2 in this appendix).

If current wage or salary income contains a payment for irregular overtime worked in the previous pay period, or a pay bonus that occurs infrequently during the year, the irregular components are excluded. If such payments were included in a weekly or fortnightly pay period estimate, the recipient could appear to be receiving substantially more income annually than is likely to be the case and analysis of the respondent's economic wellbeing would be distorted accordingly.

Excluding the extra payments from current income, on practical grounds of measurement, ignores income that does make a contribution to the economic wellbeing of the recipient. To be able to accommodate the extra payments in a current income measure would require substantial additional information about the pay period with the extra payments in it and their likely recurrence in future, as well for pay periods which have more usual or regular levels of payment so that a reasonable estimate might be made of 'current' income including an appropriate share of expected irregular payments. This is very difficult to achieve in a household interview and reporting error could be significant. By taking wage and salary income for the full preceding financial year and retaining irregular components received during the course of the year, wage and salary data in SIH are collected on the broader basis.

GOVERNMENT PENSIONS AND ALLOWANCES

Current government pensions and allowances also relate to income from the last payment received. Benefits are normally received fortnightly. As with wages and salaries, there are some benefit components, such as quarterly telephone allowance, that are not likely to be included in estimates of current income. They are not as significant a part of total government pensions and allowances as are the irregular components of wage and salary income. Therefore estimates of current government pensions and allowances could be expected to align more closely with previous financial year estimates.

In practice, estimates of government pensions and allowances reported on a previous financial year basis were lower than estimates of government pensions and allowances reported as current income, as can be seen in table A1.2 in this appendix. The major cause of the difference appears to be higher underreporting of income received some time earlier compared to underreporting of income being received currently.

GOVERNMENT PENSIONS AND ALLOWANCES *continued*

In cases where it appears likely that an individual SIH respondent has failed to report previous financial year benefits, previous year benefit income is imputed. For example, where a respondent has reported receiving a current benefit such as age pension, is of an age that would qualify for the age pension in the previous year, and that person has not reported receiving significant income from other sources in the previous financial year, it can be assumed that they probably would have also received the age pension in the previous financial year. In such cases, previous financial year age pension has been imputed on the basis of the amount reported as current income, adjusting for benefit rate changes over the previous 12 months.

However, imputation for previous year benefit income, based on likely ongoing entitlement, is not possible for benefits such as Newstart or youth allowance, and table A1.2 in this appendix indicates that, in aggregate, previous financial year income falls short of current income after the implementation of the imputation procedure described in the previous paragraph.

OWN UNINCORPORATED BUSINESS INCOME

Estimates of current income from own unincorporated business are quite different in nature to the estimates of current income for the two income sources discussed above.

The concept of business income is a net concept. It is the profit or loss derived by deducting operating expenses (including depreciation) from the value of gross output. In the past, many unincorporated businesses did not calculate profit and loss data more than once a year, and for many businesses there are revenues earned or costs incurred only infrequently during the year. Hence, in earlier surveys, SIH respondents were not asked to provide a value of current business income distinct from the value of business income received in the previous financial year.

Up to and including the 2002–03 SIH, for respondents who had been in business in the previous financial year and who were currently still in business, their current own unincorporated business income was estimated to be the same amount as the previous year income (including if it was a loss), or scaled up to a full year basis if the business only operated for part of the previous year. It was implicitly assumed that any business only commencing operations in the current year would have zero income.

In the 2003–04 SIH, respondents who currently operated an unincorporated business were asked to estimate their income from the business for the full current financial year. In many cases, respondents could refer to the Business Activity Statements prepared for the Australian Taxation Office to help them provide an estimate. Even where this was not possible, especially for those respondents interviewed early in the financial year, the respondents are likely to be able to provide a more reasonable estimate than that generated by the methodology used in previous cycles. Under the previous methodology, estimates could also have a strong downwards bias, particularly for new businesses, but could also be significantly upwardly biased if the current business circumstances had turned down from the previous year. There is also some likelihood that respondent estimates under the new methodology may be either optimistic or pessimistic and the estimates may have some bias. The new methodology has particularly resulted in far fewer households being recorded with current business incomes that are negative, zero or only slightly positive.

INVESTMENT INCOME

Investment income includes interest and dividend income received as a result of the ownership of financial assets, and rent and royalty income received from the ownership of non–financial assets. The rent component of investment income is measured on a net basis, that is, gross rent less operating expenses. The other components, for which associated expenses are normally relatively small, are on a gross basis. In earlier surveys, estimates of current income for dividends from own incorporated business were estimated in the same way as described above for income from own unincorporated

INVESTMENT INCOME *continued*

business. For other forms of investment, current income was derived by simply assuming that current income was equal to previous financial year income.

As for own unincorporated business income, respondents in the 2003–04 SIH were asked to provide an estimate of their expected investment income in the current financial year.

OTHER INCOME

The remaining income sources include superannuation, child support, workers' compensation and scholarships. These are collected both on a current basis and on a previous financial year basis.

COMPARISON OF ESTIMATES

There are two major advantages of the current income estimates compared to previous financial year income estimates. First, they are more up to date. For 2003–04, this applies to all forms of income. For previous surveys, this applies for wage and salaries, for government pensions and allowances and for 'other' income (as defined in the preceding paragraph), which together accounted for 86% of total current income in 2002–03. Second, they appear to be more accurately reported for government pensions and allowances, and may also be more accurately reported for those elements of wages and salaries that are included in current income and for 'other' income.

On the other hand, the previous financial year estimates have the major conceptual advantage of being annual estimates with more complete coverage of income components. They have a longer time perspective, which while allowing short–term fluctuations in income to have an influence, do not allow short–term situations to potentially dominate the measure being compiled. If a short–term fluctuation has an undue influence on a current income measure, the measure is not a good indicator of underlying economic wellbeing. Short–term fluctuations may be positive or negative, for example, salary bonuses compared to low income or even nil income during short periods of unemployment.

The previous financial year income estimates also have the attraction of being internally consistent with respect to the time periods to which the underlying income data relate. Prior to 2003–04, the total current income estimates are compiled from a mix of data collected on a current basis and on a previous financial year basis. This short–coming was addressed in the 2003–04 current income estimates, with the 2003–04 current income estimates for business and investment income being the respondents' estimates of income for the full current financial year.

When analysing previous financial year data, it should be noted that the composition of the household, employment status of members of the household, etc., all relate to the current period. If the composition of the household has changed, previous financial year household income estimates in effect relate to a quasi household. In many cases this will not have a marked effect on the data. If, for example, an additional adult joined the household, their previous financial year income will be included in total 'household' income for the previous financial year, but their presence will be reflected in the household composition data that are used for calculating the equivalising factor for that previous year, muting the impact of the artificially inflated previous year income for the household.

However, the issues in analysis due to household composition changing between the previous and current years can be more marked. For example, a household may have had an additional member in the previous year and that person may have provided the bulk of the income for the household. But since SIH can only include the previous financial year income of the household members remaining at the time of interview, the household may incorrectly appear to have had very low income in the previous year, perhaps well below the levels which would have entitled members to social security benefits. Similarly, prior to the 2003–04 SIH, previous financial year data were not

COMPARISON OF ESTIMATES *continued*

collected for respondents who had only arrived in Australia in the current financial year. Therefore any previous financial year income they received while overseas did not contribute to the previous financial year income compiled for the household for 2000–01 and earlier years. But their presence is reflected in the equivalising factor applied to the income of the rest of the household, resulting in an underestimate of equivalised income of the household. While it is possible to omit such households from income distribution calculations, that has not been done for the tables included in this appendix.

Table A1.3 in this appendix provides income distribution indicators compiled from previous financial year data. It provides alternative estimates to the current income estimates provided in table 1 in *Household Income and Income Distribution, Australia* (cat. no. 6523.0). Comparisons can be made between the two tables for the reference periods 1994–95 to 2002–2003, and a summary is given in the following table A1.1.

TABLE A1.1 SELECTED INCOME DISTRIBUTION INDICATORS, Equivalised disposable household income

	CURRENT INCOME BASIS			PREVIOUS FINANCIAL YEAR BASIS			*Difference in % change*
	1994–95	*2002–03*	*% change*	*1994–95*	*2002–03*	*% change*	
Mean income per week, in 2003–04 dollars							
Low income(a) *($)*	246	276	12.10	249	281	12.9	0.8
High income(b) *($)*	861	999	16.00	876	1 046	19.4	3.4
Income shares							
Low income(a) *(%)*	10.8	10.6	–2.2	10.7	10.4	–3.3	–1.1
High income(b) *(%)*	37.8	38.3	1.2	37.7	38.6	2.5	1.3
Percentile ratios							
P90/P10 *(ratio)*	3.77	4.00	5.9	3.89	4.10	5.2	–0.6
P80/P20 *(ratio)*	2.56	2.63	3.1	2.63	2.67	1.7	–1.4
Gini coefficient *(no.)*	0.302	0.309	2.3	0.302	0.315	4.1	1.8

(a) Persons in the 2nd and 3rd income deciles after being ranked by their equivalised disposable household income

(b) Persons in the top income quintile (9th and 10th deciles) after being ranked by their equivalised disposable household income

The previous financial year estimates show stronger growth in real incomes between 1994–95 and 2002–03 for both the high income and the low income group, with greater additional growth in the high income group. The previous financial year estimates show a greater decline in the income share of the low income group and a greater increase in the income share of the high income group, and also show greater growth in the Gini coefficient. For these indicators, the previous financial year estimates show a greater increase in income inequality than the current income estimates. However, the previous financial year estimates give a smaller increase in the P90/P10 and P80/P20 ratios, indicating a smaller increase in income inequality than shown by the current income estimates.

