THE UNIVERSITY OF MELBOURNE

The Household, Income and Labour Dynamics in Australia Survey: Selected Findings from Waves 1 to 14

2016

The Household, Income and Labour Dynamics in Australia (HILDA) Survey is funded by the Australian Government Department of Social Services

MELBOURNE INSTITUTE®
of Applied Economic and Social Research

The Household, Income and Labour Dynamics in Australia Survey: Selected Findings from Waves 1 to 14

The 11th Annual Statistical Report of the HILDA Survey

Roger Wilkins

Melbourne Institute of Applied Economic and Social Research
The University of Melbourne

The Household, Income and Labour Dynamics in Australia (HILDA) Survey is funded by the Australian Government Department of Social Services

Melbourne Institute of Applied Economic and Social Research
Faculty of Business and Economics
Level 5, 111 Barry Street
FBE Building
The University of Melbourne
Victoria 3010 Australia
Tel: +61 3 8344 2100
Fax: +61 3 8344 2111
Web: www.melbourneinstitute.com/hilda

ISSN 2205-0558 (Print)
ISSN 2205-0566 (Online)

This is the 11th Annual Statistical Report of the HILDA Survey. The first nine reports (2006 to 2014) were published as *Families, Incomes and Jobs: A Statistical Report of the HILDA Survey*.

Photo credits: photo on page 118 from Roy Morgan Research; photo on page 120 by Roger Wilkins; all other photos ©iStock.com

Designed and typeset by Tabitha Reed, UniPrint Pty Ltd.
Printed and bound by UniPrint Pty Ltd.

Contents

Acknowledgements

Thanks to Deborah Kikkawa and Peng Yu from the National Centre for Longitudinal Data in the Commonwealth Department of Social Services for comments on drafts of this report, Gerda Lenaghan for subediting, and Nellie Lentini for overseeing subediting and production of the report.

1 Introduction

The HILDA Project

Commenced in 2001, the Household, Income and Labour Dynamics in Australia (HILDA) Survey is a nationally representative longitudinal study of Australian households. The study is funded by the Australian Government Department of Social Services (DSS; previously Families, Housing, Community Services and Indigenous Affairs) and is managed by the Melbourne Institute of Applied Economic and Social Research at the University of Melbourne. Roy Morgan Research has conducted the fieldwork since Wave 9 (2009), prior to which The Nielsen Company was the fieldwork provider.

The HILDA Survey seeks to provide longitudinal data on the lives of Australian residents. It annually collects information on a wide range of aspects of life in Australia, including household and family relationships, child care, employment, education, income, expenditure, health and wellbeing, attitudes and values on a variety of subjects, and various life events and experiences. Information is also collected at less frequent intervals on various topics, including household wealth, fertility-related behaviour and plans, relationships with non-resident family members and non-resident partners, health care utilisation, eating habits, cognitive functioning and retirement.

The important distinguishing feature of the HILDA Survey is that the same households and individuals are interviewed every year, allowing us to see how their lives are changing over time. By design, the study can be infinitely lived, following not only the initial sample members for the remainder of their lives, but also the lives of their children and grandchildren, and indeed all subsequent descendants. Household longitudinal data, known as panel data, provide a much more complete picture than cross-sectional data because they document the life-course each person takes. Panel data tell us about *dynamics*—family, health, income and labour dynamics—rather than *statics*. They tell us about *persistence* and *recurrence*, for example, of poverty, unemployment or welfare reliance. Perhaps most importantly, panel data can tell us about the antecedents and consequences of life outcomes, such as poverty, unemployment, marital breakdown and poor health, because we can see the paths that individuals' lives took to those outcomes and the paths they take subsequently. Indeed, one of the valuable attributes of the HILDA panel is the wealth of information on a variety of life domains that it brings together in one dataset. This allows us to understand the many linkages between these life domains; to give but one example, we can examine how the risk of poor economic outcomes depends on an individual's health.

Panel data are also important because they allow causal inferences in many cases that are more credible than what other types of data permit. In particular, statistical methods known as 'fixed-effects' regression models can be employed to examine the effects of various factors on life outcomes such as earnings, unemployment,

income and life satisfaction. These models can control for the effects of stable characteristics of individuals that are typically not observed, such as innate ability and motivation, that confound estimates of causal effects in cross-sectional settings.

This report

This report presents brief statistical analyses of the first 14 waves of the study, which were conducted between 2001 and 2014.[1] It examines 12 topics: family life; economic wellbeing; labour market outcomes; household wealth; housing wealth; superannuation; material deprivation; child health and heath care utilisation; private health insurance; physical activity; and sleep. As wide-ranging as these topics are, this report should be viewed as containing only 'selected findings'. Each of the topics is covered in a cursory fashion, and there are many other topics that can be examined with the data. The HILDA Survey is an extremely rich data source, and testament to this is the large number of publications on a diverse range of topics. Further details on these publications are available on the HILDA Survey web site at <http://www.melbourneinstitute.com/hilda/biblio/> and at <http://flosse.dss.gov.au/>.

Most of the analysis presented in this report consists of graphs and tables of descriptive statistics that are reasonably easy to interpret. However, several tables in this report contain estimates from regression models. These are less easily interpreted than tables of descriptive statistics, but are included because they are valuable for better understanding the various topics examined in the report. In particular, a regression model provides a clear description of the statistical relationship between two factors, *holding other factors constant*. For example, a regression model of the determinants of earnings can show the average difference in earnings between disabled and non-disabled employees, holding constant other factors such as age, education, hours of work, and so on (that is, the average difference in earnings when people do not differ in other characteristics). Moreover, under certain conditions, this statistical association can be interpreted as a causal relationship, showing the effects of the 'explanatory variable' on the 'dependent variable'. Various types of regression models have been estimated for this report, and while these models are not explained in depth, brief outlines of the intuition for these models and how to interpret the estimates are provided in the Technical Appendix.

The Technical Appendix also provides details on the HILDA Survey sample and the population weights supplied in the data to correct for non-response and attrition. These weights are used in all analysis presented in this report, so that all statistics represent estimates for the Australian population. Note also that the estimates based on the HILDA Survey, like all sample survey estimates, are subject to sampling error. As explained in more detail in the Technical Appendix, for tabulated results of descriptive statistics, we have adopted an Australian Bureau of Statistics convention and marked with an asterisk (*) estimates which have a relative standard error—the standard error relative to the size of the estimate itself—of more than 25%. Note that a relative standard error that is less than 25% implies there is a greater than 95% probability the true quantity lies within 50% of the estimated value. For regression model parameter estimates presented in this report, estimates that are not statistically significantly different from 0 at the 10% level are not reported and instead '*ns*' (not significant) appears in place of the estimate. Estimates that are statistically significant at the 10% level have a probability of not being 0 that is greater than 90%.

[1] The previous volume of this report examined the first 12 waves of the study.

2

Family life

Family life is a key focus of the HILDA Survey. Information is collected annually on household and family structures and relationships, use of child care, contact with non-resident children, the quality of family relationships and a variety of other family-related topics. Information is also collected regularly, but less frequently, on many other family-related topics, including fertility behaviour and intentions, non-co-resident siblings, parents and adult children, attitudes to marriage and children and attitudes to parenting and paid work. By providing longitudinal data, the HILDA Survey provides unique information on how and why family circumstances change over time—partnering and marriage, separation and divorce, childbirth, adult children leaving the family home, and indeed any other change to the composition or nature of family circumstances.

In this chapter, analyses are presented for the 2001 to 2014 period on four family-life topics: having children; child care use; lone parents; and parents with non-resident children.

Having children

The comprehensive data on children ever born to sample members allows us to describe lifetime fertility patterns of the Australian population. Using the Wave 14 data, Table 2.1 examines the proportion of men and women who have ever had a child, and the age at which they had their first child. The table is disaggregated by birth cohort, separately examining fertility of men and women born before 1940, 1940–1949, 1950–1959, 1960–1969, 1970–1979, 1980–1989 and 1990–1999. In 2014, these birth cohorts correspond to age groups of 75 and over, 65–74, 55–64, 45–54, 35–44, 25–34 and 15–24.

The table shows that the proportion of men who had ever had a child is lower the more recent the birth cohort. This pattern is also evident for women, with the notable exception that women born in the 1950s have a lower estimate for this fertility measure than women born in the 1960s. While the pattern of lower first-birth rates for more recent cohorts is unsurprising for those born after 1970, it is not immediately obvious why the proportion ever having had a child should be higher for those born before 1940 than for those born in the 1940s, and why this proportion should be higher for those born in the 1940s than for those born in the 1950s. It may be that individuals who have children on average live longer than those who do not have children, causing them to be over-represented at older ages and hence leading to overestimation of fertility of earlier birth cohorts.

In each of the cohorts born after 1960, the proportion having had a child is higher for women than men, which mainly reflects the tendency, as evident in the table, for women to have their first child at a younger age. For example, among parents born in the 1950s, over half of women had their first child when aged under 25, whereas only 31% of men had their first child when aged under 25. This is a pattern evident for all birth cohorts, including the 1990s cohort, despite it having a maximum age of 24 in 2014.

The well-known trend towards older first-time parents is also evident in Table 2.1, particularly for women.

Table 2.1: Parental age at birth of first child, by birth cohort, 2014

	<1940	*1940–1949*	*1950–1959*	*1960–1969*	*1970–1979*	*1980–1989*	*1990–1999*
Males							
Have had a child (%)	94.6	89.0	87.4	81.2	74.4	34.6	2.0
Age at first birth (%)							
Less than 18	3.8	2.4	2.6	1.3	1.3	3.3	11.6
18–20	5.1	7.8	9.9	4.9	6.2	10.1	30.4
21–24	32.3	26.0	18.8	18.0	12.9	20.1	58.0
25–29	36.1	41.4	32.1	32.3	31.6	42.2	–
30–34	15.1	15.5	21.9	25.9	29.0	23.9	–
35 and over	7.6	6.8	14.4	17.6	18.9	–	–
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Females							
Have had a child (%)	93.9	93.2	88.9	90.2	82.6	46.7	7.1
Age at first birth (%)							
Less than 18	4.9	5.6	6.1	4.7	3.4	4.2	21.7
18–20	17.5	18.5	16.6	12.1	12.9	14.1	45.7
21–24	42.1	36.2	27.8	25.4	17.6	23.7	32.4
25–29	24.2	27.5	27.7	29.3	31.1	40.0	–
30–34	7.4	10.0	14.0	18.6	24.0	17.6	–
35 and over	3.9	2.1	7.6	9.7	11.0	–	–
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

For example, the proportion of women aged 30 and over at the time of first birth is 11.3% for those born before 1940, 12.1% for the 1940s cohort, 21.6% for the 1950s cohort and 28.3% for the 1960s cohort. Fertility was not complete as of 2014 for women born in the 1970s, who could have been as young as 35 in 2014. Nonetheless, of women born in the 1970s who had given birth, 35% had their first child aged 30 and over as of 2014. This percentage will rise over subsequent years given that any additional first-births in this cohort will be to women aged 36 or older. Indeed, if the proportion of women in the 1970s having a child eventually rises to the level of the 1960s cohort (90.2%), 42.6% of those having had children will have been aged 30 or more at the time of first birth—and 18.6% will have been aged 35 or more.

Information on fertility behaviour over the HILDA Survey period is examined in Table 2.2, which uses the longitudinal data structure to examine the proportion of people having a child each year by age and sex. (Note that, in contrast to Table 2.1, all births are examined in the table, not just first births.) The table compares the 2002 to 2004 period with the 2012 to 2014 period to investigate whether any trend changes are evident over the 14 years of the study. Considering first the 2002 to 2004 period, the table shows that the probability of having a child peaked in the 25–29 age range for women and in the 30–34 age range for men. Specifically, in any given year in this period, 13.2% of women aged 25–29 had a child, while 11.3% of men aged 30–34 had a child. The next most common age-range was 30–34 for women (10.4% giving birth each year) and 25–29 for men (9.3%).

Despite the relatively short time-frame, the changes between 2002 to 2004 and 2012 to 2014 in probabilities of having children by age are striking. In 2012 to 2014, the peak age group for women having children was 30–34, with 12.7% of women in this age range giving birth each year. The

Table 2.2: Percentage having a child in any given year, by sex and age group, 2002 to 2004 and 2012 to 2014

	2002–2004		*2012–2014*	
	Males	*Females*	*Males*	*Females*
15–24	1.3	2.9	0.9	2.6
25–29	9.3	13.2	6.4	9.5
30–34	11.3	10.4	12.3	12.7
35–39	6.6	5.4	6.8	5.9
40–44	3.3	1.1	3.3	*0.7
45–49	1.6	*0.3	0.9	*0.1
All aged 15–49	4.9	5.1	4.5	4.8

Note: * Estimate not reliable.

proportion of women aged 35–39 giving birth each year also rose, from 5.4% to 5.9%, while the proportions aged 15–24 and 25–29 giving birth each year declined, from 2.9% to 2.6% and from 13.2% to 9.5%, respectively. Similar, albeit less dramatic, patterns are evident for men, with the proportion having a child each year falling from 9.3% to 6.4% for those aged 25–29, rising from 11.3% to 12.3% for those aged 30–34, and rising from 6.6% to 6.8% for those aged 35–39.

Starting a family

There are many factors that impact on the decision to start a family (that is, have a first child). Indicative information on the role of some of these factors is presented in Tables 2.3 and 2.4. Table 2.3 presents summary statistics on the characteristics of men and women in the most immediate wave prior to having their first child, evaluated over the entire HILDA Survey period. Age is of course an important factor, and the most common age-range at which a family was started in the 2001 to 2014 period was 30–34 for men and 25–29 for women.

Approximately 64% of men and 62% of women were legally married in the wave immediately prior to the first birth, while a further 21% of men and 22% of women were de facto married. Approximately 16% of men and women were not partnered in the wave immediately prior to the first birth, although further analysis shows that 64% of these men and 44% of these women were partnered in the wave immediately following the first birth. This suggests that less than 6% of men, and less than 9% of women, were actually not partnered at the time of first birth.

Among those partnered at the time of first birth, they had on average been living with their partner for 4.9 years as of the wave immediately prior to the birth. There is thus, on average, a considerable amount of time between moving in with a partner and having a first child, although this may in part reflect difficulties experienced by couples in getting pregnant.

There are sizeable differences between men and women in labour force status in the wave immediately prior to the first birth. Only 8.7% of men were not employed in the wave prior to birth, whereas 25.5% of women were not employed. The higher rate of non-employment for women may at least in part be due to women withdrawing from the labour force during pregnancy. Almost all men and women are in private housing at the time of having their first child. Indeed, the proportion living in home-owner households, at approximately 58%, is relatively high for individuals in this age range. Among all persons aged 25–34 (when most first-births are concentrated), the proportion living in home-owner households was approximately 46% over the HILDA Survey period.

Factors affecting the decision to start a family are investigated in more detail in Table 2.4, which presents estimates of regression models for couples. The sample comprises couples who have not yet had any children or reported getting pregnant. The outcome examined here is whether the couple gets pregnant (rather than gives birth), since this is a better indicator of intentions to start a family. It nonetheless is an imperfect indicator, because many people may have difficulties getting pregnant. The estimates can be interpreted as providing information on the economic and social determinants of first pregnancy. All of the characteristics examined in Table 2.4 are evaluated in the wave prior to the wave in which the pregnancy is reported.

Three sets of characteristics are presented in the table: characteristics of the couple;

Table 2.3: Characteristics of men and women at time of first birth, 2001 to 2014 (pooled)

	Men	*Women*
Age group (%)		
15–24	15.0	25.0
25–29	29.9	34.6
30–34	32.3	27.9
35 and over	22.9	12.5
Total	100.0	100.0
Partner status (%)		
Legally married	63.6	62.2
De facto married	20.6	22.1
Not legally or de facto married	15.8	15.7
Total	100.0	100.0
Mean relationship duration of partnered persons (years)	4.9	4.9
Employment status (%)		
Employed full-time	82.5	59.3
Employed part-time	8.8	15.2
Not employed	8.7	25.5
Total	100.0	100.0
Housing tenure type (%)		
Home owner	58.3	58.5
Private renter	40.2	38.9
Public renter or other	1.5	2.7
Total	100.0	100.0

characteristics of the woman; and characteristics of her partner who in most, but not all, cases is a man. The table shows legal marital status is an important factor. Being legally married, as opposed to de facto married, is associated with a large positive effect on the likelihood of getting pregnant, on average acting to increase the probability by 13.4 percentage points. The likelihood of pregnancy (given the couple has not previously conceived) is also highest within the first four years of the relationship. Holding other factors constant, couples who have been together for at least four years, but less than six years, on average have a probability of pregnancy that is 6.4 percentage points lower than couples within the first four years of their relationship, while couples who have been together six or more years have an 8.8 percentage-point lower probability of pregnancy.

Home ownership is associated with a higher probability of pregnancy, possibly reflecting greater financial readiness for starting a family. However, contrary to this explanation, experience of financial stress, defined to occur if either partner reports two or more indicators of financial stress (as itemised in Box 8.1, page 88), is also associated with a higher probability of pregnancy. No significant effects of the couple being 'credit constrained' (as defined in Box 2.2, page 10) are evident.

The age of the woman appears to play an important role in the decision to start a family, 30–34 being the peak age-range for starting a family, holding other factors constant. Given the couple has not already become pregnant, the probability of getting pregnant is lowest when the woman is aged 35 or older.

Employment of the woman is associated with a decrease in the probability of starting a family, implying the higher rate of non-employment of women evident in Table 2.3 is not entirely because of

Table 2.4: Factors associated with decision of couples to have their first child

	Estimate
Characteristics of the couple	
Legally married	0.134
Relationship duration (Reference category: Less than 2 years)	
2–3 years	*ns*
4–5 years	–0.064
6 or more years	–0.088
Housing tenure type (Reference category: Private renter)	
Home owner	0.027
Public renter	*ns*
Two or more indicators of financial stress	0.047
Credit constrained	*ns*
Characteristics of the woman	
Age group (Reference category: 35–44)	
15–24	0.043
25–29	0.096
30–34	0.133
Employed	–0.066
Employee of large firm	0.030
Casual employee	*ns*
Weekly wage ($'000, December 2014 prices; 0 if not employed)	*ns*
Financial prosperity 'poor'	*ns*
Satisfaction with finances (0–10 scale)	0.011
In poor general health	*ns*
In poor mental health	*ns*
Disability with moderate or severe work restriction	–0.058
Satisfaction with partner (0–10 scale)	0.017
Characteristics of the partner[a]	
Employed	*ns*
Casual employee	*ns*
Weekly wage ($'000, December 2014 prices; 0 if not employed)	0.015
Financial prosperity 'poor'	*ns*
Satisfaction with finances (0–10 scale)	*ns*
In poor general health	–0.055
In poor mental health	*ns*
Disability with moderate or severe work restriction	*ns*
Satisfaction with partner (0–10 scale)	*ns*
Year effects (Reference category: 2001–2004)	
2005–2008	*ns*
2009–2013	*ns*
Number of observations	4,474

Notes: Table reports mean marginal effects estimates derived from a Probit regression model of the probability of getting pregnant. See the Technical Appendix for further details on regression models. The model uses all 14 waves and the sample comprises couples who do not have any children and have not previously been observed to get pregnant, and in which the female is aged under 45. *ns* indicates the estimate is not significantly different from 0 at the 10% level. [a] The partner may be female.

Box 2.1: SF–36 measures of health

The SF–36 Health Survey is a 36-item questionnaire that is intended to measure health outcomes (functioning and wellbeing) from a patient point of view. It was specifically developed as an instrument to be completed by patients or the general public rather than by medical practitioners, and is widely regarded as one of the most valid instruments of its type. See <http://www.sf-36.org/> for further details.

The SF–36 measures of general health and mental health are used in this report. The scores for both measures potentially range from 0 to 100. For some analyses in this report, indicator variables are created for poor general health and poor mental health. There are no universally accepted threshold scores for defining poor general and mental health, but for the purposes of this report, poor general health is defined as a score less than or equal to 37, on the basis that approximately 10% of the population is at or below this threshold. Similarly, poor mental health is defined as a score less than or equal to 52, on the basis that approximately 10% of the population is at or below this threshold.

withdrawal from the labour force during pregnancy. This is consistent with the 'opportunity costs'—essentially, foregone earnings—of starting a family being lower for couples in which the woman is not employed. That said, no significant effects of the weekly earnings of the woman are evident. Also notable is that the negative effects of employment are nearly halved if the woman works for a large employer (500 or more employees), possibly because of better maternity leave entitlements compared with employees of smaller employers.

In contrast to the findings for the woman, the employment status of the woman's partner does not significantly impact on the probability of first pregnancy, but the weekly earnings of the partner do have significant effects, each additional $1,000 in earnings increasing the probability of first pregnancy by 1.5 percentage points.

No effects of the woman's general health or mental health (as defined in Box 2.1, at left) are evident, but the presence of a disability with a moderate or severe work restriction (as defined in Box 12.1, page 110) acts to reduce the probability of first pregnancy by 5.9 percentage points. For the partner, by contrast, no effects of disability are evident, but poor general health acts to decrease the probability of first pregnancy by 5.5 percentage points.

The estimates in Table 2.4 indicate that the woman's satisfaction with her financial situation and her satisfaction with her partner both impact on the decision to start a family, but her partner's sentiments on these matters do not impact on the decision. The possible inference we might make from this is that the woman is the primary decision-maker on starting a family.

Box 2.2: Credit constraints

Credit constraints refer to the ability of a person to borrow money: a person may be regarded as credit constrained if he or she is unable to borrow money. The HILDA Survey does not directly measure credit constraints, but every wave has included a question in the self-completion questionnaire on the ability to raise money ($2,000 up until Wave 8, and $3,000 since Wave 9) in an emergency. Responses to this question are used in this report to produce a measure of credit constraints. Respondents who indicate 'I would have to do something drastic to raise the money (for example, selling an important possession)' or 'I don't think I could raise the money' are defined to be credit constrained, while respondents who indicate 'I could easily raise the money' or 'I could raise the money, but it would involve some sacrifices (for example, reduced spending, selling a possession)' are defined to be not credit constrained.

The HILDA Survey measure of credit constraints is likely to be strongly correlated with the presence of actual credit constraints, but the relationship will not be exact. In particular, some people able to raise the money in an emergency, for example by drawing on savings, may not be able to borrow money. It is also possible (although perhaps less likely) that some people unable to raise money in an emergency may nonetheless be able to borrow money (but perhaps with some delay).

Child care[1]

Child care use

Child care has been a significant public policy issue for some years now, largely because of the steady growth in female employment participation since the 1970s. While government subsidies for child care are significant, there is little doubt that access to affordable and high-quality child care looms large in the minds of many parents with young children.

In every wave, the HILDA Survey has collected information at the household level on child care use and access, although strictly comparable data on *work-related* child care is only available from Wave 2 onwards. Figure 2.1 shows the proportion of households with children aged under 13 using work-related child care over the 2002 to 2014 period, disaggregated by family type and by age group of the children. The top panel presents the proportion using formal child care and the bottom panel presents the proportion using informal care

[1] Thanks to Markus Hahn for undertaking the statistical analysis for this section.

Figure 2.1: Percentage of families with children aged under 13 using work-related child care

A. Formal child care

B. Informal child care

(see Box 2.3, page 12, for definitions of formal and informal care). Note that a household may use both formal and informal care, and may have children in one, two or all three age groups.

The figure shows that there are considerable differences in child care use by age of the child, and also a number of differences between couple families and lone parents. For both couple families and lone-parent families, informal child care is more common than formal care for children at school, whereas formal child care is more common than informal care for children not yet at school. Compared with couple families, lone-parent families are less likely to use either formal or informal child care for children not yet at school, but they are similarly likely to use informal child care for children at school, and are more likely to use formal care for children at school, particularly for those aged under 10.

There are no clear trends in the proportion of households using child care over the 2002 to 2014

Box 2.3: Types of child care

In this report, distinctions are drawn between work-related and non-work-related child care, and between formal and informal child care. Work-related child care is child care which is used while the parents are engaged in paid employment. Non-work-related child care refers to all other child care. Formal care refers to regulated care away from the child's home, such as before- or after-school care, long day care, family day care, and occasional care. Informal child care refers to non-regulated care, either in the child's home or elsewhere. It includes (paid or unpaid) care by siblings, grandparents, other relatives, friends, neighbours, nannies and babysitters.

period, although there are hints that use of both formal and informal child care for children not yet at school has increased. Specifically, while there is considerable volatility in child care use from year to year, particularly for lone parents, it is nonetheless the case that, for both couple parents and lone parents, the proportion using each type of care for children not yet at school was markedly higher in 2014 than in 2002.

Expenditure on child care

The HILDA Survey data show that, each year, approximately 60% to 65% of households that use any (formal or informal) work-related child care for children aged under 13 usually pay for some or all of that care. This proportion is similar for couple families and lone-parent families, and it has been relatively stable over the HILDA Survey period. Figure 2.2 shows, for couple families and lone-parent families separately, the median usual weekly child care expenditure of those households in each year from 2002 to 2014. (As is the case elsewhere in this report when referring to monetary values, the effects of inflation are removed and dollar values are expressed at 'December 2014 prices'.)

The figure shows sustained and substantial rises in median expenditure over the 2002 to 2014 period for both couple families and lone-parent families. In 2002, median weekly expenditure on child care was $53 for couple families with expenditure on child care, and $28 for lone-parent families with expenditure on child care. In 2014, the corresponding medians were $111 and $65, which translate to large real increases of 109% and 132%, respectively.

The burden of child care costs for a household can be better understood by comparing child care expenditure to the income of the household. This is done in Figure 2.3, which presents the median share of annual income spent on child care for couple families and lone-parent families, restricting to those families with child care expenditure. In order to show how this measure of the burden of child

care costs depends on how well-off the family is, the estimates are presented separately for those in the bottom 40% of the income distribution and those in the top 60% of the income distribution.

Despite year-to-year volatility, the clear trend evident is that, for households with expenditure on child care, the share of income spent on child care has risen between 2002 and 2014. However, there does not appear to be a systematic relationship between child care expenditure burden and either family type or location in the income distribution. This perhaps reflects the targeting of subsidies for child care, as well as differences in employment participation by family type and location in the income distribution.

Figure 2.2: Households with child care expenditure—Median usual weekly expenditure by family type

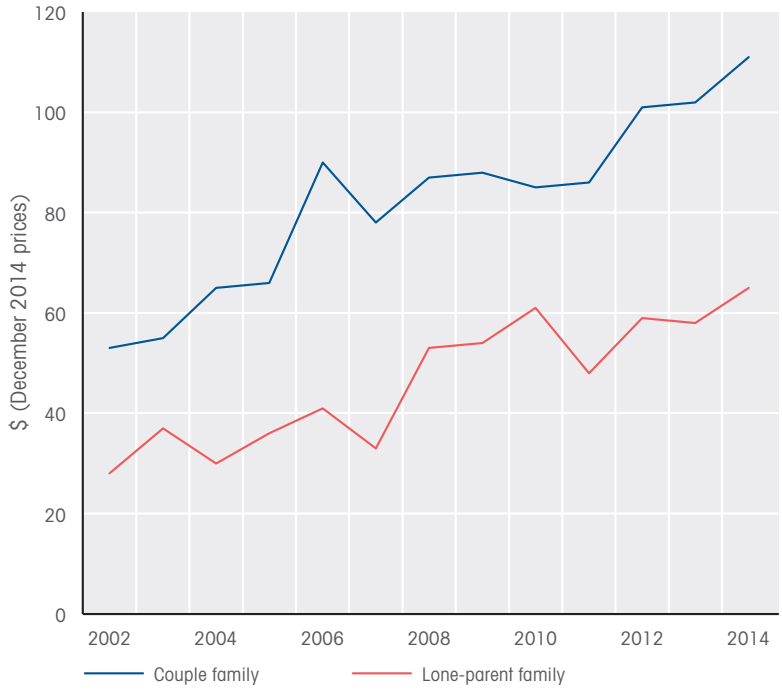
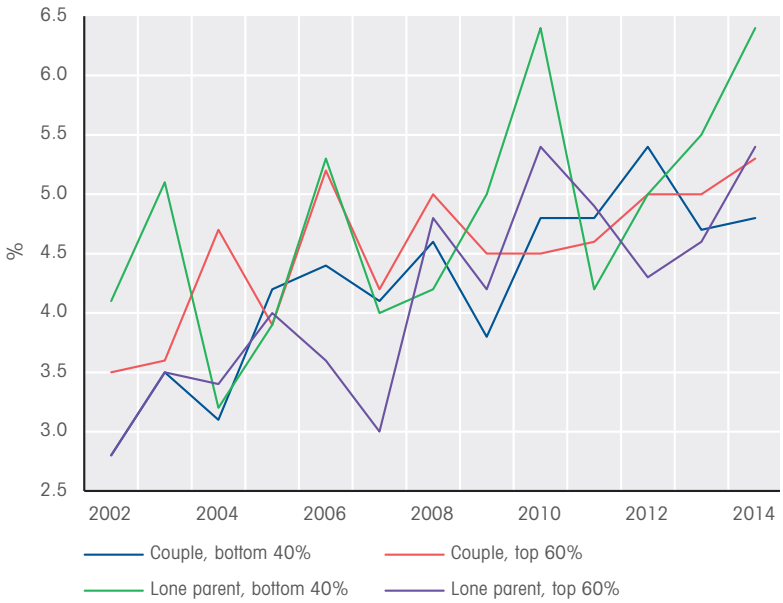


Figure 2.3: Households with child care expenditure—Median share of income spent on child care, by family type and location in the income distribution



Use of grandparents for child care

As many families with young children can attest, grandparents are an important source of child care. Since 2004, the HILDA Survey has collected information on use of grandparents for child care (in a 'usual week'), allowing us to quantify its importance. Table 2.5 shows that nearly one-quarter of couple families with children aged under 13 regularly use the grandparents for child care, on average for approximately 15 hours per week. Lone parents also make considerable use of grandparents for child care. In 2014, 27.5% of lone parents with children aged under 13 regularly used grandparents for child care, on average for 24 hours per week. The estimates in Table 2.5 indicate that there has in fact been a surge in lone parents' use of grandparents since 2008, with the proportion using grandparents rising from 16.6% in 2008 to 27.5% in 2014.

Using the longitudinal structure of the HILDA Survey data, we can examine the extent to which grandparents are used for child care over multiple years. For example, we can get a sense of the extent to which it is the same families using grandparents for child care each year, as opposed to different families using grandparents each year. To this end, Table 2.6 examines use of grandparents over five years (upper panel) and over 10 years (lower panel). The population examined is restricted to families with children not yet at school in the initial (or base) year, since these are the families that could conceivably require child care for up to 10 years from the base year. Also note that, because household structures change over time, we follow the household of the mother over the 5- or 10-year period.

The upper panel of Table 2.6 shows that, over the five years from 2004 to 2008, just over 50%

of families with children not yet at school in 2004 regularly used grandparents for child care in at least one of the five years. Comparing across the columns of the table indicates that the proportion of families using grandparents at some stage over a five-year period has steadily increased over time, such that nearly 60% used grandparents over the five years from 2010 to 2014. However, most of the families who use grandparents over a five-year period do so for only one, two or three of the five years. Over a 10-year period, approximately 63% of families with children initially not yet at school make regular use of grandparents for child care in at least one of the years.

An alternative perspective on provision of child care by grandparents is possible using data collected by the HILDA Survey in Wave 11. In that wave, grandparents were identified and asked about both their extent of contact with the grandchildren and the extent to which they take care of their grandchildren. We can therefore use this information to examine the number of grandparents who provide child care and the characteristics of these grandparents.

A limitation of the data collected is that the ages of the grandchildren are not known, so it is not possible to definitively identify grandparents of *young* children. This means that we cannot, for example, precisely identify the proportion of grandparents with grandchildren aged under 13 who provide child care. To address this issue, we restrict focus to grandparents with a youngest child aged under 50, on

Table 2.5: Use of grandparents for child care by households with children aged under 13, 2004 to 2014

	2004	*2006*	*2008*	*2010*	*2012*	*2014*
Couple families						
Use grandparents (%)	23.0	24.6	24.5	26.9	23.5	24.7
Families that use grandparents: Mean weekly hours of care	14	16	17	16	17	14
Lone-parent families						
Use grandparents (%)	19.4	19.0	16.6	21.5	23.9	27.5
Families that use grandparents: Mean weekly hours of care	19	18	25	15	23	24

Table 2.6: Use of grandparents for child care over five years and over 10 years—Families with children not yet at school in the base year, 2004 to 2014 (%)

	Base year						
	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*
Over the 5 years starting in base year							
0 years	49.8	48.9	46.6	46.0	44.2	41.3	40.6
1 year	17.8	17.2	16.8	15.9	16.1	20.5	15.8
2 years	10.0	12.0	11.7	12.9	12.7	12.4	15.7
3 years	8.2	7.6	11.1	11.6	11.8	9.3	13.8
4 years	8.8	8.8	7.5	8.2	9.6	10.6	8.7
5 years	5.4	5.6	6.4	5.5	5.6	6.0	5.5
Over the 10 years starting in base year							
0 years	36.9	37.2					
1 year	13.7	13.2					
2 years	11.4	10.5					
3 years	7.9	10.5					
4 years	6.1	5.7					
5 years	5.4	5.2					
6 years	5.4	4.3					
7 years	4.3	5.5					
8 years	3.8	*2.2					
9 years	3.5	3.8					
10 years	*1.7	*1.9					

Note: * Estimate not reliable.

the basis that if the youngest child is aged 50 or more, the grandchildren are more likely than not to be aged 13 or older.[2]

Table 2.7 shows that, in 2011, 55.9% of grandparents with a youngest child aged under 50 regularly took care of one or more of their grandchildren. This should probably be regarded as a lower bound estimate, because a significant number of grandparents with a youngest child aged under 50 will not have grandchildren young enough to require care. For example, it is possible for the children of a parent aged 40 to already be adults. It is therefore clear that a very high proportion of grandparents provide child care for their grandchildren when the grandchildren are of child-care age.

The lower panel of Table 2.7 shows the frequency of care reported by grandparents who provide child care. Approximately 30% of these grandparents report providing care only a few times a year or less, but the remaining 70% report providing the care on a highly regular basis. Indeed, care is provided at least once a week by 42.7% of the grandparents who provide child care for their grandchildren.

Table 2.8 sheds some light on the characteristics of grandparents who take care of their grandchildren, comparing them with grandparents who do not take care of their grandchildren. Each column presents the proportion of the grandparent group that is: female; in each age group; partnered; employed; and in each disability group. Each column also reports the mean general health and mean equivalised income of the grandparent group. Perhaps not unexpectedly, there are substantial differences in characteristics. Grandparents who provide care are more likely to be female, are considerably younger, are more likely to be partnered, are less likely

Table 2.7: Child care provided by grandparents with a youngest child aged less than 50, 2011

Proportion of grandparents who look after grandchildren (%)	55.9
Grandparents who look after grandchildren: Frequency of care (%)	
Daily	6.6
Several times a week	17.7
About once a week	18.4
Between once a week and once a month	26.8
A few times a year	26.1
Once a year or less	4.4
Total	100.0

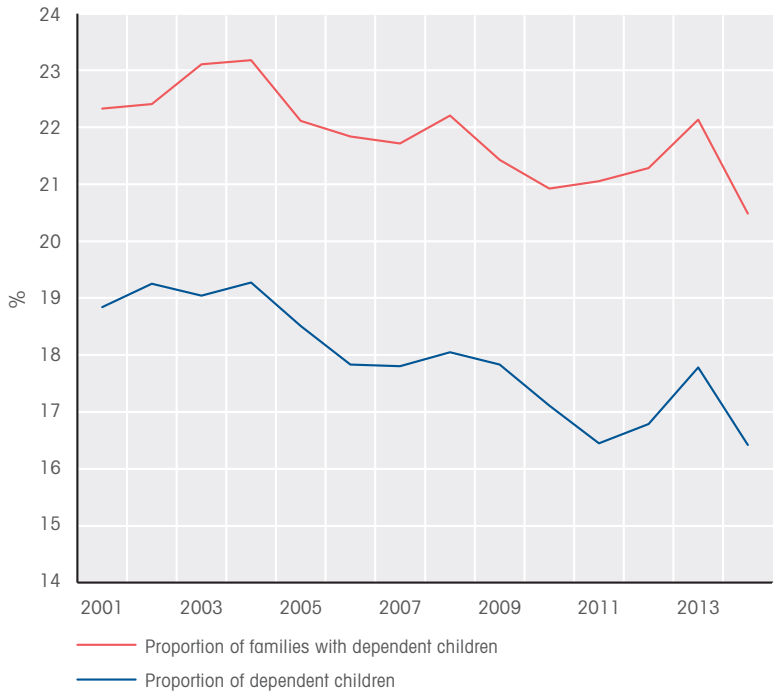
Table 2.8: Characteristics of grandparents with a youngest child aged less than 50, by whether provide child care for grandchildren, 2011

	Looks after grandchildren	*Does not look after grandchildren*
Female (%)	60.5	48.6
Age group (%)		
Less than 65	61.6	38.9
65–69	19.3	16.7
70–74	12.4	16.7
75–79	4.6	16.4
80–84	1.6	8.5
85 and over	*0.5	2.9
Total	100.0	100.0
Partnered (%)	80.2	68.2
Employed (%)	43.5	28.2
Disability (%)		
No disability	66.8	55.0
Non-restricting	*0.2	*0.6
Moderately restricting	25.9	31.9
Severely restricting	7.1	12.6
Total	100.0	100.0
Mean SF–36 general health (0–100 scale)	63.6	58.5
Mean equivalised income ($, December 2014 prices)	49,150	41,486

Note: * Estimate not reliable.

2 Only 6% of grandparents with a youngest child aged 50 or older report taking care of any of their grandchildren.

Figure 2.4: Lone-parent families with dependent children



to have a disability (as defined in Box 12.1, page 110) and have better average general health (as defined in Box 2.1, page 10). They also have higher average incomes and are more likely to be employed (in paid work), which possibly reflects their lower average age.

Lone parents

Lone-parent families are an important demographic group in Australia. Public policy interest in this group is high, not only because of high rates of welfare dependence (and its fiscal implications), but also because of concerns about the wellbeing of lone parents and their children. As Figure 3.3 (page 30) shows, poverty rates are high for lone-parent families, and other studies suggest later-life outcomes for children of lone-parent families are inferior to outcomes experienced by other children.

Figure 2.4 confirms the importance of lone-parent families as a demographic group, showing that, in 2014, they accounted for approximately 20% of families with dependent children, and approximately 16% of dependent children (see Box 2.4 below for the definition of dependent children). However, the figure also indicates that the prevalence of lone-parent families has been declining since around 2004, when they represented 23% of families with dependent children and accounted for 19% of dependent children.[3]

Figure 2.4 uses standard Australian Bureau of Statistics definitions for defining household types, but arguably these definitions result in somewhat misleading statistics on the number and characteristics of lone parents. In particular, when a couple with children separates, only one of the parents is regarded as the lone parent of their children. It may be that, in many cases, the parents share care of the children, and so both could be regarded as lone parents if neither has re-partnered.

Figure 2.5 examines the potential magnitude of this issue by examining the proportion of single people with children aged under 18 who are either lone parents or 'partial' lone parents, the latter defined as being single and having the children stay with them on average 1 to 3.5 nights per week.[4] The figure shows that there is a considerable number of these 'hidden' lone parents. In 2014, 15% of single people with children aged under 18 qualified as 'partial' lone parents by having one or more children stay with them at least one night per week. This was up slightly from 2001, when the corresponding proportion was 12%. This compares with 63% of single people with children aged under 18 being classified as lone parents in 2014, down from 65% in 2001. The remaining single people with children aged under 18 (23% in 2001 and 18% in 2014) had the children stay less frequently than once per week (including not at all).

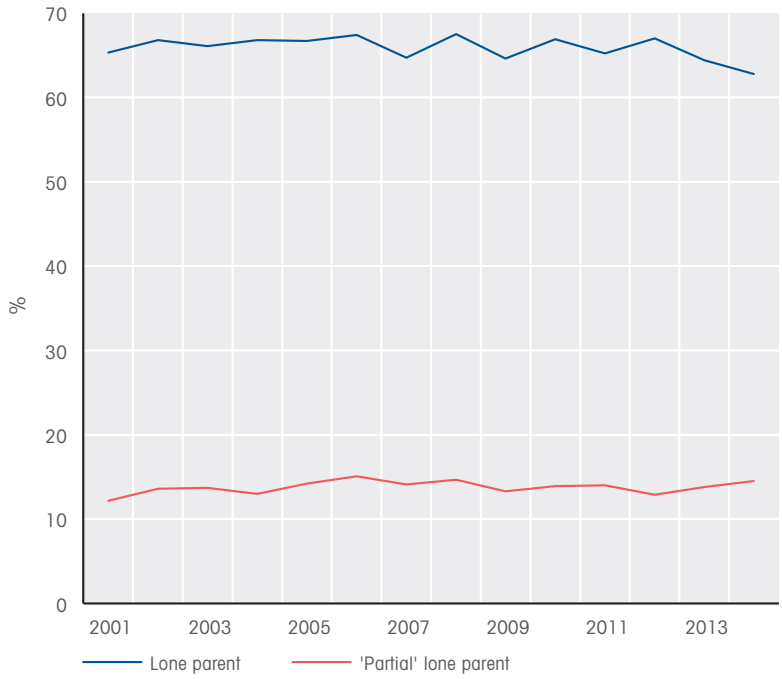
Box 2.4: Dependent children

The definition of a dependent child used in this report follows the Australian Bureau of Statistics (ABS) approach (see ABS, 1995). According to this definition, a dependent child is: (1) any child under 15 years of age or (2) a child aged 15–24 who is engaged in full-time study, not employed full-time, living with one or both parents, not living with a partner, and who does not have a resident child of their own.

3 When parents separate, children who reside with each parent 50% of the time are assigned to the household of only one parent, typically the mother. This creates a small inconsistency with the approach taken for initial sample recruitment (occurring in Waves 1 and 11), where, because children living in the household 50% of the time were always included as part of the household, in effect the children were treated as members of both parents' households. This will lead to slight overestimation of the number of children in lone-parent families, an effect that will be most pronounced at the time of initial sample recruitment and will subsequently decline over time.

4 This analysis excludes non-resident parents who have re-partnered. These parents can be considered partial *partnered* parents of the children they have care of 1 to 3.5 nights per week. Also note that the other parent of the children of a partial lone parent may not be a lone parent—that is, if that other parent has re-partnered, that parent would be classified as a partnered parent.

Figure 2.5: Lone-parent status of single people with children aged under 18



Characteristics of lone mothers

According to the HILDA Survey data, approximately 88% of lone parents are women. While there is reason to be interested in the characteristics of both male and female lone parents, the male lone-parent sample in the HILDA Survey is too small to support reliable statistical inference for many of the characteristics of interest. We therefore focus on women in this section.

In Table 2.9, various characteristics of lone mothers with dependent children are examined in 2001 and in 2014. To aid interpretation, the table draws comparisons with partnered women with dependent children. Lone mothers were on average younger than partnered mothers when they had their first child, although the differences are mild: in 2001, the mean age at first birth was 23.3 for lone mothers and 26.0 for partnered mothers; in 2014, the mean age at first birth was 25.0 for lone mothers and 27.7 for partnered mothers. Consistent with most lone mothers initially being partnered when the children were born, the mean age of the youngest child is higher for lone mothers. For example, in 2014, the mean age of the youngest child was 10.1 for lone mothers and 8.2 for partnered mothers.

The age distribution is somewhat different for lone and partnered mothers. In 2001, lone mothers were more likely than partnered mothers to be aged 15–24, less likely to be aged 35–44, and similarly likely to be aged 25–34 and 45 or over. The age profile of both groups of parents was considerably older in 2014, but more so for lone mothers than partnered mothers. In particular, while the proportion aged 45 and over was higher in 2014 for both groups of mothers, the increase was significantly greater for lone mothers. In 2014, 39.6% of lone mothers were aged 45 and over, compared with 31.3% of partnered mothers.

Indigenous Australians are a much larger share of lone mothers than partnered mothers, implying much higher prevalence of lone-parenthood among this demographic group. Also notable is that, between 2001 and 2014, the proportion of lone mothers who were immigrants declined from

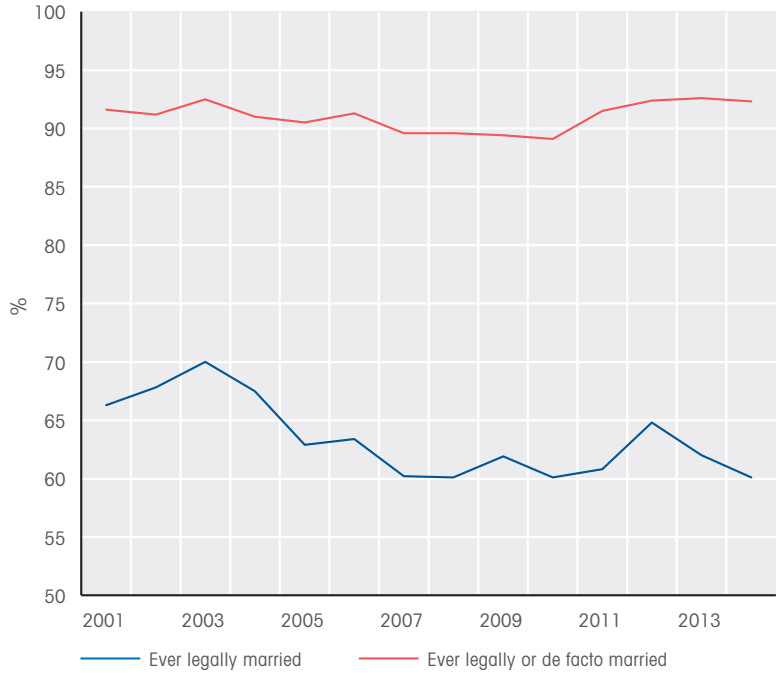
Table 2.9: Characteristics of lone mothers compared with partnered mothers, 2001 and 2014

	2001		*2014*	
	Partnered parents	*Lone parents*	*Partnered parents*	*Lone parents*
Mean age at which had first child (years)	26.0	23.3	27.7	25.0
Mean total number of children ever had	2.4	2.3	2.3	2.5
Mean number of currently-dependent children	1.9	1.7	1.9	1.8
Age of youngest child (years)	7.7	8.5	8.2	10.1
Age group (%)				
15–24	2.7	10.1	2.3	7.0
25–34	29.1	30.9	24.6	23.1
35–44	46.1	36.7	41.7	30.4
45 and over	22.1	22.3	31.3	39.6
Total	100.0	100.0	100.0	100.0
Indigenous status and country of birth (%)				
ESB immigrant	10.1	8.5	10.0	5.4
NESB immigrant	20.4	18.6	25.2	18.7
Indigenous	1.6	6.8	2.3	7.3
Other native-born	67.9	66.1	62.5	68.6
Total	100.0	100.0	100.0	100.0
Highest educational qualification (%)				
Bachelor's degree or higher	23.0	14.4	40.4	21.5
Other post-school qualification	20.3	22.7	28.8	38.8
No post-school qualifications	56.7	62.9	30.8	39.7
Total	100.0	100.0	100.0	100.0
Number in the population	2,047,756	527,018	2,563,247	586,618

approximately 27% to 24%, while the proportion of partnered mothers who were immigrants increased from 30% to 35%. (See Box 2.5, page 21, for information on the classification of individuals by Indigenous status and place of birth.) Correspondingly, non-Indigenous Australians' share of lone mothers rose, from 66% in 2001 to 69% in 2014, while their share of partnered mothers fell from 68% to 63%. Lone motherhood was therefore more strongly associated with the native-born in 2014 than in 2001.

