

The Household, Income and Labour Dynamics in Australia Survey: Selected Findings from Waves 1 to 15



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The Household, Income and Labour Dynamics in Australia (HILDA) Survey
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The 12th Annual Statistical Report of the HILDA Survey

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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) and is managed by the Melbourne Institute 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 their children

and 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 15 waves of the study, which were conducted between 2001 and 2015. Chapters 2 to 4 examine various aspects of three broad subject areas that are key ongoing themes of the HILDA Survey—family life, economic wellbeing, and the labour market—while Chapters 5 to 8 focus on four specific subject areas—retirement, gambling, young home-owners, and attitudes to marriage, parenting and work. This report should of course be viewed as containing only ‘selected findings’, providing only a cursory indication of the rich potential of the HILDA Survey data. Indeed, a large number of studies on a diverse range of topics have been undertaken by researchers in Australia and internationally over the years since data from the first wave of the HILDA Survey was released in January 2003. Further details on the publications resulting from these studies are available on the HILDA Survey web site at <http://melbourneinstitute.unimelb.edu.au/hilda/publications/> 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%.

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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 2015 period on four aspects of family life: the changing living arrangements of Australians, as described by the household types in which they live; fertility and fertility intentions, and how well fertility intentions predict actual fertility; receipt and payment of child support for children with separated parents; and child care use for children not yet at school.

Household types 2001 to 2015

Table 2.1 considers the evolution of household types in Australia over the period since 2001. It shows the proportion of individuals in each of 11 household types classified according to the nature of the family resident in the household and whether other related and unrelated people reside in the household. (See Boxes 2.1 and 2.2, below and on page 9.)

In broad terms, the distribution of household types has been relatively stable across the 15-year period. A household containing a couple with dependent children (and no-one else) has remained the most common household type, with approximately 41% to 42% of individuals living in

this household type across the entire period; and a household containing a couple (and no children) has remained the second-most common household type, accounting for 20% to 21% of individuals.

Some notable trends are nonetheless evident. The proportion of people living in multiple-family households has risen by 1.5 percentage points to be the household type for 4.0% of people in 2015. Couple households with children, with or without other household members, have collectively declined by 1.1 percentage points. Single parents with dependent children have declined by 0.4 percentage points, but single parents with non-dependent children (and no dependent children) have increased by 1.4 percentage points.

Box 2.1: 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 to 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.

Table 2.1: Proportion of individuals in each household type, 2001 to 2015 (%)

	2001	2003	2005	2007	2009	2011	2013	2015	Change 2001 to 2015
Couple with dependent children	41.7	41.8	41.7	41.6	41.1	41.4	40.8	41.6	-0.2
Couple with dependent children and others ^a	2.4	1.8	1.9	2.0	2.7	2.6	2.3	1.9	-0.6
Couple with non-dependent children, with or without others ^a	8.4	8.7	9.4	10.0	9.2	7.7	8.1	8.0	-0.3
Single parent with dependent children	7.1	7.5	7.0	6.9	6.7	6.3	6.7	6.7	-0.4
Single parent with dependent children and others ^a	1.5	1.2	1.3	0.9	1.3	1.3	1.4	1.5	0.0
Single parent with non-dependent children, with or without others ^a	2.9	3.4	3.9	4.2	3.7	3.5	3.4	4.2	1.3
Couple, with or without others ^a	20.3	20.6	20.9	20.1	20.3	20.8	21.1	20.3	0.0
Single person	9.4	9.3	9.2	9.2	9.3	9.4	9.4	9.4	0.0
Other family household	1.1	1.3	1.0	0.9	1.2	1.5	1.4	1.5	0.4
Multiple-family household	2.6	3.0	2.6	3.0	3.1	3.8	4.2	4.0	1.5
Group household	2.5	1.4	1.2	1.2	1.5	1.8	1.3	1.0	-1.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.0

Notes: Cells may not add up to column totals due to rounding. ^a 'Others' comprise related persons as well as unrelated persons. If dependent children are present, the household could (and often will) include non-dependent children.

'Non-standard' family households—multiple family and 'other family' households—have collectively grown by 1.9 percentage points, while the proportion of people living in group households has shrunk by 1.5 percentage points, although most of the decrease occurred between 2001 and 2003.