TABLE A1.2 CURRENT AND PREVIOUS FINANCIAL YEAR GROSS INCOME(a)

	1993 –1994	*1994 –1995*	*1995 –1996*	*1996 –1997*	*1997 –1998*	*1998 –1999*	*1999 –2000*	*2000 –2001*	*2001 –2002*	*2002 –2003*	*2003 –2004*
	$ billion	$ billion	$ billion	$ billion	$ billion	$ billion	$ billion	$ billion	$ billion	$ billion	$ billion
Wages and Salaries											
Current income	na	194.7	199.3	211.6	223.6	na	251.1	268.3	na	308.4	327.4
Previous financial year income(b)	194.7	204.4	219.1	232.2	na	257.7	277.0	na	311.2	327.1	na
Government pensions and allowances											
Current income	na	34.3	36.5	38.6	39.0	na	41.2	46.5	na	49.6	56.3
Previous financial year income(b)	30.7	32.8	34.9	36.2	na	37.7	40.5	na	44.6	48.3	na
Own unincorporated business income											
Current income	na	18.8	23.2	21.4	23.6	na	28.7	27.7	na	33.2	31.2
Previous financial year income(b)	18.5	22.8	22.5	24.4	na	27.5	25.9	na	31.3	28.0	na
Investment income											
Current income	na	10.7	10.9	14.4	13.2	na	17.3	16.3	na	16.2	22.5
Previous financial year income(b)	10.9	11.0	14.3	13.0	na	17.3	15.7	na	16.6	19.8	na
Other income											
Current income	na	7.2	7.9	8.2	9.9	na	10.5	11.7	na	15.1	17.7
Previous financial year income(b)	6.6	7.0	7.5	8.4	na	8.5	9.7	na	13.1	16.5	na
Total income											
Current income	na	265.8	277.8	294.3	309.3	na	348.9	370.5	na	422.5	455.1
Previous financial year income(b)	261.4	278.0	298.4	314.2	na	348.7	368.8	na	416.9	439.8	na

na not available

(a) Historic data in the table are not adjusted for changes in the CPI

(b) Compiled from data collected in the SIH of the year following the reference year. There was no SIH conducted in 1998–99 or 2001–02

TABLE A1.3 INCOME DISTRIBUTION INDICATORS, Previous financial year income(a)

	1993–94	*1994–95*	*1995–96*	*1996–97*	*1998–99*	*1999–2000*	*2001–02*	*2002–03*
Person weighted indicator								
Mean income per week(b)								
Lowest quintile *($)*	172	181	186	188	190	194	193	199
Second quintile *($)*	297	300	304	302	321	325	339	343
Third quintile *($)*	416	413	419	423	452	455	472	482
Fourth quintile *($)*	554	555	559	571	607	609	634	639
Highest quintile *($)*	867	876	891	915	975	996	1 012	1 046
All persons *($)*	461	465	472	480	509	516	530	542
Second and third deciles *($)*	246	249	254	252	265	270	276	281
Income per week at top of selected percentiles(b)								
10th (P10) *($)*	198	203	207	208	215	218	220	225
20th (P20) *($)*	242	248	255	252	262	269	273	279
30th (P30) *($)*	297	299	303	301	321	323	337	341
40th (P40) *($)*	354	353	358	357	383	385	406	413
50th (P50) *($)*	416	412	418	423	452	455	470	481
60th (P60) *($)*	477	479	480	490	526	527	545	552
70th (P70) *($)*	545	551	557	568	603	605	631	635
80th (P80) *($)*	649	650	647	661	704	712	737	747
90th (P90) *($)*	795	790	791	810	859	886	897	920
Income share								
Lowest quintile *(%)*	7.5	7.8	7.9	7.8	7.5	7.5	7.3	7.4
Second quintile *(%)*	12.9	12.9	12.9	12.6	12.6	12.6	12.8	12.7
Third quintile *(%)*	18.0	17.8	17.7	17.6	17.8	17.6	17.8	17.8
Fourth quintile *(%)*	24.0	23.9	23.7	23.8	23.8	23.6	23.9	23.6
Highest quintile *(%)*	37.6	37.7	37.8	38.2	38.3	38.6	38.2	38.6
All persons *(%)*	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Second and third deciles *(%)*	10.6	10.7	10.8	10.5	10.4	10.5	10.4	10.4
Ratio of income at top of selected income percentiles								
P90/P10 *(ratio)*	4.00	3.89	3.82	3.89	4.00	4.06	4.08	4.10
P80/P20 *(ratio)*	2.68	2.63	2.54	2.63	2.68	2.64	2.70	2.67
P80/P50 *(ratio)*	1.56	1.58	1.55	1.56	1.56	1.56	1.57	1.55
P20/P50 *(ratio)*	0.58	0.60	0.61	0.60	0.58	0.59	0.58	0.58
Gini coefficient *(no.)*	0.304	0.302	0.303	0.308	0.312	0.313	0.312	0.315

(a) Compiled from data collected in the SIH of the year following the reference years. Income is equivalised disposable household income

(b) In 2002–03 dollars, adjusted using changes in the Consumer Price Index

APPENDIX 2 EQUIVALISED HOUSEHOLD INCOME

EQUIVALENCE SCALES

Equivalence scales have been devised to make adjustments to the actual incomes of households in a way that enables analysis of the relative wellbeing of households of different size and composition. For example, it would be expected that a household comprising two people would normally need more income than a lone person household if the two households are to enjoy the same standard of living.

One way of adjusting for this difference in household size might be simply to divide the income of the household by the number of people within the household so that all income is presented on a per capita basis. However, such a simple adjustment assumes that all individuals have the same resource needs if they are to enjoy the same standard of living and that there are no economies derived from living together.

Various calibrations, or scales, have been devised to make adjustments to the actual incomes of households in a way that recognises differences in the needs of individuals within those households and the economies that flow from sharing resources. The scales differ in their detail and complexity but commonly recognise that the extra level of resources required by larger groups of people living together is not directly proportional to the number of people in the group. They also typically recognise that children have fewer needs than adults.

When household income is adjusted according to an equivalence scale, the equivalised income can be viewed as an indicator of the economic resources available to a standardised household. For a lone person household it is equal to household income. For a household comprising more than one person, it is an indicator of the household income that would need to be received by a lone person household to enjoy the same level of economic wellbeing as the household in question.

Alternatively, equivalised household income can be viewed as an indicator of the economic resources available to each individual in a household. The latter view underpins the calculation of income distribution measures based on numbers of people, rather than numbers of households.

CHOICE OF SCALE

While there has been considerable research by statistical and other agencies trying to estimate appropriate values for equivalence scales, no single standard has emerged. In theory, there are many factors which might be taken into account when devising equivalence scales, such as recognising that people in the labour force are likely to face transport and other costs that can affect their standard of living. It might also be desirable to reflect the different needs of children at different ages, and the different cost levels faced by people living in different geographic areas. On the other hand, the tastes and preferences of people vary widely, resulting in markedly different expenditure patterns between households with similar income levels and similar composition. Furthermore, it is likely that equivalence scales that appropriately adjust incomes of low income households are not as appropriate for higher income households, and vice versa. This is because the proportion of total income spent on housing tends to fall as incomes rise, and cheaper per capita housing is a major source of economies of scale that flow from people living together.

It is therefore difficult to define, estimate and use equivalence scales which take all relevant factors into account. As a result, analysts tend to use simple equivalence scales which are chosen subjectively but are nevertheless consistent with the quantitative research that has been undertaken. A major advantage of simpler scales is that they are more transparent to the user, that is, it is easier to evaluate the assumptions being made in the equivalising process.

CHOICE OF SCALE *continued*

In this publication, the 'modified OECD' equivalence scale is used. The 'modified OECD' equivalence scale has been used in more recent research work undertaken for the Organisation for Economic Co–operation and Development (OECD), has wide acceptance among Australian analysts of income distribution, and is the stated preference of key Survey of Income and Housing (SIH) users.

DERIVATION OF EQUIVALISED INCOME

Equivalised income is derived by calculating an equivalence factor according to the chosen equivalence scale, and then dividing income by the factor.

The equivalence factor derived using the 'modified OECD' equivalence scale is built up by allocating points to each person in a household. Taking the first adult in the household as having a weight of 1 point, each additional person who is 15 years or older is allocated 0.5 points, and each child under the age of 15 is allocated 0.3 points. Equivalised household income is derived by dividing total household income by a factor equal to the sum of the equivalence points allocated to the household members. The equivalised income of a lone person household is the same as its unequivalised income. The equivalised income of a household comprising more than one person lies between the total value and the per capita value of its unequivalised income.

Equivalised household income is an indicator of the economic resources available to each member of a household. It can therefore be used for comparing the situation of individuals as well as comparing the situation of households.

When unequivalised income is negative, such as when losses incurred in a household's unincorporated business or other investments are greater than any positive income from any other sources, then equivalised income has been set to zero.

GROSS INCOME AND EQUIVALISED DISPOSABLE INCOME

The SIH collects data on households' gross income. However, disposable income, that is, gross income less the value of income tax and Medicare levy to be paid on the gross income, is a better indicator of the resources available to a household to maintain its standard of living. Therefore, estimates of income tax payable on gross income reported in the SIH are made by means of a tax model. The tax and Medicare estimates are subtracted from gross income to give disposable income, and the equivalence factors are applied to the estimates of disposable income. Person weighted measures of income distribution are then derived from the estimates of equivalised disposable household income. (Section 1.10 'Household, income unit and person data' describes the difference between person weighted and household weighted measures.)