Lone mothers on average have a lower level of educational attainment than partnered mothers (see Box 4.3, page 51, for explanation of the classification of educational attainment). Remarkable increases in educational attainment are evident for both groups of mothers between 2001 and 2014, but the education gap appears to have widened, at least in respect of

Figure 2.6: Proportion of lone parents with dependent children who have ever been legally or de facto married



university-level qualifications. In 2001, 14.4% of lone mothers and 23.0% of partnered mothers had university qualifications, while in 2014, these respective proportions were 21.5% and 40.4%.

An important characteristic of lone parents in Australia is that most lone parents were living with a partner at the time their children were born. Figure 2.6 provides evidence in support of this, showing that over 90% of lone parents have previously been legally or de facto married. The proportion ever partnered is relatively stable over the 2001 to 2014 period, although the blue line in the figure indicates that the proportion ever legally married has been declining, falling from 70% in 2003 to 60% in 2014.

Length of time spent as a lone parent

The upper panel of Table 2.10 examines duration as a lone parent in 2008 and 2014. For those who were lone parents in the relevant year (2008 or 2014), it shows the proportions who had been lone parents for one or two waves, for three or four waves, for five to seven waves, and for eight or more waves. Duration as a lone parent is known only for those who commenced being lone parents after Wave 1 (2001). For those who commenced being lone parents in 2001 or earlier, in 2008 we only know that the spell duration is at least 8 waves, while in 2014 we know that the spell duration is at least 14 waves. Consequently, rather than present the mean duration, the table presents the percentage of lone parents in each of four duration ranges: 1–2 waves; 3–4 waves; 5–7 waves; and 8 or more waves. These are 'incomplete' spell durations—telling us, of those observed to be lone parents at a point in time, how long they have been lone parents. Most of these lone parents will (ultimately) have longer completed spell durations than their incomplete spell durations as of 2008 or 2014.

The table shows the distributions of incomplete spell durations are very similar in 2008 and 2014. In both years, just over one-third of lone parents had been in that family situation for 8 or more waves. This suggests that lone-parent spell durations are typically quite long—given that many of the lone parents with short incomplete spell durations will go on to have much longer spells.

Table 2.10: Lone-parent duration and partnering of lone parents

Length of time have been lone parent (%)	*2008*	*2014*
1 or 2 waves	26.6	28.0
3 or 4 waves	18.2	18.6
5–7 waves	18.7	17.1
8 or more waves	36.5	36.3
Total	100.0	100.0
Percentage of lone parents partnering		
	2002–2014	
From one wave to the next	8.5	
Within 5 years of becoming lone parent	34.5	

There are two ways a lone parent can cease being a lone parent (with dependent children): they cease to have dependent children, either because the children move out or because they (otherwise) cease to be dependent (due to changes in age, study status and/or employment status); or because the lone parent becomes partnered. The lower panel of Table 2.10 considers the second mechanism, showing the proportion of lone parents who partner in any given year, and the proportion who partner within five years of becoming a lone parent. It shows that 8.5% partner each year, while 34.5% partner within five years of becoming lone parents.

The characteristics of lone parents who partner are examined in Table 2.11, which presents mean marginal effects estimates from a Probit regression model of the probability of partnering (by the time of the next wave's interview), estimated on lone parents over the period 2001 to 2013. The results indicate that partnering is somewhat more likely in the first two years after becoming a lone parent, and least likely once a person has been a lone parent for six or more years. Age is a very strong predictor of partnering, the older the lone parent, the lower the probability of partnering. Compared with a lone parent aged 15–24, a lone parent aged 45 and over has a 12.2 percentage-point lower probability of partnering from one year to the next. There is no significant difference in partnering between men and women.

Other factors equal, private renters have a higher probability of partnering than home owners, who in turn have a higher probability of partnering than renters of public housing. There is also a positive association between employment and partnering: compared with a non-employed lone parent, a full-time employed lone parent has a 3.3 percentage-point higher probability of partnering each year, and a part-time employed lone parent has a 1.9 percentage-point higher probability of partnering each year. There is no evidence that the number or ages of dependent children affect the likelihood of partnering, and there are no significant differences by population density of the region of residence, educational attainment or disability status of the lone parent.

Table 2.11: Factors associated with partnering of lone parents

	Estimate
Duration of lone-parent status (Reference category: Less than 3 waves)	
3–5 waves	–0.029
6–9 waves	–0.071
10 or more waves	–0.062
Male	*ns*
Age group (Reference category: 15–24)	
25–34	–0.036
35–44	–0.074
45 and over	–0.122
Number of dependent children	*ns*
Age of youngest child (Reference category: 15 and over)	
0–4	*ns*
5–9	*ns*
10–14	*ns*
Population density of region of residence (Reference category: Major urban)	
Other urban	*ns*
Other region	*ns*
Housing tenure type (Reference category: Private renter)	
Home owner	–0.017
Public renter	–0.032
Highest educational attainment (Reference category: No post-school qualifications)	
Bachelor's degree or higher	*ns*
Other post-school qualification	*ns*
Labour force status (Reference category: Not in the labour force)	
Employed full-time	0.033
Employed part-time	0.019
Unemployed	*ns*
Moderate or severe disability	*ns*
Number of observations	5,573

Notes: Table reports mean marginal effects estimates from Probit regression models of the probability a lone parent is observed to be living with a partner in the next wave. See the Technical Appendix for further details on regression models. Sample comprises lone parents in Waves 1 to 13. Duration as a lone parent is estimated for lone parents in 2001, and for lone parents in 2011 who were part of the sample top-up, based on reported marital and partnering history. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

Changes in wellbeing on becoming a lone parent

Observation of lone parents in both the wave prior to becoming a lone parent and the wave after becoming a lone parent allows us to examine how various measures of wellbeing change with this change in family circumstances. Table 2.12 shows mean changes in a variety of outcomes for parents who move from being partnered parents to lone parents. To aid interpretation, comparisons are drawn with partnered parents who remain partnered parents. Estimates are presented separately for men and women.

For women, the differences between those who remain partnered and

Table 2.12: Mean changes in measures of wellbeing on becoming a lone parent, compared with changes for parents who remain partnered, 2002 to 2014 (pooled)

	Men		*Women*	
	Remained partnered parent	*Became lone parent*	*Remained partnered parent*	*Became lone parent*
Employed (%)	*0.0	–2.6	2.3	–1.4
Unemployed (%)	*0.1	*0.9	0.3	–2.3
Weekly wage ($, December 2014 prices)	25.66	*–7.51	31.28	–19.59
Equivalised income ($, December 2014 prices)	872	*–825	875	–6,789
Number of indicators of financial stress (ranging from 0–7)	–0.03	–0.32	–0.03	0.27
Life satisfaction (0–10 scale)	–0.05	–0.15	–0.05	–0.40
Satisfaction with financial situation (0–10 scale)	*0.02	*0.13	0.03	–0.24
Satisfaction with amount of free time (0–10 scale)	0.03	*0.10	0.02	–0.31
Satisfaction with relationship with children (0–10 scale)	–0.07	*–0.08	–0.08	–0.15
Satisfaction with how well the children get along with each other (0–10 scale)	–0.06	*0.10	–0.07	–0.26
SF–36 general health (0–100 scale)	–0.70	*0.09	–0.57	*–0.47
SF–36 mental health (0–100 scale)	–0.34	–3.11	–0.14	–2.83
Weight (Body Mass Index)	0.09	*–0.16	0.16	*–0.02
Exercise regularly (%)	*–0.2	*3.4	*–0.1	–2.1
Regular smoker (%)	–0.6	*–0.5	–0.2	2.5
Regular drinker (%)	1.4	5.7	0.9	*0.3

Notes: Body Mass Index is only available in Waves 6 to 10 and indicators of financial stress are not available in Wave 10. * Estimate not reliable.

those who become lone parents are striking. On almost all measures, wellbeing deteriorates considerably on becoming a lone mother (the proportion employed decreases, weekly earnings fall and income falls substantially) whereas for mothers who remain partnered these all increase. Moreover, the number of indicators of financial stress (see Box 8.1, page 88) increases for new lone mothers, but decreases slightly for partnered mothers.

On subjective measures, new lone mothers also fare worse than mothers who remain partnered. Overall life satisfaction (see Box 8.2, page 88), and satisfaction with one's financial situation, amount of free time and one's relationship with the children all decline, compared with little change for partnered mothers. Satisfaction with the children's relationships with each other also declines.

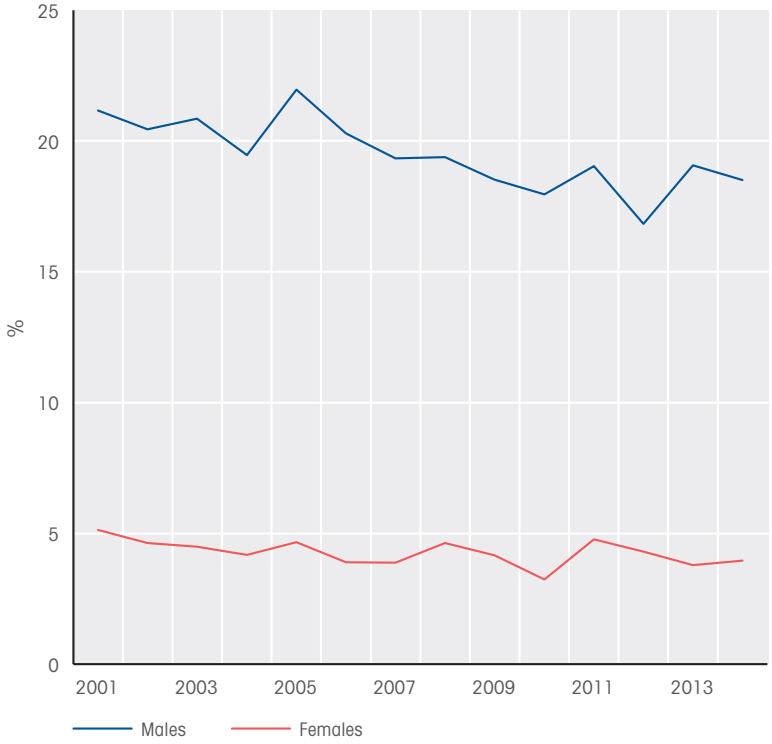
Changes in measures of health and health behaviours are more mixed. General health does not change significantly, but new lone mothers experience a large mean decrease in mental health, and there is a

Box 2.5: Classification of place of birth and Indigenous status

An English-speaking background (**ESB**) immigrant is a person born in one of the 'main' English-speaking countries, which comprise the United Kingdom, United States, Canada, Ireland, New Zealand and South Africa. A non-English-speaking background (**NESB**) immigrant is a foreign-born person born in any other country.

Among people born in Australia, in some analysis in this report a distinction is drawn between people who self-identify as Aboriginal or Torres Strait Islander (**Indigenous**) and other people born in Australia.

Figure 2.7: Proportion of parents with children aged under 18 not living with their children



decline in regular exercise, and increase in smoking.

For male new lone parents, the relatively small sample size means that a number of the estimates are not statistically reliable, but significant declines in employment, life satisfaction and mental health are evident. The proportion regularly drinking alcohol (at least three times per week) also increases substantially, by 5.7 percentage points. However, in contrast to women, there is actually a decline in reported financial stress among this group.

Parents with non-resident children

A group in the community that has perhaps been understudied is non-resident parents—who include the ex-partners of lone parents. Figure 2.7 shows the proportions of male

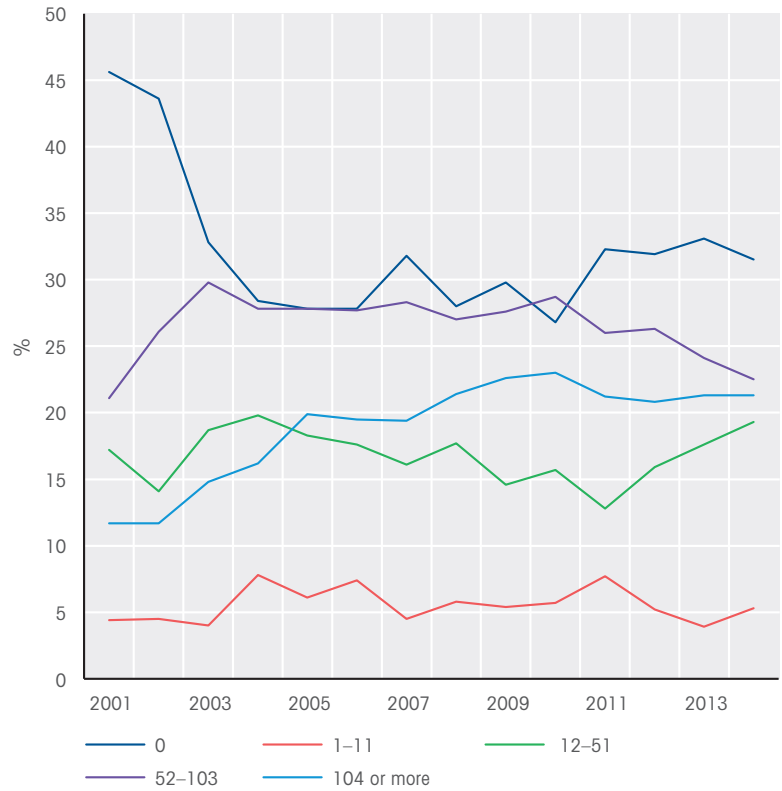
and female parents of children aged under 18 who do not live with one or more of those children. Approximately 20% of male parents live apart from one or more of their children (aged under 18), compared with approximately 5% of female parents. There are, however, indications that the gap between men and women narrowed slightly between 2001 and 2014. In 2001, over 21% of male parents lived apart from their children, compared with 5% of female parents. In 2014, 18.5% of male parents did not live with their children, compared with 4% of female parents.

Frequency of contact with non-resident children is examined in Figure 2.8. Most non-resident parents see their children at least monthly, and Figure 2.8 indicates that the proportion in regular contact with their children has risen slightly between 2003 and 2014.[5] In 2003, 59% of non-resident parents saw their children at least monthly, while in 2014 this proportion had risen to 63%. There was a slight decline in the proportion of parents never seeing their children, from 13.4% in 2003 to 11.9% in 2014, and a larger decline in the proportion seeing their children every three to six months.

Figure 2.9 shows that some form of 'shared care' arrangement is common for children of separated parents. In 2014, 68% of non-resident parents had children stay with them at least one night per year. Indeed, 21% of non-resident parents had the children stay at least 104 nights per year, which translates to two or more nights per week. A further 22% of non-resident parents had the children stay 52–103 days per year (one to two nights per week), and 20% had the children stay 12–51 nights per year (once a month to once a week). The most marked change over the 2001 to 2014 period is an apparent large increase

Figure 2.8: Contact with non-resident children—Parents with non-resident children aged under 18

Figure 2.9: Nights per year non-resident children stay with parent—Parents with non-resident children aged under 18



5 Comparable information on contact with non-resident children is only available from 2003.

Table 2.13: Mean changes in measures of wellbeing of parents on becoming separated from children, compared with changes for parents who remain partnered, 2002 to 2014 (pooled)

	Men		*Women*	
	Remained partnered parent	*Separated*	*Remained partnered parent*	*Separated*
Employed (%)	*0.0	*–0.1	2.3	1.9
Unemployed (%)	*0.1	*–0.4	0.3	2.2
Weekly wage ($, December 2014 prices)	25.66	77.89	31.28	41.46
Equivalised income ($, December 2014 prices)	872	9,185	875	*–160
Life satisfaction (0–10 scale)	–0.05	–0.56	–0.05	–0.13
Satisfaction with relationship with children (0–10 scale)	–0.07	–0.96	–0.08	–0.38
Satisfaction with how well the children get along with each other (0–10 scale)	–0.06	–0.26	–0.07	0.21
Satisfaction with financial situation (0–10 scale)	*0.02	–0.14	0.03	*–0.09
Satisfaction with amount of free time (0–10 scale)	0.03	0.20	0.02	*–0.11
Number of indicators of financial stress (ranging from 0 to 7)	–0.03	0.14	–0.03	*0.00
SF–36 general health (0–100 scale)	–0.70	–3.67	–0.57	–6.22
SF–36 mental health (0–100 scale)	–0.34	–5.39	–0.14	–8.44
Weight (Body Mass Index)	0.09	–0.27	0.16	*–0.18
Exercise regularly (%)	*–0.2	–5.1	*–0.1	*0.8
Regular smoker (%)	–0.6	*–0.7	–0.2	–1.9
Regular drinker (%)	1.4	2.8	0.9	*0.6

Note: * Estimate not reliable.

between 2001 and 2004 in the proportion of non-resident parents having the children stay at least one night per year. In 2001, less than 55% of non-resident parents had the children stay at least one night, whereas by 2004 this proportion had risen to 73%.

Analogous to the analysis of changes in wellbeing on becoming a lone parent presented in Table 2.12, Table 2.13 examines the changes in wellbeing on becoming separated from one's children—that is, becoming the ex-partner of the lone parents examined in Table 2.12.

Here, men make up the majority of cases. We see positive effects on earnings and income for men, but otherwise large negative changes in measures of wellbeing. The mean declines in life satisfaction, satisfaction with relationship with children, general health, mental health and regular exercise are very large, and there is also a significant increase in the proportion who regularly drink. For women, although smaller samples reduce the number of outcomes for which statistically reliable estimates are obtained, nonetheless striking are the even larger mean declines in general health and mental health for women who separate from their partner and children.

3 Household economic wellbeing

Study of the distribution of income, and how an individual's income changes over time, is integral to understanding the economic fortunes of the Australian population. The HILDA Survey is the only nationally representative data source in Australia that has the capacity to provide information on both the distribution of income at a point in time and how incomes of individuals change over time. The HILDA Survey also regularly collects other information relevant to assessment of economic wellbeing, most notably collecting information on household expenditure and wealth. Moreover, in addition to objective financial data, information is regularly collected on the experience of financial stress, the ability to raise funds at short notice, perceived adequacy of household income, savings habits, saving horizon, attitudes to financial risk and satisfaction with one's financial situation.

This chapter contains three sections that focus on the income data, respectively examining the distribution and dynamics of household income, the prevalence and dynamics of income poverty, and the extent of welfare reliance. In addition, Chapters 5, 6 and 7 examine the wealth data collected in 2002, 2006, 2010, and 2014, and Chapter 8 examines responses to questions newly included in Wave 14 on material deprivation.

Income levels and income inequality

Annual income

Cross-sectional estimates of mean and median household annual disposable income (as defined in Box 3.1, page 26) are presented in Table 3.1. For this table, the household is the unit of observation, meaning that each household contributes one 'observation' to the calculation of the mean and the median.

Mean and median household disposable incomes have grown quite strongly for the in-scope population over the HILDA Survey period. Expressed at December 2014 prices, the mean increased by $21,434 between 2001 and 2014, or $1,649 per year; the median increased by $18,027 over the period. However, growth was very much concentrated on the 2003 to 2009 period, when the mean increased by $18,088, or 26.8%, and the median increased by $17,935, or 30.7%. Indeed, between 2009 and 2014, the median household income fell slightly, while the mean grew by only $2,928.

Table 3.2 considers the distribution of household income, taking into account potential changes to household composition by examining 'equivalised' income per person (see Box 3.2, page 26, for an explanation of how equivalised income is calculated and Box 3.3, page 27, for an explanation of the statistics presented in the table). The individual is the unit of observation, meaning the statistics presented are for the distribution of household equivalised incomes across all individuals in the population, including children.

Growth in the average level of incomes between 2003 and 2009, and the subsequent levelling-off of average incomes, is robust to the move to equivalised incomes and the individual as the unit of

Box 3.1: Measurement of household income in the HILDA Survey

The main household income measure examined in this report is 'real household annual disposable income'. Household annual disposable income is the combined income of all household members after receipt of government pensions and benefits and deduction of income taxes in the financial year ended 30 June of the year of the wave (for example, 2001 in Wave 1). This is then adjusted for inflation—the rise in the general price level in the economy—using the Australian Bureau of Statistics Consumer Price Index, so that income in all waves is expressed at December 2014 prices, to give real income. Since prices tend to rise over time, *real* incomes are higher than the nominal incomes reported by sample members.

HILDA Survey respondents do not actually report their disposable income; rather, each respondent is asked how much income they received from each of a number of sources, including employment, government benefits, investments and any businesses they own. Total gross income of each individual is equal to the sum of these income components. The disposable income of each respondent is then calculated by estimating the income tax payable by the individual and subtracting this from the individual's total gross income. Disposable incomes of all household members are added together to obtain *household* disposable income. See Wilkins (2014) for details on the construction of gross income and the methods used to calculate disposable income. Note that, consistent with the Canberra Group's recommendations (see United Nations, 2011), large irregular payments received by individuals are excluded from income for the analysis presented in this report—that is, it is *regular* disposable income that is examined.

analysis. This is unsurprising given there have been only modest changes in household composition of the population between 2001 and 2014. The HILDA Survey indicates there has been little net change in income inequality between 2001 and 2014, and in fact all inequality measures are slightly lower in 2014 than their 2001 levels.

Figure 3.1 compares median incomes across family types (defined in Box 3.4, page 28). A reasonably consistent ordering of median incomes by type of family is evident across the 14 waves of the survey, ranging from single elderly

Table 3.1: Household annual disposable incomes, 2001 to 2014 (December 2014 prices)

	Mean ($)	*Median ($)*	*Number of households*	*Number of persons*
2001	67,117	57,704	7,281,922	18,818,393
2002	67,725	58,286	7,357,921	19,035,542
2003	67,535	58,329	7,434,912	19,257,483
2004	69,596	60,630	7,506,823	19,470,041
2005	72,694	64,158	7,591,281	19,719,019
2006	77,000	66,476	7,695,523	20,008,595
2007	81,515	69,403	7,842,965	20,374,276
2008	83,015	71,816	8,013,031	20,798,070
2009	85,623	76,264	8,175,616	21,201,676
2010	85,582	73,808	8,295,732	21,502,505
2011	85,564	72,260	8,398,588	21,816,323
2012	87,182	74,938	8,542,340	22,199,959
2013	88,090	75,573	8,679,987	22,569,375
2014	88,551	75,731	8,813,826	22,909,018

Box 3.2: Equivalised income

Equivalised income is a measure of material living standards, obtained by adjusting household disposable income for the household's 'needs'. Most obviously, a household of four people will require a higher household income than a lone-person household for each household member to achieve the same living standard as the lone-person household. There are, however, many factors other than household size that could be taken into account in determining need. These include the age and sex of household members, health and disability of household members (since poor health and/or disability increase the costs of achieving a given standard of living), region of residence (since living costs differ across regions) and home-ownership status (since the income measure does not usually include imputed rent for owner–occupiers).

In practice, it is common for adjustment of income to be based only on the number of adult and child household members, achieved by an equivalence scale. In this report, we have used the 'modified OECD' scale (Hagenaars et al., 1994), which divides household income by 1 for the first household member plus 0.5 for each other household member aged 15 or over, plus 0.3 for each child under 15. A family comprising two adults and two children under 15 years of age would therefore have an equivalence scale of 2.1 (1 + 0.5 + 0.3 + 0.3), meaning that the family would need to have an income 2.1 times that of a lone-person household in order to achieve the same standard of living. This scale recognises that larger households require more income, but it also recognises that there are economies of scale in 'household production' (for example, the rent on a two-bedroom flat is typically less than twice the rent on an otherwise comparable one-bedroom flat) and that children require less than adults. Each member of a household is assigned the same equivalised income, the implicit assumption being that all household income is pooled and then shared equally.

persons at the bottom to non-elderly couples without dependent children at the top. It also appears that there are three broad 'clusters' of family types: non-elderly couples without dependent children, who have the highest incomes; couples with children and non-elderly single persons, who have middle-level incomes; and lone-parent families and elderly people, who have low incomes. All family types have experienced growth in median incomes between 2001 and 2014, with non-elderly couples without children faring slightly better than other family types.

Longer-term incomes

Table 3.3 takes advantage of the longitudinal information in HILDA to examine the distribution of five-year income. Income is calculated for each individual as the sum of inflation-adjusted annual equivalised income over the five years—that is, equivalised income is obtained for each of the five years and these five values are then added together. To the extent that income fluctuates from year to year, this provides a clearer sense of inequality in lifetime or 'permanent' income.

The table shows that, consistent with fluctuations in income from year to year, inequality in five-year income is lower than inequality in

Box 3.3: Income distribution statistics

A variety of inequality measures are used in income distribution studies. In this report, estimates are presented for several commonly used measures. Average income levels are described by the mean and median, while inequality in the income distribution is described by the ratio of the 90th percentile to the median (p90/p50), the ratio of the median to the 10th percentile (p50/p10) and the Gini coefficient. The 90th percentile is the income of the individual who has 10% of individuals with higher incomes and 90% with lower incomes. The 10th percentile is the income of the individual who has 90% of individuals with higher incomes and 10% with lower incomes. The Gini coefficient is an overall measure of inequality that ranges from 0, where everyone has the same income, to 1, where one individual has all the income. See the Technical Appendix for further explanation of these measures.

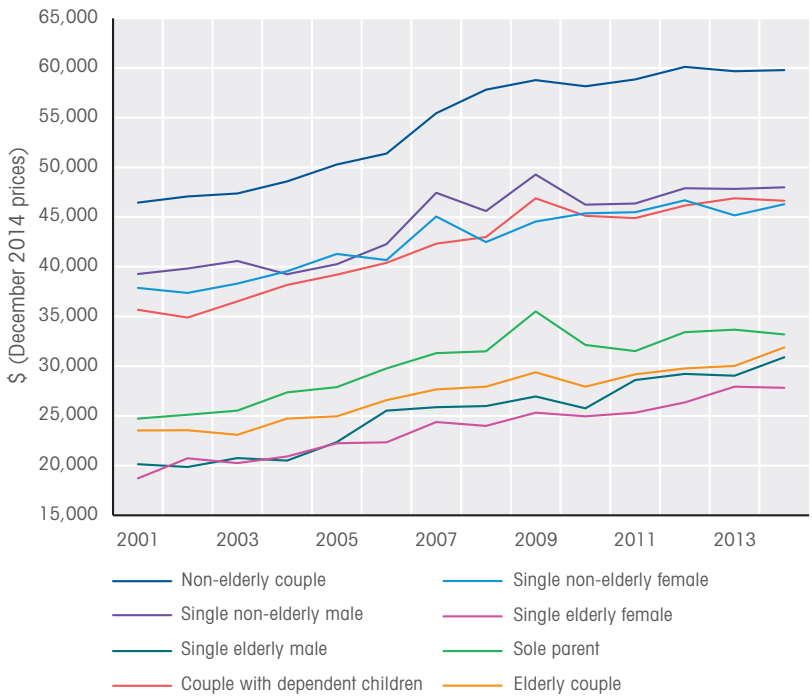
Table 3.2: Distribution of individuals' equivalised household disposable income, 2001 to 2014 (December 2014 prices)

	Mean ($)	*Median ($)*	*p90/p50*	*p50/p10*	*Gini coefficient*
2001	39,717	35,184	1.92	2.13	0.305
2002	40,044	34,825	1.94	2.04	0.303
2003	40,113	35,568	1.88	2.09	0.301
2004	41,071	36,814	1.84	2.07	0.292
2005	42,909	38,287	1.88	2.09	0.296
2006	45,332	39,526	1.92	2.04	0.300
2007	48,304	42,239	1.93	2.16	0.311
2008	48,880	42,714	1.93	2.16	0.307
2009	50,672	46,040	1.80	2.18	0.290
2010	50,407	44,358	1.90	2.14	0.303
2011	50,643	44,025	1.97	2.10	0.311
2012	51,318	45,391	1.88	2.06	0.297
2013	51,777	45,726	1.89	2.08	0.301
2014	52,017	45,505	1.91	2.01	0.299

one-year income (Table 3.2). The differences are not large however, implying there is a high degree of persistence in household incomes. The 'Shorrocks R' (Shorrocks, 1978) measure reported in the table perhaps best summarises this persistence. It presents the ratio of the Gini coefficient for five-year income to the average Gini coefficient for annual income over that five-year period. A higher value of Shorrocks R corresponds to higher income persistence, the corollary of which is lower income mobility. For example, if everyone had the same income every year, the Gini coefficient for five-year income would be the same as the Gini coefficient for annual income, and Shorrocks R would therefore be equal to 1 (its maximum possible value).

Shorrocks R is over 0.9 in all year-spans examined in the table, meaning that year-to-year fluctuations in income reduce inequality in longer-term (five-year) income by less than 10%. There is therefore a high degree of persistence in annual equivalised incomes. That is, there is relatively little income mobility over five years. There are, furthermore, indications that income mobility has declined over the HILDA Survey period. For the 2001 to 2005 period, Shorrocks R was 0.90, but has since trended slightly upwards, to be 0.93 for the 2010 to 2014 period. While the increase in income stability from year to year is a positive development for people with good incomes, this is not a good development for people with low incomes, since they are more likely to have *persistently* low incomes.

Figure 3.1: Median equivalised income by family type



Box 3.4: Family types

The following eight family types are distinguished in this chapter: (1) non-elderly couples, defined to be couples (married or de facto) without dependent children with at least one member of the couple under 60 years of age; (2) couples with at least one dependent child living with them; (3) lone parents living with at least one dependent child; (4) non-elderly single males (under 60 years of age); (5) non-elderly single females; (6) elderly couples, where both persons are over 60 years of age; (7) elderly single males (aged 60 and over); and (8) elderly single females. Note that some households will contain multiple 'families'. For example, a household containing a non-elderly couple living with a non-dependent son will contain a non-elderly couple family and a non-elderly single male. Both of these families will, of course, have the same equivalised income.

Income poverty

A wide variety of definitions or measures of poverty, or material deprivation, have been employed by economic and social researchers. While recognising this diversity of potential measures, in this chapter we focus on the most commonly employed definition applied to the

Table 3.3: Five-year equivalised incomes, 2001 to 2014 (December 2014 prices)

	Mean ($)	*Median ($)*	*p90/p50*	*p50/p10*	*Gini coefficient*	*Shorrocks R*
2001–2005	203,812	184,924	1.77	1.94	0.270	0.902
2002–2006	207,818	188,102	1.77	1.92	0.271	0.908
2003–2007	215,873	193,144	1.78	1.88	0.273	0.910
2004–2008	225,778	202,388	1.78	1.93	0.275	0.913
2005–2009	234,376	210,174	1.79	1.91	0.275	0.914
2006–2010	241,325	215,575	1.81	1.95	0.274	0.907
2007–2011	246,604	221,197	1.81	1.98	0.279	0.917
2008–2012	251,899	225,996	1.80	1.97	0.276	0.915
2009–2013	255,288	229,883	1.77	1.97	0.276	0.919
2010–2014	258,247	230,890	1.79	1.95	0.281	0.930

study of poverty in developed countries, which conceives of poverty as *relative* deprivation or socio-economic disadvantage, and which measures deprivation in terms of inadequacy of *income*. Consistent with the approach of the Organisation for Economic Co-operation and Development (OECD) and other international bodies, we define relative income poverty as having a household income below 50% of median income. While based on a degree of public and researcher consensus, it should nonetheless be acknowledged that there is an element of arbitrariness to this—or any other—definition of relative poverty.

Cross-sectional poverty rates

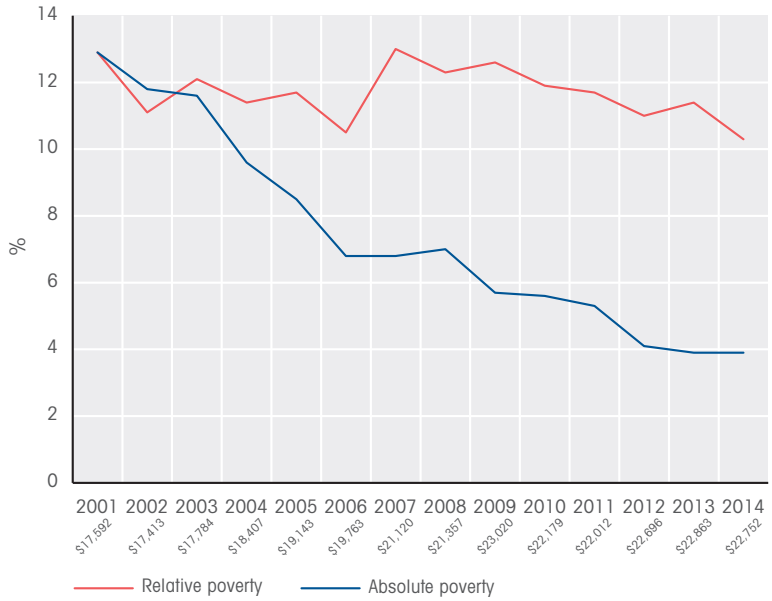
Figure 3.2 presents relative and absolute poverty rates in each year covered by the HILDA Survey. The absolute poverty line is the 2001 relative poverty line, adjusted for inflation to maintain its purchasing power over the 2001 to 2014 period (see Box 3.5, above). Our income measure is equivalised income; thus, the poverty lines presented at the bottom of Figure 3.2 can be interpreted as the annual income

Box 3.5: Relative and absolute income poverty

A person is in **relative income poverty** if they are unable to afford the goods and services needed to enjoy a normal or mainstream lifestyle in the country in which they live. In this report, we define a person to be in relative income poverty if household equivalised income is less than 50% of the median household equivalised income.

An **absolute (or anchored) poverty line** is an income poverty threshold which has its real value held constant over time rather than adjusted for changes in average living standards. It is 'absolute' in the sense that the *purchasing power* of the poverty line—the basket of goods and services that it can purchase—remains fixed over time. The level at which an absolute poverty line is set may nonetheless be based on the level of a relative poverty line obtained at a particular point in time, for example the beginning of the time period under study.

Figure 3.2: Percentage of the population in income poverty



Note: Dollar values at the base of the figure are the relative poverty lines in each of the financial years, expressed at December 2014 prices.

after taxes and government benefits that a single-person household would require to avoid relative poverty. Poverty rates refer to the proportion of persons (not households) living in poverty.

Reflecting the high rate of household income growth that occurred up to 2009, the relative poverty line increased substantially from $17,592 in 2001 to $23,020 in 2009 (expressed at December 2014 prices). Median income has fallen slightly since 2009, and as a result the relative poverty line in 2014 was slightly lower in 2014 than in 2009. The proportion of the population below this poverty line has fluctuated over time, but three distinct phases are evident: slow decline in relative poverty between 2001 and 2006, from 12.9% to 10.5%; a sharp rise to 13.0% in 2007; and slow decline thereafter down to 10.3% in 2014. A key reason for this fluctuation, particularly between 2006 and 2007, is that many welfare recipients in Australia have incomes quite close to 50% of median income, so that relatively small movements in government benefits or the median can bring about sizeable changes in the poverty rate.

It therefore appears that there has been some progress in reducing income poverty over the 2001 to 2014 period as a whole. Moreover, the poverty rate obtained when the real value of the poverty line is maintained at its 2001 level of $17,592 (at December 2014 prices) has fallen dramatically, from 12.9% in 2001 to 3.9% in 2014. Thus, even among the poor, average living standards have increased over the full 14-year period.

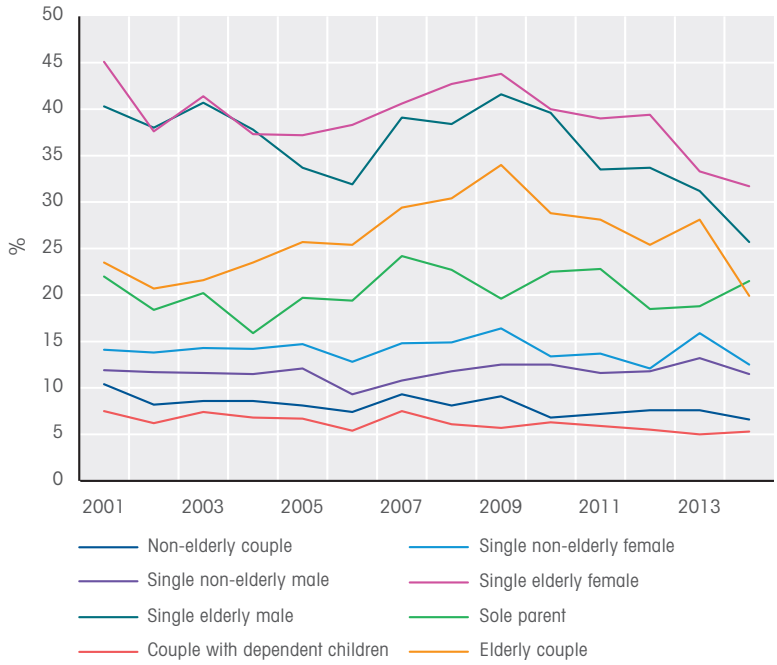
Poverty by family type

Figure 3.3 shows that poverty rates vary substantially by family type. Rates are consistently high among the elderly, particularly elderly single persons, although they have been declining since 2009. Note, moreover, that elderly people are more likely to own their own house

than are younger people, and our income poverty measure does not account for in-kind income provided by owner-occupied housing—that is, the rent that home owners would have to pay for their housing if they did not own it. The income poverty rates for the elderly are therefore likely to overstate the extent of their relative deprivation. Examining direct measures of material deprivation (see Chapter 8) provides evidence that deprivation is lower among the elderly than is implied by relative income poverty measures.

Poverty rates are also high for lone-parent families, typically falling between 18% and 23%, and exhibit no trend decline between 2001 and 2014. In 2014, 21.5% of people

Figure 3.3: Poverty rates by family type



living in lone-parent families were in poverty. By contrast, non-elderly couples (married or de facto), whether with or without dependent children, have consistently low poverty rates.

Child poverty

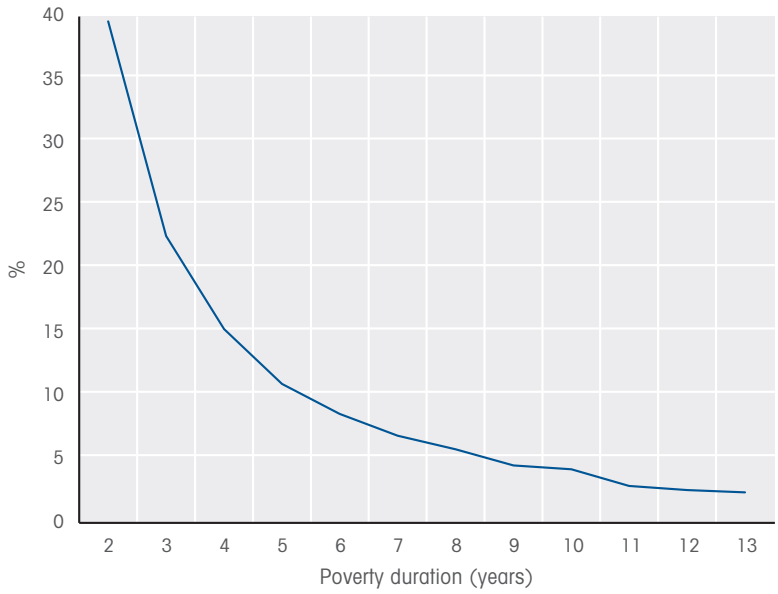
Child poverty is a particular concern for policy-makers because of the damage poverty may do to children's future productive capacity and life prospects more generally. Figure 3.4 presents child poverty rates for all children aged under 18, and separately for children in couple families and children in lone-parent families. The child poverty rate is consistently below the community-wide poverty rate, averaging approximately 10% over the 2001 to 2014 period. However, this largely reflects the very low poverty rates for children in couple families. The probability of being in poverty is very high for children in lone-parent families, in most years hovering between 20% and 25%.

Duration of poverty

While poverty experienced for a short period of time is undesirable, of much greater public policy concern is long-term or entrenched poverty. In this section, we turn our attention to the length of time people spend in poverty, including examining the factors impacting on poverty duration. One way of describing duration of poverty spells is presented in Figure 3.5, which depicts what is known as an 'empirical survival function'. It shows, for individuals aged 18 and over entering poverty between 2002 and 2013, the proportion remaining in poverty at each poverty duration (measured in years).[1]

Figure 3.4: Child poverty rates by family type

Figure 3.5: Empirical survival function for poverty spells (proportion remaining in poverty at each spell duration)—Persons aged 18 and over



[1] The restriction to poverty spells commenced between 2002 and 2013 is because a minimum of three years of data is required for each poverty spell. The first two years are required to establish the start of the spell—that the individual was not in poverty in the first year and was in poverty in the second year—while the third year is required to establish whether the individual exited poverty in the second year. Note that 'survival' probability at each spell duration is only calculated over those spells that could potentially be observed to reach that spell duration. For example, poverty spells commenced in 2013 are only used to estimate the probability of remaining in poverty for two years, since we do not observe whether these spells continued into a third year. Thus, while all spells commenced between 2002 and 2013 are used to estimate the survival probability at the two-year spell duration, only spells commenced in 2002 are used to calculate the survival probability at the 13-year spell duration.

Table 3.4: Distribution of poverty spell durations by initial family type—Individuals aged 18 and over who commenced a poverty spell between 2002 and 2009 (%)

	1 year	*2 years*	*3 years*	*4 years*	*5 years*	*6 or more years*	*Total*
Non-elderly couple	61.1	16.7	9.5	2.7	1.5	8.5	100.0
Couple with dependent children	65.0	18.0	5.9	4.9	2.2	4.1	100.0
Lone parent	63.1	17.5	7.0	4.8	3.0	4.6	100.0
Single non-elderly male	69.9	13.9	6.0	4.9	0.8	4.6	100.0
Single non-elderly female	56.9	17.9	9.0	5.3	3.8	7.1	100.0
Elderly couple	51.1	16.2	7.9	5.0	4.4	15.3	100.0
Single elderly male	50.6	18.2	7.6	3.2	5.3	15.1	100.0
Single elderly female	51.4	20.0	4.7	4.3	2.0	17.6	100.0
All persons aged 18 and over	60.5	17.0	7.4	4.4	2.5	8.2	100.0

For example, the left end of the curve shows that approximately 40% of adults who enter poverty in one year are still in poverty in the next year, implying that 60% of poverty spells last only one year. The next point on the curve shows that approximately 23% are still in poverty in the third year, while the final point on the curve shows that approximately 2% of spells last at least 13 years.

Of course, Figure 3.5 does not show what proportion of those who exit poverty at each spell duration subsequently re-enter poverty, but it is nonetheless informative on the relationship between length of time in poverty and likelihood of remaining in poverty. The slope of the figure, which starts off very steep and gets less steep as poverty duration increases, suggests there is a declining likelihood of exiting poverty the longer one has been in poverty. This can be verified by examining the percentage change in the survival rate from each spell duration to the next. For example, the drop in the survival rate from 40% in year 2 to 23% in year 3 implies a 43% probability of exit at a duration of two years (obtained as the change in the survival rate (40–23) expressed as a proportion of the survival rate in year 2 (40)), which is lower than the 60% probability of exit at a duration of one year. Similarly, the change in the survival rate from 23% in year 3 to 15% in year 4 implies a 35% probability of exit at a duration of three years, which is lower than the probability of exit at a duration of two years.

Table 3.4 provides an alternative description of the distribution of poverty spell durations. For individuals who commenced a poverty spell between 2002 and 2009, it shows the proportion of spells that lasted one year, two years, three years, four years, five years and six or more years.[2] As well as presenting estimates for all persons, the table presents separate estimates for each family type. Since family types can change over time, individuals are classified according to their family type in the year in which the poverty spell commenced.

Consistent with Figure 3.5, the table shows that 60.5% of poverty spells last only one year. A further 17.0% of poverty spells last two years. Thus, poverty is typically a transitory experience. However, as noted above, poverty may be a recurring event for many of these individuals. Moreover, a significant minority of poverty spells—8.2% —last at least six years.

There are considerable differences evident in distributions of spell duration across family types. Poverty spells commenced by single non-elderly males and

[2] For all spells commenced between 2002 and 2009, at a minimum, we observe if the spell was completed within five years. For spells still in progress in 2014, we only know that the spell is at least equal to the duration of the spell as of 2014. For spells commenced in 2009, this duration is six years—hence, the upper category in Table 3.4 is '6 or more years'.

couples with dependent children are relatively likely to last only one year and relatively unlikely to last six or more years, while poverty spells commenced by elderly people are relatively likely to last at least six years. Significantly, despite having quite high poverty rates in each year (Figure 3.3), lone parents are relatively likely to have short poverty spells. This may in part reflect the inherently temporary nature of this family situation, since lone parents may partner or the children may cease being dependent.

Figure 3.5 provides tentative evidence on the role of spell duration in affecting likelihood of exiting poverty, and Table 3.4 provides tentative evidence on the role of family type in affecting the length of poverty spells. However, a more comprehensive and robust investigation of the factors affecting poverty spell duration is possible through estimation of spell duration regression models. Table 3.5 presents estimation results from such a model. The outcome examined is the probability of exiting poverty, given exit has not already occurred, with a poverty spell generating an 'observation' for each spell duration (that is, each year of the spell) that the spell is observed to be in progress. The reported estimates, known as hazard ratios, show the impacts on exit from poverty associated with spell duration and a variety of socio-demographic characteristics. As explained in more detail in the Technical Appendix, a hazard ratio greater than 1 indicates a positive association between the explanatory variable (characteristic) and the likelihood of exiting poverty, while a hazard ratio less than 1 indicates a negative association. Note that if a characteristic has a positive association, it acts to decrease the length of time spent in poverty, while if a characteristic has a negative association, it acts to increase the length of time spent in poverty.