Changes in the age structure of the population have a significant impact on the proportion of individuals living in each household type. Australia's population is ageing, which one would expect to lead to relatively fewer households with dependent children and growth in the proportion of households containing only couples and, perhaps, growth in single-person households. It is also valuable to know how the household-type composition of the Australian population would have changed over the last decade and a half had the age structure of the population not changed, since this provides an indication of how individuals' choices about their living arrangements have changed over the period.¹



¹ This is known as a 'decomposition' of changes in household types into those changes due to the changing age composition of the population (essentially the ageing of the population) and those changes due to other factors. These other factors represent changes in how people at any given age choose to live. Note, however, that holding the age structure constant includes not changing the proportion of people who are children, and this will of course be influenced by household formation decisions made by individuals. For example, if more people choose to remain single and living in single-person households, this would be expected to reduce the number of children in the community. Focusing on adults only would address this issue, but has not been undertaken in this report.



The estimates in Table 2.2 represent the proportion of people in each household type if the proportion of the population at each age remained as it was in 2001. The second-last column shows the change in the proportion of people living in each household type between 2001 and 2015 had the age structure remained as it was in 2001, while the last column shows the change attributable to age structure changes, which is simply the difference between the actual change and the change holding the age structure constant.

Most notable is the finding that the proportion of individuals living in couple households with dependent children (without others) would have risen by 2.8 percentage points had the age structure not changed. This is largely reflected in a decrease in the proportion that would have been living in couple households without children or in single-person households. It would therefore seem that, overall, propensities for partnering and having children at each given age have in fact increased slightly between 2001 and 2015—that is, if the population had not aged, the proportion of people living in couple

Table 2.2: Proportion of individuals in each household type holding the age distribution constant, 2001 to 2015 (%)

	2001	2005	2009	2013	2015	Change holding age structure constant	Change due to age structure changes
Couple with dependent children	41.7	42.6	42.9	43.2	44.5	2.8	-2.9
Couple with dependent children and others ^a	2.4	2.0	2.7	2.4	2.0	-0.5	-0.1
Couple with non-dependent children, with or without others ^a	8.4	9.2	8.7	7.6	7.5	-0.8	0.5
Single parent with dependent children	7.1	7.1	7.0	7.0	7.1	0.0	-0.4
Single parent with dependent children and others ^a	1.5	1.3	1.3	1.5	1.5	0.0	0.0
Single parent with non-dependent children, with or without others ^a	2.9	3.8	3.5	3.2	4.0	1.0	0.3
Couple, with or without others ^a	20.3	20.4	19.2	19.6	18.4	-1.9	1.9
Single person	9.4	9.0	9.0	8.9	8.7	-0.7	0.7
Other family household	1.1	1.0	1.2	1.3	1.5	0.3	0.0
Multiple-family household	2.6	2.5	3.0	4.2	4.0	1.4	0.0
Group household	2.5	1.2	1.5	1.2	0.9	-1.6	0.1
Total	100.0	100.0	100.0	100.0	100.0	0.0	0.0

Notes: Cells may not add up to column totals due to rounding. ^a 'Others' comprise related persons as well as unrelated persons. If dependent children are present, the household could (and often will) include non-dependent children.

households with dependent children would have increased. Interestingly, the proportion living in single-parent households with dependent children would not have changed between 2001 and 2015 if the age structure had remained constant, indicating no trend change in the propensity for this household type. However, single-parent households with non-dependent children would have risen by 1 percentage point in the absence of age structure changes, probably reflecting a tendency for children to remain living with a single parent to an older age.

Stability of household type is examined in Table 2.3, which presents the proportion of individuals changing household type from one year to the next, disaggregated by initial household type. Estimates are presented separately for four periods—2001 to 2003, 2004 to 2007, 2008 to 2011 and 2012 to 2014—to allow examination of whether mobility between household types has increased over the 2001 to 2015 period.

In interpreting the table, note that the members of a household can change without causing a change in household type. For example, a non-dependent child may move out, but if another non-dependent child

Box 2.2: 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 chapter, the following 11 household types are distinguished:

- (1) Couple with dependent children
- (2) Couple with dependent children and others
- (3) Couple with non-dependent children, with or without others
- (4) Single parent with dependent children
- (5) Single parent with dependent children and others
- (6) Single parent with non-dependent children, with or without others
- (7) Couple, with or without others
- (8) Single person
- (9) Other family household
- (10) Multiple-family household
- (11) Group household

A couple comprises a married or de facto married couple, whether opposite sex or same sex. Dependent children are as defined in Box 2.1 (page 6).