Means and medians of both gross income and equivalised disposable income are shown in some tables of *Household Income and Income Distribution, Australia* (cat. no. 6523.0) to allow users to see the differences between data as collected and data as standardised to facilitate income distribution analysis. The following table, A2, shows the differences in income measures when calculated from data at different stages in the progression from gross household income to person weighted equivalised disposable household income.

GROSS INCOME AND EQUIVALISED DISPOSABLE INCOME *continued*

TABLE A2 FROM GROSS INCOME TO PERSON WEIGHTED EQUIVALISED DISPOSABLE INCOME

					EQUIVALISED DISPOSABLE HOUSEHOLD INCOME PER WEEK	
		Gross household income per week	*Income tax per week*	*Disposable household income per week*	*Household weighted*	*Person weighted*
Percentile boundaries and percentile ratios						
P10	$	259	na	258	230	246
P20	$	400	na	392	275	299
P50	$	915	na	785	475	491
P80	$	1 691	na	1 339	752	743
P90	$	2 197	na	1 695	925	912
P90/P10	ratio	8.49	na	6.58	4.03	3.70
P80/P20	ratio	4.23	na	3.42	2.73	2.49
Means						
All households	$	1 128	214	914	541	549
Family composition of household						
One family households						
Couple family with dependent children	$	1 589	332	1 257	560	549
One parent family with dependent children	$	760	90	669	398	391
Couple only	$	1 097	201	896	598	598
Other one family households	$	1 494	272	1 222	607	621
Multiple family households	$	1 996	346	1 650	573	565
Non–family households						
Lone person	$	564	102	461	462	462
Group households	$	1 272	238	1 034	611	604

na not available

The first column in table A2 above shows measures calculated from gross household income, as collected in the SIH. The next column shows estimates of income tax to be paid on gross income, with the third column giving the resultant disposable household income.

Individuals with higher incomes will normally be expected to pay higher income tax than individuals with lower incomes, but this relationship is not as strong for households. A household with relatively high income may comprise only one individual with high income or it may include a number of individuals with relatively low income. The disposable income in the first situation will be lower than that in the second situation, and will result in a reranking of the households in the formation of percentiles. Therefore a household may fall into a different percentile in an analysis of disposable income compared to an analysis of gross income.

As would be expected, the difference between disposable income and gross income increases as income levels increase. At the upper boundary of the tenth percentile (P10), there is no difference at all, that is, the income tax to be paid by households with the lowest levels of gross income is negligible. In contrast, there is more than $500 per week difference between the P90 value for gross household income and the P90 value for disposable household income.

The fourth and fifth columns of the table show measures calculated from equivalised disposable household income. When household weighted, the percentiles and means are calculated with respect to the numbers of households concerned. When person weighted, they are calculated with respect to the numbers of people within households.

GROSS INCOME AND EQUIVALISED DISPOSABLE INCOME *continued*

While the ranking underlying the formation of percentiles is the same for the two income measures, the boundaries between the percentiles differ because household weighted percentile boundaries create subgroups with equal numbers of households while person weighted percentile boundaries create subgroups with equal numbers of persons. The extent to which the boundaries differ reflects the extent to which the average household size differs between percentiles.

The person weighted estimate of P10 ($246) is higher than the household weighted estimate of P10 ($230). This implies that the households with the lowest rankings of equivalised disposable household income tend to comprise a lower than average number of persons. In other words, the 10% of people with the lowest income make up more than the 10% of households with the lowest income.

For lone person households, the two measures of equivalised disposable income are the same as each other ($462) and are just a little higher than disposable income ($461). Equivalised disposable income for lone person households is approximately the same as disposable income, because the equivalising factor for such households is 1.0. The reason for the slight difference between them is that some households have negative disposable income and their values are reset to zero before equivalising is carried out.

For all other types of household composition, equivalised disposable income is lower than disposable income, since income is adjusted to reflect household size and composition. Mean equivalised disposable income for couple only households is the same for both the household weighted and the person weighted measures since there are always two and only two persons in such households. For most other multi–person households, person weighted mean income is lower than the household weighted mean. This implies that, within each type, larger households tend to have lower equivalised household income.

APPENDIX 3 GINI COEFFICIENT AND OTHER SINGLE STATISTIC SUMMARIES OF INCOME DISTRIBUTION

INTRODUCTION

Taken together, the simple measures of income distribution such as mean, median, percentile ratios and income shares (described in section 1.6 'Gini coefficient and other measures of income distribution') can provide an indication of changes in the income distribution of a population over time, or differences in the income distributions of two separate populations. However, none of the simple measures comprises a single statistic that summarises the whole income distribution in a way that directly takes into account the individual incomes of all members of the population. This appendix considers some of the issues associated with compiling a single statistic summary of inequality, and compares a number of alternative measures. The first is the Gini coefficient, which is the most commonly used summary measure. The Gini coefficient is compared with the Theil index and a number of Atkinson indexes.

Note that the analysis in this appendix has been carried out using data from the 2000–01 and earlier SIHs.

CONCEPT OF INCOME INEQUALITY

It is generally agreed that perfect equality in the distribution of income can be defined as the situation in which everyone in the population lives in a household with the same equivalised disposable household income (see Section 1.3 'Equivalised household income'). If any person has lower or higher equivalised disposable household income than any other person, there is inequality in the income distribution.

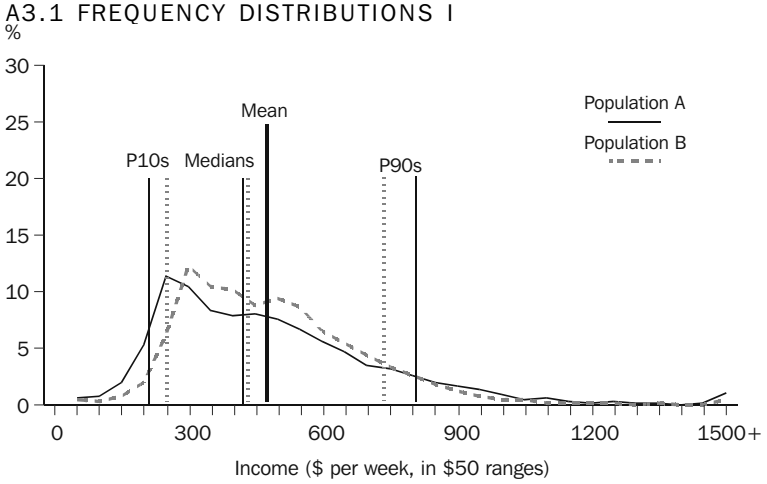
However, there is no unique, generally accepted way of summarising the degree to which a population does not have perfect equality, or, more practically, summarising the difference in inequality between two populations. Unequal distributions of income can occur in many different ways. The majority of people may have very similar incomes with pockets of very high or very low income. Or entire populations may be heavily clustered at the top and the bottom of the income distribution with few people receiving incomes in between these extremes. To evaluate one income distribution as having greater or lesser inequality than another income distribution, it is necessary to compare the distributions in terms of which segments of the population have a greater share of income and which segments have a lower share. It is then necessary to at least implicitly judge whether the relative gain in income by some people is more than offset or less than offset by the relative loss of income by some other people. Different observers may make different judgments about the same situation, depending on personal preferences, etc. Different summary measures of inequality embody different judgments about the relative gains and losses. As will be seen below, some measures allow the user to explicitly set a parameter to reflect the judgment of the user in this regard.

Simple examples of different patterns of inequality can be used to illustrate the issues under consideration.

For the first example, consider the equivalised disposable household income of the two populations A and B depicted in the graph A3.1, 'Frequency Distributions I'. Population A is derived from the 2000–01 SIH population after removing people in households with zero income (the reason for deleting households with zero income is explained later in this appendix). Population B covers the same people as in population A, but everyone's income is transformed in a particular way that reduces the proportional differences in income across the population while retaining the same mean income for the population. There are therefore fewer people on very low or very high incomes and more people in between these extremes, with the median for population B closer to the mean, and less spread between P10 and P90.

CONCEPT OF INCOME INEQUALITY *continued*

A3.1 FREQUENCY DISTRIBUTIONS I



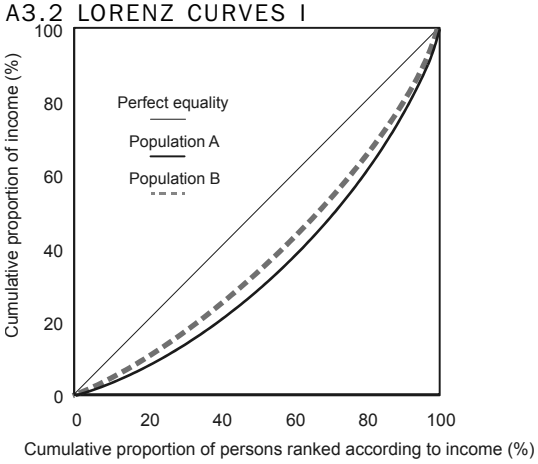
The extent to which the income distributions for populations A and B vary from equality, and from each other, can be illustrated graphically another way, using Lorenz curves.

LORENZ CURVES

The Lorenz curve is a graph with the horizontal axis showing the cumulative proportion of the persons in the population ranked according to their income and with the vertical axis showing the corresponding cumulative proportion of equivalised disposable household income. The graph then shows the income share of any selected cumulative proportion of the population. The diagonal line represents a situation of perfect equality, that is, all people have the same equivalised disposable household income. The graph A3.2, 'Lorenz Curves I' shows the Lorenz curves for the two populations described above.