Table 3.5: Factors affecting poverty spell duration—Spells commenced by persons aged 18 and over between 2002 and 2013

	Odds ratio estimate
Poverty duration (Reference category: 1 year)	
2 years	1.48
3 years	1.58
4 years	1.85
5 years	1.75
6 or more years	1.81
Year (Reference category: 2003–2005)	
2006–2008	0.74
2009–2011	0.81
2012–2014	0.92
Age group (Reference category: 18–24)	
25–34	*ns*
35–44	0.86
45–54	0.68
55–64	0.48
65 and over	0.42
Household type (Reference category: Couple without dependent children)	
Couple with dependent children	1.35
Lone parent	*ns*
Single person	0.64
Other household type	1.20
Number of dependent children	0.86
Population density of region of residence (Reference category: Major urban)	
Other urban	*ns*
Other region	0.76
SEIFA decile	1.07
State of residence (Reference category: New South Wales)	
Victoria	*ns*
Queensland	1.15
Western Australia	*ns*
South Australia	*ns*
Tasmania	0.76
Northern Territory	*ns*
Australian Capital Territory	1.70
Indigenous status and country of birth (Reference category: Non-Indigenous native-born)	
Indigenous	0.54
NESB immigrant	0.71
ESB immigrant	*ns*
English proficiency (Reference category: First language or excellent proficiency)	
Poor proficiency	0.66
Reasonable proficiency	0.75
Educational attainment (Reference category: No post-school qualifications and has not completed high school)	
Bachelor's degree or higher	1.77
Other post-school qualification	1.41
Completed high school	1.28
Disability severity (Reference category: No disability or disability with no work restriction)	
Severe work restriction	0.63
Moderate work restriction	0.78
In poor general health	*ns*
In poor mental health	*ns*
Main carer	*ns*
Constant	0.79
Number of observations	18,044

Notes: Table reports hazard ratios from Cox proportional hazards regression models with unobserved heterogeneity. See the Technical Appendix for further details on regression models. Sample comprises all poverty spells commenced by individuals aged 18 and over between 2002 and 2013. *ns* indicates estimate is not significantly different from 1 at the 10% level.

Box 3.6: Classification of household types

The comprehensive information in the HILDA Survey data on the composition of each household and the relationships between all household members allows for complete flexibility in defining household types. In this report, household types are classified into five categories:

(1) Couple without children (includes couple households containing other related or unrelated people). This household type accounted for approximately 26% of households in 2014.

(2) Couple with children (comprises couple households with dependent and/or non-dependent children, and also includes such households containing other related or unrelated people). This household type accounted for approximately 34% of households in 2014.

(3) Lone parent with children (comprises lone-parent households with dependent and/or non-dependent children, and also includes such households containing other related or unrelated people). This household type accounted for approximately 11% of households in 2014.

(4) Single person (comprises households with only one household member). This household type accounted for approximately 24% of households in 2014.

(5) Other household type (comprises all other household types, including multiple-family households, 'group' households (two or more unrelated people living together), and 'other related family', such as households with siblings living together (and not living with parents or any of their own children)). This household type accounted for approximately 5% of households in 2014.

In much of the analysis presented in this report, individuals are classified according to family type (see Box 3.4, page 28) rather than household type. Family type and household type are in many cases the same, but diverge when households contain people who are not all part of the same nuclear family or when non-dependent children live with their parents.

Box 3.7: English proficiency

English proficiency is a self-reported measure that applies only to individuals who speak a language other than English at home. Each wave, respondents are asked 'Would you say you speak English very well, well, not well or not at all?' In this report, respondents are classified as having poor English proficiency if they responded 'not well' or 'not at all', are classified as having reasonable English proficiency if they responded 'well', and are classified as having excellent English proficiency if they responded 'very well'.

The estimates for the poverty duration variables indicate that, contrary to Figure 3.5, exit from poverty tends to become *more* likely the longer the spell duration. This implies that it is (observed and unobserved) characteristics of individuals that cause long poverty spells, rather than there being an adverse effect of spell duration itself.

The probability of exiting poverty is potentially affected by when the poverty spell occurs. For example, in periods of stronger economic growth, we might expect exit from poverty to be more likely—although this is not inevitable, since the likelihood of entering poverty in the first place may be lower in such times, and therefore the type of people who enter poverty may change. These 'year effects' are captured by the 'Year' dummy variables. The estimates for these variables show that, holding other factors constant, the probability of exiting poverty was lowest in the

2006 to 2008 period, and highest in the 2003 to 2005 period.

Estimates by age group show a strong negative relationship between age and probability of exit from poverty, with people aged 18–24 the most likely to exit poverty and people aged 65 and over the least likely to exit poverty, all else equal. Comparing across household types (as defined in Box 3.6, opposite), people in single-person households are the least likely to exit poverty, while couples with dependent children are the most likely to exit poverty. People in 'other' household types, including multi-family and group households, are also relatively likely to exit poverty. People in lone-parent households are less likely to exit poverty than people in couple-parent households, but no less likely to exit poverty than couples without dependent children. There is, however, a negative effect of the number of dependent children in the household—that is, the more children in the individual's family, the less likely is exit from poverty—which acts to increase spell durations of those in large lone-parent and couple families.

People living outside of major urban or other urban areas (see Box 9.1, page 93) are considerably less likely to exit poverty, while the more socio-economically advantaged the area in which an individual lives (as measured by SEIFA decile; see Box 9.2, page 94), the more likely the individual is to exit poverty. Holding constant population density and SEIFA decile, there are no significant differences between New South Wales, Victoria, South Australia and the Northern Territory in the probability of exiting poverty, but residents of Tasmania are less likely to exit poverty, residents of Queensland are somewhat more likely to exit poverty, and residents of the Australian Capital Territory are much more likely to exit poverty.

All else equal, Indigenous people, closely followed by NESB immigrants, are the least likely to

exit poverty, with no significant difference between non-Indigenous native-born people and ESB immigrants in exit probability. For NESB immigrants, having less than 'excellent' English proficiency (see Box 3.7, opposite) further reduces the likelihood of exiting poverty.

As might be expected, there is a positive association between educational attainment and exit from poverty. Disability (see Box 12.1, page 110) is also a strong predictor of poverty duration, and the more severe the disability, the lower the probability of exit from poverty. Poor general health and poor mental health (see Box 2.1, page 10) do not, however, appear to reduce the probability of exiting poverty. Moreover, being a main or primary carer of an elderly person or a person with disability (see Box 3.10, page 42) does not significantly impact on the probability of exiting poverty.

The findings presented in Table 3.5 are perhaps largely unsurprising. However, the broader message that emerges from the analysis of poverty spell durations presented in this section is that, while most poverty spells are relatively short, a significant minority of people experience long spells, and the likelihood of experiencing a long spell very much depends on the characteristics and circumstances of individuals.

Welfare reliance

Dependence on welfare remains a significant concern for policy-makers in Australia. It is associated with significant demands on government budgets and reduced economy-wide market output. Moreover, reliance on welfare is often associated with long-term poverty, social exclusion and other adverse outcomes for recipients and their children. That said, the welfare system provides an important social 'safety net'. Indeed, it may be important in assisting people to 'bounce back' from adverse shocks, and could conceivably be beneficial to both economic output and the government budget over the longer term. In any case, it is clear that policy concern should be greatest for long-term or entrenched welfare reliance.

The HILDA Survey is an important data source for understanding welfare reliance, since the longitudinal nature of the data enables the study of the duration and dynamics of welfare receipt. Importantly, it is possible to identify

Box 3.8: Welfare payments

Welfare payments in Australia are known as income support payments, which are benefits paid to Australian residents that are intended to represent the primary source of income of recipients. Studies of welfare reliance in Australia correspondingly focus on receipt of income support payments, although supplementary government benefits, known as non-income support payments, are typically included by studies when determining the extent of welfare reliance of those who have received income support payments. Income support payments include the Age Pension, Disability Support Pension, Carer Payment, Parenting Payment (Single and Partnered), Newstart Allowance, Youth Allowance and Department of Veterans' Affairs Service Pension, as well as several other smaller payment types. Non-income support payments include Family Tax Benefit (Parts A and B) and Carer Allowance.

Figure 3.6: Receipt of welfare by persons aged 18–64

Figure 3.7: Reliance on welfare among persons aged 18–64

entrenched welfare reliance and the factors associated with it. The HILDA Survey is therefore a key data source for policy-makers seeking to address long-term welfare reliance.

Welfare reliance over a one-year time-frame

Figures 3.6 and 3.7 respectively present cross-sectional estimates of welfare receipt and welfare reliance for 'workforce age' persons, defined here as people aged 18–64. In 2014, 31.6% of individuals aged 18–64 were living in a household that received income support at some stage of the financial year ending 30 June 2014. This is substantially lower than at the beginning of the HILDA Survey in 2001, when the corresponding figure was 37.8%. However, all of the decline in household welfare receipt was in the period to 2009, and in fact welfare receipt was slightly higher in 2014 than in 2009, when 31% of working-age individuals lived in a household which received income support at some stage of the financial year.

Figure 3.7 presents estimates of welfare reliance for two definitions of welfare reliance (as explained in Box 3.9, opposite): more than 50% of annual household income comes from welfare; and more than 90% of annual household income comes from welfare. As would be expected, the proportion of the population classified as welfare reliant depends on whether the 50% or 90% threshold is employed. However, the two measures show similar trends, both declining between 2004 and 2008, and both remaining relatively constant until 2012, at approximately 10% for the 50% threshold, and at approximately 5% for the 90% threshold. Between 2012 and

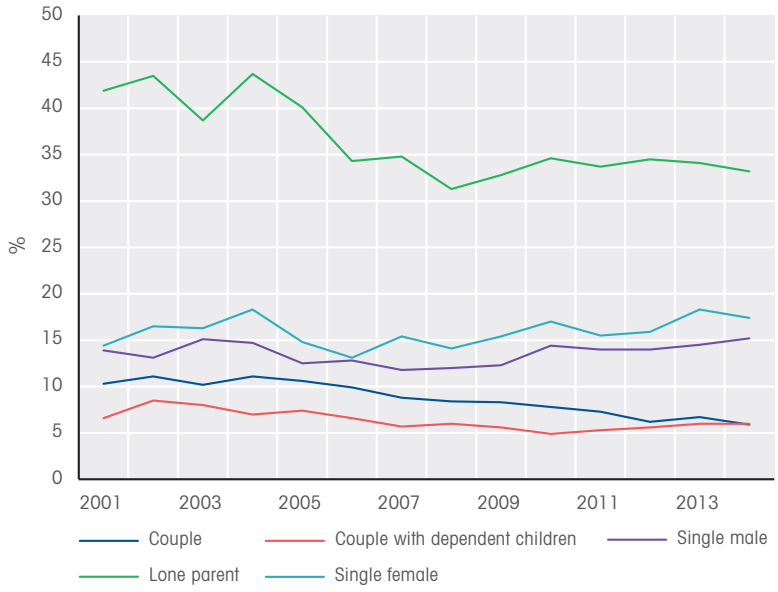
Box 3.9: Definitions of welfare reliance

While a person may be regarded as to some extent reliant on welfare if *any* welfare payments are received by that person's household, welfare reliance is usually conceived as a situation in which welfare represents the primary or main source of income. In this report, two alternative specific definitions of welfare reliance are adopted:

(1) The household receives income support payments and more than 50% of household income comes from income support and non-income support payments.

(2) The household receives income support payments and more than 90% of household income comes from income support and non-income support payments.

Figure 3.8: Welfare reliance of people aged 18–64 years, by family type



Note: A person is defined to be welfare reliant if more than 50% of household annual income comes from welfare.

2013, increases in welfare dependence are evident for both measures, but between 2013 and 2014 these increases were partially reversed.

Figure 3.8 shows that welfare reliance among working-age people is very much associated with living in lone-parent families. For each year from 2001 to 2014, the figure presents the proportion of individuals in each family type obtaining more than 50% of financial-year household income from welfare benefits. Lone parents have considerably higher rates of welfare dependence than people in other family types, although there was some decline in lone-parent welfare reliance between 2004 and 2008, falling from a peak of 43.7% in 2004 to a low of 31.3% in 2008. Individuals in couple families, with or without dependent children, have the lowest rates of welfare dependence, and have also experienced declines in welfare dependence, falling from 8.5% in 2002 to 6% in 2014 for couples with dependent children, and falling from 11.1% in 2002 to 5.9% in 2014 for other couples. Single men and women have welfare dependence rates slightly higher than couples, and have experienced no trend decline in welfare reliance. Indeed, since 2008, there has been a gradual rise in welfare dependence among single people, rising from 14.1% to 17.1% for women and from 12% to 15.2% for single men. The gap between couples and single people has therefore risen over the HILDA Survey period.

Welfare receipt and welfare reliance over 14 years

Drawing on the full 14 waves of the HILDA Survey provides significant insights into long-term contact with the welfare system. Table 3.6 examines contact with the welfare system between 2001 and 2014 for all persons aged 18–51 in 2001, and disaggregated by sex and age group in 2001. It shows the proportion personally receiving welfare (income support) at some stage of the 14-year period, and the proportion at some stage living in a household in which a household member received welfare. The sample is restricted to people aged 18–51 in 2001, who were in the 18–64 age range in all 14 years.

Strikingly, the bottom right cell of the table shows that nearly 70% of the population of working age across the entire 14-year period had contact with the income support payments system. Moreover, 44.8% of these people *personally* received income support payments at some stage between 2001 and 2014. Given that only 20% of working-age individuals receive income support in any given year, this indicates that the welfare system does indeed provide temporary rather than long-term support for most recipients, and is potentially playing a very important safety net role.

Rates of contact with the welfare system are high for both males and females across all age groups. For males, contact is lowest among those aged 25–34 in 2001 and thereafter increases as we move up the age distribution. Rates of contact are somewhat higher for females than males in all age groups, but particularly among those aged 25–34 in 2001. This is likely to be at least partly due to the high proportion of lone parents that are female.

The extent of working-age individuals' welfare reliance over the 14 years to 2014, disaggregated by sex and 2001 age group, is examined in Table 3.7. The upper panel of the table shows the distribution of the number of years in which the individual's household received income support. It shows

Table 3.6: Welfare receipt over the 14 years from 2001 to 2014, by age group in 2001 (%)

	Age group in 2001				All aged
	18–24	*25–34*	*35–44*	*45–51*	*18–51 in 2001*
Males					
Personally received welfare	50.7	32.9	34.1	37.4	37.1
Household received welfare	80.4	64.4	65.9	68.3	68.3
Females					
Personally received welfare	63.8	55.9	49.6	43.4	52.3
Household received welfare	77.2	65.9	71.3	73.3	71.0
All persons					
Personally received welfare	57.1	44.3	42.1	40.5	44.8
Household received welfare	78.9	65.2	68.6	70.9	69.7

Table 3.7: Welfare reliance over the 14 years from 2001 to 2014, by sex and 2001 age group

	Age group in 2001				All aged
	18–24	*25–34*	*35–44*	*45–51*	*18–51 in 2001*
Number of years household received income support (%)					
Males					
0 years	19.6	35.6	34.1	31.7	31.7
1–3 years	41.2	34.5	31.4	32.1	34.1
4–6 years	17.7	13.2	12.9	13.0	13.8
7–9 years	8.0	5.9	7.0	6.7	6.8
10–13 years	8.2	7.3	8.6	7.6	7.9
14 years	5.3	3.5	6.0	8.9	5.7
Total	100.0	100.0	100.0	100.0	100.0
Females					
0 years	22.8	34.1	28.7	26.7	29.0
1–3 years	32.5	29.3	28.7	29.7	29.6
4–6 years	18.7	12.4	13.6	11.5	13.6
7–9 years	10.2	9.2	9.6	7.8	9.2
10–13 years	10.7	9.0	11.3	9.8	10.2
14 years	5.1	6.1	8.2	14.5	8.4
Total	100.0	100.0	100.0	100.0	100.0
Individuals whose household received welfare: Proportion of income from welfare					
Males					
Mean proportion of income from welfare (%)	10.1	12.6	15.3	16.8	13.8
Proportion in each category for proportion of income from welfare (%)					
Less than 25%	87.2	86.7	81.9	79.3	83.8
25% to less than 50%	9.8	7.3	8.6	7.9	8.3
50% to less than 75%	0.6	3.8	4.4	4.9	3.6
75% to 100%	2.4	2.2	5.0	8.0	4.3
Total	100.0	100.0	100.0	100.0	100.0
Females					
Mean proportion of income from welfare (%)	15.5	21.1	16.8	21.5	18.8
Proportion in each category for proportion of income from welfare (%)					
Less than 25%	80.4	72.6	77.6	72.3	75.5
25% to less than 50%	9.6	13.2	12.8	9.5	11.7
50% to less than 75%	5.6	8.3	4.5	4.9	5.8
75% to 100%	4.4	5.9	5.1	13.4	7.0
Total	100.0	100.0	100.0	100.0	100.0

that, measuring contact with the welfare system by the number of years in which one's household received income support payments, most working-age people have only temporary contact with the system. Only 20.4% of working-age men and 27.8% of working-age women had contact with the system in seven or more of the 14 years, and 5.7% of men and 8.4% of women had contact in all 14 years. Of those who had contact with the welfare system, most common is between one and three years of contact—indeed, for both men and women, this is more common than no contact at all.

Men and women aged 25–34 in 2001 tended to have the least contact with the welfare system between 2001 and 2014, while those aged 45–51 in 2001 tended to have the most contact. For example, the proportion of men with 10 or more years contact is 13.5% for the 18–24 age group, 10.8% for the 25–34 age group, 14.6% for the 35–44 age group, and 16.5% for the 45–51 age group. The corresponding proportions for women are 15.8%, 15.1%, 19.5% and 24.3%.

The lower panel of Table 3.7 shows the extent of welfare reliance over the 2001 to 2014 period among the 68.3% of men and 71% of women having some contact with the welfare system. The table reports the distribution of the proportion of household income from welfare. On average, working-age men who came into contact with the welfare system between 2001 and 2014 derived 13.8% of household income from welfare, while working-age women who came into contact with the system on average derived 18.8% of income from welfare. Only 7.9% of working-age men and 12.8% of working-age women who came into contact with the welfare system—or 5.4% of all working-age men and 9% of all working-age women—derived

50% or more of total household income from welfare.

Patterns in welfare reliance by 2001 age group are similar, but not identical, to patterns in the extent of contact with the welfare system. For men, the extent of reliance is ordered by age group, being lowest for those aged 18–24 in 2001, and highest for those aged 45–51 in 2001. For women, while those aged 18–24 in 2001 have the lowest mean proportion of income from welfare and those aged 45–51 in 2001 have the highest mean proportion of income from welfare, those aged 25–34 in 2001 have a higher mean proportion of income from welfare than those aged 35–44 in 2001. The relatively high level of reliance among the female 25–34 age group is likely to be related to child-rearing and in particular lone-parent welfare receipt.

Duration of spells on welfare

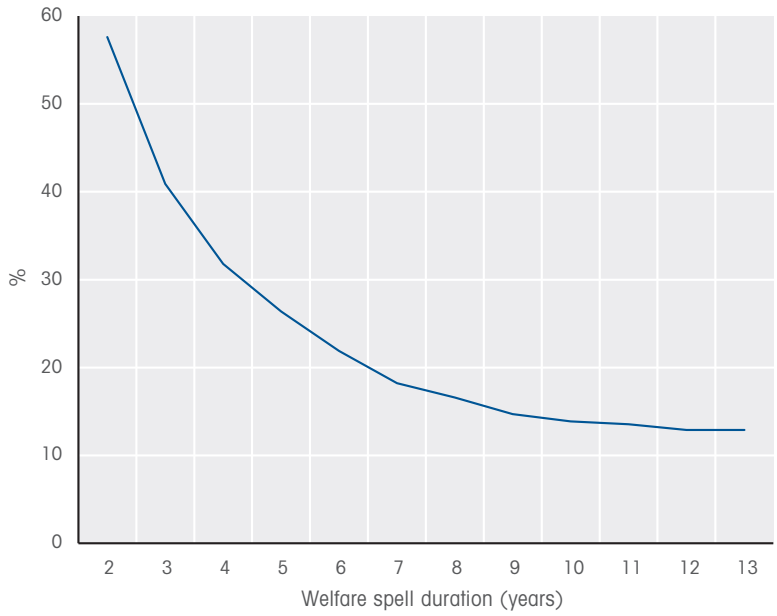
Analogous to the examination of length of poverty spells presented earlier in this chapter, in this section we examine the length of welfare spells. Tables 3.6 and 3.7 examined total receipt of income support over 14 years, whereas here we are focusing on the length of time an individual's household is continuously in receipt of income support payments. For the purposes of this analysis, a welfare spell is deemed to commence if the household received any income support payments over the course of the financial year ended 30 June of the relevant year, and did not receive any income support payments in the previous financial year.[3]

Figure 3.9 presents the empirical survival function for welfare spells commenced between 2002 and 2013. The population examined is restricted to working-age adults. As with poverty spells, the curve has a decreasing slope, but an important difference is the higher position of the curve, meaning higher survival rates at each spell duration. This is despite the exclusion of people aged 65 and over, who have higher persistence in both poverty and welfare receipt. Thus, there is more

[3] This is an imperfect measure of spell duration because it is possible for a household to move on and off income support payments multiple times within a year. However, the nature of the data available do not permit identification of the periods within the year that income support was received unless at least one person in the household received income support payments in every week of the year.

persistence in welfare receipt than in poverty. For example, of those working-age adults who commenced a welfare spell in one year, approximately 58% remained on welfare in the next year, and approximately 41% remained on welfare in the third year. The curve becomes almost horizontal, at a survival rate of approximately 13%, from spell durations of 10 or more years. Consequently, approximately 13% of individuals who commence a welfare spell remain on welfare for at least 10 years, and few of these individuals move off welfare over the subsequent three years.

Figure 3.9: Empirical survival function for welfare spells (proportion remaining on welfare at each spell duration)—Persons aged 18–64



Distributions of welfare spell durations by family type (at the start of the spell) are examined in Table 3.8. In the same way as presented for poverty spells in Table 3.4, the table shows, for spells commenced between 2002 and 2009, the proportion of spells completed at each duration. The population examined is restricted to persons of working age for at least the first six years of the spell—that is, aged 18–59 at the start of the spell.

Lone-parent families commencing a welfare spell are the least likely of the family types examined in the table to have spells lasting only one year, and are the most likely to have spells lasting two, three, four or five years. However, while lone-parent families are relatively likely to have spells of six or more years, it is actually non-elderly couples who commence a welfare spell who are most likely to have a spell of

Table 3.8: Distribution of welfare spell durations by initial family type—Persons who commenced a spell on welfare when aged 18–59 (%)

	1 year	*2 years*	*3 years*	*4 years*	*5 years*	*6 or more years*	*Total*
Non-elderly couple	41.2	15.4	9.3	2.5	4.4	27.3	100.0
Couple with dependent children	52.3	18.4	8.8	4.3	3.1	13.2	100.0
Lone parent	25.1	23.2	11.3	9.0	5.7	25.6	100.0
Single non-elderly male	53.1	16.3	9.0	2.9	2.9	15.7	100.0
Single non-elderly female	36.2	17.1	15.9	6.8	5.3	18.8	100.0
All working-age persons	45.5	17.9	10.1	4.6	3.8	18.1	100.0

Note: Sample comprises welfare spells commenced by persons aged 18–59 between 2002 and 2009.

six or more years. Single males and couples with dependent children are the most likely to have a one-year spell, with over half of their welfare spells lasting one year (or less). They are also the least likely to have spells of six or more years.

The determinants of welfare spell duration are examined in Table 3.9, which presents estimates from a hazard model regression. The model and the explanatory variables are the same as those used for the model of poverty duration (Table 3.5), although the population examined is restricted to people aged 18–64.

The estimates for the welfare spell duration variables indicate that exit from welfare tends to become more likely the longer the spell duration, despite the fact that most people exit welfare after one or two years. The estimates for the 'Year' dummy variable show that, holding other factors constant, the probability of exiting welfare was lowest in the most recent (2012 to 2014) period, and indeed has tended to decline over the period as a whole. The decline in exit probability up to the 2009 to 2011 period was in the context of declining overall reliance on welfare (Figure 3.7), but since 2009 welfare reliance has not been declining; the further decline in probability of exit in the 2012 to 2014 period is therefore perhaps a cause for concern.

As with poverty, there is a strong relationship between age and welfare spell duration, with people aged 18–24 the most likely to exit welfare and people aged 55–64 the least likely to exit welfare in any given year. Comparing across household types, all else equal, lone parents are the least likely to exit welfare, while couples with dependent children are the most likely to exit welfare. Probability of exit from welfare is also decreasing in the number of dependent children in the household.

There are no significant differences by level of population density of the

Table 3.9: Factors affecting welfare spell duration—Spells commenced by persons aged 18–64 between 2002 and 2013

	Odds ratio estimate
Welfare spell duration (Reference category: 1 year)	
2 years	1.26
3 years	1.45
4 years	1.69
5 years	2.03
6 or more years	2.16
Year (Reference category: 2003–2005)	
2006–2008	0.86
2009–2011	0.86
2012–2014	0.72
Age group (Reference category: 18–24)	
25–34	0.89
35–44	0.84
45–54	0.66
55–64	0.27
Household type (Reference category: Couple without dependent children)	
Couple with dependent children	1.35
Lone parent	0.47
Single person	0.69
Other household type	0.81
Number of dependent children	0.90
Population density of region of residence (Reference category: Major urban)	
Other urban	*ns*
Other region	*ns*
SEIFA decile	1.06
State of residence (Reference category: New South Wales)	
Victoria	*ns*
Queensland	1.16
Western Australia	1.39
South Australia	*ns*
Tasmania	*ns*
Northern Territory	1.65
Australian Capital Territory	*ns*
Indigenous status and country of birth (Reference category: Non-Indigenous native-born)	
Indigenous	0.72
NESB immigrant	*ns*
ESB immigrant	1.21
English proficiency (Reference category: First language or excellent proficiency)	
Reasonable proficiency	*ns*
Poor proficiency	*ns*
Educational attainment (Reference category: No post-school qualifications and has not completed high school)	
Bachelor's degree or higher	3.17
Other post-school qualification	1.55
Completed high school	*ns*
Disability severity (Reference category: No disability or disability with no work restriction)	
Moderate work restriction	0.36
Severe work restriction	0.19
In poor general health	*ns*
In poor mental health	0.87
Main carer	0.56
Constant	0.34
Number of observations	22,598

Notes: Table reports hazard ratios from Cox proportional hazards regression models with unobserved heterogeneity. See the Technical Appendix for further details on regression models. Sample comprises all welfare spells commenced between 2002 and 2013 of individuals aged 18–64. *ns* indicates estimate is not significantly different from 1 at the 10% level.

region of residence, but more socio-economically advantaged areas are associated with shorter spell durations. There are no significant differences between New South Wales, Victoria, South Australia, Tasmania and the Australian Capital Territory, but the estimates indicate that, other factors held constant, residents of Queensland are somewhat more likely to exit welfare, residents of Western Australia are considerably more likely to exit welfare, and residents of the Northern Territory are much more likely to exit welfare. The reasons for these differences across the states and territories are not clear, but it should be emphasised that we have controlled for the effects of other factors, including Indigenous status and educational attainment.

Indigenous people are less likely to exit welfare than other native-born Australians, while ESB immigrants are more likely to exit welfare than non-Indigenous native-born Australians. NESB immigrants do not significantly differ from non-Indigenous native-born Australians in their exit probability, even if they have poor English.

Higher educational attainment is associated with large beneficial effects on welfare spell duration. Disability, and especially severe disability (see Box 12.1, page 110), is also a very strong predictor of spell duration. No independent adverse effects of poor general health are evident, but poor mental health is associated with a reduced likelihood of exiting welfare. A further connection between disability and long-term welfare receipt is that being the main carer of a person with disability (as defined in Box 3.10, below) acts to substantially reduce the probability of exit at any given spell duration.

It is interesting to compare the hazard model results for poverty spell duration (Table 3.5) and welfare spell duration (Table 3.9). A number of the predictors of welfare spell duration are also predictors of poverty spell duration, but there are some important differences. Notably, lone parents are relatively less likely to exit welfare than poverty, while people living in non-urban areas are relatively less likely to exit poverty. Moreover, poor mental health and being a primary carer both act to increase welfare spell duration, but not poverty spell duration. Further investigation is however required to reconcile these apparently contradictory findings.

Box 3.10: Identification of carers

In each wave since Wave 5, the HILDA Survey has obtained information on (unpaid) care provided by individuals aged 15 and over to elderly people and people with disability. In addition to information on the recipients of the care, including whether the recipients live in the same household, information is obtained on whether the individual is the *main* carer—that is, provides most of the care—for the recipient of the care.

In this report, an individual is classified as a carer if that individual provides unpaid care to an elderly person or a person with disability. The subset of all carers who are main carers is also identified for some analysis in this report.

4

The labour market

A primary focus of the HILDA Survey is the labour market activity of household members. In each wave, detailed information is obtained from respondents to ascertain their labour force status, earnings, hours worked, the type of work undertaken, employer characteristics and a host of other work-related aspects. Perceptions and attitudes on a range of labour market issues, such as satisfaction with the current main job, likelihood of retaining the current job and preferred hours of work, are also collected every year. Periodically, additional information is gathered on retirement intentions, attitudes to work and, more recently, work-related training and experience of job-related discrimination.

Such an emphasis on the labour market reflects the pivotal role employment plays in determining economic and social wellbeing. Not only is it the key determinant of the majority of households' incomes, it is key to participation in society both economically and socially. Understanding individuals' labour market outcomes, and the causes and consequences of those outcomes, is correspondingly core to the purpose of the HILDA Survey.

Labour force status

Standard statistical summaries of the labour force, such as produced by the Australian Bureau of Statistics (ABS) for its monthly publication, *Labour Force, Australia* (ABS, 2016), divide the population aged 15 and over into 'employed', 'unemployed' and 'not in the labour force' (see Box 4.1, page 44). The HILDA Survey collects information from respondents each year enabling classification of all respondents into one of these three categories. This allows us to produce cross-sectional labour statistics of the same kind as produced by the ABS, but more importantly, it facilitates longitudinal analysis of many aspects of labour force status mobility—that is, movements over time across different labour force states.

Table 4.1 presents cross-sectional HILDA Survey estimates of the labour force status of the population aged 15 and over for each year over the 2001 to 2014 period. They show, consistent with ABS labour force survey data, that the Global Financial Crisis (GFC) marked something of a turning point for the Australian labour market. From 2001 until 2008, employment participation had been rising and unemployment had been falling; in 2009, employment participation fell and unemployment rose, with only a partial recovery occurring in 2010 and 2011, before further deterioration from 2012 to 2014. What is not clear from Table 4.1 is how this softening of the labour market has translated into the rates at which various transitions in labour force status occur. For example, weaker employment growth could arise from fewer transitions from unemployment to employment, fewer transitions from not in the labour force to employment, increased transitions from employment to unemployment, and/or increased transitions from employment to not in the labour force.

Figure 4.1 examines this issue by describing one-year transitions in labour force status of persons aged 18–64 over the 2001 to 2014

Table 4.1: Labour force status of the population aged 15 and over, 2001 to 2014 (%)

	Males				Females			
	Employed	*Unemployed*	*Not in the labour force*	*Total*	*Employed*	*Unemployed*	*Not in the labour force*	*Total*
2001	68.0	5.3	26.7	100.0	53.3	3.5	43.2	100.0
2002	68.8	4.5	26.7	100.0	53.4	3.4	43.2	100.0
2003	68.9	4.0	27.1	100.0	53.9	3.1	43.0	100.0
2004	69.8	3.4	26.8	100.0	54.4	3.2	42.4	100.0
2005	69.8	3.5	26.7	100.0	55.9	2.9	41.2	100.0
2006	70.2	3.2	26.6	100.0	56.8	2.6	40.6	100.0
2007	70.3	2.9	26.9	100.0	57.9	2.7	39.4	100.0
2008	70.6	2.9	26.5	100.0	58.5	2.7	38.7	100.0
2009	69.4	4.4	26.2	100.0	57.6	2.7	39.7	100.0
2010	70.2	3.6	26.2	100.0	57.8	2.9	39.3	100.0
2011	70.4	3.4	26.3	100.0	56.8	3.3	39.9	100.0
2012	69.8	4.0	26.2	100.0	56.7	2.9	40.3	100.0
2013	68.3	3.9	27.8	100.0	57.0	3.5	39.5	100.0
2014	67.9	4.4	27.7	100.0	56.7	3.5	39.8	100.0

period. The figure shows, for each initial labour force state, the proportion in each labour force state one year later. For example, the top left panel presents the proportion of employed men in each base year (indicated on the horizontal axis) who were not in the labour force in the following year, and the proportion who were unemployed in the following year.

The top two figures show that approximately 1% to 2% of employed men and women make the transition to unemployment from one year to the next, while approximately 3% of employed men and 7% of employed women leave the labour force from one year to the next. The reasons for women's higher rate of movement out of the labour force are not explored here, although withdrawal to have children is undoubtedly a major driver of the difference. Year-to-year volatility in transition rates makes it difficult to discern trends over time, but it is nonetheless clear that transitions to unemployment increased in the post-GFC period, tending towards 1.5% in the pre-GFC period and tending towards 2% in the post-GFC period.

There is more volatility in transitions out of the labour force (that is, to NILF), and patterns for men and women are somewhat different. For women, 2009 to 2010 transitions from employment to non-participation were substantially higher than previously observed. There was subsequently a decline in transitions out of the labour force. For men, there was a steady increase in movements out of the labour force in the years after the GFC, and it is not until the 2013 to 2014 transition period that we see a reversal of this trend.

The middle two figures examine transition rates out of unemployment. Here there is even greater year-to-year volatility. Curiously, the rate of transition from unemployment to employment appears to have been declining in the several years leading up to the GFC for both men and women. This is perhaps because unemployment was declining over these years, so that people becoming or remaining unemployed in this period were on

Box 4.1: Labour force status

In this report, insofar as is possible, we follow international and Australian Bureau of Statistics (ABS) conventions in determining an individual's labour force status. In particular:

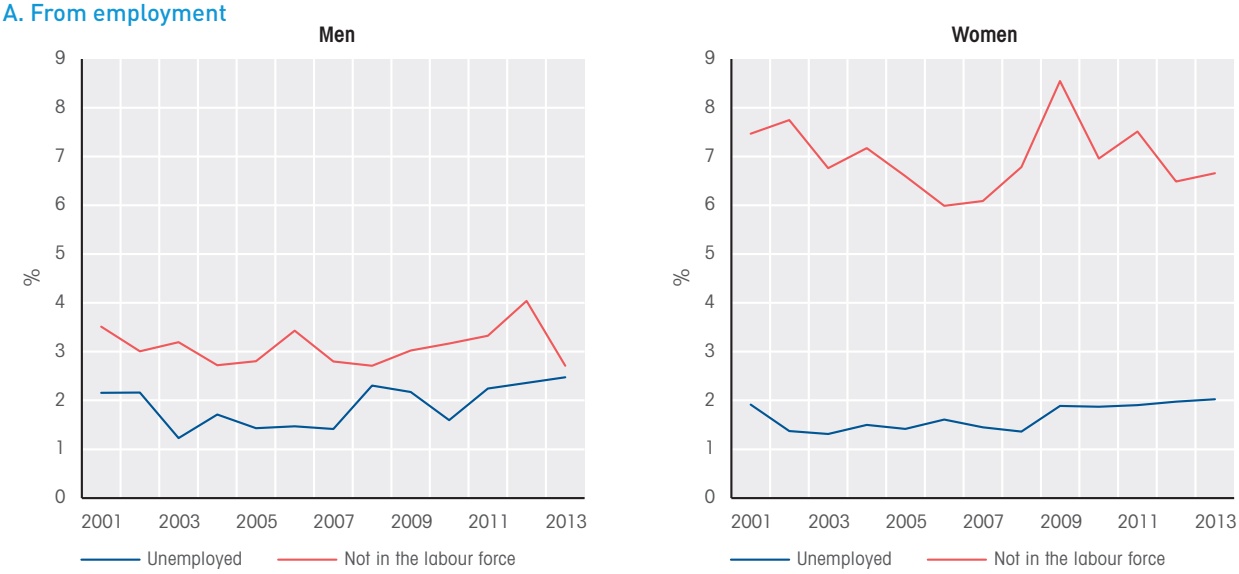
- A person is classified as **employed** if that person had a job, business or farm in the week leading up to the interview, and had either worked in the last four weeks or had not worked but: had been in paid work for any part of the last four weeks; or had been on worker's compensation and expected to return to work for the same employer; or had not worked because of a strike or lock-out.
- An employed person is classified as **employed part-time** if usual weekly hours of work in all jobs total less than 35. Otherwise, an employed person is classified as **employed full-time**.[a]
- A non-employed person is classified as **unemployed** if that person had actively looked for work at any time in the four weeks preceding the interview and was available to start work in the week preceding the interview; or if that person was waiting to start a new job within four weeks from the date of interview and could have started in the week preceding the interview if the job had been available.
- A non-employed person who is not unemployed is classified as **not in the labour force (NILF)**. Among people not in the labour force, several distinctions are often made based on the degree of 'attachment' to the labour market. This includes identifying the **marginally attached**—people who want to work and are either available to start work but are not currently looking, or are looking for work but are not currently available.

Several key statistics are commonly produced based on these definitions of labour force status, including the **participation rate** (the proportion of the population in the labour force) and the **unemployment rate** (the proportion of those in the labour force who are unemployed).

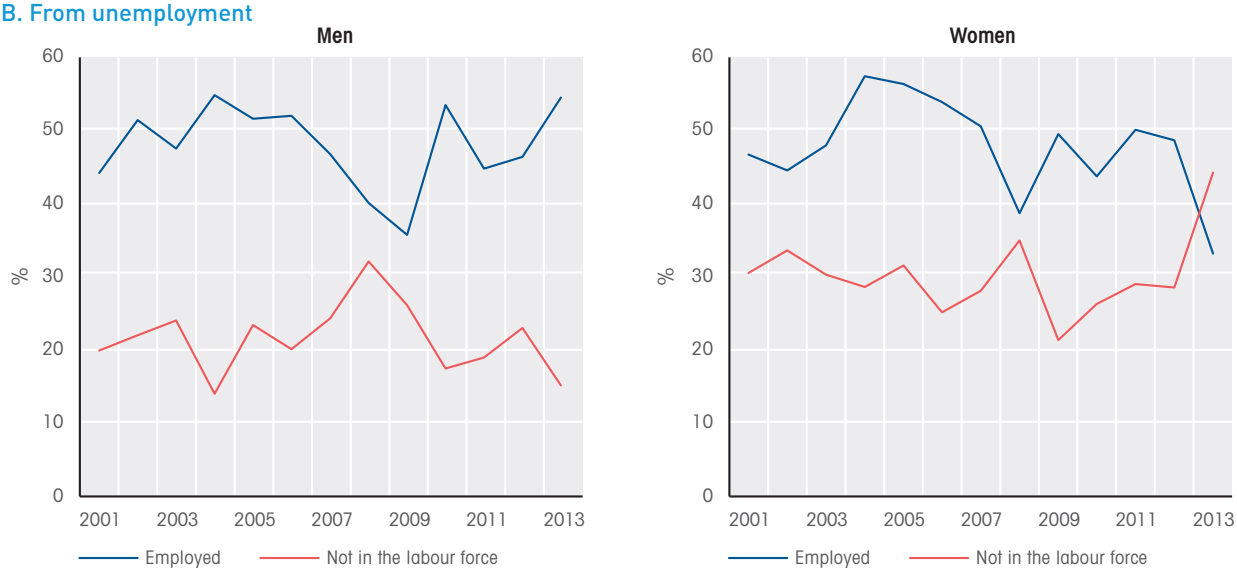
Note: [a] The definition of part-time employment adopted in this report differs from the definition the ABS uses in its Labour Force Survey. The ABS definition requires both usual and *current actual* weekly hours to be less than 35.

Figure 4.1: Labour force transitions from one year to the next (percentage making each transition)—Persons aged 18–64

A. From employment



B. From unemployment



C. From not in the labour force

average relatively less 'employable' than the unemployed in higher-unemployment times (when there is a larger pool of unemployed people).

For both men and women, transitions from unemployment to employment rose substantially in 2009 (that is, for transitions from unemployment in 2009 to employment in 2010). For men, the transition rate subsequently declined and has since recovered to the 2009 rate. For women, the transition rate to employment remained relatively stable at the 2009 rate up until 2012, but declined sharply in 2013.

Rates of movement out of the labour force from unemployment are somewhat higher for women than men, and show quite different trends over the post-GFC period. For men, the rate of movement out of the labour force declined in this period and has remained relatively low. For women, after declining in 2009, the rate of movement out of the labour force increased dramatically, particularly in the last (2013) transition period.

The bottom two figures show rates of movement out of the labour force into employment and unemployment. Interestingly, there is little evidence of trend changes in rates of movement into employment. There is, however, evidence of increases in transitions from out of the labour force into unemployment. In the last year-pair available (2013 to 2014), the rate of movement into unemployment was the highest it had been over the 2001 to 2014 period for both men and women.

Overall, it therefore seems that the post-GFC softening in the labour market has primarily arisen via increased rates of transition out of employment, to both unemployment and non-participation, which have not been matched by offsetting increases in transitions into employment from not in the labour force and unemployment. This finding appears to be contrary to the conventional wisdom that economic downturns primarily act to reduce employment via reduced inflows into employment. Further investigation is required, however, to verify the indicative evidence presented here (which would need to include examination of the detailed employment calendar collected by the HILDA Survey and reconciliation with ABS labour force gross flows data).

Labour market earnings

Earnings levels and distribution

Earnings represent a key dimension of labour market outcomes. A worker's earnings per hour measures the rate at which his or her labour is rewarded in the labour market, and thus provides a measure of the value of that worker's labour. Earnings are also an important contributor to an individual's economic wellbeing, being the main income source for most working-age people. The HILDA Survey data allow us to not only examine workers' earnings at a point in time, and track movements in overall earnings levels, but also to track individuals' earnings progression over time. As elsewhere in this report, all dollar values presented in this chapter are expressed at December 2014 prices to remove the effects of inflation.

We begin by describing earnings distributions in each year, presenting cross-sectional snapshots in order to provide an overall picture of earnings outcomes and changes over the period spanned by the HILDA Survey. Figures 4.2 and 4.3 present graphs of summary measures of the male and female earnings distributions over the 2001 to 2014 period, plotting the mean, median, 10th percentile, 90th percentile and Gini coefficient. Figure 4.2 examines weekly earnings of full-time employees, while Figure 4.3 examines hourly earnings of part-time employees.[1]

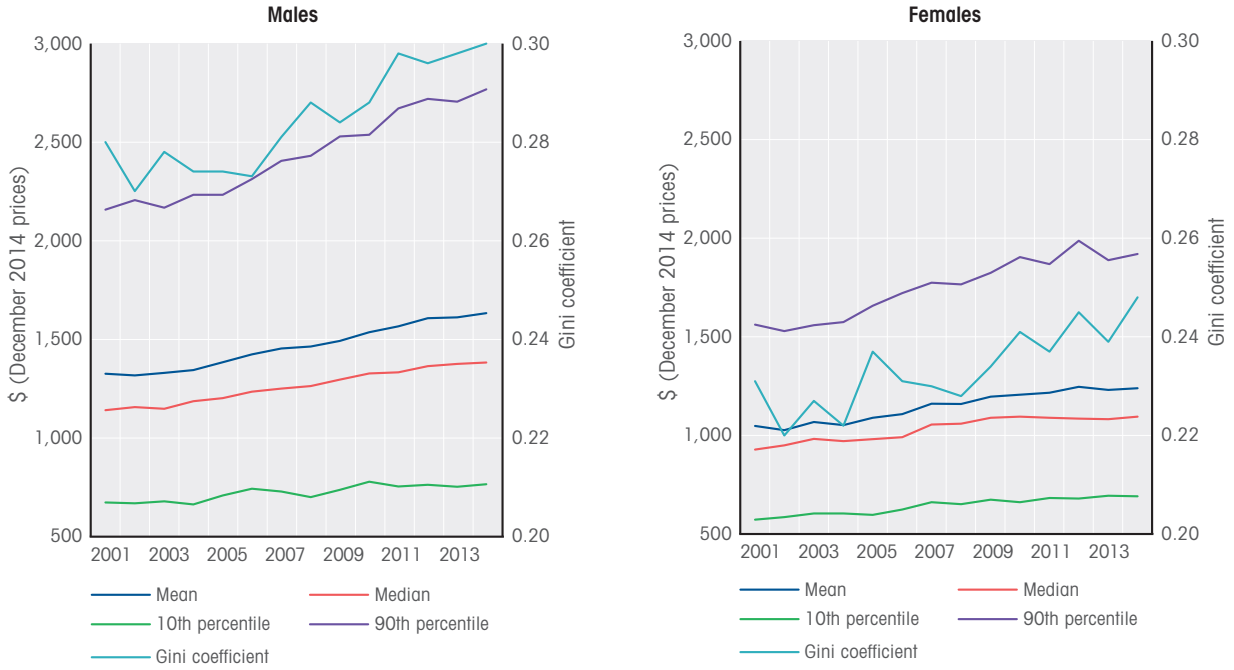
Over the full 2001 to 2014 period, the graphs show mean weekly earnings of full-time employees increased by 24.1% for males and 18.4% for females, while the Gini coefficient increased by 7.1% for males and 7.4% for females. For hourly earnings of part-time employees, the mean increased by 16% for males and by 13.4% for females, while the Gini coefficient *decreased* by 3.5% for males and by 9.3% for females —however, the Gini coefficient for hourly earnings of part-time employees exhibits considerable

Box 4.2: HILDA Survey measures of labour market earnings

The HILDA Survey does not ask respondents to report their hourly wage; rather, usual weekly (typically gross) earnings and usual weekly hours of work are obtained from everyone who is employed. Hourly rates of pay can then be calculated from this information. The hourly rate of pay so obtained is 'current usual earnings per hour worked'. While the hourly wage rate is the appropriate focus when interest is in the rate at which labour is rewarded, one concern that arises in hourly wage rate analysis is that additional measurement error is introduced by dividing reported weekly earnings by reported weekly hours of work. This provides one rationale for examining weekly earnings, at least as an augmentation to the study of hourly earnings. Another reason for examining weekly earnings is that, for full-time employees who are paid a salary, the notion of an hourly wage is less relevant. For example, a full-time employee may report working more than 40 hours per week, but is implicitly only paid for 40 hours.