The classification system is hierarchical, giving primacy to dependent children: a couple or single parent with non-dependent children (categories 3 and 6) will not have any dependent children (whereas a couple or single parent with dependent children and others—categories 2 and 5—may have non-dependent children). Consequently, the definition of ‘others’ (in categories 2, 3, 5, 6 and 7) depends on the household type. For couples with dependent children and single parents with dependent children, ‘others’ can include non-dependent children, other related persons of the couple or single parent (including siblings and parents) and unrelated persons. For couples with non-dependent children and single parents with non-dependent children, ‘others’ can include other related persons and unrelated persons (but not dependent children). In a couple household, ‘others’ comprise related persons other than children and unrelated persons.

An ‘other family’ household is any other family not captured by categories 1 to 7, such as households with siblings living together (and not living with parents or any of their own children).

A multiple-family household is one in which there are more than one of the family types itemised (in categories 1 to 7 and 9).

A group household consists of two or more unrelated persons (neither of whom is residing with a related person).

Note that, for an individual to be classified as a member of the household, in most cases the individual must reside in the household at least 50% of the time. Consequently, dependent children in a ‘shared care’ arrangement who reside in the household less than 50% of the time are not treated as members of the household.

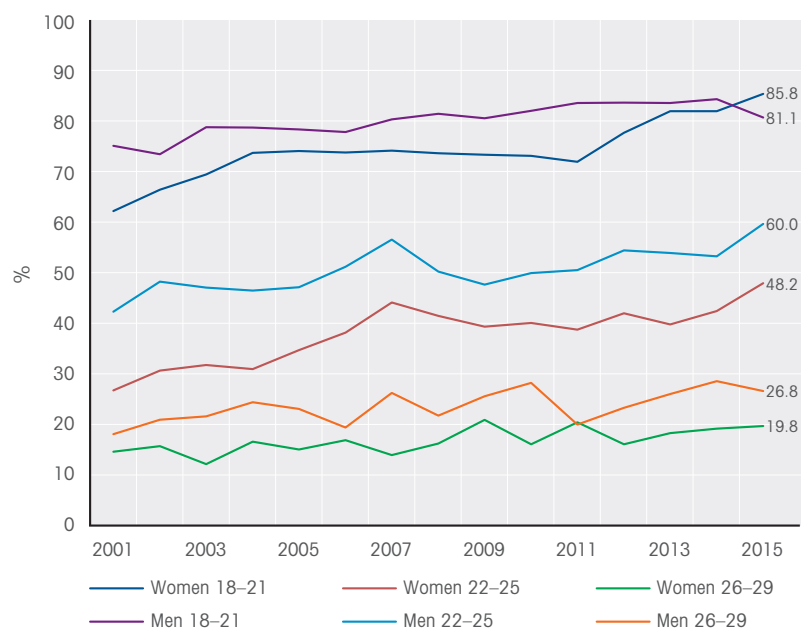
In much of the analysis presented in this report, individuals are classified according to family type (see Box 3.4, page 29) rather than household type. Family type and household type are in many cases the same, but diverge when households contain people who are not all part of the same nuclear family or when non-dependent children live with their parents.

Table 2.3: Proportion of individuals for whom the household type changes from one year to the next, by initial household type, 2001 to 2015 (%)

	2001–2003	2004–2007	2009–2011	2012–2014
Couple with dependent children	9.1	9.6	9.4	9.6
Couple with dependent children and others ^a	37.3	29.8	29.1	39.7
Couple with non-dependent children, with or without others ^a	26.4	24.1	27.0	24.6
Single parent with dependent children	18.7	21.6	20.1	20.5
Single parent with dependent children and others ^a	54.0	37.2	45.3	43.3
Single parent with non-dependent children, with or without others ^a	23.0	20.8	19.6	21.2
Couple, with or without others ^a	9.0	9.2	9.5	9.7
Single person	10.8	12.1	12.0	11.7
Other family household	29.0	26.6	32.2	19.6
Multiple-family household	41.6	28.8	40.4	36.2
Group household	54.3	40.5	48.1	55.9
All household types	14.9	14.1	14.9	14.9

Notes: Years in column headings refer to the initial year. For example, the column headed ‘2001–2003’ examines all household-type changes between 2001 and 2002, 2002 and 2003, and 2003 and 2004. ^a ‘Others’ comprise related persons as well as unrelated persons. If dependent children are present, the household could (and often will) include non-dependent children.

Figure 2.1: Percentage of young adults living with their parents, by sex and age group



Note: The number at the end of each line in the graph is the percentage of the sex-age group living with their parents in 2015.

remains in the household (and no other change occurs), the household type will not change for the household members remaining in the household. It is also possible for the household type to change without any change in membership. For example, a dependent child may become a non-dependent child.