LORENZ CURVES *continued*

A3.2 LORENZ CURVES I



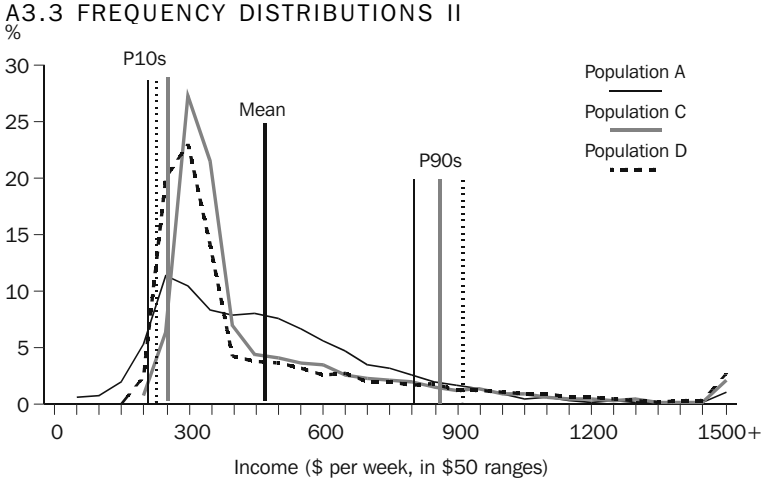
Since the distribution of population B's income is uniformly less widely spread than for population A, all points of the Lorenz curve for population B are closer to the line of perfect equality than the corresponding points of the Lorenz curve for population A. In this situation, population B is said to be in a position of Lorenz dominance and can be regarded as having a more equal income distribution than population A.

However, if the Lorenz curves of two populations cross over there is no Lorenz dominance and there is no generally accepted way of defining which of the two populations has the more equal income distribution.

Consider the income distributions of the populations in a second example, as shown in the graph A3.3 'Frequency Distributions II'. Population A is the same as in the first example above. Populations C and D also cover the same people as in population A, and all have the same mean income. But the income of populations C and D are transformed in such a way that the lower income people are relatively better off than for population A and the higher income people are also relatively better off than for population A. Conversely, the incomes of the middle of the population are relatively reduced so that the mean income of the three populations remains the same. Also the ranking of the population by income has not changed the relative position of any person. For population A, the lowest income is $1, for population C it is about $180, and for population D it is about $150. The incomes of the higher income people have received a relatively greater boost for population D than for population C.

LORENZ CURVES *continued*

A3.3 FREQUENCY DISTRIBUTIONS II



The medians (not shown in the graph) are higher for populations C and D than for A, but all are below the mean. As for population B in the earlier graph, P10 for populations C and D is above P10 for population A. However, in contrast to population B, populations C and D also have P90 above that of population A.

The graph A3.4, 'Lorenz Curves II' shows the resultant differences in the Lorenz curves, with the curves for both populations C and D crossing that of population A. Therefore there is ambiguity about whether populations C and D have greater or less income inequality than population A. Comparing populations C and D to population A, both lower and higher income people have a greater share of total income and middle income people have less. In population C, the lower income people show a relatively greater gain than the higher income people. Conversely, in population D, the higher income people show a relatively greater gain than the lower income people. However, the curve for population C does not cross that of population D, and therefore population C has Lorenz dominance over population D, that is, income is unambiguously distributed more equally in population C than in population D.

A3.4 LORENZ CURVES II

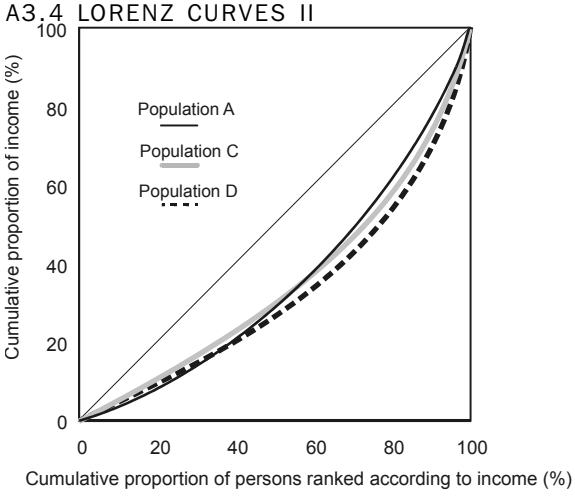


Table A3.5 shows the years for which the income distribution has Lorenz dominance over the income distributions of other years. Table A3.5 also shows the years for which the lack of Lorenz dominance is due only to the crossing of the Lorenz curves in the bottom decile of the income distribution, that part of the income distribution for which income is not necessarily a good indicator of economic wellbeing.

LORENZ CURVES *continued*

TABLE A3.5 LORENZ DOMINANCE BETWEEN INCOME DISTRIBUTIONS, 1994–95 TO 2002–03

Full dominance relationship
1995–96 over 1994–95, 1997–98, 1999–00, 2000–01 and 2002–03
1996–97 over 1994–95, 1997–98, 1999–00, 2000–01 and 2002–03
1997–98 over 1999–00 and 2002–03

Near dominance relationship(a)
1994–95 over 1999–00, 2000–01 and 2002–03
1997–98 over 2000–01

No dominance relationship(b)
Between 1994–95 and 1997–98
Between 1995–96 and 1996–97
Between 1999–00 and 2000–01 or 2002–03
Between 2000–01 and 2002–03

(a) Lorenz curves only cross in the first decile of the income distrirbution
(b) Lorenz curves cross at least once outside the first decile of the income distrirbution

The Lorenz curves described in this appendix are depicting the relativities between income distributions and do not show whether incomes overall have been growing, contracting or remaining static. Another form of Lorenz curves, known as Generalised Lorenz curves, depict the cumulative incomes of populations after adjusting for differences in average income between the populations. They therefore can be used to analyse differences in the level of income as well as differences in distribution, but do not as clearly show differences in inequality (see, for example, Deaton (1997)).

SUMMARY INDICATORS

The three commonly used summary inequality measures mentioned earlier — the Gini coefficient, the Theil index, and the Atkinson index — can be produced for populations A, B, C and D. Table A3.6 provides the values for these measures with respect to each population, and descriptions of the measures follow. The Atkinson index is considered with a number of different settings of a user defined parameter, as described later.

A3.6 COMPARISON OF INEQUALITY SUMMARY STATISTICS

	Population A	Population B	Population C	Population D
Has Lorenz dominance over Population:	. .	A	D	. .
Gini coefficient	0.306	0.247	0.313	0.357
Theil index	0.069	0.045	0.084	0.108
Atkinson indexes				
$\varepsilon = 0.5$	0.077	0.051	0.084	0.107
$\varepsilon = 0.75$	0.116	0.077	0.117	0.149
$\varepsilon = 1.0$	0.155	0.103	0.146	0.185
$\varepsilon = 1.25$	0.199	0.133	0.171	0.216
$\varepsilon = 1.5$	0.253	0.167	0.193	0.242
$\varepsilon = 2.0$	0.452	0.274	0.230	0.285

. . not applicable

GINI COEFFICIENT

The Gini coefficient can be defined by referring to the Lorenz curve. It is the ratio of the area between the actual Lorenz curve and the diagonal (or line of equality) compared to the total area under the diagonal. The Gini coefficient equals zero when all people have the same level of income and approaches one when one person receives all the income. In other words, the smaller the Gini coefficient the more equal the distribution of income, given the assumptions underlying the Gini coefficient.

GINI COEFFICIENT *continued*

Table A3.6 shows that the Gini coefficient for population B is substantially below the coefficient for population A. The coefficient for population C is a little above that for population A, and the coefficient for population D is somewhat further above. According to the Gini coefficient, therefore, population B has a more equal income distribution than population A, but populations C and D have less equal distributions.

Mathematically, the Gini coefficient can be expressed as

$$G = \left(\frac{1}{2n^2 \mu} \right) \sum_{i,j}^{n} \left| y_i - y_j \right|$$

where

n is the number of people in the population

μ is the mean equivalised disposable household income of all people in the population

and y_i and y_j are the equivalised disposable household income of the ith and jth persons in the population.

The Gini coefficient is a summary of the differences between each person in the population and every other person in the population. The differences are the absolute arithmetic differences, and therefore a difference of $x between two relatively high income people contributes as much to the index as a difference of $x between two relatively low income people.

An increase in the income of a person with income greater than median income will always lead to an increase in the coefficient, and a decrease in the income of a person with income lower than median income will also always lead to an increase in the coefficient. The extent of the increase will depend on the proportion of people that have income in the range between median income and the income of the person with the changed income, both before and after the change in income. At the extremes, increasing the income of the person with the lowest income by $x or increasing the income of the person with the highest income by $x will respectively decrease and increase the Gini coefficient by the same amount (assuming the lowest income person remains the lowest income person after the change).

THEIL INDEX

Another commonly used summary statistic is the Theil index, which can be expressed mathematically as

$$T = \frac{1}{n} \sum_{i=1}^{n} \frac{y_i}{\mu} \log \frac{y_i}{\mu}$$

The Theil index ranges between zero when all incomes are equal and log n when one person receives all the income. It therefore has a higher value if one person in a larger population receives all income compared to if one person in a smaller population receives all income. However, it has the same value for two unequally sized populations if income is distributed with the same proportions in the two populations, that is, they have identical Lorenz curves. (The other single statistic summary indicators discussed in this appendix also have this characteristic.)