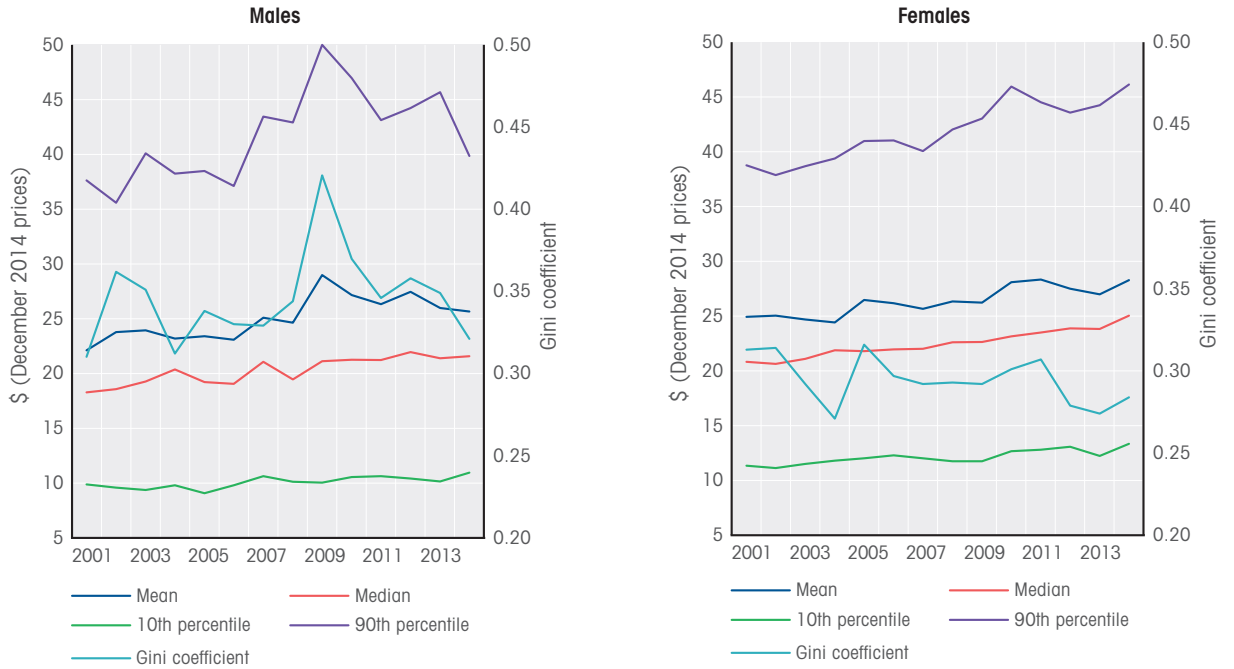
[1] Figures 4.2 and 4.3 are for earnings of employees and therefore exclude earnings of the self-employed and employers, whose earnings are often confounded with returns on capital invested in the business, either because reported earnings include a return on capital, or because reported capital income includes a component that is actually a return on labour. Full-time employment is defined to be a situation in which usual weekly hours of work are 35 or more. In the case where a respondent holds more than one job, we restrict analysis to earnings and hours worked in the respondent's main job.

Figure 4.2: Weekly earnings of full-time employees



Note: Weekly earnings less than $100 at December 2014 prices have been excluded.

Figure 4.3: Hourly earnings of part-time employees



Note: Hourly wages less than $2 and more than $500 at December 2014 prices have been excluded.

year-to-year fluctuation for both males and females, so it is difficult to discern the underlying trend.

Earnings and work experience

The longitudinal structure of the HILDA Survey data allows us to investigate how earnings change over the working lifecycle. Of particular interest to labour economists is how earnings depend on years of work experience, and how this relationship differs across employees with different characteristics. To this end, we begin in Figures 4.4 and 4.5 by describing how mean earnings evolved over the 2001 to 2014 period for different birth cohorts. The birth cohorts are defined by age in 2001: 20–24 (aged 33–37 in 2014); 25–29 (38–42); 30–34 (43–47); 35–39 (48–52); 40–44 (53–57); and 45–49 (58–62). The figures restrict to employees employed in at least 10 of the 14 waves so that we are essentially following the same individuals over the 14-year period. Figure 4.4

Figure 4.4: Mean hourly earnings in main job of employees, by 2001 age group—Persons employed in at least 10 waves

Figure 4.5: Mean weekly earnings in main job of full-time employees, by 2001 age group—Persons employed full-time in at least 10 waves

examines hourly earnings of all employees, while Figure 4.5 examines weekly earnings of full-time employees.

Patterns over time and across birth cohorts are similar in Figures 4.4 and 4.5. All birth cohorts experienced sustained growth in real earnings between 2001 and 2009, with growth generally higher, but from lower starting points, for the more recent birth cohorts. After 2009, growth was slower, and indeed in some cases negative. For both men and women, the slowdown after 2009 is more pronounced for weekly earnings of full-time employees than hourly earnings of all employees. This may indicate that a reduction in hours worked by full-time employees is part of the reason for the slowdown in earnings growth.

The restriction in Figures 4.4 and 4.5 to employees employed in at least 10 of the 14 waves means that for most employees, work experience will increase by one year each wave. However, this will not always be true; for example, employment interruptions between waves will not be accounted for. Moreover, at the start of the period in 2001, most employees will already have accumulated at least some work experience, and this will in general differ across employees, even if they are part of the same birth cohort.

Information on actual years of work experience is therefore valuable, and consequently this information is collected by the HILDA Survey. In the first wave that a respondent is interviewed, respondents are asked to report the number of years of work experience since leaving full-time education for the first time. In each subsequent wave, respondents are asked to report their labour market activity in each third of each month since the last wave, allowing HILDA Survey data managers to update the measure of years of work experience each wave.[2]

Using the HILDA Survey measure, Table 4.2 shows how years of work experience vary by age and sex. For each sex-by-age group, it presents mean years of experience in 2014. In addition to presenting estimates for all persons, estimates are also produced for employed persons only. As one would expect, mean work experience is increasing in age, and increases at a faster rate for males than females: the mean is 1.8 years for males aged 15–24 and 1.9 years for females aged 15–24; while the mean for males and females aged 65 and over is 44.8 years and 27.7 years respectively.

While the HILDA Survey work experience measure allows us to identify how earnings differ by level of work experience, to isolate the role of experience in affecting earnings, we would also like to 'control' for the effects of other factors, such as general economic conditions. This is not entirely possible given the nature of the HILDA Survey data, but a regression approach can provide a more robust indication of the effects of work experience.

Figures 4.6 and 4.7 present estimates of the *predicted*

2 Up until Release 14, one limitation of the HILDA Survey work experience measure was that it was not available for respondents who had missed one or more waves. To address this problem, in Wave 14, respondents with missing information were asked additional questions to allow construction of the work experience measure for these individuals. In future waves, interviews with respondents who have missed one or waves will contain questions about labour market activity over the entire period since they were last interviewed.

Table 4.2: Mean years of work experience by age group, 2014

	2014	
	Males	*Females*
All persons		
15–24	1.8	1.9
25–34	8.8	7.6
35–44	19.0	15.1
45–54	29.2	23.1
55–64	37.8	29.4
65 and over	44.8	27.7
Employed persons		
15–24	2.7	2.5
25–34	9.4	8.6
35–44	19.5	17.0
45–54	30.1	25.7
55–64	39.7	33.9
65 and over	50.2	41.4

relationship between (real) earnings and experience based on estimates from regression models. The estimated models are 'random effects' regressions (see the Technical Appendix for details) to control for unobserved individual effects, and the models contain controls for 'year effects' to remove confounding effects of economic conditions. The estimated regressions also include variables for educational attainment (see Box 4.3, opposite) that allow examination of differences in earnings and in the experience–earnings relationship by level of educational attainment. As in preceding earnings analysis in this chapter, the analysis is undertaken separately for males and females, and estimates are produced for both hourly earnings of all employees (Figure 4.6) and weekly earnings of full-time employees (Figure 4.7).

The graphs show predicted earnings are higher for more educated employees and initially rise rapidly with work experience. Differences between employees with non-university post-school qualifications and employees without post-school qualifications

Figure 4.6: Effects of work experience on earnings by level of educational attainment—Hourly earnings of all employees

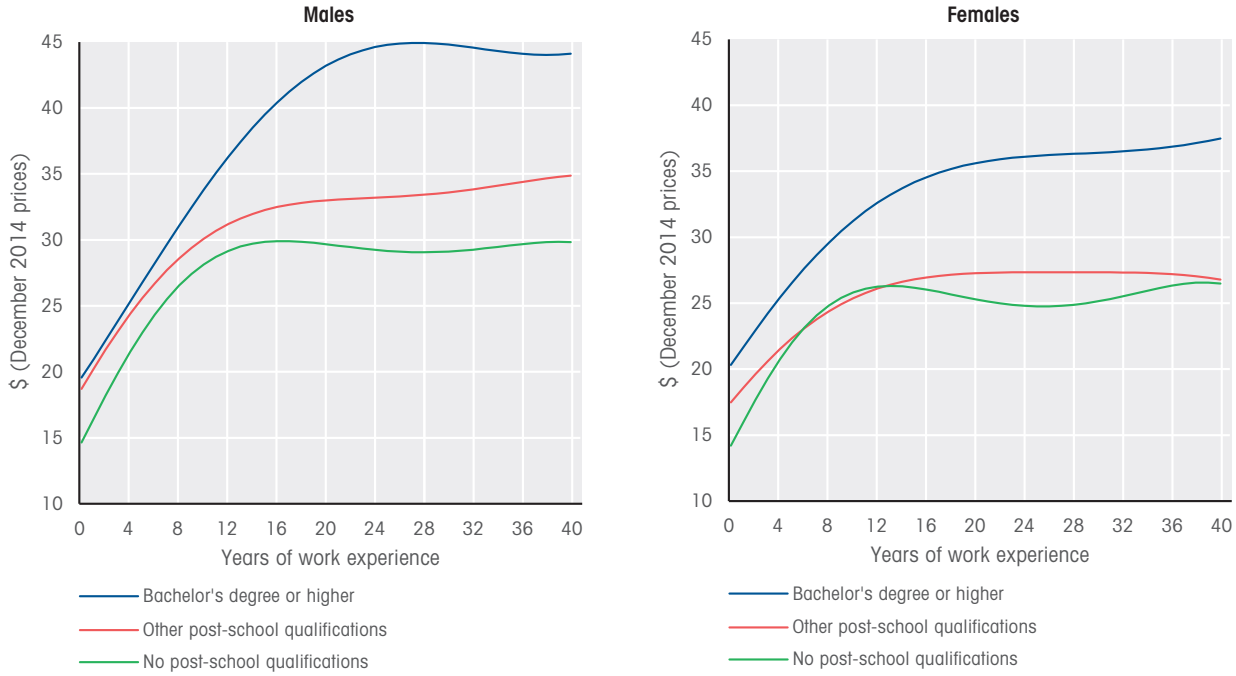
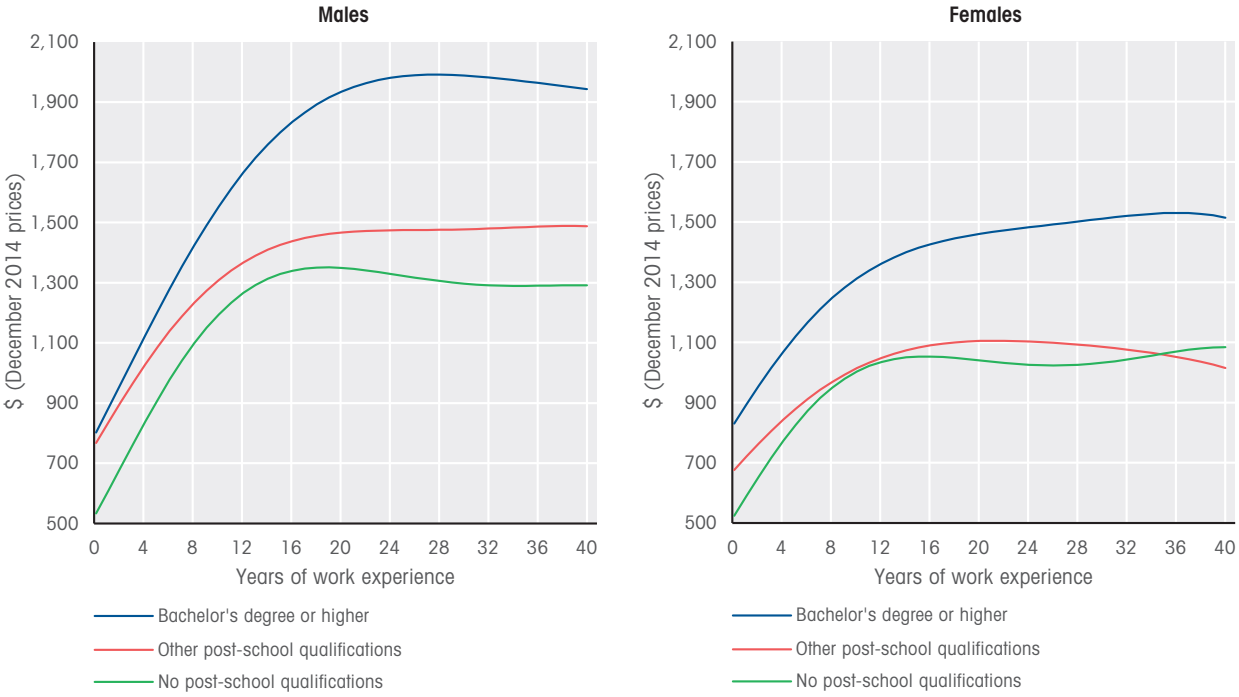


Figure 4.7: Effects of work experience on earnings by level of educational attainment—Weekly earnings of full-time employees



are relatively small, particularly for women. Predicted earnings of university-qualified employees are only slightly higher than predicted earnings of less-educated employees at the start of working careers, but rise much more rapidly as work experience is accumulated.

Earnings for university-educated employees also continue to increase at a rapid rate for longer. For example, Figure 4.7 shows that predicted earnings of male full-time employees continue to rise steeply for the first 20 years of work experience, whereas rapid increase for less-educated employees is sustained only until approximately 12 years of work experience. A somewhat similar pattern is evident for women, although the differences by educational attainment are not quite as stark.

Leave-taking

In every year since Wave 5, the HILDA Survey has collected information on the number of days of annual leave, sick leave, other paid leave and unpaid leave taken over the past 12 months. In Table 4.3, this information is summarised for 2005, 2008, 2011 and 2014. The table presents the mean number of days of each type of leave, for males and females separately. Since leave entitlements over the 12-month period will be affected by labour force status and contract type over the period, the table restricts to full-time employees who were not employed on a casual basis and who were employed for at least three-quarters of the year.

The table shows that, on average, male full-time employees report taking approximately 15 days of annual leave each year, while female full-time employees report taking approximately 17 days of annual leave. Both of these means are below the 20-day statutory

Box 4.3 Classification of educational attainment

The classifications of educational qualifications adopted by the HILDA Survey are based on the Australian Standard Classification of Education (ASCED) 2001 (Australian Bureau of Statistics (ABS), 2001), which classifies formal educational qualifications by level and by field of study.

Level of highest educational attainment is derived from information on highest year of school completed and level of highest non-school qualification. In this report (for example, Figures 4.6 and 4.7), up to seven levels of attainment are distinguished, ranging from 'Masters or Doctorate' down to 'Year 11 or below'. Note in particular that, as explained in ABS (2014), Year 12 is defined to be a higher qualification than a Certificate Level 1 or 2, so that the category 'Year 11 and below' includes people who hold a Certificate Level 1 or 2.

minimum entitlement that applies to most jobs. It should therefore be noted that it is possible that respondents fail to recall some annual leave taken, particularly if it was towards the beginning of the 12-month period. Females also on average report taking more of the other types of leave than men. For other paid leave and unpaid leave, this is likely to be driven by paid and unpaid maternity leave.

Overall, there appears to be a trend towards more paid leave-taking between 2005 and 2014. In 2005, males averaged 14.5 days of reported annual leave, 3.5 days of reported sick leave and 1.6 days of other paid leave. In 2014, the respective averages were 15.4, 4.1 and 2.0. Apparent changes are smaller for females, who in 2005 averaged 17.2 days of annual leave, 4.6 days of sick leave and 3.2 days of other paid leave. In 2014, the respective averages were 17.4, 5.1 and 4.0.

Table 4.3 indicates that gender is one factor influencing reported days of leave. Table 4.4 provides a more comprehensive assessment of the association between leave-taking and personal and job characteristics. It presents results from regression models of the determinants of days of annual leave and the determinants of days of sick leave. The models are estimated on all waves from Waves 5 to 14. As in Table 4.3, the sample is restricted to individuals who were non-casual full-time employees in the relevant wave and who were employed for at least three-quarters of the preceding 12 months.

The first row shows that, even after controlling for other factors, males on average report 0.74 fewer days of annual leave and 0.77 fewer days of sick leave.[3] Other things equal, annual leave-taking is highest among those aged 25–34, and lowest among those aged under 25. There are no significant differences in sick leave-taking by age, with the exception that employees aged 45–54 take 0.47 fewer days of sick leave than employees in other age groups.

Full-time employees living with a partner take one more day of annual leave than single people, but there is no significant difference in taking of sick leave by partner status. Those with dependent children take 0.3 fewer days of annual leave than those without dependent children, but carers of people with disability do not take significantly different amounts of annual leave or sick leave than otherwise similar full-time employees.

Annual leave-taking is ordered by educational attainment, with university-qualified full-time employees taking one day more per year, and full-time employees with other post-school qualifications taking half a day more per year, than full-time employees without post-school qualifications. University-educated full-time employees take 0.24 fewer days of sick leave per year than other full-time employees.

Poor general health has no significant effects on annual leave-taking, but unsurprisingly those in poor general health take two more days of sick leave per year than those not in poor health. Poor mental health is also associated with higher sick leave, but is also associated with lower annual leave. Full-time employees with a disability

Table 4.3: Mean annual days of leave taken by full-time employees, by type of leave, 2005 to 2014

	2005		*2008*		*2011*		*2014*	
	Males	*Females*	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*
Annual leave	14.5	17.2	14.5	17.3	14.8	17.7	15.4	17.4
Sick leave	3.5	4.6	4.0	4.7	3.8	5.0	4.1	5.1
Other paid leave	1.6	3.2	1.7	3.4	2.2	4.1	2.0	4.0
Unpaid leave	1.2	2.0	1.0	1.4	1.3	1.8	1.0	1.5
All leave	20.7	27.0	21.2	26.8	22.1	28.5	22.5	28.0

Note: Table excludes casual employees and employees who worked less than three-quarters of the year leading up to interview.

3 It should perhaps be noted that, given traditional gender-role norms, it is possible that men are more prone to under-reporting leave-taking than women, and this could explain the differences between men and women in Tables 4.3 and 4.4.

take more sick leave than other full-time employees, but do not take more annual leave. Indeed, all else equal, those with a moderate or severe work restriction take 0.77 fewer days of annual leave than those without disability. Being a regular smoker (smoking daily) is associated with greater sick leave, but lower annual leave, while regular consumption of alcohol (defined as drinking alcohol on five or more days per week) is associated with greater annual leave-taking, but no difference in sick leave-taking.

A variety of job characteristics are examined in Table 4.4. The variables for occupation (classified as described in Box 4.4, page 54) show that professionals and community and personal service workers take the most annual leave, while managers and sales workers take the least sick leave. The variables for industry of employment (classified as described in Box 4.5, page 54) show workers in agriculture, forestry and fishing and in accommodation and food services take the least annual leave, and indeed also take the least sick leave, other factors held constant. Unsurprisingly, workers in education and training, many of whom are teachers, take the most annual leave. All else equal, workers in this industry take approximately 15 more days of annual leave per year than workers in most other industries (and as much as 18 more days than workers in agriculture, forestry and fishing). In addition, public sector workers take slightly more annual leave and sick leave than other workers.

Longer working hours are associated with more annual leave and less sick leave, while higher earnings are also associated with less sick leave, but no difference in annual leave. Union members take more sick leave and annual leave, while employees on fixed-term contracts take less of both. Job tenure—length of time with current

Table 4.4: Factors associated with leave-taking by full-time employees

	Days of annual leave	*Days of sick leave*
Male	–0.74	–0.77
Age group (Reference category: Less than 25)		
25–34	2.05	*ns*
35–44	1.37	*ns*
45–54	1.32	–0.47
55 and over	0.72	*ns*
Partnered	1.08	*ns*
Have dependent children	–0.33	*ns*
Carer	*ns*	*ns*
Educational attainment (Reference category: No post-school qualifications)		
Bachelor's degree or higher	1.01	–0.24
Other post-school qualification	0.52	*ns*
Poor general health	*ns*	2.03
Poor mental health	–0.74	0.76
Disability severity (Reference category: No disability)		
No work restriction	*ns*	1.40
Moderate or severe work restriction	–0.77	3.09
Regular smoker	–0.71	0.23
Regular drinker	0.56	*ns*
Occupation (Reference category: Professionals)		
Managers	–1.39	–0.34
Technicians and trades workers	–1.75	*ns*
Community and personal service workers	*ns*	*ns*
Clerical and administrative workers	–1.89	*ns*
Sales workers	–2.25	–0.36
Machinery operators and drivers	–2.78	*ns*
Labourers	–2.91	*ns*
Industry (Reference category: Health care and social assistance)		
Agriculture, forestry and fishing	–2.75	–0.94
Mining	*ns*	–0.73
Manufacturing	*ns*	–0.32
Electricity, gas, water and waste services	1.18	*ns*
Construction	*ns*	–0.70
Wholesale trade	1.22	–0.67
Retail trade	*ns*	–0.58
Accommodation and food services	–2.05	–1.29
Transport, postal and warehousing	0.97	*ns*
Information media and telecommunications	0.92	*ns*
Financial and insurance services	0.91	*ns*
Rental, hiring and real estate services	*ns*	–0.59
Professional, scientific and technical services	*ns*	*ns*
Administrative and support services	*ns*	–0.65
Public administration and safety	1.88	*ns*
Education and training	15.04	–0.67
Arts and recreation services	*ns*	*ns*
Other services	0.78	–0.53
Public sector	0.42	0.82
Usual weekly hours of work	0.03	–0.04
Weekly wage in main job ($'000, December 2014 prices)	*ns*	–0.23
Member of a trade union	2.29	0.73
Fixed-term contract	–3.03	–0.77
Job tenure (years)	0.34	0.06
Work weekends	0.82	*ns*
Work nights or irregular hours	*ns*	*ns*
Firm size (Reference category: 100 or more employees)		
Fewer than 20 employees	–1.58	–1.20
20–99 employees	–0.46	–0.45
Year (Reference category: 2005–2007)	*ns*	–2.35
2008–2010	0.37	0.37
2011–2014	*ns*	0.32
Constant	9.15	6.19
Number of observations	44,300	44,304

Notes: Table reports coefficient estimates from OLS regression models of the determinants of the number of days of leave taken in the preceding 12 months. See the Technical Appendix for further details on regression models. Sample comprises all persons in Waves 5 to 14 who were full-time employees at the time of interview and had been employed for at least three-quarters of the preceding 12 months. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

Box 4.4: Occupation classification

Occupation variables in this report are based on the first (2006) edition of the Australian Bureau of Statistics (ABS) ANZSCO classification system. ANZSCO stands for the Australian and New Zealand Standard Classification of Occupations. It is based on a conception of types of tasks and skill-level requirements. It has six 'levels', with eight occupation groups distinguished at the highest level of aggregation, known as the 1-digit level, 54 groups distinguished at the next (2-digit) level of aggregation, and so on. See ABS (2006) for details. In this report, only the 1-digit level classification is used.

Box 4.5: Industry classification

Industry variables in this report are based on the Australian Bureau of Statistics (ABS) ANZSIC classification system. ANZSIC is the Australia and New Zealand Standard Industry Classification. It classifies the economic activity of firms and other employers, and has a structure comprising categories at four levels: 'divisions' (the broadest level); 'subdivisions'; 'groups'; and 'classes' (the finest level). These levels are commonly referred to as '1-digit', '2-digit', '3-digit' and '4-digit', reflecting the number of digits used in the code to describe each category. At the 1-digit level, which is used in this report, 17 industry categories are distinguished. See ABS (2008) for details.

employer—is associated with higher levels of both annual leave and sick leave. Employees who work weekends take more annual leave, but not sick leave, while there are no significant effects associated with working nights or irregular hours. Finally, there is a positive association evident between size of employer and amount of leave taken: employees of firms with 100 or more employees take 1.6 more days of annual leave and 1.2 more days of sick leave than employees of firms with fewer than 20 employees.

Employees of small businesses

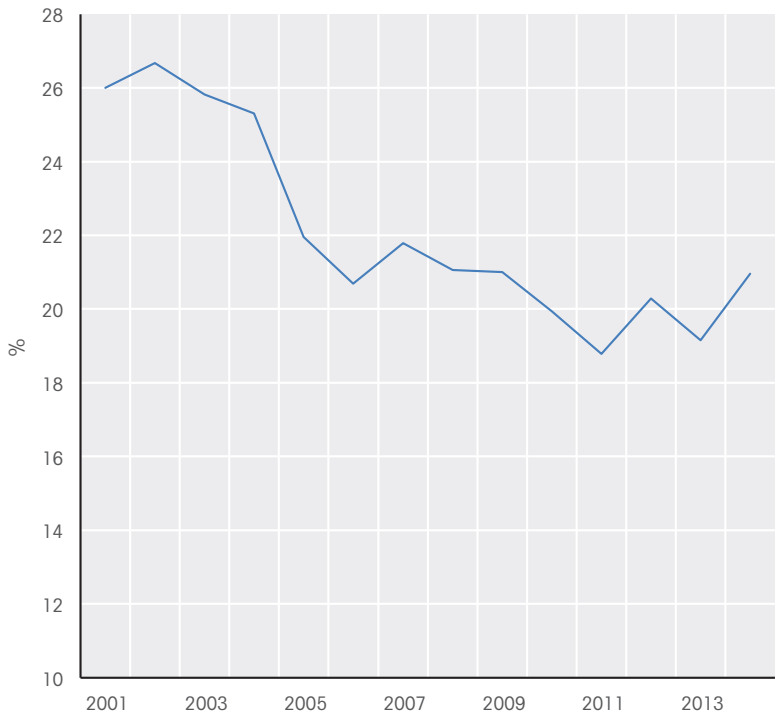
The HILDA Survey is a household survey and therefore has relatively little information about firms. Nonetheless, information is collected from employee respondents on a variety of characteristics of their jobs, including the size of their employers. Among other things, this information allows us to examine the characteristics of the employees and jobs of small businesses.

Figure 4.8 presents the proportion of employees employed by firms with fewer than 20 employees in each wave of the HILDA Survey. It shows that at the start of the HILDA Survey period, approximately 26% of employees were employed by small firms. Striking, however, is the sharp decline in this proportion between 2004 and 2006, from just under 26% to approximately 21%. Decline is also evident between 2007 and 2011, but this was offset by rises between 2006 and 2007 and between 2011 and 2014. Consequently, since 2006, little net change in the proportion employed by small firms is evident.

Notwithstanding the decline in the proportion of employees employed by small business, what can the HILDA Survey tell us about the characteristics of employees of small firms and the characteristics of their jobs? To investigate this question, in Table 4.5 results are presented from a Probit regression of the probability an employee is employed by a small business (as opposed to being employed by a larger employer). All 14 waves of the HILDA Survey are used, although controls for survey year are included to account for the decline in small-business employment over the period.

Considering first the personal characteristics of employees, the estimates show that, all else equal, males have a 0.9 percentage-point higher probability of being employees of small businesses. A clear age gradient is evident: the older the employee, the more likely he or she is a small-business employee. For example, an employee aged 55 and over has a 5.2 percentage-point higher probability of being employed by a small business than an employee aged under 25. Partnered employees are also slightly more

Figure 4.8: Proportion of employees employed by small businesses



likely to be employed by small businesses than single employees.

Higher educational attainment is associated with larger employers. Compared with no post-school qualifications, a university qualification acts to reduce the probability of working for a small business by 3.6 percentage points, and other post-school qualifications act to reduce the probability by 2.5 percentage points.

Turning to job characteristics, estimates for the occupation variables show that small businesses are very much associated with technicians and trades workers. Compared with professionals, technicians and trades workers have a 7.9 percentage-point higher probability of working for a small business. Managers and community and personal service workers are also relatively more likely to be employed by small businesses. Sales workers are the least likely to be employees of small businesses, while clerical and administrative workers, labourers, and machinery operators and drivers are also relatively less likely to be employed by small business.

Unsurprisingly, estimates for the industry variables indicate large differences in the industry composition of small employers compared with larger employers.

Table 4.5: Characteristics associated with employees of small businesses

	Estimate
Male	0.009
Age group (Reference category: Less than 25)	
25–34	0.018
35–44	0.022
45–54	0.035
55 and over	0.052
Partnered	0.006
Have dependent children	*ns*
Educational attainment (Reference category: No post-school qualifications)	
Bachelor's degree or higher	–0.036
Other post-school qualification	–0.025
Occupation (Reference category: Professionals)	
Managers	0.020
Technicians and trades workers	0.079
Community and personal service workers	0.013
Clerical and administrative workers	–0.018
Sales workers	–0.055
Machinery operators and drivers	–0.016
Labourers	–0.020
Industry (Reference category: Health care and social assistance)	
Agriculture, forestry and fishing	0.266
Mining	–0.049
Manufacturing	0.059
Electricity, gas, water and waste services	–0.035
Construction	0.211
Wholesale trade	0.092
Retail trade	0.033
Accommodation and food services	0.073
Transport, postal and warehousing	0.045
Information media and telecommunications	–0.098
Financial and insurance services	–0.024
Rental, hiring and real estate services	0.198
Professional, scientific and technical services	0.128
Administrative and support services	0.038
Public administration and safety	–0.167
Education and training	–0.097
Arts and recreation services	*ns*
Other services	0.207
Weekly wage in main job ($'000, December 2014 prices)	–0.102
Employed full-time	–0.022
Casual employee	0.059
Fixed-term contract	*ns*
Member of a trade union	–0.148
Job tenure (years)	–0.004
Work weekends	*ns*
Work nights or irregular hours	–0.078
Year (Reference category: 2001–2004)	
2005–2007	–0.041
2008–2010	–0.047
2011–2014	–0.054
Number of observations	98,749

Notes: Table reports mean marginal effects estimates from Probit regression models of the probability an employee is employed by a small business. See the Technical Appendix for further details on regression models. Sample comprises all persons in Waves 1 to 14 who were employees at the time of interview. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

Box 4.6: Casual employment and fixed-term employment

Casual employment is a form of employment unique to Australia. It is characterised by flexibility for employers and employees in the number and timing of hours worked from week to week (including the ability for employers to very readily reduce hours to zero). Typically, casual employees are not entitled to paid annual and sick leave.

Fixed-term employees are employed on contracts that specify an end date for the employment relationship. Note that many employees on fixed-term contracts nonetheless remain employed in the same job after the expiration of the contract, either because a new fixed-term contract is commenced or because they convert to continuing or permanent employees.

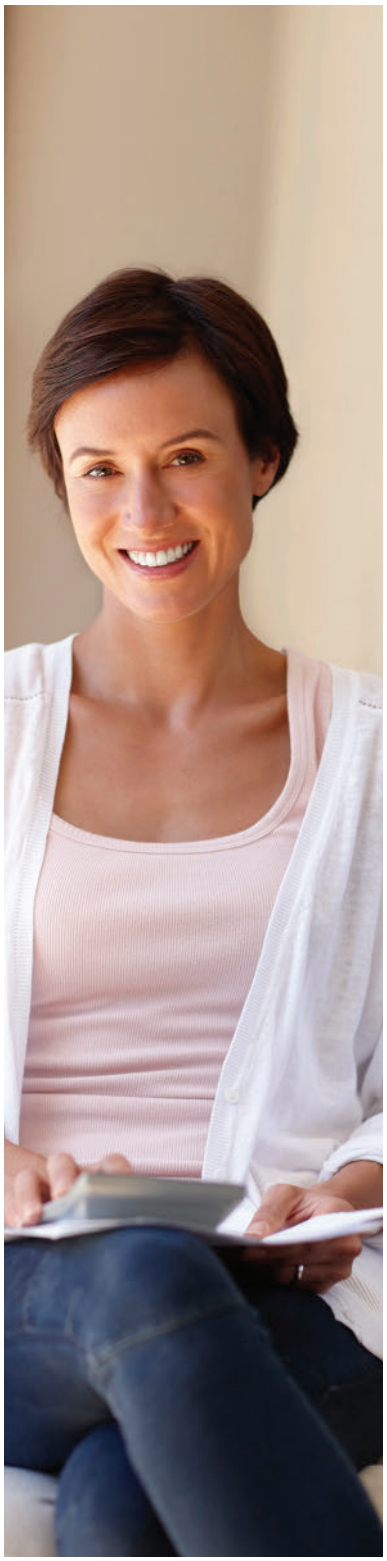
Working in agriculture, forestry and fishing, construction, other services, and rental, hiring and real estate services is strongly associated with small business, while working in public administration and safety or education and training is a strong predictor of working for a larger employer.

The estimate for weekly earnings (expressed in thousands of dollars at December 2014 prices) indicates that employees of small businesses tend to be lower-wage workers. Specifically, each additional $1,000 in weekly earnings is associated with a 10.2 percentage-point reduction in the probability of being employed by a small business as opposed to a larger employer.

Small-business employment is associated with both part-time and casual employment: full-time employees have a 2.2 percentage-point lower probability of being employed by a small business than part-time employees; and casual employees have a 5.9 percentage-point higher probability than non-casual employees. Additionally, even controlling for differences in part-time and casual employment, employees of small firms are much less likely to be trade union members than other employees; and they tend to have shorter job tenure than employees of larger employers, each year of tenure acting to reduce the probability of small-business employment by 0.4 percentage points. However, small businesses are no more associated with weekend work than larger employers, and employees who work weekends or irregular hours actually have a considerably lower probability of being employed by small business than being employed by larger employers.

5

Household wealth



Household wealth data was collected for the fourth time in Wave 14, having previously been collected in Waves 2, 6 and 10. Household wealth is an important determinant of economic wellbeing, affecting the ability of individuals to maintain living standards in the face of adverse events such as job loss, and being particularly important to living standards of people in retirement. Wealth also affects households' incomes, either through financial returns such as dividends, or through 'in-kind' benefits such as provided by owner-occupied housing. An individual's household wealth is also potentially an important determinant of many economic and social decisions, including the timing of retirement.

In this chapter, the overall distribution of wealth, its composition and its dynamics over the 2002 to 2014 period are examined. As in earlier chapters of this report, monetary values are converted to December 2014 prices to remove the effects of inflation. In practical terms, this involves increasing the wealth figures reported by respondents by 37.7% for the 2002 data, by 23.0% for the 2006 data and by 10.2% for the 2010 data.

The distribution of wealth

Table 5.1 presents summary statistics of the distribution of household net wealth in Australia in 2002, 2006, 2010 and 2014. Over the full 2002 to 2014 period, there have been large gains in the wealth of Australian households. Mean wealth of households increased by 36.1% in real terms to be $742,209 in 2014, while median wealth increased by 37.1%, to $407,765. However, all of the growth in the mean, and most of the growth in the median, occurred between 2002 and 2006. Between 2006 and 2014, the median increased by only 1.4%, while the mean actually declined by 1.2%.

Between 2002 and 2006, when mean wealth grew strongly, wealth inequality also grew, largely because the very wealthiest became much richer. This is indicated by the 99th percentile—the household with net wealth higher than 99% of households and lower than 1% of households—which increased by 139.6% between 2002 and 2006. Over this period, growth was otherwise reasonably evenly distributed, with the 90th percentile, median and 10th percentile all growing by similar proportions.

The changes between 2006 and 2014 are quite different. Net wealth at the 99thth percentile decreased by 9.3%, the 90th percentile increased by 8.1% and the median increased by 1.4%, while the 10th percentile increased quite strongly, by 25.7%. The net result was that wealth inequality, as measured by the Gini coefficient, decreased by 1.3%. This was not enough, however, to completely undo the increase in inequality between 2002 and 2006.

Table 5.1 also presents estimates of total household wealth (exclusive of household contents) over the four years in which wealth data has been collected. This is estimated to have been $6.5 trillion in 2014, up from $4 trillion in 2002. Aggregate household wealth experienced sustained growth between 2002 and 2014, with population growth more than offsetting the decline in mean wealth between 2006 and 2014.

Box 5.1: Measurement of household wealth in the HILDA Survey

The HILDA Survey obtains a measure of household wealth by asking a detailed set of questions on most financial assets, non-financial assets and debts. Total wealth—or net wealth—is equal to total financial and non-financial assets of all members of the household, minus total debts of all members of the household.

The questions employed to measure wealth have remained very similar across the four waves that have specifically collected wealth data, ensuring a high degree of comparability of wealth estimates. In all four waves, the following financial asset components were measured: bank accounts; superannuation; cash investments; equity investments (shares); trust funds; and the cash-in value of life insurance policies. In respect of non-financial assets, wealth data was sought for: the home; other property; business assets; collectables; and vehicles. In Wave 2, the debt components measured comprised: home debt; other property debt; unpaid credit card debt; HECS debt; other personal debt (including car loans, investment loans, hire purchase agreements and loans from friends or relatives not living in the household); and business debt. Very similar information on debts was collected in 2006, 2010 and 2014, but in these three waves, the value of overdue household bills was also collected, and 'other personal debt' was disaggregated into six components: car loans; hire-purchase loans or agreements; investment loans; other personal loans from financial institutions; loans from other types of lenders such as solicitors, pawn brokers and welfare agencies; and loans from friends and relatives not living in the household.

The only significant component omitted from the HILDA Survey measure of household wealth is 'dwelling contents' (other than collectables), such as furniture and appliances. Estimates from the Australian Bureau of Statistics (ABS) Survey of Income and Housing presented in ABS (2015) indicate that the mean value of household contents, including collectables, was $65,880 in 2013–14. The mean value of collectables in Wave 14 of the HILDA Survey was $3,667, implying dwelling contents not measured by the HILDA Survey in 2014 averaged $62,213 across all households.

Table 5.2 examines eight asset components and six debt components in each of the four years in which wealth data has been collected. It presents the percentage of households with a positive value for each component and the mean value of each component across all households. The family home is clearly the most important asset component, and debt on the family home is clearly the most important debt component. Approximately two-thirds of households are home-owner households, although this proportion has been steadily declining over the 12-year period. The mean value of owner-occupied housing, evaluated over all households, was $281,781 in 2002, $377,453 in 2006, $408,218 in 2010 and $392,241 in 2014. It bears noting that, had the proportion of home-owning households not declined between 2002 and 2014, the mean value of home assets would have grown more strongly. For example, holding constant the mean home value among home-owning households at its 2014 level, if the 2002 home-ownership rate of 68.1% applied in 2014 (instead of 64.8%), the mean value of home assets across all households would have been $412,216.[1]

Despite the fall in home ownership and the decline in mean home wealth between 2010 and 2014, mean home debt among all households rose in a sustained fashion. In 2014, mean home debt was, in real terms, nearly double its 2002 level.

Superannuation is now clearly the second-most important asset class in households' wealth portfolios. Held by 84% of households, in 2014 the mean value across all households was $186,011, up from $112,114 in 2002, when 76.9% of households had superannuation. At its rate of growth between 2002 and 2014, superannuation looks set to overtake the family home as the most important asset class over coming decades. Indeed, this could occur quite soon if one takes into account home debt in assessing the importance of home wealth, since mean *net* home wealth (mean home value minus mean home debt) was $291,552 in 2014.

Nonetheless, housing remains an important component of household wealth, which is further reinforced by the large share of household wealth accounted for by investment housing and holiday homes. The proportion of households holding other property grew strongly between 2002 and 2006, rising from 16.5% to 20.5%, and continued to rise slowly to 2014, when 21% of households held other

Table 5.1: Distribution of net wealth across households, 2002 to 2014 (December 2014 prices)

	Mean ($)	*10th percentile ($)*	*Median ($)*	*90th percentile ($)*	*99th percentile ($)*	*Gini coefficient*	*Aggregate wealth ($ billion)*
2002	545,534	6,148	297,488	1,246,597	3,905,912	0.624	4,014
2006	751,541	8,609	402,178	1,647,652	9,358,478	0.634	5,784
2010	734,208	9,040	421,760	1,654,670	8,358,055	0.623	6,091
2014	742,209	10,820	407,765	1,781,750	8,491,287	0.626	6,542
Percentage change 2002–2014	36.1	76.0	37.1	42.9	117.4	0.4	63.0
Percentage change 2002–2006	37.8	40.0	35.2	32.2	139.6	1.7	44.1
Percentage change 2006–2014	–1.2	25.7	1.4	8.1	–9.3	–1.3	13.1

1 The mean value of home assets among home-owner households in 2014 is $605,310 ($392,241/0.648). If the home-ownership rate was instead 68.1%, while the mean value among home-owner households remained unchanged at $605,310, then the mean value of home assets across all households would be 0.681*$605,310 = $412,216.

Table 5.2: Composition of household wealth, 2002 to 2014

Assets	*Home*	*Other property*	*Super-annuation*	*Equities*	*Bank accounts*	*Business*	*Vehicles*	*Other assets*	*All assets*
Proportion of households with each asset type (%)									
2002	68.1	16.5	76.9	40.6	97.6	12.4	87.7	26.2	99.7
2006	67.5	20.5	80.5	37.7	97.7	12.8	90.0	23.9	99.8
2010	66.4	20.7	83.5	34.8	97.9	12.4	90.5	22.3	99.8
2014	64.8	21.0	84.0	30.7	98.0	10.4	91.8	22.5	99.7
Mean value of each asset type across all households ($, December 2014 prices)									
2002	281,781	66,130	112,114	41,757	32,620	55,468	25,838	19,721	635,429
2006	377,453	161,388	148,223	56,402	36,067	60,327	28,456	25,298	893,615
2010	408,218	138,741	163,395	40,815	42,982	50,288	28,490	29,527	902,457
2014	392,241	138,718	186,011	44,166	51,118	39,807	27,051	36,936	916,048

Debts	*Home*	*Other property*	*Business*	*Credit cards*	*HECS/HELP*	*Other*	*All debts*
Proportion of households with each debt type (%)							
2002	33.5	7.6	5.0	31.3	13.9	32.2	65.8
2006	35.5	10.0	4.6	29.5	14.1	36.2	70.3
2010	36.7	10.2	4.0	28.6	16.4	35.3	70.4
2014	35.7	10.8	2.8	24.2	19.9	33.5	69.2
Mean value of each debt type across all households ($, December 2014 prices)							
2002	51,881	15,529	8,678	1,471	2,022	10,314	89,895
2006	78,474	32,203	10,847	1,876	2,250	16,339	142,073
2010	96,280	38,895	10,056	2,211	3,123	17,553	168,249
2014	100,689	42,226	9,264	1,661	4,511	15,352	173,839

property. The mean value of other housing across all households rose dramatically between 2002 and 2006, from $66,130 to $161,388, but declined thereafter, to be $138,718 in 2014. In common with home debt, debt on other housing rose in a sustained fashion between 2002 and 2014, with mean debt across all households rising from $15,529 in 2002 to $42,226 in 2014.

Equity investments are also a sizeable component of assets, but the proportion of households directly holding equities steadily declined between 2002 and 2014, falling from 40.6% in 2002 to 30.7% in 2014. In part, this may reflect a shift from directly holding equities to holding them in superannuation funds. Notwithstanding the trend decline in direct ownership of equities, changes in the mean value of equities across all households largely reflect movements in share prices. The mean peaked in 2006 at $56,402, declined to $40,815 in 2010 and rose again to $44,166 in 2014.

The HILDA Survey data show that the share of wealth in bank accounts has risen slightly since 2002. In 2002, bank accounts accounted for 6% of net wealth, and in 2014 accounted for 6.9% of net wealth. Ownership of businesses appears to have declined slightly between 2006 and 2014, with 12.8% of households owning businesses in 2006 and 10.4% owning businesses in 2014. Moreover, the mean value of business wealth declined over this period, from $60,327 in 2006 to $39,807. Over this period, the mean value of business debt declined only slightly, from $10,847 in 2006 to $9,264 in 2014.

Between 2002 and 2010, the total value of household debt rose at a much faster rate than the value of household assets. The mean value of assets grew by 42% over this period, while the mean value of debt grew by 87%. Debt continued to grow at a faster pace than assets between 2010 and 2014, but at a much reduced rate, increasing by only 3.3% over the four-year period. This translates to an annual growth rate of 0.8%, compared with 8.1% between 2002 and 2010.

Table 5.3 examines differences in median household wealth by family type, age group, educational attainment and location of residence. For this analysis, the population examined comprises all persons aged 30 and over plus persons aged 15–29 who are not living with their parents.

Large differences in median wealth are evident across family types. Non-elderly single people, inclusive of lone parents, have the lowest average wealth levels, at

Table 5.3: Median household wealth by personal characteristics, 2002 to 2014 ($, December 2014 prices)

	2002	*2006*	*2010*	*2014*	*Percentage change 2002–2014*
All persons	343,454	469,046	476,283	450,822	31.3
Family type					
Young couple	493,048	615,370	625,217	614,102	24.6
Couple with dependent children	393,540	527,897	532,905	500,138	27.1
Lone parent	74,513	114,131	108,591	99,246	33.2
Single non-elderly male	97,868	97,133	98,112	130,455	33.3
Single non-elderly female	96,144	139,688	124,569	107,896	12.2
Elderly couple	435,387	613,534	725,371	734,386	68.7
Single elderly male	312,914	434,023	441,503	439,825	40.6
Single elderly female	316,084	383,277	442,054	438,610	38.8
Age group					
Under 25	25,504	28,955	29,352	29,679	16.4
25–34	142,183	172,134	157,640	146,680	3.2
35–44	326,352	430,335	435,733	350,407	7.4
45–54	569,460	660,057	645,154	630,934	10.8
55–64	594,631	799,528	863,162	827,337	39.1
65 and over	406,843	535,213	612,687	655,777	61.2
Educational attainment					
Bachelor's degree or higher	479,080	597,058	661,981	619,162	29.2
Other post-school qualification	362,082	497,197	485,784	445,240	23.0
Completed high school	256,424	325,825	302,320	308,165	20.2
Less than high-school completion	290,395	399,289	408,982	366,688	26.3
State of residence					
New South Wales	438,795	508,262	485,219	479,958	9.4
Victoria	396,578	473,262	513,018	491,422	23.9
Queensland	282,339	439,069	457,221	373,701	32.4
South Australia	226,243	309,195	356,936	387,377	71.2
Western Australia	288,674	601,386	565,520	564,058	95.4
Tasmania	158,660	287,065	310,981	328,801	107.2
Northern Territory	459,592	879,673	716,418	484,046	5.3
Australian Capital Territory	539,284	567,181	792,900	773,451	43.4
Population density of region of residence					
Major urban	370,621	483,782	524,544	504,747	36.2
Other region	279,588	429,720	408,652	388,730	39.0

Notes: The population examined comprises all persons aged 30 years and over, plus persons aged 15–29 not living with a parent or guardian. The proportion of persons aged 15–29 not living with a parent or guardian was 48% in 2002, 46% in 2006, 45% in 2010 and 42% in 2014.

approximately $75,000 to $100,000 in 2002 and approximately $100,000 to $130,000 in 2014. Elderly couples have the highest median net wealth, followed by non-elderly couples without dependent children and then couples with dependent children. Growth in median wealth between 2002 and 2014 was also quite variable across family types. The median elderly couple in 2014 had 68.7% greater net wealth in 2014 than the median elderly couple in 2002. Growth in median wealth was also relatively high for elderly single people, at approximately 40%. At the other end of the spectrum, the median non-elderly single female had only 12.2% greater net wealth in 2014.