As for the Gini coefficient, if one population has Lorenz dominance over another population, the Theil index for the first population will be lower. Table A3.6 shows, therefore, that population B has a lower Theil index than population A, and population C has a lower Theil index than population D. The Theil index for population A is also below that for populations C and D.

THEIL INDEX *continued*

The construction of the Theil index is substantially different from that of the Gini coefficient. Instead of comparing the income of each person with the income of every other person, the Theil index compares the income of each person with the mean income of the population.

ATKINSON INDEX

The Atkinson index is a more complex summary statistic. As in the Theil index, it contains a ratio comparison of each person's income with the population mean. But it also requires the user to set a parameter, ε, specifying a level of 'inequality aversion'. The mathematical expression is

$$A_\varepsilon = 1 - \left[\frac{1}{n} \sum_{i=1}^{n} \left[\frac{y_i}{\mu} \right]^{1-\varepsilon} \right]^{1/1-\varepsilon}$$

for ε not equal to one, and

$$A_1 = 1 - \prod_{i=1}^{n} \left[\frac{y_i}{\mu} \right]^{1/n}$$

for ε equal to one.

An Atkinson index always has a value between zero and one, regardless of the value of ε. For any given value of ε, a lower value of the Atkinson index implies a greater degree of equality in the income distribution.

The 'inequality aversion' parameter, ε, in effect specifies how much more benefit the user thinks an extra dollar would provide to a person with lower income compared to the benefit an extra dollar would provide to a person on a higher income. At the extreme of ε set to zero, the user has no 'inequality aversion'. The benefit of an extra dollar is assumed to be the same for everyone in the population, and the Atkinson index is always equal to zero regardless of whether the incomes in the population are widely dispersed or not.

The higher the setting of ε, the greater the relative benefit derived by a lower income person receiving an extra dollar compared to a higher income person receiving an extra dollar. Consequently, the higher the setting of ε, the more sensitive is the Atkinson index to the ratios of the lowest incomes in the population to the mean income of the population. In particular, if a population has a number of people with income very close to zero, that is, only a very small proportion of mean income, their influence can dominate the Atkinson index and it has a value close to one.

Table A3.6 presents the Atkinson index with various settings of ε between 0.5 and 2.0. As expected, the Atkinson indexes for population B are always lower than those for population A, reflecting the Lorenz dominance of population B over population A. Similarly, the Atkinson indexes for population C are always lower than those for population D. However, comparing populations C and D with populations A and B gives a mixed picture.

The higher the setting of ε, the more emphasis the Atkinson index gives to the lowest values in the income distribution. Populations A and B have some values less than one hundredth of the mean, but populations C and D do not. Therefore the Atkinson index increases more quickly for populations A and B as the setting of ε is increased. For ε set to 1.0 and above, population A is measured as having greater income inequality than population C; for ε set to 1.5 and above population A has greater income inequality than population D; and for ε set to 2.0 population B also has greater income inequality than population C.

ATKINSON INDEX *continued*

A complicating factor is that the Atkinson index cannot be calculated for a population containing zero incomes. Over one per cent of the SIH population has zero equivalised disposable household income including reported negative incomes which are set to zero when equivalised.

COMPARISON OF SUMMARY MEASURES

Table A3.7 provides the chosen summary measures for all years in which the SIH has been conducted up to 2002–03, together with the standard errors of the estimates in 2002–03. In 1995–96, 1997–98 and 1999–2000 all indicators consistently pointed to an increase or a decrease in inequality. In the other years there was a mixed picture. Over the whole period, all indicators show an increase in inequality, although none of the movements are significant at the 95% confidence level. Standard errors for years prior to 2002–03 tend to be higher than those for 2002–03 because the 2002–03 SIH had a larger sample than the earlier SIHs.

A3.7 SUMMARY STATISTICS OF INCOME INEQUALITY, 1994–95 TO 2002–03

							2002-03	
	1994-95	*1995-96*	*1996-97*	*1997-98*	*1999-2000*	*2000-01*	*Level*	*Std error*
Gini coefficient	0.302	0.296	0.292	0.303	0.310	0.311	0.309	0.0033
Theil index	0.069	0.065	0.063	0.070	0.076	0.073	0.073	0.0022
Atkinson indexes(a)								
$\varepsilon = 0.5$	0.081	0.076	0.074	0.081	0.085	0.084	0.084	0.0020
$\varepsilon = 0.75$	0.127	0.118	0.115	0.126	0.132	0.131	0.131	0.0032
$\varepsilon = 1.0$	0.186	0.170	0.166	0.184	0.191	0.191	0.192	0.0055
$\varepsilon = 1.25$	0.281	0.246	0.246	0.274	0.281	0.286	0.291	0.0114
$\varepsilon = 1.5$	0.455	0.380	0.391	0.434	0.444	0.464	0.473	0.0239
$\varepsilon = 2.0$	0.902	0.807	0.834	0.850	0.871	0.913	0.910	0.0237

(a) The Atkinson indexes have been compiled using data in which zero incomes have been set to $1

SENSITIVITY OF SUMMARY MEASURES TO LOW INCOMES

Table A3.8 compares the impact on selected inequality summary statistics for the 2000–01 SIH population if persons with zero equivalised disposable household income have their income set to 1 cent, to 10 cents or to $1, or if they are omitted from the population altogether. Note that population A used in the first part of this appendix was the 2000–01 SIH population, after removing persons with zero income.

The table shows that the Atkinson indexes, but not the Gini or Theil measures, are sensitive to small changes, in dollar terms, to the lowest incomes in the Australian data set. It also shows that if persons with zero income are omitted from the population altogether, all indicators are impacted, with the least impact being on the Gini coefficient, and with an impact of over 50% on the Atkinson index with ε set to 2.0.

SENSITIVITY OF SUMMARY MEASURES TO LOW INCOMES *continued*

A3.8 COMPARISON OF ALTERNATIVE TREATMENTS OF PERSONS WITH ZERO HOUSEHOLD INCOME, 2000–01

	Zero income retained	*Zero income set to $0.01*	*Zero income set to $0.10*	*Zero income set to $1.00*	*Persons with zero income omitted*
Population size (million persons)	18.86	18.86	18.86	18.86	18.70
Mean equivalised disposable household income per week ($)	469	469	469	469	473
Gini coefficient	0.311	0.311	0.311	0.311	0.306
Theil index	0.073	0.073	0.073	0.073	0.069
Atkinson indexes					
$\varepsilon = 0.5$	. .	0.085	0.085	0.084	0.077
$\varepsilon = 0.75$	. .	0.135	0.134	0.131	0.116
$\varepsilon = 1.0$	. .	0.219	0.205	0.191	0.155
$\varepsilon = 1.25$	. .	0.458	0.355	0.286	0.199
$\varepsilon = 1.5$	. .	0.879	0.665	0.464	0.253
$\varepsilon = 2.0$	. .	0.997	0.977	0.913	0.452

. . not applicable

Given the likelihood that most of the very low incomes do not accurately represent the economic wellbeing of the respondents reporting such values, there is some doubt about the usefulness of summary indicators that are particularly sensitive to this segment of the population.

CHOICE OF SUMMARY MEASURES

There are several implicit and explicit assumptions underlying the measures discussed above. The Atkinson index explicitly requires the user to choose an 'inequality aversion' factor, but the other measures also implicitly embody judgements about how inequality is to be quantified.

Rather than considering just one summary measure, analysts will often look at a range of measures to see whether or not they give a consistent indication about changes in inequality, especially if there is no Lorenz dominance among the distributions being compared. Comparisons can be for the same population over time, or between different populations at a point in time.

Each of the indicators has its own particular advantages. For example, the Gini coefficient can be easily understood through the graphical interpretation of the Lorenz curve, and it is probably the most widely used indicator. The Theil index is particularly useful where analysts wish to decompose the measure of income inequality in a population into the inequality that exists within subpopulations and the inequality that exists between those subpopulations. The Atkinson indexes highlight that summary measures depend on the underlying assumptions about the quantification of inequality and assist the user in varying some of those assumptions. The Gini coefficient is sometimes criticised as being too sensitive to relative changes around the middle of the income distribution. This sensitivity arises because the derivation of the Gini coefficient reflects the ranking of the population, and ranking is most likely to change at the densest part of the income distribution, which is likely to be around the middle of the distribution.

In choosing which income distribution indicators to present, whether for simple or summary measures, it is useful to recall that income alone is not a perfect measure of the economic resources available to people to maintain or enhance their wellbeing, but it is a reasonable proxy that will be suitable for most people. However, as explained in section 1.5 'Low income households', some respondents report extremely low and even negative incomes in the Survey of Income and Housing (SIH), often reflecting their

CHOICE OF SUMMARY MEASURES *continued*

business and investment arrangements rather than any distinctly low economic wellbeing of these respondents. In other cases, incomes may be underreported either accidentally or deliberately, so again they are not a good indicator of economic inequality. It has therefore been considered inappropriate for these records to have a disproportionate influence on a summary income inequality measure being used for assessing inequality in economic wellbeing, just as the bottom decile is excluded in ABS publications from analysis of low income growth over time.

The Gini coefficient is the only single statistic summary of income distribution included in the published output from the SIH because it is not overly sensitive to the extremely low incomes that can be reported, and it is relatively simple to interpret. The other summary measures looked at in this appendix are more sensitive in the Australian context to extremely low and negative incomes that are assumed to not adequately reflect economic wellbeing.