Wealth typically accumulates over the lifecycle (at least up until retirement), so it is unsurprising that there are large differences in median wealth by age group. In all four years in which wealth data has been collected, median wealth is lowest for the youngest age group, and increases in age up to the 55–64 age group. Prior to 2014, the median wealth of people aged 65 years and over was less than that of those aged 45–54, but in 2014 the median wealth of the 65 and over age group had overtaken the median wealth of those aged 45–54. This reflects the very strong growth in median wealth between 2002 and 2014 for the 65 and over age group, with the median increasing by 61.2%. Growth was also strong for the 55–64 age group (39.1%), but much weaker for the younger age groups.

Median wealth levels are broadly ordered by educational attainment, with the notable exception that median wealth of those who have not completed high school is higher than median wealth of those who have completed high school but obtained no post-school qualifications. This at least in part reflects the differences in age composition of the two groups, since older people are less likely to

have completed high school than younger people. For example, in 2014, the mean age of people who had not completed high school was 48, compared with a mean age of 36 for people who had completed high school but not obtained post-school qualifications.

Median wealth by population density of region of residence and by state and territory of residence is examined in the bottom two panels of Table 5.3. Average wealth levels are higher in major urban areas than other areas, which is likely to at least in part reflect differences in house prices, but growth in median wealth between 2002 and 2014 was very similar for both region types, and in fact slightly higher outside the major urban areas. Differences in median net wealth across states and territories are similarly likely to, at least in part, reflect differences in house prices. In 2014, median net wealth varied across the states from $328,801 in Tasmania to $564,058 in Western Australia, and was highest in the Australian Capital Territory, at $773,451. Substantial differences in rates of growth between 2002 and 2014 are evident across the states and territories, ranging from a low of 5.3% in the Northern Territory to 107.2% in Tasmania (albeit off a low base in the case of Tasmania). Apart from the Northern Territory, growth in median wealth was also relatively low in New South Wales; while, apart from Tasmania, growth was relatively high in Western Australia and South Australia. As with differences across jurisdictions in median net wealth at a point in time, differences in changes over the 2002 to 2014 period will largely reflect differences in house price movements over the period, although differential changes in home-ownership rates are also a factor.

Dynamics of household wealth

While Tables 5.1 to 5.3 present cross-sectional information on the distribution of household wealth, the unique contribution of the HILDA Survey data on Australian household wealth is that it permits examination of changes over time—or dynamics—of individuals' household wealth.

Table 5.4 examines the distribution of *changes* in individuals' household wealth over five time-frames: 2002

Table 5.4: Distribution of individual changes in household net wealth (December 2014 prices)

	Net wealth increased (%)	*Mean change ($)*	*Median change ($)*	*10th percentile change ($)*	*90th percentile change ($)*
2002–2006	72.7	249,311	101,398	–179,951	711,804
2006–2010	60.0	30,042	33,955	–457,018	516,991
2010–2014	59.6	68,283	30,318	–357,012	554,425
2006–2014	63.3	103,082	58,575	–472,967	787,961
2002–2014	74.3	358,609	183,389	–254,282	1,146,667

to 2006, 2006 to 2010, 2010 to 2014, 2006 to 2014, and 2002 to 2014. For this analysis, the individual is the 'unit of analysis', meaning that, while we are examining *household* wealth, we 'follow' *individuals*. This is more natural than attempting to follow households. If we take, for example, the case of a married couple who separate: a household-based analysis would either have to follow only one member of the couple, or treat the household as having 'died'; an individual-based analysis allows us to follow both members of the couple—although household wealth of each member would, naturally, change as a result of the separation. As in Table 5.3, the population examined comprises all persons aged 30 and over plus persons aged 15–29 years who are not living with their parents.

Consistent with the evidence presented in Tables 5.1 to 5.3, both the mean and median changes in household wealth were much higher between 2002 and 2006 than between 2006 and 2010 and between 2010 and 2014. The mean change was $249,311 between 2002 and 2006, $30,042 between 2006 and 2010, and $68,283 between 2010 and 2014. However, there is considerable variation across individuals in the changes in household wealth. Even when wealth grew strongly between 2002 and 2006, only 72.7% of people experienced a real increase in household wealth, implying approximately 27% experienced a decline in real wealth. Moreover, the 10th percentile of changes was –$179,951 between 2002 and 2006, –$457,018 between 2006 and 2010 and –$357,012 between 2010 and 2014; while the 90th percentile of changes was $711,804 between 2002 and 2006, $516,991 between 2006 and 2010 and $554,425 between 2010 and 2014.

Over the 2002 to 2014 period as a whole, 74.3% of people experienced a real increase in net wealth, with a mean increase of $358,609 and a median increase of $183,389.

Table 5.5 compares median net wealth changes across age groups and across groups defined by partner status in the start and end years. Median wealth growth between 2002 and 2014 was highest for those aged 35–44 in 2002, although the median growth of those aged 45–54 in 2002 and those aged 25–34 in 2002 was not far behind. Growth was lowest for those aged 65 and over in 2002, and was also relatively low for those aged 55–64 in 2002, but was still positive for both age groups. This is perhaps somewhat surprising, particularly for those aged 65 and over in 2002, since most were retired over the 2002 to 2014 period and might have been expected to be 'running down' their wealth. That said, all of the increase occurred between 2002 and 2006, when asset-price growth was very strong.

The lower panel of Table 5.5 shows that partner status is clearly important to wealth changes. Being partnered in both the start and end years, or being initially single and

Table 5.5: Median household net wealth changes by initial age group and by partner status ($, December 2014 prices)

	2002–2006	*2006–2010*	*2010–2014*	*2006–2014*	*2002–2014*
Age group in base year					
Under 25	23,188	12,442	14,515	36,409	112,294
25–34	82,498	66,951	48,732	111,621	230,782
35–44	135,383	58,669	53,645	113,273	267,004
45–54	142,958	60,689	52,055	90,932	254,132
55–64	123,556	2,447	13,777	7,163	86,334
65 and over	58,784	–3,943	–8,267	–14,110	35,885
Partner status					
Single in both start and end years	27,688	8,374	3,614	14,720	51,868
Partnered in both start and end years	149,844	55,244	54,690	104,861	272,973
Single in start year and partnered in end year	127,173	78,404	71,866	113,273	266,534
Partnered in start year and single in end year	–6,088	–27,553	–57,458	–53,267	6,299

becoming partnered are associated with the largest increases in wealth. The median increase is relatively small for single people, while the median change for partnered people who become single is negative, except when the period examined is the full 2002 to 2014 period, over which the median wealth change is essentially zero.

One perspective on the lower panel of Table 5.5 is that the changes in household wealth for those who did not change partner status come closer to capturing 'true' wealth changes deriving from consumption, savings and investment behaviour, in conjunction with movements in prices of assets such as housing and shares. That is, changes in wealth are less affected by changes to household composition, since the most important change in terms of effects on household wealth is change in partner status. Comparing people who remained partnered with people who remained single, on average partnered people had greater increases in wealth, which is likely to reflect not only the greater resources available to partnered people, but also the fact that partnered people are more likely to be in the 'wealth accumulation' phase of life than are single people, many of whom will be relatively young (and will indeed go on to partner) or relatively old (and running down their wealth).

As Table 5.5 indicates, age and partner status are important factors in changes in individuals' household wealth. Table 5.6 further probes the factors influencing wealth changes, presenting regression results from models of the determinants of wealth change between 2002 and 2014. Results from two models are presented, the first modelling the dollar change in wealth, and the second the log change in wealth, which corresponds to the proportionate or percentage change in wealth. Both models include variables for characteristics at the start of the period (in 2002) and variables for characteristics over the course of the period (2002 to 2014).

Results of the two models are in many respects consistent, but there are also a number of differences. Most notably, age effects are quite different, reflecting the very different initial wealth levels across the age groups. That is, the younger age groups had lower initial wealth, and so a given dollar change corresponds to a much larger log (or percentage) change for the younger age groups. Thus, compared with persons aged under 35 in 2002, we find significantly higher growth in the dollar value of wealth for persons aged 45–54 in 2002, but no significant differences for the other age groups (holding other factors constant). By contrast, we find the log change in wealth is highest for persons aged under 35 in 2002, and decreasing in age up to the 55–64 age group, which—all else equal—has log wage growth 0.484 lower than the under-35 age group.

Considering differences by educational attainment, both models show wealth growth is substantially higher for university-qualified people than less-educated people. The log model also shows negative effects of disability, but the dollar model shows no significant effects of disability.

Also considered in the upper panel of Table 5.6 are the effects associated with holding the different asset classes at the start of the period. The estimates show that, all else equal, home owners in 2002 had greater dollar increases in wealth, but significantly lower percentage increases in wealth than non-home-owners. Owners of other property in 2002 did not have significantly different dollar changes in wealth from those who did not own other property, but—like home owners—had significantly lower percentage changes in wealth. Compared with non-owners, business owners in 2002 had both lower dollar increases and lower percentage increases in wealth, while owners of equities in 2002 had lower percentage increases in wealth, but not significantly different dollar increases in wealth.

We turn now to the variables for characteristics over the 2002 to 2014 period. Consistent with the evidence in Table 5.5, the estimates in Table 5.6 show large effects of changes to partner status. There is a large positive effect of changing from single to partnered, and a large negative effect of changing from partnered to single. Curiously, there is a negative effect on the dollar change in wealth of the proportion of the 12-year period an individual was partnered, which is at odds with the expectation that a higher proportion of time partnered will have a positive effect on wealth

accumulation. That said, there is no significant effect of the proportion of time partnered on the log change in wealth.

A further dimension of family structure examined in the models is the presence of dependent children. In both models, a positive association between wealth accumulation and dependent children is evident, which again is perhaps surprising given that other factors, such as employment and income, are controlled for in the models. There is no evidence of an association between poor general health or poor mental health over the 12-year period and the dollar change in wealth, but there is a significant and large negative effect of poor mental health on the log change in wealth.

Income over the 12-year period significantly impacts on wealth accumulation. Less inevitable is the finding that there are additional positive effects of employment, even after controlling for income. That is, positive effects of employment on wealth accumulation are not simply due to positive effects on income.

Examining the role of location of residence, we see that residing outside of major urban and other urban areas is associated with positive effects on both measures of wealth accumulation. We also see that, holding constant population density of region of residence, the dollar increases in wealth between 2002 and 2014 were highest in the Northern Territory and Western Australia, while residents of Victoria also had relatively large dollar increases in wealth. Differences across states and territories in log changes in wealth are somewhat different, with the estimates indicating that residents of the Australian Capital Territory and Western Australia had the largest percentage increases in wealth, and the residents of New South Wales and the Northern Territory had the lowest percentage increases in wealth.

Table 5.6: Factors associated with 12-year wealth change (December 2014 prices)

	Dollar change	*Log change*
2002 characteristics		
Age group (Reference category: Less than 35)		
35–44	*ns*	–0.292
45–54	90,112	–0.411
55–64	*ns*	–0.484
65 and over	*ns*	–0.345
Educational attainment (Reference category: No post-school qualifications)		
Bachelor's degree or higher	176,735	0.147
Other post-school qualification	–65,648	*ns*
Moderate or severe disability	*ns*	–0.079
Home owner	68,314	–0.342
Owner of other property	*ns*	–0.177
Household business owner	–72,775	–0.366
Household owner of equities	*ns*	–0.225
Characteristics over the 2002–2014 period		
Partner status in 2002 and 2014 (Reference category: Single in both years)		
Partnered in both years	177,881	*ns*
Single in 2002 and partnered in 2014	243,930	0.700
Partnered in 2002 and single in 2014	–164,121	–0.472
Proportion of period partnered	–188,603	*ns*
Mean number of dependent children over the period	94,132	0.027
Proportion of period in poor general health	*ns*	*ns*
Proportion of period in poor mental health	*ns*	–0.236
Proportion of period self or partner (but not both) employed	*ns*	0.378
Proportion of period both self and partner employed	165,897	0.470
Mean equivalised income over period ($'000, December 2014 prices)	9,852	0.004
Population density of region of residence (Reference category: Proportion of period living in major urban area)		
Proportion of period living in other urban area	–88,045	*ns*
Proportion of period living in other region	127,628	0.110
State of residence (Reference category: Proportion of period living in New South Wales)		
Proportion of period living in Victoria	96,135	0.147
Proportion of period living in Queensland	*ns*	0.081
Proportion of period living in Western Australia	285,255	0.335
Proportion of period living in South Australia	*ns*	0.126
Proportion of period living in Tasmania	*ns*	0.138
Proportion of period living in Northern Territory	314,571	*ns*
Proportion of period living in Australian Capital Territory	*ns*	0.337
Constant	–333,366	0.593
Number of observations	7,498	6,957

Notes: Table reports coefficient estimates from OLS regression models of the determinants of the change in an individual's household wealth between 2002 and 2014. See the Technical Appendix for further details on regression models. The sample comprises all persons aged 30 and over in 2002 plus persons aged 15–29 in 2002 who were not living with a parent or guardian in 2002 or 2014. The log-change model additionally excludes individuals with household wealth of less than $1,000 in 2002 or 2014. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

6

Housing wealth

As shown in Chapter 5, the single most important asset component in household wealth portfolios is the family home, accounting for 43% of the value of household assets in 2014. Further reinforcing the importance of housing, we see that holdings of investment properties and holiday homes accounted for 15% of the value of assets, taking the total share of housing to 58%. Analysing the distribution and dynamics of housing wealth is therefore important to understanding household wealth more generally. It is, furthermore, possible to examine *home* wealth in considerably more detail than other components of household net wealth with the HILDA Survey data, since data is collected on both home value and home debt in every wave.

Home ownership

Table 6.1 presents alternative measures of home-ownership rates over the 2001 to 2014 period. The first column reports the percentage of households living in owner-occupied housing. It shows a slow but steady decline in the proportion of households that are home-owner households. In 2001, 68.8% of households were owner-occupied, while 64.9% of households were owner-occupied in 2014, a fall of 3.9 percentage points.

The second and third columns of Table 6.1 are estimates of the proportion of individuals aged 18 and over who are (legal) home owners. The estimates in the second column are for a measure that is available every wave, but which is imperfect. The members of the household who are legal owners of the home are not explicitly identified by the HILDA Survey in the 'non-wealth' waves —that is, in waves other than Waves 2, 6, 10 and 14. Rather, all that is established is whether one or more members of the household are owners of the home, although information is also collected on whether any household members pay board to other household members. To produce estimates of individual home ownership for every wave, an individual is classified as a home owner if that individual lives in a home-owner household, is aged 18 or over, is not a child aged under 30 living with a parent or guardian, and does not pay board to another household member. All other individuals aged 18 and over are classified as non-home-owners. In the waves in which wealth data are collected, the household members who are legal owners of the home are explicitly identified, allowing accurate measurement of the proportion of the adult population that are home owners.

The measure available every wave shows 59.7% of adults were home owners in 2014, down from 63.8% in 2001. However, the more accurate measure of home ownership available in wealth years reveals these are overestimates of home-ownership rates. In 2002, only 57.0% of adults were home owners, and this proportion had fallen by 5.3 percentage points by 2014, to be 51.7%. The measure available every wave therefore overestimates home-ownership rates by approximately 7 to 8 percentage points.

Differences across the states in rates of owner-occupied housing are examined in Figure 6.1 (excluding Tasmania, the Australian Capital Territory and the Northern Territory due to small sample sizes in these jurisdictions). Rates of home ownership have tended to decline in all parts of Australia, but the extent of decline varies. Decline was greatest in Victoria (7.8 percentage-point decline), followed by New South Wales (4.3 percentage points) and South Australia (2.5 percentage points), and in fact there was little net change in Queensland and Western Australia.

Table 6.1: Home-ownership rates, 2001 to 2014 (%)

		Proportion of individuals aged 18 and over	
	Proportion of households	*Measure available every wave*	*Measure available in wealth waves*
2001	68.8	63.8	
2002	68.4	64.4	57.0
2003	68.2	64.0	
2004	68.1	63.7	
2005	67.7	63.7	
2006	67.7	63.4	55.8
2007	67.9	63.6	
2008	67.6	63.2	
2009	66.6	62.1	
2010	66.7	61.6	54.4
2011	64.9	59.2	
2012	65.3	59.6	
2013	64.8	59.4	
2014	64.9	59.7	51.7
Change 2002–2014	–3.5	–4.7	–5.3

Notes: Measure available every wave is the proportion of persons aged 18 and over who are in a home-owner household, are not a child under 30 living with a parent or guardian, and do not pay board to another household member. Measure available in wealth waves is the proportion of persons aged 18 and over who are legal owners of the home in which they live.

Figure 6.1: Proportion of households that are home-owner households, by state

Home wealth

Each wave, home-owner households are asked to assess the current value of their home. Table 6.2 examines the distribution of these reported home values over the 2001 to 2014 period. Expressed at December 2014 prices, the mean home value increased rapidly between 2001 and 2010, reaching $629,606 in 2010. However, between 2010 and 2013, the mean declined to $595,046, before rebounding strongly in 2014, when it was $618,276. The median home value has followed a similar path, although it increased between 2012 and 2013, and then decreased again between 2013 and 2014. In 2014, the median home value was $500,940.

The 10th and 90th percentiles presented in Table 6.2 provide an indication of the distribution of home values in each year. In 2014, the 90th percentile was just over $1 million, while the 10th percentile was $280,526. The changes in the 10th percentile, median and the 90th percentile between 2001 and 2014 imply that the degree of dispersion (or inequality) in home values decreased between 2001 and 2014. The 10th percentile increased by 108%, the median by 76.5%, and the 90th percentile by 47%. Taking the ratio of the 90th percentile to the 10th percentile as a measure of dispersion, the consequences of these different growth rates for inequality in home prices is evident: in 2001, the ratio of the 90th percentile to the 10th percentile was 5.01; in 2014 this ratio was 3.57. An implication of this finding is that housing at the 'affordable' end of the distribution appears to have become relatively less affordable between 2001 and 2014.

A household's net home wealth, otherwise known as home equity, is the difference between the value of the home and debt owed on the home. Table 6.3 presents similar

Table 6.2: Distribution of home values among home-owner households, 2001 to 2014 ($, December 2014 prices)

	Mean	*10th percentile*	*Median*	*90th percentile*
2001	374,027	134,847	283,888	681,332
2002	422,537	137,726	344,315	757,494
2003	486,097	174,754	403,279	833,443
2004	530,158	203,485	446,355	918,966
2005	545,031	229,522	446,292	892,584
2006	571,028	245,905	473,368	983,622
2007	596,308	264,397	480,722	961,443
2008	592,119	276,285	483,499	978,510
2009	608,912	283,209	509,777	1,019,554
2010	629,606	275,595	529,142	1,047,260
2011	610,704	277,715	512,705	1,014,729
2012	600,768	271,992	502,139	993,817
2013	595,046	275,690	510,536	1,021,073
2014	618,276	280,526	500,940	1,001,880
Change 2001–2014	244,249	145,679	217,052	320,548
Percentage change 2001–2014	65.3	108.0	76.5	47.0

Table 6.3: Distribution of home equity among home-owner households, 2001 to 2014 ($, December 2014 prices)

	Mean	*10th percentile*	*Median*	*90th percentile*	*Negative equity (%)*
2001	280,242	43,309	212,916	567,776	1.7
2002	321,413	55,090	247,907	647,313	1.6
2003	371,518	72,590	293,049	739,344	1.8
2004	406,519	91,897	328,202	787,685	1.7
2005	402,721	89,258	326,431	790,574	2.5
2006	414,127	86,067	338,120	823,783	2.4
2007	442,551	84,126	360,541	877,317	1.5
2008	421,045	69,071	345,356	818,053	2.0
2009	426,018	62,306	339,851	849,628	2.8
2010	452,209	79,371	363,785	881,903	2.5
2011	428,699	74,770	352,485	854,509	2.8
2012	409,183	57,537	334,760	836,899	3.5
2013	410,720	61,264	326,743	816,858	3.5
2014	427,847	60,113	343,645	876,645	3.4
Change 2001–2014	147,605	16,804	130,729	308,869	1.7
Percentage change 2001–2014	52.7	38.8	61.4	54.4	100.0

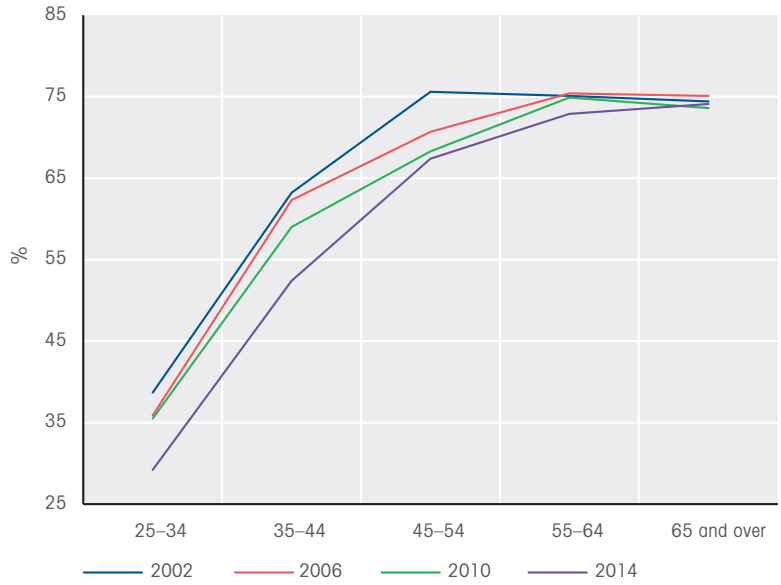
information to Table 6.2, but for the distribution of home equity rather than home values. Differences between Table 6.2 and 6.3 in levels and trends are entirely due to home debt. However, it is valuable to examine the distribution of home equity, rather than the distribution of home debt, because it allows us to see the distribution of 'net positions' of households. A given distribution of home debt can correspond to many different distributions of home equity, so to understand how home equity is distributed, it is not sufficient to examine the distribution of home debt. For example, if 50% of households have home debt, it could be that all of this debt is on the homes with the top 50% of home values, or it could be on the homes with the bottom 50% of home values.

Naturally, the mean of home equity is lower than the mean of home value. In 2014, mean home equity was $427,847, compared with the mean home value of $618,276. Thus, mean home debt in 2014 was $190,429. The most striking feature of Table 6.3 compared with Table 6.2 is that the growth in home equity is substantially lower than the growth in home values. Mean home equity grew by 52.7%, whereas the mean home value grew by 65.3%. Particularly concerning is the rise in the proportion of households with negative equity—that is, owing more than the home is worth. In 2001, this applied to 1.7% of households, but rose to 3.5% in 2012 and 2013 and then declined only slightly to 3.4% in 2014.

Home ownership and home wealth by age group

The decline in home ownership between 2001 and 2014 would suggest there is likely to have been change in the age composition of home owners. In particular, one might expect that rates of home ownership have fallen more rapidly for younger age groups. Figure 6.2 shows this is indeed the case. Using the information on the identities of the legal home owners available in wealth years, the figure shows that the decline in home ownership has been concentrated on those aged under 55. Home ownership among persons aged 25–34 declined from 38.7% in 2002 to 29.2% in 2014, with much of the decline occurring between 2010 and 2014. Among persons aged 35–44, home ownership declined from 63.2% to 52.4%, and among persons aged 45–54, it declined from 75.6% to 67.4%. There was also a slight decline in home ownership among persons aged 55–64, from 75.1% in 2002 to 72.9% in 2014. There was essentially no change in home ownership among those aged 65 and over.

Figure 6.2: Home-ownership rates by age group



Restricting to home owners, Table 6.4 compares median home values and home equity across age groups in 2002, 2006, 2010 and 2014. Median home values are

Table 6.4: Median home value and median home equity of home owners, by age group, 2002 to 2014 ($, December 2014 prices)

	25–34	*35–44*	*45–54*	*55–64*	*65 and over*
Median home value					
2002	333,297	358,088	378,747	358,088	309,884
2006	430,335	491,811	491,811	491,811	430,335
2010	468,511	551,189	551,189	551,189	496,070
2014	470,883	551,034	551,034	551,034	485,912
Change 2002–2014	137,586	192,946	172,287	192,946	176,028
Percentage change 2002–2014	41.3	53.9	45.5	53.9	56.8
Median home equity					
2002	144,612	225,871	302,997	330,543	302,997
2006	175,822	295,087	383,612	485,663	430,335
2010	165,357	319,690	418,904	496,070	496,070
2014	133,250	250,470	382,718	460,865	461,867
Change 2002–2014	–11,362	24,599	79,721	130,322	158,870
Percentage change 2002–2014	–7.9	10.9	26.3	39.4	52.4

similar among the three middle age groups (35–44, 45–54 and 55–64), and lower among the youngest (25–34) and oldest (65 and over) age groups. Growth in median home values is somewhat similar across the five age groups.

Median home equity shows quite different patterns. Home equity unsurprisingly tends to increase with age, since people tend to pay off their home loans as they age. Indeed, among home owners aged 65 and over, median home equity is equal to the median home value in 2006 and 2010, implying no debt on the median home. More striking is that changes in median home equity between 2002 and 2014 are strongly ordered by age group. Median home equity among home owners aged 25–34 actually declined by 7.9% between 2002 and 2014, indicating that debt grew more strongly than home values. Nonetheless, for all age groups, median home equity grew less than the median home value.

Longitudinal analysis of changes in home value and home equity

Table 6.5 presents a longitudinal analysis of changes in home values and home equity. For each individual in a home-owner

Table 6.5: Mean change in home value and home equity, by whether moved house ($, December 2014 prices)

	Moved house	*Did not move house*	*Total*
Home value			
1-year change			
2001–2002	58,426	51,051	51,445
2002–2003	99,839	62,361	64,486
2003–2004	88,647	40,970	43,263
2004–2005	76,255	10,296	13,328
2005–2006	82,795	25,249	27,895
2006–2007	20,821	29,291	28,913
2007–2008	12,264	–1,192	–696
2008–2009	87,614	10,587	13,327
2009–2010	71,146	23,819	26,176
2010–2011	44,173	–22,804	–20,285
2011–2012	–11,035	–7,712	–7,837
2012–2013	–8,671	–1,874	–2,132
2013–2014	63,587	23,811	25,184
5-year change			
2001–2006	269,071	194,712	213,436
2005–2010	121,022	84,362	92,388
2009–2014	70,185	14,279	25,862
14-year change			
2001–2014	272,031	254,132	263,189
Home equity change			
5-year change			
2001–2006	195,838	191,013	192,122
2005–2010	128,434	96,915	103,354
2009–2014	76,565	48,016	53,565
14-year change			
2001–2014	271,296	276,004	273,881

household (excluding children aged under 30 living with a parent and persons paying board to other household members), we track the change in home value and home equity. Thus, as in preceding longitudinal analysis in this report, we are following individuals rather than households.

The top panels show mean changes in home values over various time-frames, while the lower panels show mean changes in home equity over five years and over 14 years. Estimates are presented separately for home owners who remained in the same home and for home owners who changed homes. For home values, only for those who did not move can the estimates be regarded as capturing the mean changes in home prices (as assessed by respondents), since the changes for those who moved house are comparing the values of different houses. The changes for movers are nonetheless of interest because they provide information on the extent to which moves involve upgrading, 'moving sideways', or downgrading.[1]

For those who did not move house, the mean change in home value was high in the early-to-mid 2000s, but has since fluctuated considerably. Between 2007 and 2008, 2010 and 2011, 2011 and 2012, and 2012 and 2013, the mean real change was negative, but the net change between 2007 and 2014 was nonetheless positive. That said, between 2010 and 2014, the sum of the mean one-year changes is negative.

Those who move house on average appear to be more often upgrading than downgrading, since the mean change in home value is, over most of the time-frames examined, greater than the corresponding mean change for those who remain in the same home. The differences between those who moved house and those who did not are smaller when the change is evaluated over a longer time-frame (five years or 14 years), which may reflect a tendency to report a higher—and more accurate—valuation for a new home. That is, an individual who has purchased a new home in the last year will of course know the purchase price, which is likely to inform the reported value of the home. This is consistent with the finding of Windsor et al. (2015) that people who do not move house have a tendency to underestimate price movements in the housing market—which would also help explain why the negative mean changes between 2011 and 2012 and between 2012 and 2013 are larger (that is, more negative) for movers.

The mean change in home equity over the five years from 2001 to 2006 for people who remained in the same home was $191,013. Since the mean change in home value over this period was $194,712, this implies that, on average, these home owners increased their real debt by $3,699, despite remaining in the same home.[2] However, between

1 Individuals who were not home owners in both the start year and the end year of the time-frame being examined are necessarily excluded from this analysis.

2 Note that the real value of debt, which is what is measured here, will decrease even if none of the original loan (the loan principal) is repaid. For example, on an interest-only loan, the nominal balance of the loan will not change over time, but its real (inflation-adjusted) value will decline. The implication is that, if real debt increases, nominal debt will have increased by somewhat more.

2005 and 2010, and between 2009 and 2014, mean home equity increased by more than mean home value, indicating a reduction in real debt levels in each of these two periods among those who did not move house. Over the full 14-year period, those who did not move house averaged an increase in home equity of $276,004, of which $254,132 was driven by home value growth and the remaining $21,872 was a result of a reduction in the real value of mean home debt.

For the five-year time-frames, a similar pattern of relative changes in mean home equity and mean home value is evident for individuals who moved house in the five-year period. However, over the full 14-year period, those who moved house averaged slightly less growth in home equity than in home value, implying an increase in average real home debt.

Characteristics of home loans

In Wave 14, new information was collected on the primary home loan of owner-occupier households, including the lending institution, whether a mortgage broker was used to obtain the loan, and the minimum required repayment on the loan. This was in addition to the information already collected in wealth years on the type of interest rate and years remaining on the loan contract, and the information collected every wave on the type of home loan, the usual repayment amount, whether ahead of or behind the required repayment schedule, the expected year the loan will be paid off, and the amount outstanding on the loan.

Table 6.6 summarises some of the information on the characteristics of home loans in 2014, examining type of interest rate, type of home loan, lending institution and use of mortgage broker. The table presents both the proportion of loan-holding households with each characteristic (first column), and the proportion of outstanding loan funds with each characteristic (second column).

Table 6.6: Characteristics of home loans, 2014

Proportion of home-owning households with a (primary) home loan (%)	50.6
Mean primary loan debt of those with a loan ($, December 2014 prices)	262,607

Households with (primary) home loans

	Proportion of households (%)	*Proportion of (outstanding) funds loaned (%)*
Type of interest rate		
Fixed	17.9	18.1
Variable	69.7	65.1
Combination of fixed and variable	12.4	16.8
Total	100.0	100.0
Type of home loan		
Standard loan	84.4	81.3
Interest-only loan	8.8	12.8
Line of credit	5.6	4.4
Reverse mortgage	*0.2	*0.1
Other	1.1	1.3
Total	100.0	100.0
Lending institution		
ANZ Bank	12.1	13.1
Commonwealth Bank of Australia	19.9	19.6
National Australia Bank	12.7	14.7
Westpac	13.8	13.6
Bendigo and Adelaide Bank	3.9	3.2
Bank of Melbourne	1.2	1.3
Bank of Queensland	1.6	1.7
BankSA	1.0	0.7
Bankwest	4.1	4.2
ING Bank	3.1	3.2
Macquarie Bank	0.8	0.8
St. George Bank	5.0	5.2
Suncorp-Metway Bank	2.7	2.5
Credit Union Australia	0.8	0.5
Members Equity Bank	1.8	1.8
Other institution	15.5	13.9
Total	100.0	100.0
Used mortgage broker to obtain home loan	35.8	40.6

Note: * Estimate not reliable.

The HILDA Survey data show that, in 2014, 50.6% of home-owning households had outstanding debt on the home in the form of a 'primary loan'.[3] The mean value of the debt was $262,607, which—given there were an estimated 8,813,826 households in Australia

[3] A further 4.5% of home-owning households have home debt but no 'primary loan'. In the main, these are 'other loans' from financial institutions, and it is not clear why these loans are not considered by the respondents to be primary loans. Information on the type of interest rate, lending institution and use of mortgage brokers is not collected for these loans.

(Table 3.1, page 26), that 64.9% of households were home-owner households (Table 6.1, page 66) and that 50.6% of these households had primary-loan debt—translates to total primary-loan home debt in Australia of approximately $760 billion.[4]

Among the households with primary home loans, 17.9% had a fixed interest rate, 12.4% had a combination of fixed and variable interest rates, and the remaining 69.7% had a variable interest rate (see Box 6.1, at right). Combination interest rate loans account for a greater share of outstanding funds loaned (16.8%) than they do of households, while variable interest rate loans account for a lower share of funds loaned (65.1%). This is probably driven by loan products that have a fixed interest rate component for the first year or two of the loan contract, which means they are more likely to be recent loans and therefore on average larger than loans taken out some time ago. Indeed, the HILDA Survey data show that the mean age of the home loan (since refinancing in the event that the loan has been refinanced) is 5.5 years for variable-rate loans and 3.0 years for combination-rate loans.

Box 6.1: Types of interest rates and types of home loans

Interest rates on home loans can be fixed, variable or a combination of both. A **variable** interest rate is one that can be changed at any time by the lending institution over the life of the loan contract, and typically—but not always—moves in line with movements in the 'cash rate' set by the Reserve Bank of Australia. A **fixed** rate is a specified interest rate that does not change over time. In recent years, a fixed interest rate on a home loan will typically only apply for a specified initial period such as two years, but in principle the interest rate could be fixed for the life of the loan contract. A **combination** interest rate loan is one that has a fixed interest rate applying to part of the loan principal and a variable interest rate applying to the remainder of the loan principal.

There are many types of home loans available to home purchasers. The HILDA Survey asks respondents with home loans to classify their home loan into one of five categories which are primarily distinguished by the repayment requirements: standard loan; interest-only loan; line of credit; reverse mortgage; and other type of loan. A **standard loan** is one where the borrower must pay down the loan principal over time. An **interest-only loan** is one where the borrower does not need to pay down the loan principal over time; typically, the borrower will be required to regularly pay the interest accruing on the loan. A **line of credit** is similar to an interest-only loan, but is differentiated by having an upper borrowing limit specified rather than a specific loan amount, and potentially has no requirements for regular repayments as long as the total loan limit is not breached. A **reverse mortgage** is a product typically targeting older home owners, where the home owner accesses equity in the home to fund living or other expenses. The lender does not receive regular repayments, but instead usually obtains repayment on sale of the home—although a maximum date of repayment may be specified in the loan contract.

Standard loans are the most common type of home loan, applying to 84.4% of households with home loans and 81.3% of outstanding funds loaned. A significant proportion of households—8.8%—nonetheless has interest-only loans, and these loans tend to have larger outstanding balances, since they account for 12.8% of outstanding funds loaned. A further 5.6% of households report the primary loan to be a line of credit, with these types of loans accounting for 4.4% of funds outstanding.

The HILDA Survey shows, unsurprisingly, that the big four banks dominate the home loan market. Among households with home loans in 2014, 19.9% were with the Commonwealth Bank, 13.8% were with Westpac, 12.7% were with the National Australia Bank and 12.1% were with ANZ Bank. Moreover, 4.1% were with Bankwest, which is wholly owned by

4 The 2014 HILDA Survey data show a further $127 billion in 'non-primary home loan' debt and $372 billion in debt on other property (investment property and holiday homes), bringing total housing debt to $1.26 trillion.

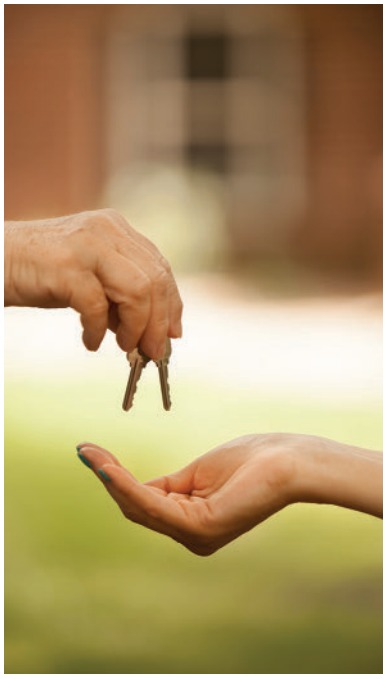
the Commonwealth Bank, and 1.2% were with the Bank of Melbourne, 1.0% were with BankSA and 5.0% were with St. George Bank, all of which are wholly owned by Westpac. The proportion of households with the Commonwealth Bank was therefore effectively 24%, and the proportion with Westpac was effectively 21%.

The distribution of outstanding funds loaned across lending institutions is broadly similar, but not identical, to the distribution of households. Notably, ANZ Bank and National Australia Bank have larger shares of outstanding funds than they do of households—that is, on average, they have larger loans. Collectively, including wholly-owned subsidiaries, the HILDA Survey data show that, in 2014, the big four banks accounted for 72.4% of the primary home loan market, as measured by share of outstanding funds on loan.

Table 6.6 also indicates that mortgage brokers are an important, but not dominant feature of the home loan market. Of households with home loans, 35.8% used a mortgage broker to obtain the home loan, with 40.6% of funds on loan obtained via a mortgage broker.

Home loan repayments

Table 6.7 summarises the information collected in Wave 14 on primary home loan repayments, broken down by the size of the loan. Among all households with primary loans, the mean minimum repayment in 2014 was $1,736 per month, while the mean (usual) *actual* repayment was $2,014. The table also shows that 55.4% of households usually paid more than the minimum repayment, averaging additional repayments of $612 per month. Minimum and actual repayments are, unsurprisingly, larger the bigger the outstanding loan. The proportion paying more than the minimum is highest for households with outstanding balances of less than $250,000, and lowest for households with outstanding balances of $500,000 or more. However, among those paying more than the minimum, the mean additional repayment, at $1,856, is much higher for households with loans of $500,000 or more than for other households, who average between $505 and $564 per month in additional repayments.



Ownership of investment properties and holiday homes

Ownership of residential investment properties has been the subject of a great deal of public discussion in recent years, with much debate about the tax treatment of these properties and the characteristics of the owners of these properties. The HILDA Survey is well placed to shed light on this topic, in each wealth year collecting information on the number of properties held, their value, the debt owed on them, and the income derived from them.

Table 6.8 presents descriptive statistics on ownership of non-home property—that is, commercial properties and housing which is not the primary residence of the owner—in each of the wealth years. The upper panel shows the proportion of households owning non-home property. Since Wave 6, information has also been collected on the types of non-home property owned—holiday homes, investment housing, and other property—and so the proportion of households owning each property type is also presented for 2006, 2010 and 2014.

A rise in the proportion of households owning non-home property between 2002 and 2014 is evident, with most of the increase occurring between 2002 and 2006. The proportion owning non-home property was 16.5% in 2002, 20.6% in 2006 and 21.0% in

Table 6.7: Monthly repayments by loan size, 2014 (December 2014 prices)

	Proportion in loan size group (%)	*Mean loan size ($)*	*Mean minimum repayment per month ($)*	*Mean usual repayment per month ($)*	*Pay more than minimum (%)*	*Mean excess payment per month if pay more than minimum ($)*
Loan size						
< $100,000	18.3	47,163	738	1,041	62.4	505
$100,000 – < $250,000	33.7	172,225	1,317	1,637	63.5	564
$250,000 – < $500,000	39.5	344,489	2,099	2,329	50.5	547
$500,000 or more	8.5	706,620	3,655	4,150	33.5	1,856
Total	100.0	262,607	1,736	2,014	55.4	612

Table 6.8: Ownership of non-home property, 2002 to 2014

Ownership of non-home property

	Household owns any non-home property (%)	*Household owns holiday home (%)*	*Household owns investment housing (%)*	*Household owns other non-home property (%)*
2002	16.5	–	–	–
2006	20.6	5.6	12.3	5.5
2010	20.9	6.1	12.2	5.4
2014	21.0	5.7	13.0	4.7

Households owning non-home property

	Mean number of properties	*Mean number of investment housing properties*	*Mean value of non-home property ($)*	*Mean value of debt on non-home property ($)*
2002	–	–	399,726	93,861
2006	1.68	0.68	784,141	156,467
2010	1.61	0.67	665,202	186,482
2014	1.67	0.71	660,963	201,342

Households owning investment housing

	Mean number of investment housing properties	*Mean value of non-home property ($)*	*Mean value of debt on non-home property ($)*	*Positively geared (%)*
2006	1.60	918,771	198,479	47.4
2010	1.58	750,406	234,231	48.5
2014	1.62	754,523	244,507	52.9

2014. This is consistent with the finding in Chapter 5 of a decline in home-owner households—and hence an increase in renting. Data for 2006 to 2014 show ownership of holiday homes was 5.6% in 2006, 6.1% in 2010 and 5.7% in 2014, while ownership of investment housing was 12.3% in 2006, 12.2% in 2010 and 13.0% in 2014. Ownership of other non-home property declined slightly between 2006 and 2014, from 5.5% to 4.7%.

The second panel of Table 6.8, focusing on households with non-home property, presents information on the number of properties held (available only from 2006), the value of non-home properties and the debt on those properties. Owners of non-home properties on average hold 1.6 to 1.7 properties, and 0.7 rental properties. The mean value of non-home property among owners was $399,726 in 2002, rose sharply to $784,141 in 2006, then declined to $665,202 in 2010 and $660,963 in 2014. The mean

Table 6.9: Characteristics of owners of residential investment properties, 2006 to 2014 (%)

	2006	*2010*	*2014*
Age group			
15–34	14.3	16.1	12.7
35–44	25.4	21.4	23.0
45–54	30.6	31.2	27.6
55–64	21.9	21.9	23.8
65 and over	7.8	9.5	12.8
Total	100.0	100.0	100.0
Income quintile			
Bottom quintile	6.2	6.0	5.7
2nd quintile	9.0	10.9	8.2
Middle quintile	14.5	16.9	16.9
4th quintile	24.3	21.9	23.6
Top quintile	46.0	44.3	45.5
Total	100.0	100.0	100.0
Wealth quintile			
Bottom quintile	1.0	2.4	2.9
2nd quintile	7.2	6.8	7.5
Middle quintile	11.8	14.7	14.4
4th quintile	26.7	23.7	22.4
Top quintile	53.3	52.3	52.8
Total	100.0	100.0	100.0

Note: Rental losses are excluded from income in constructing income quintiles and identifying the income quintile to which an individual belongs.

value of debt also rose sharply between 2002 and 2006, from $93,861 to $156,467, but—in contrast to the mean value of non-home property—then continued to rise between 2006 and 2014, reaching $201,342 in 2014.

The bottom panel of Table 6.8 examines households owning investment housing, presenting the mean number of investment housing properties, the mean value of non-home housing and the mean debt on non-home housing. (It is not possible to separately identify the value of investment housing and the debt on that housing.) Among households owning investment housing properties, the mean number of properties held is approximately 1.6. For this group of non-home property owners, the mean value of non-home property is higher than for all non-home property owners. In 2006, the mean value of non-home property for owners of investment housing was $918,771 in 2006, falling to $750,406 in 2010, but then rising slightly to $754,523 in 2014. Owners of investment housing also carry higher average debt on non-home property than other non-home property owners. The mean debt was $198,479 in 2006, and $244,507 in 2014.

The bottom panel of Table 6.8 also shows the proportion of investment housing owners who report positive net rental income on their properties—that is, are positively geared. In 2006, this proportion was 47.4%, and in 2014 it had risen to 52.9%, despite mean debt rising faster than the mean value of their non-home property. This probably reflects the low level of interest rates in 2014 compared with 2006.[5]

The age, income and wealth of owners of residential investment properties are examined in Table 6.9. The table shows owners are mostly in the 35–64 age range, and are relatively evenly distributed across the 35–44, 45–54 and 55–64 age groups, with the 45–54 age group having the highest share. There is some degree of ageing of owners between 2006 and 2010, with the proportion aged 65 and over increasing from 7.8% to 12.8%, the proportion aged 55–64 increasing from 21.9% to 23.8%, the proportion aged 45–54 declining from 30.6% to 27.6%, the proportion aged 35–44 declining from 25.4% to 23.0%, and the proportion aged under 35 declining from 14.3% to 12.7%.

The second panel of Table 6.9 shows that owners of investment housing are predominately in the top two income quintiles (where, for the purposes of this analysis, income is equivalised disposable income exclusive of rental losses). In 2006, 70.3% of owners were in the top two quintiles and a further 14.5% were in the middle quintile. In 2014, owners were slightly less concentrated at the upper end of the income distribution, with 69.1% in the top two income quintiles and 16.9% in the middle quintile.

The bottom panel of the table shows the locations of owners in the wealth distribution. Here we see they are very heavily concentrated at the upper end of the distribution. Over 50% of owners are in the top wealth quintile, and over three-quarters are in the top two quintiles. Thus, the evidence from the HILDA Survey is that owners of investment housing are relatively affluent from both an income and a wealth perspective.

5 The finding that over half of households owning investment housing report positive income from this housing appears to be somewhat at odds with Australian Taxation Office data for 2013–14 (see <https://www.ato.gov.au/About-ATO/Research-and-statistics/Taxation-statistics/>). The tax data show that approximately 38% of tax filers holding residential rental properties reported making a profit on their properties in 2013–14—that is, 62% were negatively geared. It may be that, for some owners, the accounting for tax purposes differs somewhat from how they perceive the 'true' income situation as reported to the HILDA Survey.

7

Superannuation

Superannuation is rapidly becoming the most important asset in households' wealth portfolios. This reflects the increases in the minimum contribution rate since the introduction of the Superannuation Guarantee in 1992, which started at 3% of earnings, and was increased in steps over the subsequent 22 years to its current level of 9.5%. It also reflects maturation of the system—increasingly more people have been contributing to superannuation funds for much of their working lives—as well as periodic policy changes, such as the Howard Government's decision in 2006 to exempt from income tax all superannuation earnings and drawdowns in retirement, thereby increasing incentives to increase superannuation holdings.

Superannuation balances by age group

Figure 7.1 shows the strong relationship between age and superannuation balance, which tends to peak in the age groups in which most people retire. It is evident that women have much lower balances than men, reflecting the lower lifetime earnings of women. Mean superannuation balances of both men and women tended to grow between 2002 and 2014, although there are substantial differences across the age groups. Indeed, increases in mean superannuation balances were largely confined to older age groups. One consequence of this is that the age group at which the mean superannuation balance peaks increased between 2002 and 2014 for both men and women—for men from the 55–59 age group to the 65–69 age group, and for women from the 50–54 age group to the 60–64 age group.

Table 7.1 provides more precise information on the changes over the 2002 to 2014 period. It shows that, for both men and women, increases were heavily concentrated among the 60–64, 65–69 and 70–74 age

Table 7.1: Change in mean superannuation balance by sex and age group, 2002 to 2014 ($, December 2014 prices)

	Men	*Women*
20–24	–5,810	704
25–29	964	263
30–34	5,371	1,674
35–39	10,438	11,337
40–44	16,990	14,518
45–49	20,115	31,283
50–54	45,868	30,845
55–59	31,178	52,133
60–64	138,649	123,828
65–69	169,939	98,133
70–74	118,489	107,076
75 and over	53,391	20,257
Total	40,502	33,805

Figure 7.1: Mean superannuation balances by sex and age

groups. There was essentially no growth in mean superannuation balances among men and women aged under 35.

Superannuation balances by birth cohort

The changes by age group shown in Figure 7.1 and Table 7.1 are a function of cohort differences (for example, more recent birth cohorts have had higher average contribution rates) and 'year effects' (such as share-market performance). An alternative way of examining changes in superannuation balances over time is to present mean balances by year of birth and age. This allows us to trace how each birth cohort has fared over the 12 years from 2002 to 2014, and in particular compare different birth cohorts at the same age.

Using each of the four wealth waves, Table 7.2 presents mean superannuation balances by sex, birth cohort and age group. The birth cohorts and age groups are four-year groups, so that each birth

Table 7.2: Mean superannuation balances by birth cohort and age group ($, December 2014 prices)

Males

	Birth year						
	1982–1985	*1978–1981*	*1974–1977*	*1970–1973*	*1966–1969*	*1962–1965*	*1958–1961*
Age group							
17–20	3,135						
21–24	13,919	15,395					
25–28	21,624	31,637	21,477				
29–32	40,314	33,572	42,208	30,639			
33–36		52,627	57,736	55,350	50,926		
37–40			87,115	92,077	70,083	76,067	
41–44				112,625	102,244	103,643	91,643
45–48					148,588	140,829	126,940
49–52						187,327	178,466
53–56							207,953
	1954–1957	*1950–1953*	*1946–1949*	*1942–1945*	*1938–1941*	*1934–1937*	*1930–1933*
45–48	120,858						
49–52	185,436	154,769					
53–56	210,303	250,711	186,186				
57–60	232,804	304,710	236,625	150,679			
61–64		284,980	234,537	201,410	147,333		
65–68			284,312	175,793	197,933	114,373	
69–72				153,866	193,574	107,937	60,806
73–76					188,326	102,143	68,078
77–80						117,636	32,780
81–84							37,291

Females

	Birth year						
	1982–1985	*1978–1981*	*1974–1977*	*1970–1973*	*1966–1969*	*1962–1965*	*1958–1961*
Age group							
17–20	3,392						
21–24	6,168	5,603					
25–28	15,160	14,835	12,645				
29–32	25,710	27,460	27,020	24,785			
33–36		42,199	36,563	35,484	34,158		
37–40			49,055	46,474	49,877	39,540	
41–44				59,803	70,200	53,487	45,343
45–48					96,718	74,855	81,795
49–52						97,505	80,313
53–56							117,747
	1954–1957	*1950–1953*	*1946–1949*	*1942–1945*	*1938–1941*	*1934–1937*	*1930–1933*
45–48	66,701						
49–52	86,653	74,912					
53–56	113,552	98,452	73,979				
57–60	149,497	120,771	121,396	73,286			
61–64		188,501	155,908	114,405	61,908		
65–68			133,932	116,594	83,101	35,799	
69–72				133,362	76,375	45,364	20,436
73–76					94,328	25,006	19,783
77–80						27,195	10,963
81–84							14,314

cohort advances one age group from one wealth wave to the next. For example, the most recent birth cohort examined in the table comprises those born between 1982 and 1985. This cohort was aged 17–20 in 2002, 21–24 in 2006, 25–28 in 2010 and 29–32 in 2014. This approach means that we have four observations of mean superannuation balance for each birth cohort—in 2002, 2006, 2010 and 2014—and up to four birth cohorts observed for each age group.

When we examine how superannuation balances have changed over time for each birth cohort, we see that all of the more recent cohorts have experienced substantial growth. Even among the older birth cohorts, the mean superannuation balance grows over most of the four-year periods.

Among males, it is only the oldest cohort examined in the table, born between 1930 and 1933, that experienced a decline in their mean superannuation balance over the 12-year period as a whole. For this group, mean superannuation was $60,806 when they were aged 69–72 (in 2002), $68,078 when they were aged 73–76, $32,780 when they were aged 77–80, and $37,291 when they were aged 81–84—although note that, due to deaths, this birth cohort declines in size between 2002 and 2014 by more than other birth cohorts, which may bias estimates of changes in mean superannuation wealth. Among females, only the two cohorts born between 1930 and 1937 experienced declines in the mean superannuation balance over the 12-year period.

Comparing across cohorts at the same ages—that is, examining the estimates within the same row—shows the general tendency for more recent cohorts to have higher mean balances than earlier cohorts at the same age. This does not always hold, but where it does not it is most likely due to share-market volatility rather than lower levels of contributions among more recent cohorts.

Table 7.3: Changes in real superannuation balances of individuals, by birth cohort (%)

	Males			*Females*		
	No super	*Decreased*	*Increased*	*No super*	*Decreased*	*Increased*
2002 to 2006						
Birth year						
1930s	50.4	31.1	18.5	73.1	14.9	12.0
1940s	21.1	31.2	47.7	32.9	26.3	40.8
1950s	9.0	25.1	65.9	14.3	23.6	62.1
1960s	5.6	24.8	69.6	12.1	22.3	65.6
1970s	4.8	18.1	77.1	10.6	20.2	69.2
2006 to 2010						
Birth year						
1930s	58.4	32.2	9.4	75.0	16.5	8.5
1940s	30.3	38.1	31.6	40.6	32.4	27.0
1950s	8.7	32.5	58.8	15.6	30.8	53.6
1960s	4.4	28.7	66.9	10.2	28.5	61.3
1970s	2.3	25.2	72.5	7.1	27.6	65.3
2010 to 2014						
Birth year						
1930s	61.1	22.2	16.7	78.0	16.0	6.0
1940s	31.1	39.9	29.0	46.5	31.1	22.4
1950s	10.5	32.5	57.0	17.5	27.0	55.5
1960s	4.5	23.7	71.8	9.1	23.2	67.7
1970s	4.0	19.9	76.1	7.1	25.3	67.6
2002 to 2014						
Birth year						
1930s	51.9	38.8	9.3	75.2	17.7	7.1
1940s	19.5	46.7	33.8	33.4	34.9	31.7
1950s	7.7	25.3	67.0	13.9	21.4	64.7
1960s	3.6	13.0	83.4	9.7	11.5	78.8
1970s	4.1	7.3	88.6	7.2	12.1	80.7

The changes in mean superannuation balances of birth cohorts presented in Table 7.2 mask the considerable variation in changes within those cohorts. Table 7.3 provides information on this variation, showing, for each cohort defined by decade of birth, the proportion of individuals experiencing a real increase in superannuation balance, the proportion experiencing a real decrease in superannuation balance, and the proportion with no superannuation at both the start and end of the period. Changes over each four-year period are examined—that is, 2002 to 2006, 2006 to 2010 and 2010 to 2014—as well as changes over the full 12-year period.

For all time-frames examined, it is more common for women than men to have no superannuation at all at both the start and end of the period. It is also more common the earlier the birth cohort. Over half of men born in the 1930s, and approximately three-quarters of women born in the 1930s, had no superannuation at all in any of the wealth years. Among those born in the 1940s, 21.1% of men and 32.9% of women had no superannuation in both 2002 and 2006, while 31.1% of men and 46.5% of women had no superannuation in both 2010 and 2014. At the other end of the birth-cohort spectrum, among those born in the 1970s, 4.8% of men and 10.6% of women had no superannuation in both 2002 and 2006, and 4.0% of men and 7.1% of women had no superannuation in both 2010 and 2014.

As expected, real decreases in superannuation are somewhat more common among those born in the 1930s and 1940s, particularly over the full 12-year period from 2002 to 2014. However, real decreases are also surprisingly common among the more recent birth cohorts. Over each four-year period, approximately one-fifth to one-quarter of those born in the 1960s and 1970s experienced declines in real superannuation balances. Even over the 12 years to 2014, 13.0% of men and 11.5% of women born in the 1960s, and 7.3% of men and 12.1% of women born in the 1970s, experienced declines in the real value of their superannuation balances. While exploring the reasons for these declines is beyond the scope of this chapter, one possible reason is splitting of superannuation between partners following marital breakdown, which will typically result in the superannuation balance of one of the partners declining.

Table 7.4: Characteristics of individuals aged 50–69, by level of superannuation balance, 2002 and 2014

	2002			2014		
	Bottom 50%	*Deciles 6–9*	*Top 10%*	*Bottom 50%*	*Deciles 6–9*	*Top 10%*
Mean superannuation balance ($, December 2014 prices)	1,365	120,110	650,619	13,719	210,798	991,268
Male (%)	39.8	54.9	78.5	40.4	55.2	67.7
Age group (%)						
50–54	24.1	42.6	36.4	27.0	35.1	18.6
55–59	25.9	30.0	32.7	25.7	29.9	23.0
60–64	24.0	18.5	21.2	22.7	19.9	35.5
65–69	26.0	8.9	9.7	24.6	15.0	23.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Educational attainment (%)						
Bachelor's degree or higher	8.8	18.4	40.2	14.3	32.1	43.5
Other post-school qualification	22.7	30.6	32.4	33.7	37.9	32.6
No post-school qualifications	68.5	50.9	27.4	52.0	30.0	24.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Immigrant status (%)						
Australian-born	59.2	70.4	75.9	61.0	71.4	79.8
ESB immigrant	12.3	15.0	16.0	11.4	14.7	13.0
NESB immigrant	28.5	14.6	8.1	27.6	13.9	7.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
Income quintile (%)						
Bottom quintile	39.0	11.2	6.0	32.7	8.0	3.5
2nd quintile	19.9	11.1	5.8	21.5	10.9	7.9
Middle quintile	15.1	18.8	7.2	17.3	19.6	9.3
4th quintile	13.3	23.6	18.1	15.8	24.7	16.7
Top quintile	12.7	35.2	63.0	12.6	36.7	62.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Non-superannuation wealth quintile (%)						
Bottom	17.0	4.0	1.4	17.7	4.1	1.2
2nd quintile	14.0	8.1	0.8	16.5	8.0	3.2
Middle quintile	21.0	19.3	7.7	22.7	17.6	7.2
4th quintile	23.9	29.1	22.6	22.6	30.6	23.7
Top quintile	24.1	39.5	67.5	20.5	39.8	64.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

Who is well prepared for retirement?

As people approach retirement, the amount of superannuation they hold can be very important to their living standards in retirement. What are the characteristics of people who have relatively high superannuation balances at around the time of retirement, and are therefore well prepared for retirement? What are the characteristics of people who have low superannuation balances around the time of retirement, and therefore potentially face lower living standards in retirement? And have there been changes between 2002 and 2014?

To answer these questions, Table 7.4 examines various characteristics of individuals aged 50–69, comparing across three groups defined by location in the distribution of superannuation holdings among those aged 50–69: the bottom 50%; the next 40% (deciles 6 to 9); and the top 10%. The table shows that, in 2002, the mean superannuation balance of those in the bottom 50% of the distribution of superannuation was $1,365, the mean balance of those in deciles 6 to 9 was $120,110, and the mean balance of those in the top 10% was $650,619. In

2014, the respective means were considerably higher, at $13,719, $210,798 and $991,268.

In both 2002 and 2014, men dominate the top 10% of the superannuation distribution, and also represent about 55% of the middle superannuation group. Of course, most men and women in this age range are partnered, so this does not necessarily imply that women are less well placed for retirement than men.

Reflecting the relative newness of the Superannuation Guarantee in 2002, over 69% of the top superannuation group were in the youngest two age groups (50–54 and 55–59), and only 9.7% were in the 65–69 age group. By contrast, in 2014, the youngest two age groups accounted for only 41.6% of the top superannuation group. In both 2002 and 2014, the bottom superannuation group was evenly distributed across the four age groups.

A high proportion of the top superannuation group is university qualified, and relatively few of those in the bottom superannuation group have university qualifications. The proportion of the bottom superannuation group with university qualifications rose from 8.8% in 2002 to 14.3% in 2014, but this reflects the growth in educational attainment among those aged 50–69, since the shares of the middle and top superannuation groups with university qualifications also rose.

Australian-born residents constitute a significantly larger share of the top superannuation group than the bottom superannuation group, which will in part be because they have on average lived longer in Australia and therefore made superannuation contributions over a longer period. NESB immigrants are considerably under-represented in the top superannuation group, accounting for only 7.2% of the top superannuation group in 2014, compared with 27.6% of the bottom superannuation group.

The bottom two panels examine the broader economic wellbeing of the three superannuation groups, confirming that superannuation balances are strongly positively associated with income and non-superannuation wealth. That is, individuals with high superannuation wealth are even better placed for retirement than their superannuation balances alone would indicate. The top superannuation group is heavily concentrated in the top quintile of the (overall) income distribution and in the top quintile of the (overall) non-superannuation wealth distribution. Those in the bottom superannuation group are predominately in the bottom two quintiles of the income distribution, although they are more highly placed in the non-superannuation wealth distribution. This reflects the effects of home ownership, which is relatively high among those in the 50–69 age group.

8

Material deprivation

Peter Saunders and Roger Wilkins

Material deprivation exists when people do not have and cannot afford to buy items or undertake activities that are widely regarded in society as things that everyone should have. The approach builds on research originally undertaken by Townsend (1979) but has since been modified by Mack and Lansley (1985) and in a series of British studies of poverty and social exclusion (for example, Pantazis et al., 2006), the most recent of which was released last year (Mack and Lansley, 2015). It is now widely used to provide an insight into the nature and extent of poverty that is based on the acceptability of people's actual living standards rather than on how much income they have. Although it can thus be regarded as an alternative to conventional poverty line studies, the deprivation approach can also be combined with income studies to produce poverty measures that reflect both the level of resources available to people and the living standards that they are able to achieve from those resources.

The deprivation approach is now widely used in Europe to measure poverty and, in fact, a deprivation measure is included in the European Union's key indicators of poverty. It also forms part of the suite of measures being used by the United Kingdom Government to monitor its progress in achieving its child poverty reduction targets. In Australia, recent research by the Social Policy Research Centre (Saunders et al., 2007; Saunders and Wong, 2012) has established its practicality and robustness while demonstrating that it sheds new light on the nature of social disadvantage in Australia. In light of these international developments, and informed by the findings of the Australian studies, a suite of questions allowing construction of deprivation measures was included in the HILDA Survey for the first time in Wave 14.

Critics have long pointed out the limitations of establishing someone's poverty status on the basis of their income alone. Although studies of income poverty provide important information, they lack credibility because they do not actually establish that poverty exists, only that the lack of income is likely to result in poverty. This weakness is compounded by concerns that the poverty line is essentially arbitrary, that most poverty studies assume that economic resources are shared equitably within the household and that the needs of the household are captured in an equivalence scale that may bear little relation to the actual needs of household members.

Deprivation studies address these limitations by focusing on the living standards that people actually achieve. They do this by asking whether or not people can afford to purchase items that are regarded as customary or are widely perceived to be necessary to be a fully participating member of society. By looking at the living standards outcomes actually achieved rather than the income available, the approach thus identifies poverty more directly. Furthermore, it does not require a threshold to be established that distinguishes between the poor and non-poor, nor does it involve making assumptions about the needs of specific individuals. Instead, the poverty status of each individual is inferred by observing whether or not

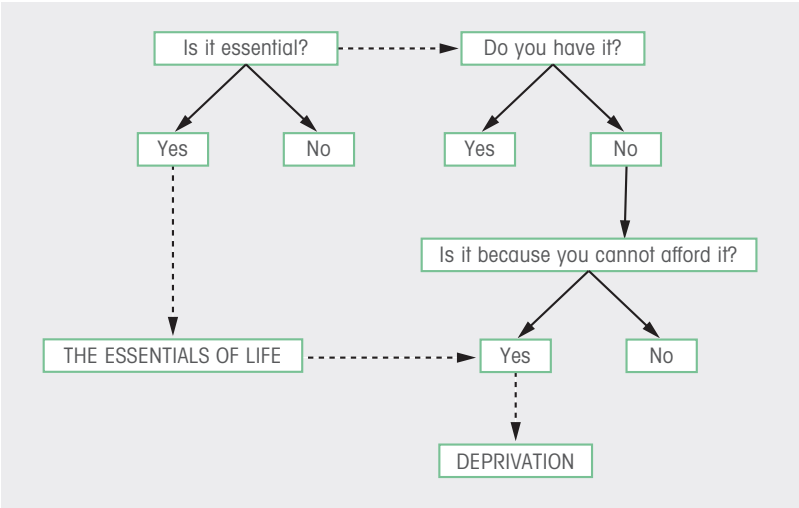
they (or the household in which they are living) can afford basic items. This ability or inability to afford basic items will reflect the balance between resources available and basic needs that have to be met. Importantly, the deprivation approach can be applied to examine the economic status of individuals as well as families or households and can be used to measure and better understand child poverty (Main and Bradshaw, 2012).

Identifying deprivation

The approach is implemented in practice by conducting surveys that seek answers to the three key questions shown in Figure 8.1. The first question identifies which among a list of items people think are necessary or essential 'for all Australians'—things that 'no-one in Australia should have to go without today'. Those items that are regarded as essential by a majority in the community are classified as the essentials of life and it is this sub-set of items that is used to identify deprivation, which exists when people do not have and cannot afford each item. Note that the third question is designed to filter out those who choose to go without an essential item, since those in this group cannot be identified as deprived or described as poor. The sequence of questions shown in Figure 8.1 was used in the Social Policy Research Centre (SPRC) deprivation surveys referred to earlier and forms the basis of the material deprivation module inserted into the household questionnaire of the HILDA Survey.

The items about which the 'Is it essential?' question is asked are intended to reflect things that meet basic needs that only the poorest in society are expected to have

Figure 8.1: Identifying deprivation



problems acquiring. The identification of these items was based on the SPRC studies of items included in overseas deprivation studies—modified where appropriate to reflect Australian conditions and practices. This list was then discussed by a series of focus groups conducted with low-income Australians to ensure that it included items that they regarded as necessary for all to have a decent standard of living and those that they themselves saw as essential for them and their families. Of the total list of items included in the two SPRC studies (61 in 2006 and 73 in 2010) the same 25 items were regarded as essential by a majority in both surveys and satisfied other criteria which indicated that their absence captured poverty. One of these items (computer skills) was omitted from the HILDA Survey because of concerns that its absence does not reflect an affordability problem, while two others (a motor vehicle and access to the internet at home) were included even though neither reached the 50% threshold of support in the earlier research.

These modifications resulted in the inclusion of the 26 items shown in Table 8.1, which shows the degree of community support for each of them being essential, the percentage who have each item and the percentage who do not have and cannot afford each item (where the first indicator is used to identify the 'essentials of life' shown in Figure 8.1 and the third is the item-specific deprivation rate).[1]

[1] The first column of Table 8.1 uses household weights, while the second and third columns (and all subsequent tables in this chapter) use enumerated population weights on the assumption that the answers provided for the household apply to all household members. Estimates in the second and third columns for items 22, 23 and 24 are only for individuals in households with children, while estimates in these two columns for items 25 and 26 are only for individuals in households with children attending school.

Table 8.1: Responses to questions for each material deprivation item, 2014 (%)

	Believe it is essential	*Have it*	*Don't have it and can't afford it*
1. Getting together with friends or relatives for a drink or meal at least once a month	79.4	87.6	2.5
2. Medical treatment when needed	99.7	98.5	1.1
3. Furniture in reasonable condition	82.8	99.4	0.4
4. A decent and secure home	96.9	99.5	0.3
5. Medicines when prescribed by a doctor	99.0	99.0	0.5
6. Warm clothes and bedding, if it's cold	99.6	99.9	*0.1
7. A television	44.9	98.6	*0.1
8. A substantial meal at least once a day	99.3	99.8	*0.1
9. A week's holiday away from home each year	43.6	66.3	16.5
10. A roof and gutters that do not leak	86.1	92.4	2.3
11. A telephone (landline or mobile)	84.3	99.7	*0.1
12. Home contents insurance	61.7	77.7	8.3
13. A washing machine	79.1	99.0	0.3
14. Access to the internet at home	47.4	92.3	1.7
15. A motor vehicle	55.9	95.1	1.9
16. Comprehensive motor vehicle insurance	59.1	90.3[a]	4.6[a]
17. At least $500 in savings for an emergency	79.4	85.7	12.2
18. A home with doors and windows that are secure	94.5	98.3	0.7
19. Dental treatment when needed	97.4	93.9	5.2
20. Buying presents for immediate family or close friends at least once a year	48.6	94.5	2.2
21. When it is cold, able to keep at least one room of the house adequately warm	95.4	98.8	0.6
22. A separate bed for each child	79.7	96.7[b]	0.8[b]
23. A yearly dental check-up for each child	94.4	83.3[b]	3.3[b]
24. A hobby or a regular leisure activity for children	84.1	86.3[b]	3.7[b]
25. New school clothes for school-age children every year	57.3	62.3[c]	6.8[c]
26. Children being able to participate in school trips and school events that cost money	82.2	97.3[c]	2.1[c]

Notes: [a] Households that have a motor vehicle. [b] Households with children aged under 15. [c] Households with children aged under 15 attending school.
* Estimate not reliable.

The table shows that 22 of the 26 items are regarded as essential by a majority of households. The four items without majority support are 'a television', 'a week's holiday away from home each year', 'access to the internet at home' and 'buying presents for immediate family or close friends at least once a year'. These four items are therefore classified as not essential and do not contribute to our measure of material deprivation.

Among the items regarded as essential by a majority of households, deprivation rates are highest for 'at least $500 in savings for an emergency', 'home contents insurance', 'new school clothes for school-age children every year' and 'dental treatment when needed', all of which have deprivation rates of at least 5%. Deprivation rates are lowest for 'warm clothes and bedding, if it's cold', 'a substantial meal at least once a day', 'a telephone (landline or mobile)', 'a decent and secure home' and 'furniture in reasonable condition', all of which have deprivation rates less than 0.5%.

Table 8.2: Material deprivation in Australia, 2014

	Mean deprivation score	*Percentage deprived of 2 or more items*	*Percentage deprived of 3 or more items*
Partnered persons (aged 18 and over)	0.31	7.7	4.2
Single females (aged 18 and over)	0.61	15.1	7.9
Single males (aged 18 and over)	0.55	13.8	8.2
Children aged under 18	0.66	16.1	9.9
All persons	0.47	11.6	6.6

Extent of material deprivation in Australia

A measure of the extent of an individual's overall level of deprivation can be constructed as simply the number of essential items of which the individual is deprived—that is, the number of essential items the individual's household does not have because it cannot afford them. Based on this 'deprivation score', the first column of Table 8.2 presents estimates of the overall extent of multiple deprivation in Australia in 2014, for all persons and for children, partnered adults, single adult males and single adult females. Over the population as a whole, the mean deprivation score is 0.47. Children aged under 18 have the highest mean deprivation score, in part because there are more deprivation items that apply to households with children.[2] Single females have the next-highest mean deprivation score, while partnered persons have the lowest mean deprivation score.

It is common for deprivation studies to set a threshold (equivalent to a poverty line) to estimate the incidence of deprivation (synonymous with the poverty rate examined in Chapter 3) that provides a useful summary measure of overall severity. Although it can be argued that an inability to afford any one of the identified 'essentials of life' is indicative of deprivation, a harsher threshold is normally used to allow for response errors and other factors that might cause deprivation to be exaggerated. The results in Table 8.2 indicate that 11.6% of Australians are deprived of at least two essential items and 6.6% are deprived of at least three. Deprivation rates across the demographic subgroups examined in the table are ordered in the same way as mean deprivation scores, with the notable exception that single males, despite being less likely than single females to be deprived of two or more items, are slightly more likely to be deprived of three or more items.

Table 8.3 presents estimates for our three deprivation measures disaggregated by a number of key socio-economic variables: family type; age group; labour force status; income quintile; principal source of income; Indigenous status and country of birth; and disability status. These factors overlap to some extent and this needs to be kept in mind, but the results in Table 8.3 provide a fascinating new insight into the nature of Australian poverty.

Comparisons across family types reveal that lone-parent families have the highest rate of material deprivation, with 19.1% of people in such families deprived of three or more items (and 14.3% deprived of three or more items if the child-specific items are excluded). Single males and females aged under 65 also have relatively high deprivation rates, while elderly people, both single and partnered, have low rates of deprivation, despite having relatively high income poverty rates (as shown in Figure 3.3, page 30). Consistent with the findings by family type, estimates by age group reveal a pattern of decreasing deprivation up to the 25–34 age group, increasing deprivation up to the 45–54 age group, and decreasing deprivation thereafter.

There is a clear and unsurprising ordering of deprivation by labour force status, with the unemployed faring worst and the full-time employed faring best. Likewise, deprivation is strongly ordered by income quintile and is strongly connected with receipt of income support. Notable, however, is that individuals in the second quintile

[2] When the items specific to children are excluded, the mean deprivation score for children falls to 0.52, compared with 0.56 for single females, 0.54 for single males, 0.26 for partnered persons and 0.41 for all persons.

Table 8.3: Differences in material deprivation across demographic groups, 2014

	Mean deprivation score	*Percentage deprived of 2 or more items*	*Percentage deprived of 3 or more items*
Family type			
Young couple	0.27	7.0	3.6
Couple with dependent children	0.45	10.8	6.4
Lone parent	1.20	29.4	19.1
Single non-elderly male	0.62	15.4	9.1
Single non-elderly female	0.60	15.1	7.6
Elderly couple	0.12	2.8	0.7
Single elderly male	0.29	6.9	3.5
Single elderly female	0.35	8.6	3.4
Age group			
Under 15	0.67	16.2	10.1
15–24	0.60	14.6	8.2
25–34	0.43	10.7	5.4
35–44	0.47	11.3	6.9
45–54	0.51	12.9	7.8
55–64	0.32	8.1	4.4
65 and over	0.21	5.0	2.1
Labour force status			
Employed full-time	0.28	6.6	3.2
Employed part-time	0.41	10.0	5.5
Unemployed	0.97	24.9	14.5
Not in the labour force	0.56	14.5	8.5
Income quintile			
Bottom quintile	1.01	26.3	16.2
2nd quintile	0.78	19.6	12.0
Middle quintile	0.35	7.6	3.4
4th quintile	0.17	3.5	1.5
Top quintile	0.06	1.5	0.4
Primary source of income			
Wages	0.36	8.2	4.3
Other private sources	0.18	4.4	2.9
Public transfers	1.09	28.9	17.8
Indigenous status and country of birth			
Indigenous	1.34	40.3	21.5
Other native-born	0.49	11.9	6.9
ESB immigrant	0.27	6.2	3.0
NESB immigrant	0.45	10.8	6.6
Disability severity			
Disability with severe work restriction	0.98	25.5	16.4
Disability with moderate work restriction	0.62	15.9	9.2
Disability with no work restriction	0.42	10.1	5.3
No disability	0.35	8.5	4.5

have similar deprivation rates to individuals in the bottom quintile, although those in either of the two lowest quintiles experience markedly higher deprivation than those in the top three quintiles.

Indigenous people have very high rates of deprivation, while there is little difference between other native-born people and NESB immigrants. ESB immigrants have very low rates of deprivation. Finally, there is a very strong relationship between disability and deprivation, which is highest for individuals with a severe work restriction and lowest for individuals with no disability, although individuals with a disability that does not restrict work are almost indistinguishable from individuals with no disability.

Material deprivation and wellbeing

Table 8.4 compares several indicators of wellbeing for households identified as experiencing different degrees of deprivation severity: deprived of no items; deprived of one item; deprived of two items; and deprived of three or more items. The top row indicates a clear relationship between deprivation and income poverty; but equally, it is clear that many people in income poverty do not suffer material deprivation, and many deprived people are not classified as in income poverty. Specifically, 7.8% of those not deprived of any items are in income poverty, while 69.5% of those deprived of three or more items are *not* in income poverty.

There is perhaps a closer correspondence between deprivation and indicators of financial stress (see Box 8.1, page 88). The second row of Table 8.4 shows the mean number of indicators of financial stress is 0.2 for individuals who are not deprived of any items, and over eight times

higher, at 1.8 for individuals deprived of three or more items.

The bottom panel of Table 8.4 presents mean levels of a series of indicators of subjective wellbeing (see Box 8.2, below) by level of deprivation. The mean values of all of the indicators are ordered by the level of deprivation, being highest for the least-deprived and lowest for the most-deprived, so that there is a clear gradient linking deprivation and wellbeing. Mean overall life satisfaction, which is representative of each of the eight aspects of life, declines from 8.0 for those with no deprivation to 7.6 for individuals deprived of one item, 7.3 for individuals deprived of two items and 7.0 for individuals deprived of three or more items. Overall, these results are strong evidence that material deprivation matters a great deal to our happiness, and indeed to our wellbeing more broadly defined.

Further work is needed to understand the links between deprivation and poverty and how specific forms of deprivation are related to the different indicators of wellbeing. The results presented here reveal that these relationships are important and worthy of further study in order to better identify the factors that contribute to the experience of disadvantage and the consequences associated with it.

Box 8.1: Indicators of financial stress

Each wave, HILDA Survey respondents have been asked if, since the beginning of that year, because of a shortage of money they:

(1) Could not pay electricity, gas or telephone bills on time.

(2) Could not pay the mortgage or rent on time.

(3) Pawned or sold something.

(4) Went without meals.

(5) Were unable to heat the home.

(6) Asked for financial help from friends or family.

(7) Asked for help from welfare/community organisations.

In this report, two levels of financial stress are distinguished based on responses to this question: 0 or 1 of the above events occurred (little or no financial stress); and 2 or more of the above events occurred (significant financial stress).

Box 8.2: Measures of subjective wellbeing in the HILDA Survey

Each year, HILDA Survey respondents are asked in the personal interview to rate, on a 0–10 scale, their overall satisfaction with life. This information is used as a measure of subjective wellbeing, or 'happiness', in a large number of studies using the HILDA Survey data. The HILDA Survey does, however, collect a considerable number of other measures of subjective wellbeing that focus on specific aspects of life. Preceding the overall life satisfaction question each year are questions on level of satisfaction with eight aspects of respondents' lives: home; employment opportunities; financial situation; personal safety; community belonging; health; the local neighbourhood; and amount of free time. Moreover, various other questions capturing other dimensions of subjective wellbeing are included in the self-completion questionnaire, including satisfaction with various family relationships and assessments of financial prosperity.

Table 8.4: Measures of wellbeing by level of material deprivation, 2014

	Not deprived	*Deprived of 1 item*	*Deprived of 2 items*	*Deprived of 3 or more items*
Percentage in relative poverty	7.8	15.6	20.5	30.5
Mean number of indicators of financial stress	0.2	0.9	1.2	1.8
Percentage with 2 or more indicators of financial stress	4.6	19.6	25.6	37.5
Mean satisfaction with aspects of life (0–10 scale)				
Home	8.2	7.8	7.3	7.0
Employment opportunities	7.1	6.4	6.0	5.2
Financial situation	6.9	5.6	4.9	4.1
Safety	8.4	8.0	7.8	7.4
Feeling part of local community	7.0	6.3	6.0	5.7
Health	7.4	6.9	6.5	6.1
Neighbourhood	8.0	7.5	7.2	6.8
Amount of free time	6.9	6.6	6.5	6.1
Overall life satisfaction	8.0	7.6	7.3	7.0

9

Child health and child health care utilisation

While much of the HILDA Survey is concerned with the economic wellbeing of people, extensive information is also collected annually on the health and lifestyle behaviours of respondents. Periodically, additional information is collected on health status, health behaviours, health care use and private health insurance. Most notably, in Wave 9, a new 'health module' was included in the questionnaire with a view to repeating the module every four years. Consequently, in Wave 13, this module was repeated. Moreover, Wave 13 saw the inclusion of additional health-related content in the form of questions on physical activity (discussed in Chapter 11) and quantity and quality of sleep (discussed in Chapter 12).

In this chapter, we examine information on child health and child health care utilisation, first collected in Wave 9 and subsequently collected in Wave 13 as part of the health module.

Child health status

In 2009 and 2013, for each child in the household aged under 15, an adult member of the household—usually a parent—was asked whether the child's health was excellent, very good, good, fair or poor. Table 9.1 summarises the responses, disaggregated by age group of the child. For example, the table shows that in 2009, 62.3% of children aged under 5 were reported to be in excellent health, while 25.3% were reported to be in very good health, 10.1% in good health, 2.1% in fair health and 0.2% in poor health.

Overall, most children are reported to be in excellent or very good health. In 2009, reported health tended to be best for children aged under 5 and worst for children aged 10–14, but the differences are very slight. In 2013, there was no clear ordering of child health by age. However, reported health levels tended to be lower than in 2009. For example, in 2013, 54.4% of children were reported to be in excellent health, whereas in 2009, 60.6% of children were reported to be in excellent health. The reduction in reporting of excellent health in 2013 was mostly reflected in an increase in reporting of very good health, although there was some increase in reporting of good health.

Individual changes in child health between 2009 and 2013 are summarised in Table 9.2 by comparing the reported health of the child in 2009 with the reported health of the child in 2013. This information is not available for children aged 11–14 in 2009, since they were aged 15 and over in 2013. Consequently, the table examines only children aged 0–4 in 2009 (and hence aged 4–8 in 2013) and children aged 5–9 in 2009 (aged 9–13 in 2013).

The mean change in reported health was positive for both age groups, meaning that on average reported health improved. This is despite the cross-sectional evidence in Table 9.1 that reported health is on average lower for older children—highlighting the importance of longitudinal data. For approximately 18% of children, reported health deteriorated, while for approximately 28% of children aged 0–4 in 2009, and approximately 21% of children aged 5–9 in 2009, reported health improved.

Table 9.1: Child health as reported by parent or guardian, by age of child, 2009 and 2013 (%)

	Excellent	*Very good*	*Good*	*Fair*	*Poor*
2009					
Age of child					
0–4	62.3	25.3	10.1	2.1	*0.2
5–9	61.2	26.5	10.1	2.1	*0.1
10–14	58.2	28.5	10.8	2.4	*0.3
All aged under 15	60.6	26.7	10.3	2.2	*0.2
2013					
Age of child					
0–4	54.5	32.1	11.0	2.2	*0.3
5–9	53.6	32.1	12.2	2.0	*0.2
10–14	55.3	30.3	12.0	2.0	*0.5
All aged under 15	54.4	31.5	11.7	2.0	*0.3

Note: * Estimate not reliable.

Table 9.2: Changes in reported child health, 2009 to 2013

	Mean change	*Health deteriorated (%)*	*Health improved (%)*	*Health unchanged (%)*
Children aged 0–4 in 2009	0.120	17.8	27.7	54.5
Children aged 5–9 in 2009	0.036	18.6	21.2	60.2

Table 9.3: Time since last saw dentist, by age of child, 2009 and 2013 (%)

	0–6 months	*6–12 months*	*1–2 years*	*2–5 years*	*5 or more years, or never*
2009					
Age of child					
0–4	11.5	5.2	1.5	*0.6	81.2
5–9	48.1	22.9	13.1	3.5	12.5
10–14	48.0	28.0	14.5	7.2	2.3
All aged under 15	35.5	18.5	9.5	3.7	32.8
2013					
Age of child					
0–4	14.3	5.7	2.7	*0.3	77.1
5–9	50.9	24.2	8.4	3.2	13.4
10–14	47.7	29.3	12.5	5.6	4.8
All aged under 15	36.8	19.1	7.6	2.9	33.6

Note: * Estimate not reliable.

Health care utilisation by children

Information on various aspects of health care utilisation by children aged under 15 was collected by the HILDA Survey in 2009 and again in 2013. This included the length of time since each child last saw a dentist. Table 9.3 shows that 81.2% of children aged 0–4 had never been to the dentist in 2009, even though the Australian Dental Association (<http://www.ada.org.au>) recommends that a child's first visit to the dentist should take place at 12 months of age, or shortly after the eruption of the first baby teeth, and subsequent visits should take place every six months. Some improvement is evident in 2013, with the proportion of children aged 0–4 having never seen a dentist falling to 77.1%.

Among children aged 5–9, almost half had been to the dentist in the last six months in 2009 and slightly more than half had been to the dentist in the last six months in 2013. The proportion of children aged 10–14 who had seen a dentist in the last six months remained stable at approximately 48% in both 2009 and 2013.

Table 9.4 presents statistics on child visits to the family doctor or another General Practitioner (GP) over the 12 months prior to interview. The proportions of children in the 0–4 and 5–9 age groups seeing a GP remained stable between 2009 and 2013, with approximately 88% of children aged 0–4 seeing a GP and 81% of children aged 5–9 seeing a GP. Some decline in the proportion of children aged 10–14 seeing a GP is evident, however, falling from 73.3% in 2009 to 68.0% in 2013. Among those seeing a GP, the mean number of GP visits is highest for children aged 0–4 and lowest for children aged 10–14,

Table 9.4: Doctor (GP) visits by children aged under 15, 2009 and 2013

	Visited GP in last 12 months (%)	*Mean number of visits in last 12 months of those who visited a GP*	*Expense incurred for last visit (%)*	*Mean proportion of visits for which expense incurred (%)*
2009				
Age of child				
0–4	88.6	4.7	29.7	–
5–9	80.8	3.7	36.3	–
10–14	73.3	3.2	33.2	–
All aged under 15	81.0	3.9	32.9	–
2013				
Age of child				
0–4	88.1	4.7	25.3	21.0
5–9	80.8	3.7	23.2	17.7
10–14	68.0	3.1	27.2	23.2
All aged under 15	79.5	3.9	25.1	20.4

Table 9.5: Visits by children aged under 15 to non-GP medical practitioners and to hospital, 2009 and 2013

	Visited medical practitioner (%)	*Mean number of visits in last 12 months of those who visited a medical practitioner*	*Admitted to hospital (%)*	*Mean number of nights in hospital of those admitted to hospital*
2009				
Age of child				
0–4	34.5	4.1	12.0	7.3
5–9	32.1	3.4	8.4	2.7
10–14	31.4	4.1	5.4	3.2
All aged under 15	32.7	3.9	8.7	5.1
2013				
Age of child				
0–4	37.1	3.6	13.4	4.8
5–9	36.4	3.9	8.7	3.9
10–14	33.9	4.2	6.5	2.9
All aged under 15	35.9	3.9	9.7	4.2

with little change evident between 2009 and 2013.

Significantly, the proportion that reported incurring an out-of-pocket expense—that is, not being 'bulk-billed'—for the most recent GP visit declined considerably between 2009 and 2013. There consequently appears to have been a rise in bulk-billing of children. In 2013, additional information was collected on the proportion of GP visits for which an out-of-pocket expense was incurred. The mean proportion of visits incurring an expense is even lower than the proportion incurring an expense for the most recent visit, implying children who have cause to see a GP multiple times per year are more likely to be bulk-billed.

Visits to medical practitioners other than GPs and hospital admissions of children are examined in Table 9.5. Approximately one-third of children aged under 15 had seen a specialist or other non-GP medical practitioner, with younger children slightly more likely to have seen a practitioner than older children. The data indicate that the proportion of children seeing a non-GP medical practitioner increased between 2009 and 2013 by approximately 3 percentage points.

Rates of admission to hospital also appear to have increased slightly between 2009 and 2013. In 2009, the proportion admitted to hospital in the last 12 months rose from 12.0% to 13.4% for children aged 0–4, from 8.4% to 8.7% for children aged 5–9, and from 5.4% to 6.5% for children aged 10–14. However, the mean number of nights spent in hospital declined considerably for children aged 0–4 admitted to hospital, falling from 7.3 nights in 2009 to 4.8 nights in 2013. There was also a slight fall in the mean number of nights spent in hospital for children aged 10–14, from 3.2 nights to 2.9 nights, although the mean number of nights rose from 2.7 to 3.9 for children aged 5–9.

Determinants of child health and child health care utilisation

In this section, a brief analysis is undertaken of the economic and social determinants of both child health and aspects of child health care utilisation. In Table 9.6, regression results are presented for the determinants of six outcomes:

(1) health level on a scale from 1 (poor) to 5 (excellent);

(2) probability of being in poor or fair health;

(3) number of GP visits in the last 12 months;

(4) probability of having been admitted to hospital in the last 12 months;

(5) probability of not having seen a dentist within the last two years (for children aged 2 and over); and

(6) probability of incurring an expense for the most recent GP visit (for children who had seen a GP in the last 12 months).

The factors considered are the sex and age of the child, the equivalised income of the child's household, the characteristics of the region of residence, family structure and size, and educational attainment of the child's parents. In addition, the effects of the health of the child are considered in the models for health care utilisation (other than dental visits), and the role of the number of GP visits in the last 12 months is considered in the model of whether an expense was incurred for the most recent visit. Data from both Waves 9 and 13 are used to estimate the empirical associations.

Table 9.6: Factors associated with child health and child health care utilisation

	Outcome					
	(1) Health level	*(2) In poor or fair health*	*(3) Number of GP visits*	*(4) Admitted to hospital*	*(5) Not seen dentist in last 2 years*	*(6) Expense for last GP visit*
Male	–0.05	*ns*	*ns*	0.016	*ns*	*ns*
Age group (Reference category: 10–14)						
0–4	*ns*	*ns*	1.74	0.063	0.440	*ns*
5–9	*ns*	*ns*	0.73	0.024	0.090	*ns*
Income quintile (Reference category: Bottom quintile)						
2nd quintile	*ns*	*ns*	–0.41	*ns*	*ns*	0.136
Middle quintile	*ns*	*ns*	*ns*	*ns*	–0.050	0.155
4th quintile	0.11	*ns*	*ns*	*ns*	–0.090	0.208
Top quintile	0.16	*ns*	–0.98	*ns*	–0.148	0.243
Population density of region of residence (Reference category: Major urban)						
Other urban	0.05	*ns*	–0.85	*ns*	*ns*	0.165
Other region	0.17	*ns*	–1.20	–0.024	–0.049	0.056
SEIFA decile	0.03	–0.001	–0.10	*ns*	*ns*	0.038
Lone-parent family	*ns*	0.011	–0.37	*ns*	*ns*	*ns*
Number of children in household	0.03	–0.004	–0.32	–0.008	–0.011	*ns*
Mother: Bachelor's degree or higher	*ns*	*ns*	*ns*	*ns*	–0.031	*ns*
Father: Bachelor's degree or higher	–0.10	*ns*	*ns*	–0.035	*ns*	0.075
Wave 13 (2013)	–0.07	*ns*	*ns*	0.015	*ns*	–0.071
In poor or fair health	–	–	5.79	0.157	–	*ns*
Number of GP visits in last 12 months	–	–	–	–	–	*ns*
Constant	4.20	–	4.21	–	–	–
Number of observations	5,819	5,819	5,794	5,817	4,769	4,630

Notes: Models (1) and (3) are linear OLS models. All other models are Probit models and reported estimates are mean marginal effects. See the Technical Appendix for further details on regression models. The sample comprises all children aged under 15 in Wave 9 and Wave 13, with the exception that the sample for Model (5) excludes children aged under 2 and the sample for Model (6) excludes children who had not seen a GP in the last 12 months. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

Considering the roles played by each factor in turn, the estimates show the reported health of boys is, all else equal, 0.05 lower than the reported health of girls (where health is scored on a five-point scale from 1 for poor health to 5 for excellent health). Boys are, however, not significantly more likely to be reported to be in fair or poor health. No significant differences are evident between boys and girls in the number of GP visits, but boys have a 1.6 percentage-point higher probability of being admitted to hospital over a 12-month period. There are no significant differences between boys and girls in the probability of seeing a dentist over the last two years, and no significant differences in the probability of an expense being incurred for a GP visit.

Box 9.1: Classification of region of residence

There are various ways of characterising the region of residence of sample members. In this report, we primarily characterise regions by population density, classifying households into three categories: **major urban** (cities with populations of 100,000 or more); **other urban** (towns and cities with populations of 1,000 to 99,999); and **other regions** (towns with populations less than 1,000, and rural and remote areas).

The age of the child is not a significant predictor of the health of the child, nor whether an expense was incurred for the most recent GP visit. However, the number of GP visits is decreasing with the age of a child: all else equal, a child aged 0–4 has 1.7 more visits to the GP per year than a child aged 10–14, and a child aged 5–9 has 0.7 more visits than a child aged 10–14. Consistent with the findings in Table 9.5, the probability of admission to hospital is also strongly related to the age of the child. A child aged 0–4 has a 6.3 percentage-point higher probability of admission to hospital than a child aged 10–14, and a child aged 5–9 has a 2.4 percentage-point higher probability than a child aged 10–14. By contrast, the probability of not having seen a dentist in the last two years is highest for children aged 0–4 and lowest for children aged 10–14.