Deaton, A. (1997). *The analysis of household surveys: A microeconomic approach to development policy*. John Hopkns University Press and The World Bank.

APPENDIX 4 DATA ITEM LISTING

DATA ITEMS

For details of the data items available from the Household Expenditure Survey and the Survey of Income and Housing see the Excel spreadsheet available as a data cube '6503.0 Appendix 4 – HES/SIH 2003–04 Data Item Listing' accompanying this User Guide.

The items contained on the expenditure and loans level sections of the full data item listing are available for HES respondents only.

APPENDIX 5 HOUSEHOLD EXPENDITURE CLASSIFICATION

HOUSEHOLD EXPENDITURE CLASSIFICATION

The Household Expenditure Classification (HEC) used to classify the HES expenditure data is available as a data cube '6503.0 Appendix 5 – Household Expenditure Classification 2003–04' accompanying this User Guide. Information on the collection method used for each item is also included. There were three different collection methods – these were to collect the expenditure data through a computer assisted household interview questionnaire (using a variety of recall periods), to collect it in the paper diary, or to derive it using modelling techniques.

In addition the file contains a concordance between the 2003–04 items and the 1998–99 items so that changes can be readily identified. The reverse concordance is contained in the data cube '6503.0 Household Expenditure Classification 1998–99 to 2003–04 Concordance'.

APPENDIX 6 HEC CODING LIST

HOUSEHOLD EXPENDITURE CLASSIFICATION CODING LIST

The Household Expenditure Classification (HEC) coding list, which lists the products included in the detailed HEC codes, is available as a data cube '6503.0 Appendix 6 – Household Expenditure Classification coding list 2003–04' accompanying this User Guide.

GLOSSARY

Accounts with financial institutions — Current balances of the accounts held with banks or any other financial institutions e.g. credit unions, building societies, insurance companies, finance companies. Examples of types of accounts include: passbook, statement, cheque or term deposit accounts.

Assets — An entity of a financial or non-financial nature, owned by the household or its members, and from which economic benefits may be derived by holding or use over a period of time.

Average weekly expenditure — Value obtained by dividing the estimated weekly expenditure of a group of households by the estimated number of households in the group.

Balance of state — That part of each Australian state or territory not defined as capital city. Balance of state estimates for Northern Territory are regarded as too unreliable to publish separately since they exclude collection districts defined as very remote or Indigenous Communities which account for a significant proportion of the population. All of the Australian Capital Territory is defined as capital city for this publication.

Broad expenditure group — The broadest level of the Household Expenditure Classification used in the 2003-04 survey. For details of the classification see Appendix 5.

Bond — A certificate of ownership of a specified portion of a debt. May be issued by a government agency or private corporation to individuals or companies and usually bears a fixed interest rate of return on investment.

Canadian National Occupancy Standard (CNOS) — Provides a measure of housing utilisation. The CNOS assesses the bedroom requirements of a household by specifying that:

- there should be no more than two persons per bedroom;
- children less than 5 years of age of different sexes may reasonable share a bedroom
- children less than 18 years of age and of the same sex may reasonably share a bedroom
- single household members aged 18 years and over should have a separate bedroom, as should parents or couples
- a lone person household may resanobly occupy a bed sitter.

The CNOS variable on the file compares the number of bedrooms required with the actual number of bedrooms in the dwelling.

Capital cities — Australia's six State capital city statistical divisions and the Darwin statistical division. For the Australian Capital Territory the estimates relate predominantly to urban areas.

Changeover buyer — A household which bought their dwelling in the three years prior to the reference year and either the reference person or partner had previously owned a dwelling.

Children's assets — Any assets owned by children in the household that are not included in the value of the household contents. These assets can be financial (eg. a child's bank accounts, assets held in trusts, bonds, debenture stock) or can be non-financial such as jewellery or property held in trust for the children.

Collection District — The census Collection District (CD) is the smallest geographic area defined in the *Australian Standard Geographical Classification* (cat. no. 1216.0).

Consumer Price Index (CPI) — A general measure of price inflation for the household sector in Australia. Specifically, it provides a measure of changes, over time, in the cost of a constant basket of goods and services acquired by the capital city households in Australia.

Contents of dwelling — This is a non-financial asset and comprises an estimated value of household contents. Examples include: clothing, jewellery, hobby collections, furniture, paintings and works of art, soft furnishings and electrical appliances other than fixtures such as stoves and built-in items.

Couple — Two people in a registered or de facto marriage, who usually live in the same household.

Couple family with dependent children
One family household consisting of a couple with at least one dependent child. The household may also include non-dependent children, other relatives and unrelated individuals.

Couple, one family household
A one family household consisting of:
- one couple only
- one couple, with their dependent and/or non-dependent children only
- one couple, with or without children, plus other relatives
- one couple, with or without children and other relatives, plus unrelated individuals.

Credit card debt
The amount owing on the respondent's latest credit card account statement (including any government, interest or financial institution charges), irrespective of whether it was paid off by the due date. Includes amounts owing on specialised retail shopping cards as well as general credit cards such as Visa, Mastercard and Bankcard.

Debenture
A formal acknowledgement of indebtedness by a company. Interest is paid by the company at specific intervals. A loan or deposit can be called a debenture if it is secured over company assets. Unlike shareholders, debenture holders have a creditor relationship with the company. Instead of dividends, debenture holders receive interest on their debentures which is accounted for by the company as an expense.

Decile
Groupings that result from ranking all households or people in the population in ascending order according to some characteristic such as their household income and then dividing the population into 10 equal groups, each comprising 10% of the estimated population.

Dependent children
All persons aged under 15 years; and people aged 15–24 years who are full-time students, have a parent in the household and do not have a partner or child of their own in the household.

Diary
A notebook in which each person aged 15 years and over who was usually resident in the selected dwelling recorded his or her daily expenditure over two weeks.

Disposable income
Gross income after income tax and the Medicare levy are deducted and family tax benefit paid through the tax system or as a lump sum by Centrelink is added. Income tax and the Medicare levy are imputed based on each person's income and other characteristics as reported in the survey. Family tax benefit is estimated on the basis of reductions in pay-as-you-go tax payments, as reported in the survey, or imputed on the basis of each family's income and composition. Disposable income is sometimes referred to as Net income.

Dwelling
Defined as a suite of rooms contained within a building which are self-contained and intended for long-term residential use. To be self-contained the suite of rooms must possess cooking and bathing facilities as building fixtures. Examples of types of dwelling include: separate house; semi-detached, row or terrace house or townhouse; flat, unit, or apartment; and other dwelling, including caravan, cabin, houseboat, and house or flat attached to a shop.

Earners
Persons (excluding dependent children) who receive income from wages or salaries, who are engaged in their own business or partnership, or are silent partners in a business or partnership.

Employed persons
Persons aged 15 years and over who, during the week before the interview:
- worked one hour or more for pay, profit, commission or payment in kind in a job or business, or on a farm (includes employees, employers and own account workers),
- worked one hour or more, without pay, in a family business or on a family farm, or
- had a job, business or farm but was not at work because of holidays, sickness or other reason.

Employee
An employed person who, for most of his/her working hours:

Employee *continued*

- works for a public or private employer and receives remuneration in wages or salary, or is paid a retainer fee by his/her employer and works on a commission basis, or works for an employer for tips, piece-rates or payment in kind, or
- operates his or her own incorporated enterprise with or without hiring employees.

Employer

A person who operates his or her own unincorporated economic enterprise or engages independently in a profession or trade, and hires one or more employees.

Equity in the dwelling

A household's equity in the dwelling is the difference between the value of the dwelling and the total amount outstanding on mortgages taken out on the dwelling for any purpose, or unsecured loans taken out for housing purposes.

Equivalised disposable household income

Disposable household income adjusted using an equivalence scale. For a lone person household it is equal to disposable household income. For a household comprising more than one person, it is an indicator of the disposable household income that would need to be received by a lone person household to enjoy the same level of economic wellbeing as the household in question. For further information see Appendix 2.

Equivalising factor

A factor that can be used to adjust the actual incomes of households in a way that enables analysis of the relative wellbeing of households of different size and composition. The equivalising factor included on the file has been calculated using the 'modified OECD' equivalence scale. The factor is built up by allocating points to each person in a household. Taking the first adult in the household as having a weight of 1 point, each additional person who is 15 years or older is allocated 0.5 points, and each child under the age of 15 is allocated 0.3 points. The equivalence factor is the sum of the equivalence points allocated to the household members. Equivalised household income can be derived by dividing total household income by the equivalence factor. For further information see Appendix 2.

Expenditure

The cost of goods and services acquired during the reference period for private use, whether or not the goods were paid for or consumed. Expenditure is net of refunds. For example, payments for health services are net of any refunds received or expected to be received. Expenditure is classified according to the Household Expenditure Classification which contains over 600 detailed items. For details of the classification see Appendix 5.

Family

Two or more people, one of whom is at least 15 years of age, who are related by blood, marriage (registered or de facto), adoption, step or fostering and who usually live in the same household. A separate family is formed for each married couple, or for each set of parent-child relationships where only one parent is present.

Family composition of household

Classifies households into three broad groupings based on the number of families present (one family, multiple family and non-family). One family households are further disaggregated according to the type of family (such as couple family or one parent family) and according to whether or not dependent children are present. Non-family households are disaggregated into lone person households and group households.

Financial assets

An asset whose value arises not from its physical existence (as would a building, piece of land, or capital equipment) but from a contractual relationship. Financial assets are mostly financial claims (with the exception of shares). Financial claims entitle the owner to receive a payment, or a series of payments, from an institutional unit to which the owner has provided funds. Examples include accounts held with financial institutions, ownership of an incorporated business, shares, debentures and bonds, trusts, superannuation funds, and loans to other persons.