Significant effects of household income are evident for the reported health of the child, the number of GP visits, the probability of not

Box 9.2: Socio-Economic Index for Areas (SEIFA)

Constructed by the Australian Bureau of Statistics (ABS) using Census data, SEIFA is a suite of four indexes that can be used to explore different aspects of socio-economic conditions by geographic areas. For each index, every geographic area in Australia is given a SEIFA number which shows how disadvantaged that area is compared with other areas in Australia. In analysis presented in this report, the SEIFA index used is the *Index of Relative Socio-Economic Advantage and Disadvantage*, which is derived from Census variables such as low income, low educational attainment, unemployment, and dwellings without motor vehicles. For more information, see ABS (2009).

having seen a dentist in the last two years and the probability of having incurred an expense for the most recent GP visit. Reported health levels are highest for children in households in the top income quintile, and second-highest for children in the fourth (second-highest) quintile, while there are no significant differences among children in the bottom three income quintiles. All else equal, children in the top income quintile also have the least number of GP visits. Curiously, however, children in the second income quintile also have a relatively low number of GP visits. Both the probability of not seeing a dentist in the last two years and the probability of incurring an expense for the most recent GP visit are strongly ordered by position in the income distribution.

Population density of the region of residence (see Box 9.1, page 93) is negatively associated with reported health, with children living in non-urban areas having the highest reported health, all else equal. The number of GP visits is highest for children living in major urban areas and lowest for children living in non-urban areas, who are also less likely to be admitted to hospital than children living in urban areas. Children living in non-urban areas are, however, considerably more likely to have seen a dentist in the last two years than children living in major urban or other urban areas. Other factors equal, an expense is least likely to have been incurred for a GP visit for children living in major urban areas, followed by children living in non-urban areas. Living in a more socio-economically advantaged area, as measured by SEIFA decile (see Box 9.2, above), is associated with better reported health and fewer GP visits, but a higher likelihood of incurring an expense for a GP visit.

Reported health is on average not significantly different for children living in lone-parent families and children living in couple families, but the probability of poor or fair health is higher for children in lone-parent families. Children in lone-parent families also have fewer GP visits, other factors held constant, but there are no significant differences by family type for the other health care outcomes. All else equal, the reported health of a child is better, and the number of GP visits lower, the more siblings the child has. The probabilities of hospital admission, seeing a dentist and being bulk-billed do not differ significantly by number of siblings.

Parental education is associated with only a few significant effects on health and health care outcomes. Children with a university-qualified mother are more likely to have seen a dentist in the last two years, while children of university-educated fathers have slightly worse reported health, a lower probability of hospital admission and a higher probability of an expense being incurred for the most recent GP visit.

Consistent with the cross-tabulations in Tables 9.1, 9.4 and 9.5, reported child health was slightly lower in 2013 than in 2009, while hospital admissions and the rate of bulk-billing were both higher in 2013. Unsurprisingly, children reported to be in fair or poor health have considerably more GP visits than other children and a much higher probability of hospital admission over the last 12 months. These children are, however, no more likely to be bulk-billed for the most recent GP visit than other children. Indeed, there is also no significant association between number of GP visits and likelihood of bulk-billing for the most recent GP visit.

10 Private health insurance

The private health insurance market in Australia is heavily influenced by government policy. Insurance providers are not permitted to offer insurance for certain types of health care, such as GP consultations, restricting the insurance market to essentially hospital expenses (excluding fees incurred from medical practitioners for treatment received in hospital) and certain 'extras', largely comprising dental care and a variety of allied and alternative health care services (delivered outside of hospital). Prices are heavily regulated, as are the 'inclusions' and 'exclusions' of insurance policies. The maintenance of a public hospital system with few user charges alongside a private hospital system funded through private health insurance also profoundly impacts on the nature of the health insurance market. Finally, there are various 'carrots' and 'sticks' to encourage people to take up private health insurance, including a subsidy of health insurance premiums (*Private Health Insurance Rebate*), an income tax surcharge for high income earners without hospital cover (*Medicare Levy Surcharge*) and a mandated 2% increase in insurance premiums for every year after the age of 30 that a person did not hold hospital cover, up to a maximum of 70% (*Lifetime Health Cover*).

Given the complex context within which the private health insurance market operates in Australia and the major role of government policy, it is important for policy-makers to understand who holds private health insurance and the determinants of households' health insurance decisions, and also how private health insurance impacts on families' health and financial circumstances.

In every wave since Wave 5, the HILDA Survey has obtained total household expenditure on private health insurance. In addition, information on the members of the household covered by private health insurance and the type of health insurance held has been collected in Waves 4, 9 and 13. Combined with the detailed information on household members' health, economic wellbeing and family circumstances, the information on health insurance makes the HILDA Survey a valuable resource for policy in respect of the private health insurance market.

In this chapter, a brief overview is provided of what the HILDA Survey data tell us about levels and trends in private health insurance coverage, expenditure on private health insurance, and the types of private health insurance policies held by individuals.

Household private health insurance coverage

Table 10.1 uses the annually-collected data on household health insurance expenditure to show the percentage of households, and the percentage of each of seven household types, with expenditure on private health insurance. In 2005, 54.1% of households had some form of private health insurance and by 2014 the proportion with insurance had risen to 60.4%. There are considerable differences in the proportion of households with private health insurance across the household types distinguished in the table, ranging in 2014 from 40.4% of lone-parent households to 71.4% of elderly-couple

Table 10.1: Proportion of households with private health insurance, by household type, 2005 to 2014 (%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Change 2005–2014
Household type											
Non-elderly couple	65.0	65.5	66.2	66.9	66.4	68.1	68.4	67.2	67.9	68.0	3.0
Couple with children	60.4	62.9	62.2	65.6	65.2	65.8	65.4	65.5	66.4	65.9	5.5
Lone parent	33.0	34.7	36.8	39.4	38.0	38.7	36.9	40.8	42.0	40.4	7.4
Lone person	41.0	43.7	45.6	47.9	47.2	47.8	50.0	51.4	50.6	51.0	10.1
Elderly couple	62.1	63.8	63.3	65.7	68.0	67.1	69.8	69.6	69.4	71.4	9.3
Elderly person	44.2	43.8	42.2	45.1	46.0	46.9	48.5	49.7	50.1	50.8	6.5
Other household type	46.2	41.4	37.3	40.0	36.4	36.9	51.8	45.8	44.6	55.8	9.5
All households	54.1	55.4	55.4	58.1	57.6	58.3	59.3	59.6	59.9	60.4	6.4
Proportion of individuals in households with private health insurance	55.6	57.1	57.3	59.8	59.1	59.6	60.3	60.5	60.7	61.6	6.0

Table 10.2: Proportion of households with private health insurance, by income quintile, 2005 to 2014 (%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Change 2005–2014
Income quintile											
Bottom quintile	31.2	29.5	29.7	31.6	33.6	33.7	32.6	35.5	34.8	33.3	2.1
2nd quintile	35.9	41.5	39.7	45.4	44.4	44.4	46.8	45.1	46.4	47.1	11.1
Middle quintile	52.1	53.9	55.5	55.7	53.5	55.9	57.7	56.9	58.8	59.8	7.7
4th quintile	66.0	65.9	68.0	69.7	68.5	71.5	71.6	71.7	71.7	75.2	9.2
Top quintile	84.0	85.1	85.6	87.2	87.7	86.6	87.8	87.0	88.8	87.9	3.9

Note: Income quintiles are based on the distribution of equivalised household income across individuals.

households. All household types experienced growth in private health insurance coverage, but growth was strongest for lone-person, elderly-couple and 'other' households. Growth was weakest for non-elderly couples and couples with dependent children.

The table also reports the proportion of *individuals* with household expenditure on private health insurance. These estimates will, however, overstate private health insurance cover because in some households not all members will be covered by the insurance. This notwithstanding, the estimates show that the proportion of individuals in households with private health insurance rose from 55.6% in 2005 to 61.6% in 2014.

Table 10.2 compares household private health insurance coverage between 2005 and 2014 across quintiles of the income distribution. In all years, the proportion of households with insurance is increasing in income quintile. For example, the proportion of households with private health insurance in 2014 was 33.3% for the bottom quintile, 47.1% for the second quintile, 59.8% for the middle quintile, 75.2% for the fourth quintile, and 87.9% for the top quintile. Growth in coverage between 2005 and 2014 differed somewhat by income quintile. The bottom and top quintiles had the least growth, while the middle three quintiles all experienced growth of at least 7.7 percentage points.

An alternative perspective on how private health insurance varies by economic wellbeing is presented in Table 10.3, which shows the proportion of households in each

Table 10.3: Proportion of households with private health insurance, by wealth quintile, 2006 to 2014 (%)

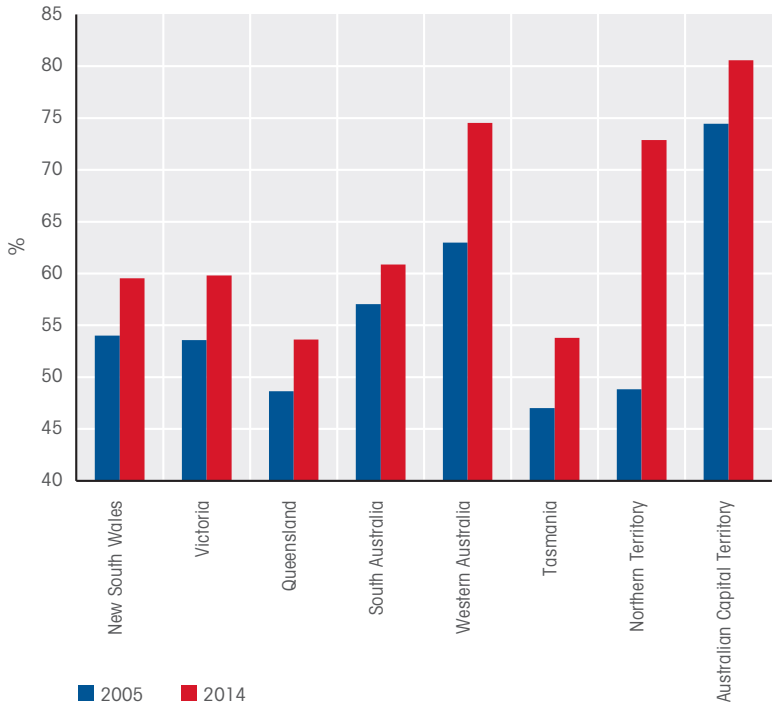
	2006	2010	2014	Change
Wealth quintile				
Bottom quintile	19.8	22.8	24.4	4.6
2nd quintile	37.5	42.9	50.1	12.5
Middle quintile	54.9	58.5	56.5	1.6
4th quintile	70.8	71.9	73.7	3.0
Top quintile	85.8	87.4	88.9	3.1

Note: Wealth quintiles are based on the distribution of household wealth across households.

wealth quintile in 2006, 2010 and 2014. There is a strong ordering of private health insurance coverage by wealth quintile, which is perhaps even stronger than is evident for income. Patterns in growth in private health insurance cover by wealth quintile are, however, somewhat different to patterns in growth by income quintile. While growth was largest for the second wealth quintile (which was also the case for the second income quintile), the next-highest growth was experienced by households in the bottom wealth quintile, whereas the bottom income quintile experienced the least growth.

In Figure 10.1, we see that private health insurance cover differs considerably across the states and territories, in 2014 ranging from a low of 54% in Tasmania to a high of 81% in the Australian Capital Territory. All states and territories have experienced growth in coverage between 2005 and 2014, but there are also substantial differences here. Coverage in the Northern Territory increased from 49% to 73%, whereas in South Australia it only increased from 57% to 61%.

Figure 10.1: Proportion of households with private health insurance, by state



Household expenditure on private health insurance

Annual increases in private health insurance premiums receive considerable media attention, having for many years now exceeded the rate of inflation. Table 10.4 shows how these increases have translated into households' mean annual expenditure on private health insurance between 2006 and 2014.[1] The table shows that, among households with private health insurance, real expenditure on health insurance indeed increased considerably between 2006 and 2014. Among all households with insurance, mean annual expenditure rose from $1,869 (at December 2014 prices) in 2006 to $2,237 in 2014, a 19.7% real increase.[2]

Given the increase between 2006 and 2014 in the proportion of households with private health insurance (reported in Table 10.1), the increase in *total* household expenditure on private health insurance was even higher than 19.7%. Specifically, evaluated over all households (including households with zero expenditure), mean household expenditure on health insurance was $1,011 in 2006 and $1,351 in 2014, a 33.6% increase. That is, the HILDA Survey data indicate that, in real terms, total household expenditure on private health insurance increased by over one-third between 2006 and 2014.

The Australian Government Department of Health reports industry-weighted annual increases in health insurance premiums for each year since 2010.[3] The reported increases, which apply from 1 April each year, imply that, between 2009

1 In principle, households should report expenditure on private health insurance net of the Private Health Insurance Rebate—that is, the out-of-pocket expense they incur. However, it is possible that some respondents report expenditure before deduction of the rebate.

2 The actual or nominal mean expenditure in 2006 was $1,520, so the nominal increase (not adjusted for inflation) was 47%.

3 See <http://www.health.gov.au/internet/main/publishing.nsf/Content/privatehealth-summary-premiumincreases>.

Table 10.4: Mean household expenditure on private health insurance of households with insurance, by household type, 2006 to 2014 ($, December 2014 prices)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	Percentage change 2006–2014
Household type										
Non-elderly couple	1,905	1,906	2,075	2,007	2,013	1,902	2,002	2,023	2,227	16.9
Couple with children	2,158	2,146	2,282	2,236	2,744	2,305	2,437	2,523	2,615	21.2
Lone parent	1,452	1,616	1,532	1,980	1,477	1,599	1,503	1,597	1,733	19.4
Non-elderly single person	1,200	1,180	1,105	1,167	1,219	1,234	1,224	1,366	1,351	12.6
Elderly couple	2,011	2,094	2,218	2,320	2,343	2,398	2,526	2,548	2,651	31.8
Elderly person	1,394	2,232	1,381	1,388	1,360	1,590	1,442	1,556	1,564	12.2
Other household type	1,434	1,595	1,165	1,702	1,198	1,680	1,361	1,360	1,627	13.5
All households	1,869	1,944	1,972	2,004	2,167	2,007	2,064	2,129	2,237	19.7

Table 10.5: Mean share of household income spent on private health insurance of households with insurance, by household type, 2006 to 2014 (%)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	Change 2006–2014
Household type										
Non-elderly couple	2.34	2.17	2.22	2.12	2.01	2.04	2.01	2.20	2.32	–0.02
Couple with children	2.10	1.99	2.03	1.90	2.09	2.01	1.99	2.04	2.11	0.01
Lone parent	2.18	2.15	2.08	2.66	1.94	2.25	1.92	1.98	2.25	0.07
Lone person	2.60	2.60	3.15	2.30	2.26	2.45	2.68	2.63	2.68	0.08
Elderly couple	4.19	4.33	4.60	4.89	4.71	4.56	5.12	4.73	4.79	0.60
Elderly person	5.38	5.83	6.24	6.51	5.73	5.71	5.50	5.71	5.78	0.40
Other household type	1.52	1.81	1.41	1.97	1.34	1.94	1.15	1.03	1.44	–0.08
All households	2.42	2.37	2.47	2.45	2.43	2.44	2.44	2.44	2.57	0.15

and 2014, the mean real increase in health insurance premiums was 15.5%. Over this period, mean household expenditure on private health insurance among those with insurance rose 11.6% in real terms, which is somewhat lower than the mean premium increase. This is despite the introduction of means testing of the Private Health Insurance Rebate from 1 July 2012, which would have acted to increase premiums for a number of households. It would therefore appear that the composition of policies held by households shifted between 2006 and 2014 towards lower-cost policies with lower benefits.

Comparing across household types, mean expenditure is higher in larger households. Growth in mean expenditure between 2006 and 2014 varies somewhat across household types, increasing by 31.8% among elderly couples with insurance, but only 12.2% among elderly single-person households with insurance and 12.6% among non-elderly single-person households with insurance.

In assessing the implications of changes in private health insurance expenditure it is useful to examine how expenditure has changed in relation to incomes—that is, the share of each household's disposable income spent on private health insurance. Table 10.5 reports, for households with private health insurance, the mean share of household income spent on insurance in each year from 2006 to 2014. As in Table 10.4, estimates are presented for all households and for each household type.

Among households with insurance, the mean share of income spent on insurance rose from 2.42% in 2006 to 2.57% in 2014, a significant but not alarming rise. There are, however, considerable differences across household types, with elderly people in particular spending a high proportion of their income on health insurance and experiencing the greatest growth between 2006 and 2014. In 2006, health insurance accounted for 4.19% of elderly couples' income and 5.38% of elderly singles' income; in 2014, these income shares had respectively risen to 4.79% and 5.78%.

Private health insurance cover of individuals

The preceding analysis has focused on household-level measures of private health insurance coverage and expenditure. In this section, the information on individuals' private health insurance coverage obtained in Waves 4, 9 and 13 is used to examine the type of cover held and the characteristics of people who hold cover.

Table 10.6 shows the proportion of individuals aged 15 and over covered by each of three broad policy types: hospital and extras cover; hospital-only cover; and extras-only cover. The proportion with both hospital and extras cover rose from 37.2% in 2004 to 44.5% in 2013, while the proportion with hospital-only cover declined from 9.2% to 6.4%, and the proportion with extras-only cover rose slightly from 3.5% to 4.2%. The total proportion with hospital cover rose from 46.4% to 50.9%.

Rates of private hospital cover of individuals aged 15 and over are examined by family type in Table 10.7. Irrespective of age, rates of coverage are considerably higher for people in couple families than for single people or people in lone-parent families. In 2013, private hospital cover was held by 59.8% of elderly couples, 58.7% of non-elderly couples without children, and 56.0% of individuals in couple

Table 10.6: Proportion of individuals aged 15 and over with each type of private health insurance cover, 2004 to 2013 (%)

	Hospital and extras	*Hospital only*	*Extras only*
2004	37.2	9.2	3.5
2009	42.4	6.9	3.9
2013	44.5	6.4	4.2

Table 10.7: Proportion of individuals aged 15 and over with private hospital cover, by family type, 2004 to 2013 (%)

	2004	*2009*	*2013*	*Change 2004–2013*
Family type				
Non-elderly couple	53.1	57.8	58.7	5.6
Couple with dependent children	53.1	53.6	56.0	2.9
Lone parent	24.6	28.1	31.4	6.8
Non-elderly single male	32.1	36.6	37.0	4.9
Non-elderly single female	40.8	42.8	43.3	2.5
Elderly couple	53.6	58.0	59.8	6.2
Single elderly man	25.5	31.8	36.0	10.5
Single elderly woman	35.1	37.1	42.3	7.2

Table 10.8: Proportion of individuals aged 15 and over with private hospital cover, by income quintile, 2004 to 2013 (%)

	2004	*2009*	*2013*	*Change 2004–2013*
Income quintile				
Bottom quintile	24.1	26.4	27.2	3.1
2nd quintile	34.3	32.6	32.7	–1.6
Middle quintile	43.7	47.0	47.1	3.4
4th quintile	55.4	58.4	61.1	5.7
Top quintile	70.6	78.3	83.0	12.4

families with dependent children. By contrast, hospital cover was held by only 31.4% of people in lone-parent families, 37.0% of non-elderly single males, 43.3% of non-elderly single females, 36.0% of single elderly men and 42.3% of single elderly women. The differences between single men and women, which show women with rates of coverage approximately 6 percentage points higher than men, suggest that women are more inclined to purchase private hospital cover than men.

Between 2004 and 2013, some degree of 'catch-up' between elderly singles and elderly couples is evident, with the rate of coverage increasing by 10.5 percentage points for single elderly men and by 7.2 percentage points for single elderly women, compared with a 6.2 percentage-point increase for elderly couples. Growth in private hospital cover was also greater among individuals in lone-parent families than among individuals in couple families with dependent children. However, growth in the proportion with hospital cover was relatively low for non-elderly single people, particularly non-elderly single females, among whom cover increased by 2.5 percentage points.

Table 10.8 shows that income is a strong predictor of private hospital cover and that the association strengthened between 2004 and 2013. In 2004, private hospital cover was held by 24.1% of people in the bottom quintile, 34.3% of people in the second quintile, 43.7% of people in the middle quintile, 55.4% of people in the fourth quintile, and 70.6% of people in the top quintile. The strongest growth in private hospital cover between 2004 and 2013 was in the top quintile, followed by the fourth quintile and then the middle quintile. The proportion of the bottom quintile with hospital cover increased almost as much as for the middle quintile, but the proportion of the second quintile with private hospital cover actually decreased by 1.6 percentage points between 2004 and 2013.

11

Levels of physical activity

Prior to Wave 13, the HILDA Survey collected very little information on individuals' levels of physical activity, despite its importance as a public health issue. The only direct information on physical activity came from a single question in the self-completion questionnaire, included in every wave, on the frequency of participation in moderate or intensive physical activity of at least 30 minutes. Consequently, in Wave 13, additional questions on physical activity were included in the personal interview. The questions were drawn from the International Physical Activity Questionnaire (IPAQ), a self-reported measure of physical activity that is designed to cover activity that occurs in all domains of life.[1]

The short-form of IPAQ implemented in the HILDA Survey measures the number of occasions per week, and the length of time per occasion, spent doing each of three types of physical activity: walking; moderate-intensity activity, such as carrying light loads, gentle swimming, cycling at a moderate pace and social tennis; and vigorous-intensity activity, such as heavy lifting, digging, jogging, aerobics and fast cycling. From this information, various measures of physical activity can be constructed, including 'metabolic equivalent' (MET) minutes per week. One MET-minute is defined as the amount of oxygen consumed in one minute while sitting at rest (Jette et al., 1990). Based on the IPAQ recommendations, in turn based on Craig et al. (2003), MET-minutes are derived by multiplying total walking time by 3.3, multiplying total time spent doing moderate-intensity activity by 4 and multiplying total time spent doing vigorous-intensity activity by 8; total MET-minutes is equal to the sum of these three quantities.

The IPAQ information can also be used to classify individuals into three activity levels:

(1) high—vigorous activity on at least three days and achieving at least 1,500 MET-minutes per week, or any combination of the three activity types achieving at least 3,000 MET-minutes per week;

(2) moderate—three or more days of vigorous activity of at least 20 minutes per day, or five or more days of moderate activity and walking of at least 30 minutes per day, or five or more days of any combination of the three activity types achieving at least 600 MET-minutes per week; and

(3) low—any individual who does not meet any of the criteria recommended above.

Physical activity levels of the Australian population

Table 11.1 presents the mean reported amount of time spent per week on each activity type and total MET-minutes disaggregated by sex and age group. It shows the mean

[1] See Wooden (2014) for details on the HILDA Survey development and implementation of the IPAQ questions for the HILDA Survey, and the derivation of measures of activity levels from the HILDA Survey data.

Table 11.1: Mean level of each type of activity, by sex and age group, 2013

	15–24	*25–34*	*35–44*	*45–54*	*55–64*	*65–74*	*75 and over*
Vigorous activity (minutes per week)							
Males	231.4	209.0	174.1	168.9	136.5	91.5	55.2
Females	124.4	102.3	85.0	77.6	70.0	46.5	27.4
Moderate activity (minutes per week)							
Males	206.3	203.9	209.4	213.3	195.0	199.4	176.3
Females	124.0	156.4	139.5	137.5	158.9	159.9	99.4
Walking (minutes per week)							
Males	313.1	313.3	280.8	275.2	236.3	238.8	164.9
Females	273.9	281.7	254.6	255.3	230.6	194.1	140.5
MET-minutes per week							
Males	3,720.0	3,521.4	3,137.2	3,109.3	2,646.5	2,304.6	1,698.1
Females	2,353.0	2,363.7	2,068.7	2,014.9	1,952.6	1,650.5	1,081.7

Table 11.2: Distribution of activity level, by sex and age, 2013 (%)

	15–24	*25–34*	*35–44*	*45–54*	*55–64*	*65–74*	*75 and over*
Males							
Low activity level	17.0	18.8	26.9	28.4	31.9	34.0	45.1
Moderate activity level	26.1	31.0	29.0	27.8	34.9	36.9	34.7
High activity level	56.9	50.2	44.1	43.7	33.2	29.1	20.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Females							
Low activity level	25.4	26.3	36.2	37.3	38.7	42.8	60.0
Moderate activity level	36.5	37.6	35.1	33.2	37.8	38.6	29.6
High activity level	38.1	36.1	28.7	29.5	23.5	18.7	10.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

time spent engaged in vigorous activity is higher for males than females and is decreasing in age. Mean time spent engaged in moderate activity is also higher for males than females, but has a much weaker association with age for both males and females. For males, the mean time engaged in moderate activity is similar across all age groups except those aged 75 and over, who on average spend somewhat less time engaged in moderate activities. For females, there is more variation in moderate activity levels across the age groups, with women aged 25–34 and 55–74 having the highest levels of moderate activity.

Both males and females in all age groups on average spend more time walking each week than engaging in vigorous activities or moderate activities (although, for males, total time engaged in vigorous and moderate activity is greater than time spent walking in all age groups). Again, in all age groups, males on average report more time engaged in this activity than females report.

Overall activity levels, as measured by MET-minutes, exhibit similar patterns as vigorous activity levels. Mean MET-minutes are higher for males than females, and are decreasing in age, with the minor exception that women aged 25–34 average slightly higher MET-minutes than females aged 15–24.

Table 11.2 provides information on the distribution of activity levels within each sex-by-age group, showing the proportion of individuals classified as having low, moderate and high activity levels. In general, differences across sex and age groups are in accord with the mean MET-minutes presented in Table 11.1. That said, low activity

levels are relatively common in all sex-by-age groups, ranging from 17.0% of males aged 15–24 to 60.0% of women aged 75 and over. High activity levels are most likely to be achieved by males aged 15–54, and particularly males aged 15–24.

Characteristics and behaviour associated with level of physical activity

Tables 11.1 and 11.2 show that sex and age are important factors in determining an individual's level of physical activity. In this section, a more detailed examination of the association between personal characteristics and activity level is undertaken. Table 11.3 reports coefficient estimates from regression models of the determinants of the physical activity level of individuals, as measured by MET-minutes per week. Models are estimated separately for males and females to allow for differences between them in the determinants of activity level.

Controlling for the effects of other characteristics, the only significant difference in physical activity level by age for females is that women aged 75 and over have lower levels than younger women. For males, there are no significant differences between those aged 15–24, those aged 25–34 and those aged 35–44, while men in the 45–54, 55–64 and 65–74 age groups have similarly lower activity levels than younger males. Like women, men aged 75 and over have the lowest activity levels, all else equal.

Population density of region of residence is negatively associated with activity level for both males and females. That is, people living in non-urban areas have significantly higher activity levels than people in urban areas, and people in non-major urban areas have significantly

Box 11.1: Time spent on paid and unpaid work

Although weekly hours of paid work are collected in the personal interview each wave, the measures of time spent on paid work and on unpaid work used in this chapter are based on responses provided in the self-completion questionnaire. Each wave, respondents are asked to report the time typically spent each week on each of the following activities:

(1) Paid employment.

(2) Travelling to and from a place of paid employment.

(3) Household errands, such as shopping, banking, paying bills, and keeping financial records.

(4) Housework, such as preparing meals, washing dishes, cleaning house, washing clothes, ironing and sewing.

(5) Outdoor tasks, including home maintenance (repairs, improvements, painting, etc.), car maintenance or repairs and gardening.

(6) Playing with their children, helping them with personal care, teaching, coaching or actively supervising them, or getting them to child care, school and other activities.

(7) Looking after other people's children (aged under 12 years) on a regular, unpaid basis.

(8) Volunteer or charity work (for example, canteen work at the local school, unpaid work for a community club or organisation).

(9) Caring for a disabled spouse or child or disabled adult relative, or caring for elderly parents or parents-in-law.

The measure of time spent in paid work used in this chapter is the total of items 1 and 2, while the measure of time spent in unpaid work is the total of items 3 to 9. Some components of items 3 to 9 could be considered by respondents to be leisure activities rather than work. For example, many people enjoy shopping, gardening, playing with their children, and so on. That said, many people enjoy at least some of their time spent in paid work, so it is not unreasonable for unpaid work to include some enjoyable (leisure) activities.

Table 11.3: Factors associated with level of physical activity (MET-minutes per week)—Persons aged 15 and over, 2013

	Males	*Females*
Age group (Reference category: Less than 25)		
25–34	*ns*	*ns*
35–44	*ns*	*ns*
45–54	–517.6	*ns*
55–64	–531.1	*ns*
65–74	–419.3	*ns*
75 and over	–708.1	–473.8
Population density of region of residence (Reference category: Major urban)		
Other urban	339.2	352.9
Other region	658.0	546.0
Partnered	*ns*	–301.3
Partnered with children aged under 15	*ns*	*ns*
Lone parent with children aged under 15	*ns*	*ns*
Educational attainment (Reference category: No post-school qualifications)		
Bachelor's degree or higher	–848.2	*ns*
Other post-school qualification	*ns*	*ns*
Employed	*ns*	*ns*
Hours of paid work	8.8	10.4
Hours of unpaid work	18.8	9.1
Occupation (Reference category: Managers)		
Professionals	–291.2	*ns*
Technicians and trades workers	1,592.3	*ns*
Community and personal service workers	*ns*	595.1
Clerical and administrative workers	–845.3	–381.8
Sales workers	*ns*	*ns*
Machinery operators and drivers	*ns*	*ns*
Labourers	1,592.5	1,137.5
Body Mass Index: Extent to which above 'normal'	*ns*	*ns*
Body Mass Index: Extent to which below 'normal'	–579.2	*ns*
Waist-to-height ratio	–4,831.3	–2,717.7
SF–36 mental health	*ns*	*ns*
SF–36 general health	25.3	12.4
Disability with moderate or severe work restriction	*ns*	–174.8
Alcohol consumption (Reference category: 10 or fewer drinks per week)		
11–14 drinks per week	*ns*	167.0
15–28 drinks per week	440.2	*ns*
29–42 drinks per week	556.0	–520.1
43 or more drinks per week	*ns*	*ns*
Regular smoker	392.6	*ns*
Constant	3,118.7	2,198.5
Number of observations	5,474	5,506

Notes: Table reports coefficient estimates from OLS regression models of the determinants of the level of physical activity as measured by the number of MET-minutes per week. See the Technical Appendix for further details on regression models. Sample comprises all persons aged 15 and over in 2013. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

higher activity levels than people in major urban areas.

Partner status and the presence of dependent children do not impact on male activity levels, but partnered women have lower activity levels than single women, all else equal. University-qualified males have lower activity levels than less-educated males, while there are no significant differences in activity levels by educational attainment for females.

Positive associations between hours of paid work and activity level and between hours of unpaid work (see Box 11.1, page 103) and activity level are evident for both males and females. The effects associated with unpaid work are twice as large as the effects of paid work for males, while for females the magnitude of the effects of the two types of work is approximately the same. Among employed people, clerical and administrative workers have the lowest activity levels, while labourers and related workers, and male technicians and trades workers, have the highest activity levels.

Two variables are included in the models for Body Mass Index (BMI), a measure of body fat (see Box 11.2, opposite). The first variable measures the extent to which a person is underweight—equal to 18.5 minus BMI if BMI is less than 18.5, and equal to 0 otherwise. The second variable measures the extent to which a person is overweight—equal to BMI minus 25 if BMI is greater than 25, and equal to 0 otherwise. BMI appears to have no (independent) relationship with female activity levels, while for males there is no relationship between being overweight and activity level; although there is a strong negative effect associated with being underweight.

An alternative measure to BMI is the waist-to-height ratio, which in Table 11.3 exhibits a very strong (negative) association with activity level for both males and females.

Thus, the HILDA Survey data show a high waist-to-height ratio to be a much better marker of low activity levels than a high BMI.

Unsurprisingly, there is a positive association between general health and physical activity. There is no significant association between mental health and activity level for males or females. Somewhat surprisingly, a moderate or severe disability has no significant association with physical activity level for males, although it does have a negative association for females.

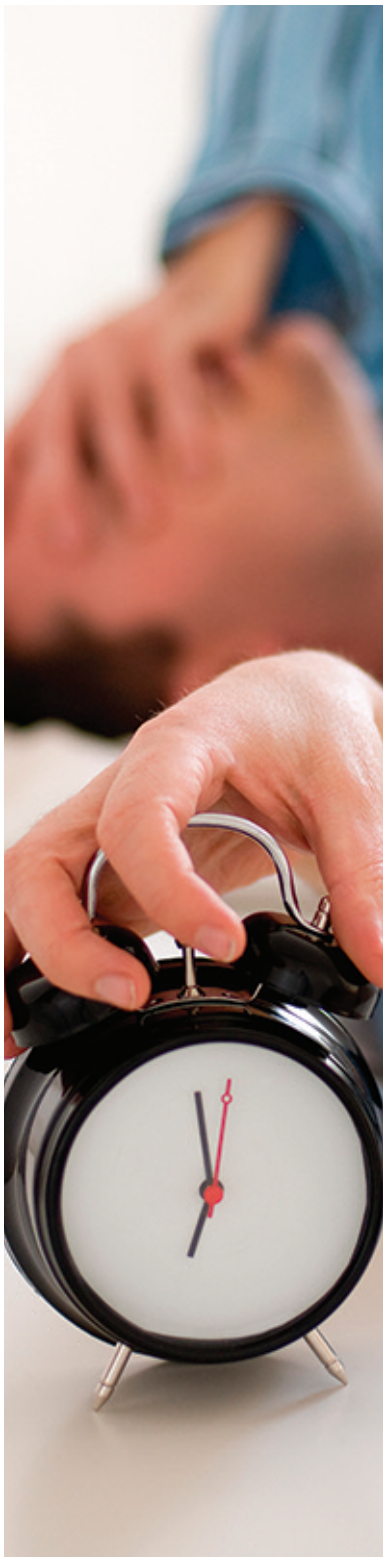
Relatively high alcohol consumption (15–42 drinks per week) is, for males, positively associated with activity level. For females, moderate alcohol consumption (11–14 drinks per week) is associated with higher activity levels than consumption of 10 or fewer drinks per week, while consumption of 29–42 drinks per week is associated with lower activity. Both males and females who consume 43 or more drinks per week do not have significantly different activity levels than those who consume 10 or fewer drinks per week. Being a smoker is not associated with any effects on activity levels for females, while for males it is, surprisingly, associated with a higher activity level than that of non-smokers.

Box 11.2: Body Mass Index (BMI) and waist-to-height ratio

BMI is a crude measure of body fat. It is calculated by dividing weight (in kilograms) by height (in metres) squared. Height and weight have been collected by the HILDA Survey every wave since Wave 6. A person is classified as 'underweight' if BMI is less than 18.5, 'normal weight' if BMI is at least 18.5 but less than 25, 'overweight' if BMI is at least 25 but less than 30 and 'obese' if BMI is 30 or higher. BMI takes no account of body composition (for example, muscle mass), and is therefore not regarded as a reliable measure of body fat for individuals, but it is regarded as a useful measure for population groups.

The waist-to-height ratio is, as the name suggests, the ratio of an individual's waist circumference to the individual's height. It provides a measure of abdominal fat. Waist circumference was collected in Wave 13, with respondents given a purpose-designed tape measure with which to measure themselves. The 'general healthy cut-off' for the waist-to-height ratio is 0.5, with higher values indicating an elevated risk of obesity-related cardiovascular diseases (Browning et al., 2010).

12 Quantity and quality of sleep



Problems with sleep, including too little or too much sleep, are known to be associated with a number of health problems. However, to date there has been no large-scale nationally representative data on sleeping patterns and problems of the Australian population. Addressing this gap, as part of the health focus in Wave 13, new questions were included on both the quantity and quality of sleep. This provides Australia with new estimates of the prevalence and demographic incidence of sleep problems, and will potentially facilitate future research into the causes and consequences of sleep problems.

Quantity of sleep

Quantity of sleep was ascertained by the HILDA Survey using separate question sequences for employed and non-employed respondents. Employed respondents were asked to report their usual hours of sleep on a workday and their usual hours of sleep on a non-work day. Weekly hours of sleep were then calculated by the HILDA Survey data managers based on the number of days per week the respondent usually worked. Non-employed people were asked to report usual daily hours of sleep on weekdays and usual daily hours of sleep on weekends. Weekly sleep was then calculated by multiplying weekday sleep by five and weekend sleep by two. In addition, both employed and non-employed respondents were asked about weekly sleep from naps, which was added to total weekly sleep. Daily hours of sleep were then obtained by dividing total weekly hours of sleep by seven.

Table 12.1 presents mean reported daily hours of sleep by sex and age group. It shows that the Australian population aged 15 and over average 7.2 hours of sleep per night. For both males and females, mean hours of sleep decrease slightly with age up to around age 50, and then increase with age, more so for males than females.

Males and females have very similar overall means, although in each of the age groups up to the 45–54 group, females average slightly more sleep than males (in the same age group), and in the age groups from the 55–64 group, females average slightly less than males.

Examination of the distribution of daily hours of sleep allows us to identify the prevalence of both short sleeping hours and long sleeping hours. Table 12.2 presents such distributional information by sex and age group, showing the proportion in each of five categories for daily hours of sleep.

Overall, 17.6% of males and 20.2% of females get less than 6 hours sleep per day, 26.9% of males and 24.3% of females get at least 6 but less than 7 hours per day, 32.9% of males and 32.7% of females get at least 7 but less than 8 hours per day, 15.6% of males and 15.5% of females get at least 8 but less than 9 hours per day, and 7.0% of males and 7.3% of females get 9 or more hours of sleep per day. Older people tend to have a higher prevalence of both short (less than 6) sleeping hours and long (9 or more) sleeping hours.

The Australian Sleep Health Foundation (<www.sleephealthfoundation.org.au>) recommends daily hours of sleep of 8–10 for persons aged 14–17, 7–9 for

Table 12.1: Mean daily hours of sleep by sex and age group, 2013

	15–24	*25–34*	*35–44*	*45–54*	*55–64*	*65–74*	*75 and over*	*Total*
Males	7.7	7.1	6.9	6.9	7.0	7.2	7.5	7.2
Females	7.7	7.3	7.0	7.0	6.9	7.0	7.2	7.2
Total	7.7	7.2	7.0	6.9	6.9	7.1	7.3	7.2

persons aged 18–64 and 7–8 for persons aged 65 and over. The foundation also explicitly recommends against sleep hours less than 7 for persons aged 14–17, less than 6 for persons aged 18–64, and less than 5 for persons aged 65 and over; and it recommends against sleep hours greater than 11 for persons aged 14–25, greater than 10 for persons aged 26–64 and greater than 9 for persons aged 65 and over.

Table 12.3 uses the above recommendations to classify individuals as getting too little sleep, adequate sleep or too much sleep. Specifically, individuals aged 15–17 getting less than 7 hours, individuals aged 18–64 getting less than 6 hours and individuals aged 65 and over getting less 5 hours are classified as getting too little sleep. Individuals aged 15–25 getting more than 11 hours,

Table 12.2: Distribution of daily hours of sleep, by sex and age group, 2013

	Less than 6	*At least 6 but less than 7*	*At least 7 but less than 8*	*At least 8 but less than 9*	*At least 9*	*Total*
Males						
15–24	9.8	16.5	33.9	26.6	13.2	100.0
25–34	14.4	30.6	37.9	12.5	4.6	100.0
35–44	18.5	33.2	33.2	11.9	3.2	100.0
45–54	21.4	30.2	34.7	10.7	3.0	100.0
55–64	22.4	30.1	28.8	13.7	4.9	100.0
65–74	21.9	21.1	28.3	18.7	10.1	100.0
75 and over	18.1	21.5	27.2	16.4	16.7	100.0
Total	17.6	26.9	32.9	15.6	7.0	100.0
Females						
15–24	9.6	18.9	33.9	23.0	14.6	100.0
25–34	14.3	25.0	38.1	17.3	5.3	100.0
35–44	20.9	28.3	33.2	13.4	4.2	100.0
45–54	23.0	26.1	34.5	12.3	4.0	100.0
55–64	26.3	25.4	31.0	12.6	4.6	100.0
65–74	27.1	24.3	27.9	12.7	8.0	100.0
75 and over	28.7	20.0	21.4	15.3	14.6	100.0
Total	20.2	24.3	32.7	15.5	7.3	100.0

Table 12.3: Prevalence of insufficient sleep and excessive sleep, by sex and age group, 2013 (%)

	Too little sleep	*Adequate sleep*	*Too much sleep*	*Total*
Males				
15–24	13.1	85.0	1.9	100.0
25–34	14.4	83.6	2.0	100.0
35–44	18.5	80.3	1.2	100.0
45–54	21.4	77.3	1.3	100.0
55–64	22.4	75.7	1.9	100.0
65–74	6.8	83.5	9.7	100.0
75 and over	8.1	76.8	15.1	100.0
Total	16.0	80.7	3.3	100.0
Females				
15–24	13.4	84.7	1.9	100.0
25–34	14.3	83.7	2.0	100.0
35–44	20.9	77.7	1.4	100.0
45–54	23.0	75.2	1.8	100.0
55–64	26.3	71.5	2.2	100.0
65–74	11.6	81.2	7.2	100.0
75 and over	13.2	72.4	14.4	100.0
Total	18.1	78.5	3.4	100.0

individuals aged 26–64 getting more than 10 hours and individuals aged 65 and over getting more than 9 hours are classified as getting too much sleep. All other individuals are classified as getting adequate sleep.

The HILDA Survey data show that, overall, getting too little sleep is a much more common problem than getting too much sleep. However, among men aged 65 and over, and among women aged 75 and over, getting too much sleep is a more common problem. The age groups most prone to getting too little sleep are those in the 25–64 age range, with those aged 55–64 having the highest prevalence of insufficient sleep of all the age groups. Females appear to have more problems than males with too-little or too-much sleep, but the differences are not large.

Quality of sleep

Problems with sleep are not limited to the quantity of sleep being too little or too much. Quality of the sleep itself is also an important factor. While poor sleep quality may to some extent be reflected in lower reported sleeping hours, there will not be an exact correspondence between reported hours of sleep and the quality of sleep.

The HILDA Survey collected information on sleep quality in the self-completion questionnaire in Wave 13. Respondents were asked about the frequency of each of five specific sleep problems: trouble sleeping because of not getting to sleep within 30 minutes; trouble sleeping because of waking in the middle of the night or early in the morning; trouble sleeping due to coughing or snoring; taking medicine to help sleep; and trouble staying awake while driving, eating meals or engaging in social activity. Respondents were then asked to assess overall sleep quality over the past month. Table 12.4 presents the (population-weighted) distribution of responses to this

Table 12.4: Sleep quality by sex and age group, 2013 (%)

	Very good	*Fairly good*	*Fairly bad*	*Very bad*	*Total*
Males					
15–24	24.6	54.7	17.5	3.2	100.0
25–34	17.8	60.0	19.4	2.7	100.0
35–44	18.5	58.3	20.1	3.1	100.0
45–54	15.8	56.2	22.8	5.2	100.0
55–64	23.8	56.5	16.2	3.5	100.0
65–74	24.2	58.0	14.7	3.1	100.0
75 and over	28.8	55.3	14.0	1.9	100.0
All aged 15 and over	20.9	57.2	18.5	3.4	100.0
Females					
15–24	21.0	56.2	20.3	2.4	100.0
25–34	19.1	54.8	21.6	4.4	100.0
35–44	18.2	52.3	23.9	5.6	100.0
45–54	17.9	52.7	24.0	5.4	100.0
55–64	19.0	51.1	23.7	6.2	100.0
65–74	22.1	55.4	18.0	4.5	100.0
75 and over	25.1	52.9	18.4	3.6	100.0
All aged 15 and over	19.8	53.6	21.9	4.6	100.0

last question for males and females in each of seven age groups.

The most common response on overall quality of sleep for all ages and both males and females, is that it is 'fairly good'. Approximately one-fifth of people report their sleep quality to be 'very good', while 21.9% of males and 26.5% of females report their sleep quality to be fairly bad or very bad. That females are more likely than males to report bad or fairly bad sleep quality is consistent with the evidence in Table 12.3 that more females than males have too little sleep. However, unlike sleep quantity, there is not a clear association between age and sleep quality evident in Table 12.4. There is perhaps some evidence of poorer sleep quality among women aged 35–64, but the differences from other age groups are not large.

Determinants of sleep quantity and sleep quality

Table 12.5 explores the correlates with sleep quantity and sleep quality. It considers the roles of sex, age, family situation, employment status, hours of paid and unpaid work, occupation of employment for those in paid work, and measures of health and disability.

The estimates for sleep quantity show no significant difference between males and females, while the number of hours of sleep declines with age up to the 65–74 age group, with persons aged 75 and over getting approximately the same amount of sleep as persons aged 45–54, other things being equal. Parents with children aged under 2 report getting significantly less sleep than others, with the negative effect of a young child about three times larger for partnered females than for partnered males. However, it is lone parents with children aged under 2 who suffer the largest adverse effects on sleep quantity: all else equal, a lone parent with a child aged under 2 gets over one hour less sleep per night than a partnered female with a child aged under 2. It would therefore seem that the partners of mothers with infants do make a difference to the amount of sleep the mothers get.

Being employed (as opposed to not employed) is associated with greater sleep, although each additional hour of paid work is associated with a 0.01 reduction in hours of sleep. Thus, while being employed acts to increase daily hours of sleep by approximately 0.3, once weekly working hours exceed 30 the effects of employment become negative. For example, an employed person working 50 hours per week is predicted to get 0.2 hours less sleep per night than a non-employed person (with otherwise similar characteristics). The amount of unpaid work undertaken is also negatively associated with sleep quantity, but the effect is relatively small, with each additional hour of unpaid work per week acting to decrease daily hours of sleep by 0.004. Among employed people, labourers and related workers get the least sleep, followed by machinery operators and drivers, and community and personal service workers.

People with a body mass index (BMI) that places them in the 'obese' category (see Box 11.2, page 105) report getting somewhat less sleep than other people, while both general health and mental

Table 12.5: Factors associated with sleep quantity and sleep quality, 2013

	Sleep quantity	*Sleep quality*
Male	*ns*	*ns*
Age group (Reference category: Less than 20)		
20–24	–0.232	*ns*
25–34	–0.381	*ns*
35–44	–0.587	*ns*
45–54	–0.647	*ns*
55–64	–0.730	*ns*
65–74	–0.727	0.077
75 and over	–0.624	0.115
Partnered with children aged under 15	*ns*	*ns*
Lone parent with children aged under 15	–0.310	–0.115
Partnered female with child aged under 2	–0.440	–0.238
Partnered male with child aged under 2	–0.146	–0.117
Lone parent with child aged under 2	–1.142	–0.457
Employed	0.294	0.076
Hours of paid work per week	–0.011	–0.003
Hours of unpaid work per week	–0.004	–0.001
Occupation (Reference category: Managers)		
Professionals	*ns*	*ns*
Technicians and trades workers	–0.135	*ns*
Community and personal service workers	–0.187	*ns*
Clerical and administrative workers	–0.075	*ns*
Sales workers	*ns*	*ns*
Machinery operators and drivers	–0.241	*ns*
Labourers	–0.330	*ns*
Obese	–0.074	–0.050
SF–36 mental health	0.007	0.012
SF–36 general health	0.002	0.006
Disability (Reference category: No disability)		
Severe disability	0.251	*ns*
Moderate disability	*ns*	–0.060
Disability with no work restriction	–0.125	–0.054
Constant	7.383	1.652
Number of observations	11,927	11,855

Notes: Table reports coefficient estimates from OLS regression models of the determinants of sleep quantity, measured in hours per day, and sleep quality, measured from 1 (very bad) to 4 (very good). See the Technical Appendix for further details on regression models. Sample comprises all persons aged 15 and over in 2013. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

Box 12.1: Definition and classification of disability

The International Classification of Functioning, Disability and Health (ICF), produced by the World Health Organisation, defines disability as an umbrella term for impairments, activity limitations and participation restrictions. It denotes the negative aspects of the interaction between an individual's health conditions and the various contextual (environmental and personal) factors of that individual. In this report, a person is defined as having a disability if they have 'any long-term health condition, impairment or disability that restricts the individual in everyday activities and which has lasted, or is likely to last, for six months or more'. This is an 'operational' definition of disability which is very similar to that used in many household surveys, such as the Australian Bureau of Statistics Survey of Disability, Ageing and Carers.

Disability severity is typically conceived in terms of restrictions in the core activities of self-care, communication and mobility. The HILDA Survey does not collect information each wave on core-activity restrictions, but does collect information on the extent to which health conditions limit the amount of work an individual can do (on a 0–10 scale, where 0 equals 'not at all' and 10 equals 'unable to do any work'). In this report, we use a measure of disability severity based on this information, defining three levels of severity: no work restriction (0); moderate work restriction (1–7); and severe work restriction (8–10).

health are positively associated with sleep quantity. Compared with people without a disability, people with a severe disability get 0.25 hours more sleep per day, people with a moderate disability get similar amounts of sleep, and people with a disability that does not restrict the amount or type of work they do get 0.13 fewer hours of sleep per day.

Correlates with sleep quality have some parallels with the correlates of sleep quantity, but also a number of differences. Unlike sleep quantity, there are no significant differences in reported sleep quality (measured on a 1 to 4 scale, where 1 is very bad and 4 is very good) by age group among those aged under 65, and people aged 65 and over report getting better quality sleep than younger people.

Consistent with the findings for sleep quantity, reported sleep quality is lower for parents of very young children, and lone parents have particularly poor sleep quality.

Also consistent with estimates for sleep quantity is a positive effect associated with employment, but a negative effect of each additional hour of paid work. A significant, but smaller, negative effect of each hour of unpaid work is also evident. However, in contrast to sleep quantity, no significant differences in sleep quality by occupation of employment are evident.

As with sleep quantity, obesity has negative effects on sleep quality, and general and mental health have positive associations with sleep quality. People with moderate disabilities or disabilities that do not restrict work report significantly poorer sleep quality than people without disability, but people with severe disabilities do not report lower quality sleep than people without disability.

Table 12.6: Health and subjective wellbeing by quality of sleep, 2013

	In poor general health (%)	*In poor mental health (%)*	*Mean life satisfaction (0–10 scale)*
Quality of sleep			
Very good	4.8	4.8	8.4
Fairly good	8.4	11.1	8.0
Fairly bad	18.9	26.0	7.4
Very bad	39.9	47.4	6.7

Associations between quality of sleep and subjective wellbeing

Given the findings in Table 12.5, it is to be expected that poor quality sleep is associated with poorer health and possibly with lower life satisfaction. Table 12.6 confirms this to be the case. There are very strong correlations between reported quality of sleep and the SF–36 measures of general health and mental health. Moreover, mean life satisfaction is strongly ordered by reported sleep quality, ranging from 8.4 for those who report very good sleep to 6.7 for those who report very bad sleep. This is prima facie evidence that quality of sleep is indeed very important to our wellbeing.

References

Australian Bureau of Statistics (1995) *Standards for Statistics on the Family*, Catalogue No. 1286.0, ABS, Canberra.

Australian Bureau of Statistics (2001) *Australian Standard Classification of Education (ASCED) 2001*, Catalogue No. 1272.0, ABS, Canberra.

Australian Bureau of Statistics (2006) *ANZSCO—Australian and New Zealand Standard Classification of Occupations, First Edition, 2006*, Catalogue No. 1220.0, ABS, Canberra.

Australian Bureau of Statistics (2008) *Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006, (Revision 1.0)*, Catalogue No. 1292.0, ABS, Canberra.

Australian Bureau of Statistics (2009) *Information Paper: An Introduction to Socio-Economic Indexes for Areas (SEIFA)*, Catalogue No. 2309.0, ABS, Canberra.

Australian Bureau of Statistics (2014) *Education Variables, June 2014*, Catalogue No. 1246.0, ABS, Canberra.

Australian Bureau of Statistics (2015) *Household Wealth and Wealth Distribution, Australia, 2013–14*, Catalogue No. 6554.0, ABS, Canberra.

Australian Bureau of Statistics (2016) *Labour Force, Australia*, Catalogue No. 6202.0, ABS, Canberra.

Box-Steffensmeier, J.M. and Jones, B.S. (2004) *Event History Modeling*, Cambridge University Press, Cambridge, UK.

Browning, L., Hsieh, S. and Ashwell, M. (2010) 'A Systematic Review of Waist-to-Height Ratio as a Screening Tool for the Prediction of Cardiovascular Disease and Diabetes: 0.5 Could Be a Suitable Global Boundary Value', *Nutrition Research Reviews*, vol. 23, no. 2, pp. 247–69.

Craig, C.L., Marshall, A.L., Sjöström, M., Bauman, A.E., Booth, M.L., Ainsworth, B.E., Pratt, M., Ekelund, U., Yngve, A., Sallis, J.F. and Oja, P. (2003) 'International Physical Activity Questionnaire: 12-Country Reliability and Validity', *Medicine & Science in Sports & Exercise*, vol. 35, no. 8, pp. 1,381–95.

Hagenaars, A., De Vos, K. and Zaidi, A. (1994) *Poverty Statistics in the Late 1980s*, Eurostat, Luxembourg.

Hayes, C. (2008) 'HILDA Standard Errors: Users' Guide', HILDA Project Technical Paper Series No. 2/08, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Hayes, C. and Watson, N. (2009) 'HILDA Imputation Methods', HILDA Project Technical Paper Series No. 2/09, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Hsiao, C. (2003) *Analysis of Panel Data*, Cambridge University Press, New York.

Jette, M., Sidney, K. and Blumchen, G. (1990) 'Metabolic Equivalents (METS) in Exercise Testing, Exercise Prescription, and Evaluation of Functional Capacity', *Clinical Cardiology*, vol. 13, no. 8, pp. 555–65.

Mack, J. and Lansley, S. (1985) *Poor Britain*, George Allen and Unwin, London.

Mack, J. and Lansley, S. (2015) *Breadline Britain: The Rise of Mass Poverty*, Oneworld, London.

Main, G. and Bradshaw, J. (2012) 'A Child Material Deprivation Index', *Child Indicators Research*, vol. 5, no. 3, pp. 503–21.

Pantazis, C., Gordon, D. and Levitas, R. (eds) (2006) *Poverty and Social Exclusion in Britain: The Millennium Survey*, Policy Press, Bristol.

Saunders, P., Naidoo, Y. and Griffiths, M. (2007) *Towards New Indicators of Disadvantage: Deprivation and Social Exclusion in Australia*, Social Policy Research Centre, University of New South Wales, Sydney, <https://www.sprc. unsw.edu.au/media/SPRCFile/Report12_07_Deprivation_and_exclusion_in_Australia.pdf>.

Saunders, P. and Wong, M. (2012) *Promoting Inclusion and Combating Deprivation: Recent Changes in Social Disadvantage in Australia*, Social Policy Research Centre, University of New South Wales, Sydney, <https://www.sprc.unsw.edu.au/media/SPRCFile/2012_12_FINAL_REPORT.pdf>.

Shorrocks, A.F. (1978) 'Income Inequality and Income Mobility', *Journal of Economic Theory*, vol. 19, no. 2, pp. 376–93.

Summerfield, M., Freidin, S., Hahn, M., Li, N., Macalalad, N., Mundy, L., Watson, N., Wilkins, R. and Wooden, M. (2015) *HILDA User Manual—Release 14*, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Townsend, P. (1979) *Poverty in the United Kingdom*, Penguin Books, Harmondsworth.

United Nations (2011) *Canberra Group Handbook on Household Income Statistics, Second Edition*, United Nations, New York and Geneva.

Watson, N. (2004a) 'Income and Wealth Imputation for Waves 1 and 2', HILDA Project Technical Paper Series No. 3/04, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Watson, N. (2004b) 'Wave 2 Weighting', HILDA Project Technical Paper Series No. 4/04, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Watson, N. and Fry, T. (2002) 'The Household, Income and Labour Dynamics in Australia (HILDA) Survey: Wave 1 Weighting', HILDA Project Technical Paper Series No. 3/02, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Watson, N. and Wooden, M. (2002) 'The Household, Income and Labour Dynamics in Australia (HILDA) Survey: Wave 1 Survey Methodology', HILDA Project Technical Paper Series No. 1/02, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Wilkins, R. (2014) 'Derived Income Variables in the HILDA Survey Data: The HILDA Survey "Income Model"', HILDA Project Technical Paper Series No. 1/14, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Windsor, C., La Cava, G. and Hansen, J. (2015) 'Home Price Beliefs in Australia', Research Discussion Paper 2014-04, Reserve Bank of Australia.

Wooden, M. (2014) 'The Measurement of Physical Activity in Wave 13 of the HILDA Survey', HILDA Project Discussion Paper Series No. 3/14, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Technical Appendix

A. Overview of statistical methods and terms used in the report

Balanced panel

A longitudinal household survey is known as a household panel study. A **balanced** panel restricts the sample to individuals who have responded to the survey in all waves of the period under study. For example, a balanced panel for Waves 1 to 10 of the HILDA Survey consists of individuals who have responded in all 10 waves.

Deciles and quintiles

A decile is any of the nine values that divide data that have been sorted from lowest to highest into 10 equal parts, so that each part represents one-tenth of the sample or population. Thus, for example, the first decile of the income distribution cuts off the lowest 10% of incomes, and people in the first (or bottom) decile have the lowest 10% of incomes. A quintile is any of the four values that divide data that have been sorted from lowest to highest into five equal parts; for example, people in the first (or bottom) quintile have the lowest 20% of incomes.

Dummy variable

Used in regression analysis, a dummy variable is an indicator variable equal to 1 if a particular characteristic or event is present, and equal to 0 otherwise. In ordinary least squares regression, the coefficient on a dummy variable is interpreted as the mean effect on the dependent variable of the presence of the characteristic/event, holding all else constant.

Hazard rate and survival rate

Hazard rates and survival rates are used to study 'spell durations', such as the length of time a person remains on welfare after commencing receipt of welfare. The hazard rate at a particular spell duration refers to the likelihood (or probability) of finishing the spell at that duration (for example, going off welfare), given that the spell has not already ended prior to that spell duration. The survival rate at a particular spell duration is the proportion of all spells that are still in progress at that spell duration (that is, the proportion of spells that have not ended). The hazard rate at any given spell duration can be, in principle, anywhere between 0 and 100%, but the survival rate must always decrease as the spell duration increases.

Gini coefficient

The Gini coefficient is a measure of dispersion often used as a measure of inequality of income and wealth. It ranges between 0 and 1, a low value indicating a more equal distribution and a high value indicating a more unequal distribution. 'Zero' corresponds to perfect equality (everyone having exactly the same) and 1 corresponds to perfect inequality (where one person has everything and everyone else has nothing).

Mean, median and mode

The mean, median and mode are all measures of central tendency. The mean is the statistical term used for what is more commonly known as the average—the sum of the values of a data series divided by the number of data points. The median is the middle data point in data sorted from lowest to highest value; 50% of the data points will lie below the median and 50% above it. The mode is simply the most frequently occurring value of a data series.

Mean marginal effects

Qualitative dependent variable models, such as Probit, are 'non-linear', meaning that the effects of explanatory variables on the probability of an outcome depend upon the value of that explanatory variable at which the effects are evaluated, and indeed also depend on the values of the other explanatory variables at which they are evaluated. For example, in the Probit model of the probability a couple has their first child, presented in Chapter 2, the effects of age will depend on the values of the other explanatory variables. This makes it difficult to interpret coefficient estimates. We therefore report 'mean marginal effects' estimates, which provide a straightforward way of ascertaining the effects of explanatory variables that are analogous to those obtained in linear regression models—that is, the effect on the dependent variable of a 1-unit increase in the explanatory variable. Specifically, continuing with the example above, the mean marginal effect estimate for the 'age 15–24' dummy variable is the mean effect on the probability of having a first child, evaluated over all members of the sample, of changing this variable from 0 (not aged 15–24) to 1 (aged 15–24).

Regression models

In statistical analysis, a regression model is used to identify associations between a 'dependent' variable (such as earnings) and one or more 'independent' or 'explanatory' variables (such as measures of educational attainment and work experience). In particular, it shows how the typical value of the dependent variable changes when any one of the independent variables is varied and all other independent variables are held fixed. Most commonly, regression models estimate how the mean value of the dependent variable depends on the explanatory variables—for example, mean (or 'expected') earnings given a particular level of education and work experience. Different types of regression models are used depending on factors such as the nature of the variables and data, and the 'purpose' of the regression model. The following types of models are estimated in this report:

- **Ordinary Least Squares** models estimate linear associations between a dependent variable (such as earnings) and one or more independent (or explanatory) variables (such as age and educational attainment). The method finds the linear combination of the explanatory variables that minimises the sum of the squared distances between the observed values of the dependent variable and the values predicted by the regression model.
- **Probit** models are used to estimate the effects of factors, such as age and educational attainment, on a 'qualitative' or categorical dependent variable, such as labour force status. (The variable 'labour force status' is qualitative because it is not naturally 'quantitative' or numerical, such as is the case with income.) The standard models examine 'binary' dependent variables, which are variables with only two distinct values, and estimates obtained from these models are interpreted as the effects on the *probability* the variable takes one of those values. For example, a model might be estimated on the probability an individual is employed (as opposed to not employed).
- **Fixed-effects** models are often applied to panel data such as the HILDA Survey data. They involve accounting for the effects of all characteristics of sample members that do not change over time. For example, if we are interested in how life events impact on life satisfaction, a fixed-effects model is useful because we can control for (remove the effects of) fixed individual traits such as optimism and pessimism. This is achieved by examining how the outcome of interest (for example, life satisfaction) changes at the individual level in response to changes in explanatory variables (for example, income). For example, a fixed-effects model will find a positive effect of income on life satisfaction if individuals who experience increases in income from one year to the next tend to exhibit increases in life satisfaction over the same period, and individuals who experience decreases in income from one year to the next tend to exhibit decreases in life satisfaction over that period.
- **Random-effects** models are also often applied to panel data. They differ from fixed-effects models by allowing estimation of the effects of characteristics that do not change over time. This is made possible by assumptions about the distribution and nature of unobserved fixed individual traits, such as intrinsic motivation. The models are relatively complicated. For more information on random-effects models, see, for example, Hsiao (2003).
- A **hazard** model is an approach to examining the factors affecting whether a particular 'state' (such as marriage) continues or not. The hazard is the risk, or probability, of exiting the state, so that what is being explained is the probability of exiting the state, given that the state has not already been exited. In this report, all hazard models estimated are known as Cox proportional hazards models, in which the 'baseline' hazard rate comes from the estimated effects of duration in the state on the hazard rate, and where the log of the hazard ratio (the hazard rate relative to the baseline hazard rate) is a linear function of the explanatory factors. Hazard ratio estimates are presented in this report. A hazard ratio is greater than 1 if an increase in the explanatory variable increases the probability of exit from the state, and is less than 1 if an increase in the explanatory variable decreases the probability of exit from the state. All hazard models estimated in this report also allow for 'Gamma distributed' unobserved heterogeneity. For more information on hazard models, see, for example, Box-Steffensmeier and Jones (2004).

Relative standard error

The standard error of an estimate is a measure of the precision with which the estimate is estimated. For example, assuming statistical independence of the values in the sample, the standard error of the mean of a variable (such as income) is the standard deviation of the variable divided by the square root of the sample size, and there is a 95% probability that the true mean lies within 1.96 standard deviations of the estimated mean. The relative standard error of an estimate is the ratio of the standard error to the value of the estimate. In this report, we have marked with an asterisk (*) estimates which have a relative standard error greater than 25%. Note that a relative standard error that is less than 25% implies there is a greater than 95% probability the true quantity lies within 50% of the estimated value.

Standard deviation

The standard deviation is a measure of variability or 'dispersion' of a variable. It is equal to the square root of the mean squared difference of a variable from its mean value.

Statistical significance

In the context of statistical analysis of survey data, a finding is statistically significant if it is unlikely to be simply due to sampling variability—that is, if it is unlikely to be due to random factors causing specific characteristics of the survey sample to differ from the characteristics of the population. A common standard is to regard a difference between two estimates as statistically significant if the probability that they are different is at least 95%. However, 90% and 99% standards are also commonly used. The 90% standard is adopted for regression results presented in this report. Note that a statistically significant difference does not mean the difference is necessarily large or significant in the common meaning of the word.

B. Population inferences from the HILDA Survey data

Non-response is an issue for all household surveys, and *attrition* (that is, people dropping out due to refusal or our inability to locate them) is a further particular issue in all panel surveys. Because of attrition, and despite sample additions due to changes in household composition, panels may slowly become less representative of the populations from which they are drawn, although due to the 'split-off' method, this does not necessarily occur.

To overcome the effects of survey non-response (including attrition), the HILDA Survey data managers analyse the sample each year and produce *weights* to adjust for differences between the characteristics of the panel sample and the characteristics of the Australian population.[1] That is, adjustments are made for non-randomness in the sample selection process that causes some groups to be relatively under-represented and others to be relatively over-represented. For example, non-response to Wave 1 of the survey

[1] Further details on how the weights are derived are provided in Watson and Fry (2002), Watson (2004b) and Summerfield et al. (2015).

was slightly higher in Sydney than in the rest of Australia, so that slightly greater weight needs to be given to Sydneysiders in data analysis in order for estimates to be representative of the Australian population.

The population weights provided with the data allow us to make inferences about the Australian population from the HILDA Survey data. A population weight for a household can be interpreted as the number of households in the Australian population that the household represents. For example, one household (Household A) may have a population weight of 1,000, meaning it represents 1,000 households, while another household (Household B) may have a population weight of 1,200, thereby representing 200 more households than Household A. Consequently, in analysis that uses the population weights, Household B will be given 1.2 times (1,200/1,000) the weight of Household A. To estimate the mean (average) of, say, income of the households represented by Households A and B, we would multiply Household A's income by 1,000, multiply Household B's income by 1,200, add the two together, and then divide by 2,200.

The sum of the population weights is equal to the estimated population of Australia that is 'in scope', by which is meant 'they had a chance of being selected into the HILDA sample' and which therefore excludes those that HILDA explicitly has not attempted to sample—namely, some persons in very remote regions in Wave 1, persons resident in non-private dwellings in 2001 and non-resident visitors.[2] In Wave 14, the household population weights sum to 8.81 million and the 'person' population weights sum to 22.91 million.

As the length of the panel grows, the variety of weights that might be needed also grows. Most obviously, separate cross-sectional weights are required for every wave, but more important is the range of longitudinal weights that might be required. Longitudinal (multi-year) weights are used to retain representativeness over multiple waves. In principle, a set of weights will exist for every combination of waves that could be examined—Waves 1 and 2, Waves 5 to 9, Waves 2, 5 and 7, and so on. The longitudinal weights supplied with the Release 14 data allow population inferences for analysis using any two waves (that is, any pair of waves) and analysis of any 'balanced panel' of a contiguous set of waves, such as Waves 1 to 6 or Waves 4 to 7. Longitudinal weights are also provided to allow analysis of 'rotating' content. For example, to facilitate longitudinal analysis of wealth, longitudinal weights are provided for Waves 2, 6, 10 and 14. In this report, cross-sectional weights are always used when cross-sectional results are reported and the appropriate longitudinal weights are used when longitudinal results are reported. Thus, all statistics presented in this report should be interpreted as estimates for the in-scope Australian population. That is, all results are 'population-weighted' to be representative of the Australian community.

A further issue that arises for population inferences is missing data for a household, which may arise because a member of a household did not respond or because a respondent did not report a piece of information. This is particularly important for components of financial data such as income, where failure to report a single component by a single respondent (for example, dividend income) will mean that a measure of household income is not available. To overcome this problem, the HILDA data managers *impute* values for various data items. For individuals and households with missing data, imputations are undertaken by drawing on responses by individuals and households with similar characteristics, and also by drawing on their own responses in waves other than the current wave. Full details on the imputation methods are available in Watson (2004a), Hayes and Watson (2009) and Sun (2010). In this report, imputed values are used in all cases where relevant data is missing and an imputed value is available. This largely applies only to income, expenditure and wealth variables.

The population weights and imputations allow inferences to be made from the HILDA Survey about the characteristics and outcomes of the Australian population. However, estimates based on the HILDA Survey, like all sample survey estimates, are subject to sampling error. Because of the complex sample design of the HILDA Survey, the reliability of inferences cannot be determined by constructing standard errors on the basis of random sampling, even allowing for differences in probability of selection into the sample reflected by the population weights. The original sample was selected via a process that involved stratification by region and geographic 'ordering' and 'clustering' of selection into the sample within each stratum. Standard errors (measures of reliability of estimates) need to take into account these non-random features of sample selection, which can be achieved by using *replicate weights*. Replicate weights are supplied with the unit record files available to approved researchers for cross-sectional analysis and for longitudinal analysis of all balanced panels that commence with Wave 1 (for example, Waves 1 to 4 or Waves 1 to 8). Full details on the sampling method for the HILDA Survey are available in Watson and Wooden (2002), while details on the construction, use and interpretation of the replicate weights are available in Hayes (2008).

In this report, standard errors of statistics are not reported. Instead, for tabulated results of descriptive statistics, estimates which have a relative standard error of more than 25% are marked with an asterisk (*). For regression model parameter estimates, estimates that are not statistically significantly different from 0 at the 10% level are not reported, with *ns* (not significant) appearing in place of the estimate.

C. Fieldwork process and outcomes

Sample

The HILDA Survey commenced, in 2001, with a nationally representative sample of Australian households (residing in private dwellings). Of the 11,693 households selected for inclusion in the sample in 2001, 7,682 households agreed to participate, resulting in a household response rate of 66%. The 19,914 residents of those households form the basis of the 'main sample' that is interviewed in each subsequent year (or survey wave), but with interviews only conducted with persons aged 15 years or older. Interviews are also conducted with any other person who joins a household in which an original sample member is living. These individuals are only interviewed as long as they remain living with an original sample member, unless they are an immigrant who migrated to Australia after 2001 or they have a child with an original sample member, in which case they become a 'permanent'

[2] In principle, the in-scope population in Waves 2 to 10 excludes most immigrants arriving in Australia after 2001. However, due to a lack of suitable external benchmarks for this population sub-group, these immigrants are in practice included in the in-scope population. Consequently, in all waves, the HILDA Survey weights sum to the total Australian population inclusive of new immigrants.

sample member. Persons who are known to have died are removed from the sample. We also do not pursue interviews with persons who have moved overseas, with persons who have requested to no longer be contacted, or with persons that we have not able been to contact for three successive survey waves. In 2011 an entirely new 'top-up' sample was added. This resulted in the addition of 2,153 households, and 5,451 persons. The household response rate for the top-up sample was 69%.

Data collection

The annual interviews for the main sample commence towards the end of July each year and conclude by mid-February of the following year. The interviewer workforce comprised 196 interviewers in Wave 14, 160 of whom undertook interviews in person, with the remaining 36 being dedicated telephone interviewers. Most interviews are undertaken in person, usually in the home of the sample member. Some interviews, however, are undertaken by telephone, usually because the cost of sending an interviewer to the location of that sample member was prohibitive or because the sample member had a preference for a telephone interview. In Wave 14, 1,416 interviews (or 8.2% of the total completed) were undertaken by telephone.

Response

Table A1 and Figure A1 summarise key aspects of the HILDA sample for the period examined in this report (Waves 1 to 14).[3] Table A1 presents the number of households, respondents and children under 15 years of age in each wave. In Wave 14, interviews were obtained with a total of 17,325 persons; 13,446 in the original sample and 3,879 in the top-up sample. Of the original 13,969 respondents in 2001, 8,112, or 66.5% of those still in scope (that is, alive and in Australia), were still participating at Wave 14.

Note that—the top-up aside—the total number of respondents in each wave is greater than the number of Wave 1 respondents interviewed in that wave, for three main reasons. First, some non-respondents in Wave 1 are successfully interviewed in later waves. Second, interviews are sought in later waves with all persons in sample households who turn 15 years of age. Third, additional persons are added to the panel as a result of changes in household composition. For example, if a household member 'splits off' from his or her original household (for example, children leave home to set up their own place, or a couple separates), the entire new household joins the panel. Inclusion of 'split-offs' is the main way in which panel surveys, including the HILDA Survey, maintain sample representativeness over the years.

Figure A1 reports re-interview rates (percentage of previous-wave respondents still in scope who were interviewed in the current wave) and response rates among new entrants to the sample for both the original sample and the top-up sample. As can be seen, re-interview rates for the original sample are high, exceeding 95% for the first time in Wave 8, and remaining above that level ever since. In Wave 14, the original-sample re-interview rate was 96.5%. We expect much lower response rates among new individuals joining the sample. Nevertheless, response rates for this group have averaged around 80% for much of the period since Wave 4. In Wave 14, the rate was 79.8%.

Within the top-up sample, the re-interview rate in Wave 14 was 94.5%. The comparable rate within the original sample is the rate recorded in Wave 4, which was 91.6%. The interview rate for new entrants to the top-up sample in Wave 14 was, at 84.7%, also comparatively high.

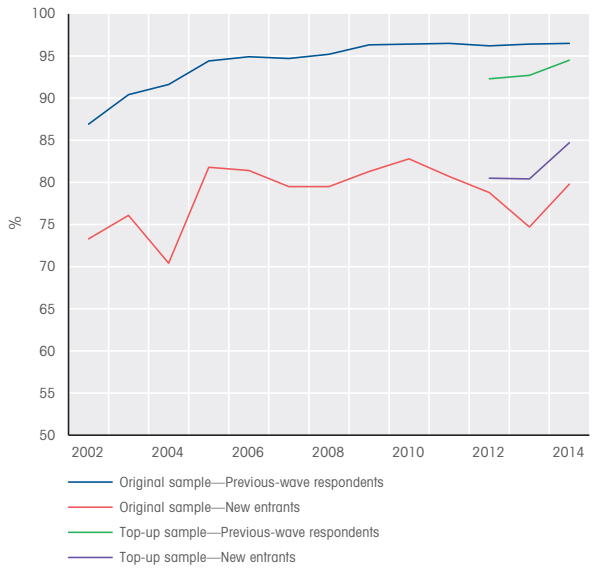
All persons who are interviewed are also asked to complete a separate paper-based questionnaire. Of the 17,325 persons who were interviewed in Wave 14, 15,423 (89%) returned this self-completion questionnaire.

More detailed information on interview response rates across demographic groups is presented in Tables A2 and A3. Table A2 examines Wave 1 respondents, presenting the proportion of the sample responding in all 14 waves and the proportion responding in Wave 14, disaggregated by characteristics in Wave 1 (that is, in 2001). Table A3 presents analogous information for the Wave 11 top-up sample.

Table A1: HILDA Survey sample sizes

	Households	*Persons interviewed*	*Children under 15*
Wave 1	7,682	13,969	4,784
Wave 2	7,245	13,041	4,275
Wave 3	7,096	12,728	4,088
Wave 4	6,987	12,408	3,887
Wave 5	7,125	12,759	3,897
Wave 6	7,139	12,905	3,756
Wave 7	7,063	12,789	3,691
Wave 8	7,066	12,785	3,574
Wave 9	7,234	13,301	3,621
Wave 10	7,317	13,526	3,600
Wave 11 (original sample)	7,390	13,603	3,601
Wave 12 (original sample)	7,420	13,536	3,607
Wave 13 (original sample)	7,463	13,609	4,330
Wave 14 (original sample)	7,441	13,446	4,241
Wave 11 (top-up sample)	2,153	4,009	1,180
Wave 12 (top-up sample)	2,117	3,939	1,190
Wave 13 (top-up sample)	2,092	3,892	1,205
Wave 14 (top-up sample)	2,097	3,879	1,190

Figure A1: HILDA Survey response rates, Waves 2 to 14 (2002 to 2014)



[3] More detailed data on the sample make-up, and in particular response rates, can be found in Summerfield et al. (2015).

Table A2: Percentage of Wave 1 respondents re-interviewed by selected Wave 1 characteristics (%)

Wave 1 characteristics	*Interviewed in all waves*	*Interviewed in Wave 14*
Area		
Sydney	52.5	64.4
Rest of New South Wales	57.2	67.9
Melbourne	54.0	67.1
Rest of Victoria	53.7	64.5
Brisbane	59.5	67.8
Rest of Queensland	56.2	65.7
Adelaide	58.5	69.0
Rest of South Australia	53.8	68.5
Perth	53.9	62.8
Rest of Western Australia	49.9	64.4
Tasmania	57.0	69.0
Northern Territory	69.8	83.1
Australian Capital Territory	60.1	72.2
Sex		
Male	53.7	65.3
Female	56.7	67.5
Age group (years)		
15–19	38.5	56.7
20–24	43.0	59.0
25–34	51.5	64.4
35–44	57.5	67.8
45–54	60.8	70.1
55–64	65.2	73.7
65–74	65.3	72.4
75 and over	41.5	50.0
Marital status		
Married	58.8	68.2
De facto	52.9	65.6
Separated	55.9	68.2
Divorced	62.8	73.4
Widowed	63.7	70.6
Single	45.0	60.6
Country of birth		
Australia	56.8	68.0
Overseas		
Main English-speaking	59.1	67.7
Other	44.0	57.5
Indigenous status		
Indigenous	40.6	64.5
Non-Indigenous	55.6	66.5
Educational attainment		
Year 11 or below	50.7	62.6
Year 12	52.9	64.8
Certificate	54.5	66.1
Diploma	62.1	71.2
Degree or higher	65.6	74.9
Dwelling type		
House	55.6	66.8
Semi-detached	56.3	67.4
Flat, unit, apartment	51.4	62.0
Other	53.9	66.0
Labour force status		
Employed full-time	55.6	66.7
Employed part-time	57.7	68.7
Unemployed	43.9	56.1
Not in the labour force	55.0	66.2
Employment status in main job[a]		
Employee	56.2	67.4
Employer	53.3	63.2
Own account worker	58.1	68.3
Contributing family worker	54.0	72.7
Occupation[a]		
Managers/administrators	57.5	69.1
Professionals	65.1	75.0
Associate professionals	56.6	67.0
Tradespersons	49.4	62.7
Advanced clerical/service	54.5	63.4
Intermediate clerical/sales/service	57.1	67.8
Intermediate production/transport	51.7	60.8
Elementary clerical/sales/service	53.9	66.7
Labourers	48.2	61.0
All Wave 1 respondents	55.3	66.5
Total number responding	6,547	8,112

Notes: Estimates are for the sample and are therefore not population-weighted.
[a] Employed persons only.

Table A3: Percentage of Wave 11 top-up respondents re-interviewed by selected Wave 11 characteristics (%)

Wave 11 characteristics	*Interviewed in all waves*	*Interviewed in Wave 14*
Area		
Sydney	78.7	82.5
Rest of New South Wales	83.6	85.9
Melbourne	84.6	86.7
Rest of Victoria	87.9	90.5
Brisbane	82.4	86.9
Rest of Queensland	79.8	83.8
Adelaide	82.1	82.9
Rest of South Australia	82.1	85.7
Perth	75.5	78.5
Rest of Western Australia	73.6	79.1
Tasmania	89.0	92.1
Northern Territory	76.9	76.9
Australian Capital Territory	86.2	89.7
Sex		
Male	81.7	84.9
Female	81.8	84.8
Age group (years)		
15–19	78.7	82.6
20–24	80.8	85.1
25–34	81.5	85.8
35–44	83.5	86.0
45–54	81.3	83.6
55–64	82.4	85.3
65–74	85.7	87.8
75 and over	76.8	78.9
Marital status		
Married	83.5	85.5
De facto	79.9	84.3
Separated	84.6	85.6
Divorced	79.9	84.5
Widowed	78.8	81.8
Single	79.9	84.1
Country of birth		
Australia	82.7	85.6
Overseas		
Main English-speaking	81.5	85.0
Other	78.7	81.7
Indigenous status		
Indigenous	86.3	88.4
Non-Indigenous	81.7	84.7
Educational attainment		
Year 11 or below	80.0	83.0
Year 12	81.5	85.0
Certificate	81.4	85.3
Diploma	83.4	85.5
Degree or higher	83.7	86.1
Dwelling type		
House	82.3	85.3
Semi-detached	76.1	80.6
Flat, unit, apartment	83.1	85.3
Other	100.0	100.0
Labour force status		
Employed full-time	80.9	84.1
Employed part-time	81.7	85.0
Unemployed	85.1	88.7
Not in the labour force	82.6	85.2
Employment status in main job[a]		
Employee	81.2	84.5
Employer	71.4	76.0
Own account worker	83.3	86.6
Contributing family worker	70.0	80.0
Occupation[a]		
Managers	81.4	83.9
Professionals	84.1	87.1
Technicians and trades workers	76.7	81.4
Community and personal service workers	81.3	82.8
Clerical and administrative workers	81.5	86.4
Sales workers	76.4	80.0
Machinery operators and drivers	86.2	86.9
Labourers	81.0	84.5
All Wave 11 top-up respondents	81.8	84.8
Total number responding	3,140	3,274

Notes: Estimates are for the sample and are therefore not population-weighted.
[a] Employed persons only.

HILDA Survey personnel

Melbourne Institute Survey Management Team

Director
Professor Mark Wooden

Deputy Director, Research
Professor Roger Wilkins

Deputy Director, Survey Methodology
Ms Nicole Watson

Deputy Director, Survey Management
Ms Michelle Summerfield

Database Manager
Mr Simon Freidin

Survey Methodologist
Dr Ning Li

Database Support Officers
Mr Nhan (Nathan) La
(commenced January 2016)
Ms Ninette Macalalad
Ms Laura Mundy
(resigned November 2015)

Professorial Research Fellows
Professor Richard Burkhauser
Professor Peter Butterworth
(commenced December 2015)
Professor Nattavudh (Nick) Powdthavee
(resigned March 2016)

Senior Research Fellows
Dr Nicolas Herault
Dr Hielke Buddelmeyer
(resigned April 2015)

Research Officers
Ms King Fok
(commenced February 2016)
Mr Markus Hahn

Administrative Assistants
Ms Kathryn Ryan
(commenced April 2015)
Ms Victoria Lane
(resigned April 2015)

External Reference Group

Professor Garry Barrett (Chair), University of New South Wales

Assoc. Professor Bruce Bradbury, University of New South Wales

Professor Peter Butterworth, University of Melbourne

Dr Ben Edwards, Australian Institute of Family Studies

Dr Ann Evans, Australian National University

Dr Belinda Hewitt, University of Queensland

Assoc. Professor David Johnston, Monash University

Dr Leah Ruppanner, University of Melbourne

Assoc. Professor Peter Siminski, University of Wollongong *(commenced September 2015)*

Professor Janeen Baxter (Chair), University of Queensland *(resigned October 2013)*

Professor David de Vaus, University of Queensland *(resigned June 2013)*

Professor Bryan Rodgers, Australian National University *(resigned June 2013)*

Professor Steven Stillman, University of Otago *(resigned September 2015)*

Ms Ruth Weston, Australian Institute of Family Studies *(resigned June 2013)*

Technical Reference Group

Professor Robert Breunig, Australian National University

Dr John Henstridge, Data Analysis Australia

Mr Ross Watmuff, Australian Bureau of Statistics

HILDA DSS Team

Dr Helen Rogers (Section Manager)

Ms Joanne Harrison

Ms Deborah Kikkawa

Dr Peng Yu

Roy Morgan Research

HILDA Project Team

Antonietta Bono (National Call Centre Manager)

Michael Bradford (Project Director)

Joshua Button (Systems Team Leader)

Shannon Carter (Sample Support Officer)

Briony Coultman-Smith (Materials Coordinator)

Gary Dunstan (Data Manager)

Joanna El-Masri (Materials Coordinator)

Stephen Gibson (Head of Strategic Projects)

Jemimah Gray (Field Team Leader)

Davina Heng (Project Manager Systems)

Roopa Kamath (Research Analyst)

Louisa Katerelos (Sample Support Officer)

David Kenshole (Team 1800 Coordinator)

Troy Kohut (General Manager – Customised Research)

Deborah Louwen (Researcher)

Vivek Malpani (Confirmit Programmer)

Sigmund Marques (Sample Support Officer)

Dinushi Mendis (Research Analyst)

Lachlan Morton (Project Support)

Mary-Ann Patterson (Project Manager Field and Respondent)

Shane Pickard (Sample Team Leader)

Tania Sperti (Head of Operations)

Pat Timmins (Workforce Director)

Rick Van Der Meer (Project Support)

Nicholas White (Sample Support Officer)

Euan Wilson (Head of Call Centre Operations)

Rowena York (Sample Team Leader)

HILDA Team 1800

Julian Adams

Eugene Baiden-Assan

Tarun Bajaj

Rinata Buccheri

Jaz Burstall

Neil Cabatingan

Bee Callaghan

Fiona Crockett (Supervisor)

Louise Dickins

Patrick Edwards

Emily Eller

Alex Findlay

Tansy Fisher

Alison Flehr (Supervisor)

Adam Flett

Adrian Follacchio

Amarlie Foster

Sam Gray

Ariel Gross
Christine Harding
Levi Heeringa
William Hollingsworth (Supervisor)
Caitlin Houghton
Cindy Huynh
Elizabeth Ibrahim
Ximena Ilich
Ethan Jones
Kieran Kelly
Jane Kingsford
Louise La Sala (Supervisor)
Skye Lee
Tim MacPherson (Supervisor)
Brett Mahar
Sara Mcguigan
Lukas Meintjes
Sean Mijares
Miles Miller (Supervisor)
James Moriarty
Simon Nathan
Jodi Norton (Supervisor)
Laura Peach
Leisa Pratt
Paul Pugliese
Adam Quigley
Vaughan Quinn
Kieran Ryan (Supervisor)
Elle Savanovic
Lia Sharard
Isaac Still
Daniel Stojkovich (Supervisor)
Samantha Tait
Josh Thomas
Sean Walton
Jane Watson
Oliver Wedd
Jackson Wilde
George Wood

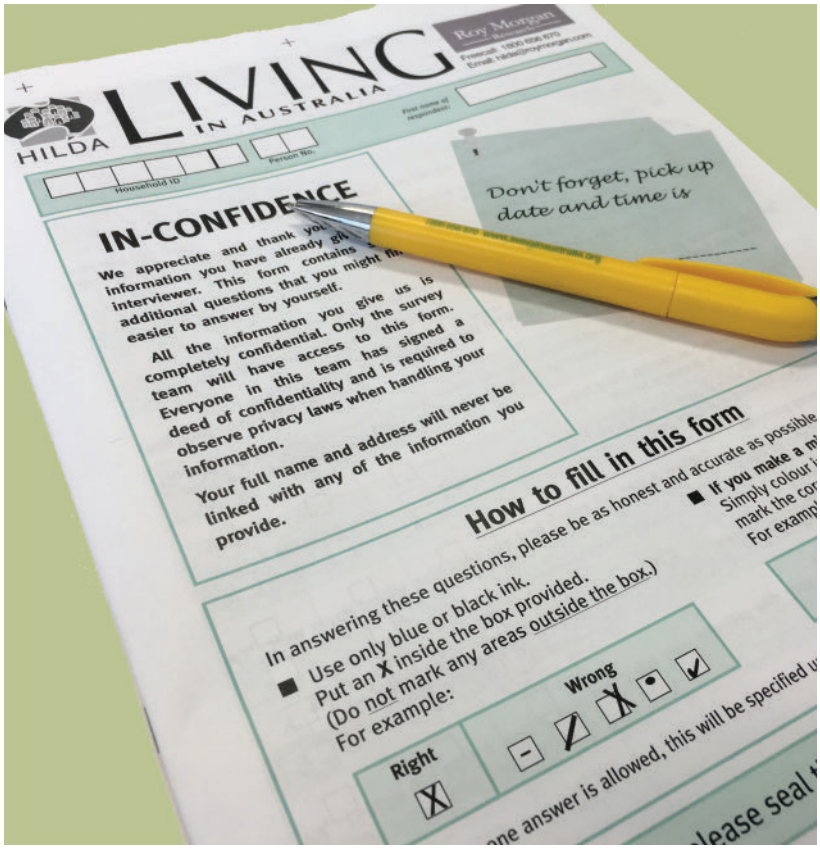
HILDA Face-to-Face Field Interviewing Team

Jan Alcock
Cathy Andrew
Robert Armstrong
Zoe Arslan
Farah Aslankoohi
Sheryle Baldock
Francene Beattie
Julie Bennett
Merril Bennett
Barbara Bluett
Pam Bowtell
Chris Brennan
Sheila Brown
Robyn Burgess
Lauren Busch
Linda Buttel
Josh Button
Luz Cabrera De Mesa
Frances Carr-Boyd
Jay Clark
Susan Collins
Dianne Corthorne
Andrew Craker
Sean Cranny
Beryl Cuff
Laurie-Anne Curry
Karen Dambrauskas
Jennifer De Lacey
Lea Densem
Delwyn Dix
Paul Dodds
Latif Dokter
Mark Dowe
Bev Edwards
Sandra Essex
Jennifer Eurell
Lionel Evans
Stuart Eyers
Catherine Fernbach
Henry Ferst
Anthony Foley
Charmaine Foley
Peter George
Shaaron Glynn
Jeff Grant
Kerry Green
Sandy Grieve
Elizabeth Griffiths
Garry Grooms
Tim Haddad
Dzemal Hadzismajlovic
Penni Hamilton-Smith
Marie Hammond
Philip Hands
Wendy Harris
Michael Hendry
Donna Hickey
Louise Hill
Loretta Ho
Naomi Hodge
Josie Holland
George Hooker
Ian Hosking
Mick Hosking
Jan Houghton
Ben Huisman
Marianne Hunter
Frances Husher
Patricia Huynh
Dylan Hyde
Jill Irvine
Jane Jackson
Kim Jackson
Paula Jackson
Julie-Anne Jacobs
Andrew James
Mirjana Jesensek
Christine Jolly
Trudy Jones
Richard Joyce
Penny Jurd
Deborah Kairn
Sivapalan Kanapathippillai
Margaretha Kassanis
Pat Kempster
John Kenney
Ray Kerkhove
Brian King
Jenny Komyshan
Claudia Lawson
Greg Lay
Christine Leece
Murray Legro
Karen Leslie
Dorothy Lucks
Laureen Lutz
Cindy Macdonald
John MacDonald-Hill
Lisa Mackinnon
Rita Maio
Annette Major
Linda Martin
Priscilla Martinus
Dayne Matthews
Marilyn McDonnell
Lyn Mckeaveney
Catherine McMahon
Andrea McPherson
Beverly Mead
Janene Merchant
Kaleil Merren
Nabil Mohammad
Tony Moloney
Robyn Moylan-Garrick
Peter Mulholland
Fiona Mullen
Virginia Murphy
Don Murray

Rob Neal
Ann Newbery
Gwen Nickolls
Marija Nikolic-Paterson
Narelle Nocevski
Vicky Nowak
Marta Ogilvie
Sally O'Neal
Jasmin Osborne
Bradford Paez
MaryAnn Patterson
Marilyn Paul
Faye Payne
Shelley Pearce
Gabriella Pendergast
Cheryl Perrett
Tara Perrett
Zoe Perrett
Jan Pianta
David Plant
Sandra Potter
Beverley Price
Anna Prichard
Yvette Pryor
Lyle Pyers
Ananda Ranasinghe
David Reed
Lydia Reid
Margaret Reid
Marg Reynolds
Lynndal Richards
Lynn Richardson
Aaron Rinder
Gillian Rivers
Nea Roberts
Sandra Robertson
Oriana Roinich
Pat Roy
Lorna Russell
Roxanne Russell
Maree Saleh
Rodney Scherer
Susan Schiller
Stephen Schubert
Robyn Schulz
Peter Sexton
George Shaw
Barry Simpfendorfer
Beryl Sinapius
Roma Sirc
Barbara Slattery
Marilyn Smiley
Muriel Smith
Karen Steele
Elizabeth Stock
Phillip Stock
Tathra Street
Margaret Stubbs
Helen Szuty
Bridgitte Tadrosse
Rici Tandy
Lynda Taylor
Sandra Teagle
Beth Tilley
Fay Tomholt
Suzie Torok
Kerrie Townley-Jones
Ingrid Tozer
Robin Trotter
Andrew Van Der Lugt
Mia Van Doren
Irina Vasilenko
Sunita Waghmode
Julia Ward
Caroline Warner
Elizabeth Waymark
Elizabeth Weaver
Marcella Wellwood
Sue Whiteley
Jayne Wiche
Dennis Williams
Marlene Wills
Jilanne Wilson
Rochelle Woodley-Baker
Bev Worrall
Pamela Wright
Jayne Wymer
Jeffrey Yap

Additional Support

Rafail Baimouratov
Murray Bishop
Roy Brailsford
Rachel Brown
Chris Chippett
Ken Ferns
Alejandra Guerrero
Mark Hall
Oscar Kong
Lindsay Lucas
Angela Marmarou
Vaiju Naik
Sewwandi Navarathna
Peter Newby
Deb Perriman
Nick Petroulias
Grant Rhys-Jones
Paul Roach
Suvinder Sawhney
Allen Wei



Commenced in 2001, the Household, Income and Labour Dynamics in Australia (HILDA) Survey is a nationally representative household-based panel study, providing longitudinal data on the economic wellbeing, employment, health and family life of Australians.

The study is funded by the Australian Government Department of Social Services and is managed by the Melbourne Institute of Applied Economic and Social Research at the University of Melbourne. Roy Morgan Research has conducted the fieldwork since 2009, prior to which The Nielsen Company was the fieldwork provider.