Financial stress

A range of items which provide a subjective measure of the household's economic well-being. One person in each household was asked to provide assessments of the current household's circumstances. This person was randomly chosen from the reference person and spouse. Items include management of household income, present standard of living compared with two years ago, ability to raise emergency money, and a

Financial stress *continued*
range of cash flow problems. For further information see section 1.13 'Deprivation and financial stress indicators'.

First home buyer
A household which bought their dwelling in the three years prior to the survey reference period, and neither the reference person nor partner had previously owned a dwelling.

Flat, unit or apartment
Includes all self-contained dwellings in blocks of flats, units or apartments. These dwellings do not have their own private grounds and usually share a common entrance foyer or stairwell. This category includes houses converted into flats and flats attached to houses such as granny flats. A house with a granny flat attached is regarded as a separate house.

Full-time employed
Employed persons who usually work 35 hours or more a week (in all jobs).

Full-time student
A person 15 years or over who is classified as a full-time student by the institution they attend, or considers himself/herself to be a full-time student. Full-time study does not preclude employment.

Gini coefficient
A summary measure of inequality of income distribution. For further information see Appendix 3.

Government pensions and allowances
Income support payments from government to persons under social security and related government programs. Included are pensions and allowances received by aged, disabled, unemployed and sick persons, families and children, veterans or their survivors, and study allowances for students. All overseas pensions and benefits are included here, although some may not be paid by overseas governments. One-off payments to families and carers paid in 2003–04 are included. Family tax benefit is also regarded as income, although for practical reasons family tax benefit paid through the tax system or as a lump sum by Centrelink is only included under disposable income, and not gross income.

Gross income
Regular cash receipts before income tax or the Medicare levy are deducted.

Group household
A household consisting of two or more unrelated people where all people are aged 15 years and over. There are no reported couple relationships, parent-child relationships or other blood relationships in these households.

Household
A group of related or unrelated people who usually live in the same dwelling and make common provision for food and other essentials of living; or a lone person who makes provision for his or her own food and other essentials of living without combining with any other person.

Household Expenditure Classification (HEC)
The expenditure classification used in the Household Expenditure Survey. In the 2003-04 survey it consists of over 600 items at the most detailed level. At the broadest level it consists of 17 broad expenditure groups. For details of the classification see Appendix 5.

Household questionnaire
Used to collect information on household characteristics, on irregular or infrequently occurring expenditure items, regular expenditure items common to all household members and household assets and liabilities. Households were asked to recall expenditures over a period ranging from their last payment to three years (e.g. for house purchases).

Household reference person
The reference person for each household is chosen by applying, to all household members aged 15 years and over, the selection criteria below, in the order listed, until a single appropriate reference person is identified:

- one of the partners in a registered or de facto marriage, with dependent children
- one of the partners in a registered or de facto marriage, without dependent children
- a lone parent with dependent children
- the person with the highest income
- the eldest person.

For example, in a household containing a lone parent with a non-dependent child, the one with the higher income will become the reference person. However, if both individuals have the same income, the elder will become the reference person.

Housing costs

Housing costs for the purposes of the publication *Housing Occupancy and Costs, Australia* (cat. no. 4130.0.55.001) comprise the following costs for the 3 different tenure type categories shown:

- owner without a mortgage - rates payments (general and water)
- owner with a mortgage - rates payments plus mortgage or unsecured loan payments if the initial purpose was primarily to buy, build, add to or alter the dwelling
- renter - rent payments

Some additional items relating to housing costs are available to enable alternative estimates of housing costs to be constructed. For further information see Section 4.2.

Housing costs as a proportion of income

The total weekly housing costs of a group (e.g. one parent households) are divided by the total weekly income of that group expressed as a percentage.

Housing utilisation

Provides a measure of the bedroom requirements of a household according to household size and composition. See Canadian National Occupancy Standard.

Income

Regular and recurring cash receipts including moneys received from wages and salaries, government pensions and allowances, and other regular receipts such as superannuation, workers' compensation, child support, other transfers from other households, scholarships, profit or loss from own unincorporated business or partnership and investment income. Gross income is the sum of the income from all these sources before income tax or the Medicare levy are deducted. Other measures of income are disposable income and equivalised disposable income. Note that child support and other transfers from other households are not deducted from the incomes of the households making the transfers.

Income tax

This item was estimated for all households using the relevant taxation criteria and the income and other characteristics of household members reported in the survey.

Income unit

One person or a group of related persons within a household, whose command over income is assumed to be shared. Income sharing is assumed to take place within married (registered or de facto) couples, and between parents and dependent children.

Income unit reference person

The male partner in a couple income unit, the parent in a one parent income unit and the person in a one person income unit.

Incorporated business

An incorporated business is a company that has a registered business name with the Australian Securities and Investment Commission (ASIC) and a legal status which is separate to that of the individual owners of the business.

Individual questionnaire

Used to collect information from each person aged 15 years and over on individual details such as income, personal assets, education and labour force status.

Industry

Coded for all employed people aged 15 years and over, using the *Australian and New Zealand Standard Industrial Classification (ANZSIC)* (cat. no. 1292.0).

Investment loan

A loan taken out for the purpose of financing investment, excluding loans for business purposes and rental property.

Labour force status

Classifies all people aged 15 years and over according to whether they were employed, unemployed or not in the labour force.

Landlord type

For renters, the type of entity to whom rent is paid or with whom the tenure contract or arrangement is made. Landlords belong to one of the following categories:

- state/territory housing authority–where the household pays rent to a state or territory housing authority or trust
- private landlord–where the household pays rent to a real estate agent or to another person not in the same household
- other–where the household pays rent to the owner/manager of a caravan park, an employer (including a government authority), a housing cooperative, a community or church group, or any other body not included elsewhere.

Liability	A liability is an obligation which requires one unit (the debtor) to make a payment or a series of payments to the other unit (the creditor) in certain circumstances specified in a contract between them.
Loan	A form of liability that is created when creditors lend funds directly to debtors. Examples are an overdraft from a bank, money lent by a building society with a mortgage over a property as collateral, and personal loans.
Loans for owner occupied dwelling	Principal outstanding on loans used to purchase, build, alter, or make additions to the selected dwelling. Includes money borrowed for a deposit on the selected dwelling, and bridging finance taken out until such time as a loan or mortgage is obtained or the dwelling is bought outright. Where only a proportion of a loan is used for the owner occupied dwelling, only that proportion of the principal outstanding is included.
Lone person household	A household consisting of a person living alone.
Lump sum receipts and disbursements	Amounts relate to lump sum receipts and disbursements over $500 in the previous 2 years.
Mean housing costs	The total weekly housing costs paid by a group of households (e.g. couple only households) divided by the number of households in that group.
Mean income	The total income received by a group of units divided by the number of units in the group. For more detail about household weighted and person weighted means, see Section 1.6.
Mean net worth	Mean (or average) net worth is the total net worth of a group of units divided by the number of units in the group.
Median housing costs	That level of weekly housing costs that divides a group of households into two equal parts, one half having housing costs above the median and the other half having housing costs below the median. Households with nil or negative total income are not included in this calculation.
Median income	That level of income which divides the units in a group into two equal parts, one half having incomes above the median and the other half having incomes below the median. For more detail about household weighted and person weighted medians, see Section 1.6.
Median net worth	That level of net worth which divides the units in a group into two equal parts, one half having net worth above the median and the other half having net worth below the median.
Median ratio of housing costs to income	The ratio of weekly housing costs to gross weekly income is calculated for each household. The median is the level of that ratio that divides a group of households into two equal parts, one half having the ratio above the median and the other half having the ratio below the median.
Medicare levy	Medicare is Australia's universal health care system. For more information refer to <http://www.medicareaustralia.gov.au/>
Mortgage	A mortgage is a loan taken out using the usual residence as security. An owner with a mortgage must still owe money from such a loan.
Multiple family household	A household containing two or more families. Unrelated individuals may also be present.
Negative expenditure	Occurs if a household's receipts for a good or service (e.g. refunds, trade-ins, sales or successful insurance claims), over a specific period, exceeds the cost of acquisitions. For example, if a household sold a car in the previous 12 months and did not buy a replacement car or they bought a less expensive car, this household would report negative expenditure on cars.

Negative income — Income may be negative when a loss accrues to a household as an owner or partner in unincorporated enterprises or rental properties. Losses occur when operating expenses and depreciation are greater than gross receipts.

Negative net worth — Net worth may be negative when household liabilities exceed household assets.

Net worth — Net worth is the value of a household's assets less the value of its liabilities.

Non-dependent children — All people aged 15 years and over who:
- do not have a spouse or offspring of their own in the household,
- have a parent in the household, and
- are not full-time students aged 15–24 years.

Non-family household — Consists of unrelated people only. A non-family household can be either a person living alone or a group household.

Non-financial assets — Non-financial assets are all assets other than financial assets. Examples include residential and non-residential property, household contents and vehicles.

Not in the labour force — Persons not in the categories employed or unemployed as defined.

Occupation — Coded for all employed people aged 15 years and over, using the *Australian Standard Classification of Occupations (ASCO), second edition, 1997* (cat. no. 1220.0).

One family household — A household containing only one family. Unrelated individuals may also be present.

One parent family with dependent children — A one family household comprising a lone parent with at least one dependent child. The household may also include non-dependent children, other relatives and unrelated individuals.

One parent, one family household — A one family household comprising a lone parent with at least one dependent or non-dependent child. The household may also include other relatives and unrelated individuals.

Other dwelling — Includes caravans, houseboats, or houses or flats attached to a shop or other commercial premise.

Other income — Income other than wages and salaries, own business or partnership income and government pensions and allowances. This includes income received as a result of ownership of financial assets (interest, dividends), and of non-financial assets (rent, royalties) and other regular receipts from sources such as superannuation, child support, workers' compensation and scholarships. Income from rent is net of operating expenses and depreciation and may be negative when these are greater than gross receipts.

Other landlord type — Where the household pays rent to the owner/manager of a caravan park, an employer (including a government authority), a housing cooperative, a community or church group, or any other body not included elsewhere.

Other one family household — A household comprising:
- one couple with their non-dependent children only,
- one couple, with or without non-dependent children, plus other relatives,
- one couple, with or without non-dependent children or other relatives, plus unrelated individuals,
- a lone parent with his/her non-dependent children, with or without other relatives and unrelated individuals, or
- two or more related individuals where the relationship is not a couple relationship or a parent-child relationship (e.g. two brothers).

Other property loans — Principal outstanding on loans used to purchase, build, alter, or make additions to property rented out, loans taken out by people in rental properties who are buying or building a home somewhere else, and loans taken for alterations and additions to other property. Where only a proportion of a loan is used for the property, only that proportion of the principal outstanding is included.

Other tenure type	A household which is not an owner, with or without a mortgage, or a renter. Includes rent free.
Own account worker	A person who operates his or her own unincorporated economic enterprise or engages independently in a profession or trade and hires no employees.
Own unincorporated business income	The profit/loss that accrues to persons as owners of, or partners in, unincorporated enterprises. Profit/loss consists of the value of gross output of the enterprise after the deduction of operating expenses (including depreciation). Losses occur when operating expenses are greater than gross receipts and are treated as negative income.
Owner (of dwelling)	A household in which at least one member owns the dwelling in which it usually resides. Owners are divided into two classifications - owners without a mortgage and owners with a mortgage. If there is any outstanding mortgage or loan secured against the dwelling the household is an owner with a mortgage. If there is no mortgage or loan secured against the dwelling the household is an owner without a mortgage.
Part-time employed	An employed person who usually works less than 35 hours per week.
Percentile	When all households or people in the population are ranked from the lowest to the highest on the basis of some characteristic such as their household income, they can then be divided into equal sized groups. Division into 100 groups gives percentiles. The highest value of the characteristic in the tenth percentile is denoted P10. The median or the top of the 50th percentile is denoted P50. P20, P80 and P90 denote the highest values in the 20th, 80th and 90th percentiles. Ratios of values at the top of selected percentiles, such as P90/P10, are often called percentile ratios.
Percentile ratios	Percentile ratios summarise the relative distance between two points in a distribution. To illustrate the full spread of the income distribution, the percentile ratio needs to refer to points near the extremes of the distribution, for example, the P90/P10 ratio. The P80/P20 ratio better illustrates the magnitude of the range within which the income of the majority of households falls. The P80/P50 and P50/P20 ratios focus on comparing the ends of the income distribution with the midpoint.
Previous financial year income	Income earned in the period July 2002 to June 2003.
Principal source of income	That source from which the most positive income is received. If total income is nil or negative the principal source is undefined. As there are several possible sources, the principal source may account for less than 50% of total income.
Private income	Regular, recurring receipts from private organisations, including superannuation, regular workers' compensation, income from annuities, interest, dividends, royalties, income from rental properties, scholarships and child support.
Private renter	A household paying rent to a landlord who is a real estate agent, a parent or other relative not in the same household or another person not in the same household.
Property	All residential and non-residential properties owned by persons in the household, excluding properties owned by the respondent's business.
Property income	Income received as a result of ownership of assets. It comprises returns from financial assets (interest, dividends), and from non-financial assets (rent and royalties).
Public renter	A household paying rent to a state or territory housing authority/trust.
Quintiles	Groupings that result from ranking all households or people in the population in ascending order according to some characteristic such as their household income and then dividing the population into five equal groups, each comprising 20% of the estimated population.
Ratio of household incomes at top of selected income percentiles	See Percentile.

Recent home buyer A household which bought their dwelling in the three years prior to the survey.

Reference person See Household reference person and Income unit reference person.

Relative standard error (RSE) The standard error expressed as a percentage of the estimate for which it was calculated. It is a measure which is independent of both the size of the sample, and the unit of measurement and as a result, can be used to compare the reliability of different estimates. The smaller an estimate's RSE, the more likely it is that the estimate is a good proxy for that which would have been obtained if the whole population had been surveyed.

Renter A household which pays rent to reside in the dwelling. See further classification by Landlord type.

Salary packaging Occurs when an employee receives a mix of cash and non-cash benefits from their employer.

Salary sacrifice An arrangement between an employee and their employer where part of the employee's pre-tax cash salary is traded for non-cash benefits. It is a particular type of salary packaging where the amount sacrificed can vary at the employee's discretion within guidelines set by the employer.

Selected dwelling The private dwelling selected in the sample for the survey.

Semi-detached, row or terrace house or townhouse A dwelling with its own private grounds and no dwelling above or below. A key feature of this dwelling is that it is either attached in some structural way to one or more dwellings or is separated from neighbouring dwellings by less than one-half metre. Examples include semi-detached, row or terrace houses, townhouses or villa units. Multistorey townhouses or units are separately identified from those which are single storey.

Separate house A dwelling which is self-contained and separated from other houses (or other buildings or structures) by a space to allow access on all sides (at least one-half metre). This category also includes houses that have an attached flat (e.g. a granny flat). The attached flat will be included in the flat, unit or apartment category.

Shares A share is a contract between the issuing company and the owner of the share which gives the latter an interest in the management of the corporation and the right to participate in profits. In this publication the "value of shares" excludes the value of shares held by individuals in their own incorporated business. Such shares are included in "value of own incorporated business".

Significant person Significant persons are defined as follows:

- all members of a lone person or couple only household
- all parents in a couple with children household or a single parent household
- the persons aged 15 years or over in an unrelated persons household where one person is aged 15 years or over and the other members of the household are less than 15 years old
- 50% of the persons aged 15 years and over in all other households.

Standard error A measure of the likely difference between estimates obtained in a sample survey and estimates which would have been obtained if the whole population had been surveyed. The magnitude of the standard error associated with any survey is a function of sample design, sample size and population variability.

Statistical division The largest spatial unit within each state/territory in the main structure of the *Australian Standard Geographical Classification* (cat. no. 1216.0).

Study loans Study loans are debts incurred under HECS (Higher Education Contribution Scheme), SFSS (Student Financial Supplement Scheme), and other government higher education schemes. A feature of these loans is that the obligation to repay them only exists when the student's income exceeds a threshold. The debt is also extinguished upon death.

Superannuation A long-term savings arrangement which operates primarily to provide income for retirement.

Tenure type The nature of a household's legal right to occupy the dwelling in which the household members usually reside. Tenure is determined according to whether the household owns the dwelling outright, owns the dwelling but has a mortgage or loan secured against it, is paying rent to live in the dwelling or has some other arrangement to occupy the dwelling.

Trusts Any type of managed fund which involves the pooling of investors' money in order for a trustee or professional manager to administer that fund. Examples include listed and unlisted public unit trusts, cash management trusts, property trusts and family trusts used only for investment purposes.

Unemployed persons Persons aged 15 years and over who were not employed during the week before the interview, had actively looked for full-time or part-time work at any time in the four weeks before the interview and

- were available for work in the week before the interview, or
- were waiting to start a new job within four weeks from the interview and would have started in the week before the interview if the job had been available then.

Unincorporated business A business in which the owner(s) and the business are the same legal entity, so that, for example, the owner(s) are personally liable for any business debts that are incurred.

Value of dwelling The estimated value of the dwelling and its land, as estimated and reported by the household respondent. The data are only collected for owners.

Vehicles Vehicles include registered and unregistered vehicles used for private purposes including cars, trucks, buses, motorcycles, caravans, aircraft, boats and bicycles.

Vehicle loans Principal outstanding on loans used to purchase motor vehicles. Where only a proportion of a loan is used to purchase a vehicle, only that proportion of the principal outstanding is included.

Wages and salaries The gross cash income received as a return to labour from an employer or from a person's own incorporated business.

Wealth See Net worth.

Year of arrival in Australia The year a person (born outside Australia) first arrived in Australia from another country, with the intention of staying in Australia for one year or more.

FOR MORE INFORMATION . . .

INTERNET	**www.abs.gov.au** the ABS web site is the best place for data from our publications and information about the ABS.
LIBRARY	A range of ABS publications are available from public and tertiary libraries Australia wide. Contact your nearest library to determine whether it has the ABS statistics you require, or visit our web site for a list of libraries.

INFORMATION AND REFERRAL SERVICE

Our consultants can help you access the full range of information published by the ABS that is available free of charge from our web site, or purchase a hard copy publication. Information tailored to your needs can also be requested as a 'user pays' service. Specialists are on hand to help you with analytical or methodological advice.

PHONE	1300 135 070
EMAIL	client.services@abs.gov.au
FAX	1300 135 211
POST	Client Services, ABS, GPO Box 796, Sydney NSW 2001

FREE ACCESS TO STATISTICS

All ABS statistics can be downloaded free of charge from the ABS web site.

WEB ADDRESS	www.abs.gov.au

2650300001054

RRP $11.00