On average, the household type changes from one year to the next for approximately 15% of individuals. This fraction appears to have remained stable over the HILDA Survey period. However, the likelihood of one's household type changing does vary considerably across household types. The most stable household types are couples with dependent children without others, and couples without children. Single-person households are also relatively stable. The least stable household types contain members who are not a partner, parent or child of one of the other members. Most notably, lone-parent households with dependent children that also contain 'others', and individuals in group households, are the most likely to change household type from one year to the next.

Figure 2.1 considers trends in the propensity for adult children to remain living with their parents. It shows a clear trend rise in the proportion of adults aged 18 to 29 living with their parents between 2001 and 2015. The rise is most pronounced among women aged 18 to 25: in 2001, 67% of women aged 18 to 21 and 27% of women aged 22 to 25 lived with their parents, while in 2015 the corresponding proportions were 86% and 48%. Men aged 22 to 25 also experienced a substantial rise in the proportion living with their parents, with the proportion rising from 43% in 2001 to 60% in 2015.

Fertility and fertility intentions

The HILDA Survey keeps track of the number of children ever had by survey respondents and the year of birth of each child, allowing us to examine not only total fertility of respondents, but also their total fertility at each age—that is, for each individual, it is possible to derive the total number of children they had ever had at each age. For



example, for an individual aged 50 in 2015, we can ascertain their fertility at ages 20, 25, 30, 35, 40, 45 and 50. Moreover, information is collected every year on fertility intentions—that is, the intended number of additional children—of individuals who could be expected to potentially have more children (see Box 2.3, page 11). Combined with information on actual fertility, data on intended fertility can be used to examine total intended fertility (that is, the total of actual and intended fertility) and also to examine the extent to which intended fertility is realised over subsequent years.

Fertility across the lifecycle

Table 2.4 presents mean fertility—that is, the mean of the total number of biological children ever had—for men and women born after 1956, at ages 20, 25, 30, 35, 40, 44, 50 and 54. Means are presented separately for birth cohorts. For each birth cohort, mean fertility is only observed at three or fewer of the eight age levels. For example, for the cohort born 1961 to 1965, we observe fertility at age 40 (in Waves 1 to 5), at age 44 (in Waves 5 to 9) and at age 50 (in Waves 11 to 15). For the cohort born 1991 to 1995, we observe fertility only at age 20 (in Waves 11 to 15).

The table facilitates comparisons of fertility across birth cohorts when at the same age, and shows how

Table 2.4: Mean fertility (number of children ever had) at different ages, by birth cohort

	Age 20	Age 25	Age 30	Age 35	Age 40	Age 44	Age 50	Age 54
Women								
1957–1960						2.24	2.27	2.27
1961–1965					2.16	2.22	2.30	
1966–1970				1.70	2.11	2.19		
1971–1975			1.04	1.67	2.14			
1976–1980		0.39	0.93	1.59				
1981–1985	0.07	0.37	0.91					
1986–1990	0.11	0.33						
1991–1995	0.05							
Men								
1957–1960						2.06	2.22	2.23
1961–1965					1.72	1.84	1.99	
1966–1970				1.24	1.61	1.91		
1971–1975			0.70	1.25	1.61			
1976–1980		0.15	0.56	1.19				
1981–1985	*0.02	0.17	0.52					
1986–1990	*0.02	0.16						
1991–1995	*0.01							

Note: * Estimate not reliable.

the mean number of children of members of a birth cohort increases as they age.² For example, the table shows that the mean number of children born to the 1976 to 1980 female birth cohort was 0.39 when they were aged 25, 0.93 when they were aged 30 and 1.59 when they were aged 35. The corresponding estimates for males in this birth cohort are somewhat lower, at 0.15, 0.56 and 1.19. Unsurprisingly, mean fertility rises most rapidly between the ages of 20 and 40. The rise is less rapid for men up to the age of 40, but continues to rise up to the age of 50, in contrast to the plateauing evident for women from the age of 40.

Comparisons across birth cohorts at the same age are somewhat limited because, at most, fertility is observed for only three birth cohorts at each age, and these birth cohorts are not very far apart. For example, at age 35, only the

1966 to 1970, 1971 to 1975 and 1976 to 1980 cohorts can be compared. Nonetheless, there is some evidence of a decline in fertility at each age as we move

from older to more recent birth cohorts, although the pattern is quite muted and does not always hold. For example, the 1971 to 1975 female cohort had a slightly

Box 2.3: Measuring fertility intentions in the HILDA Survey

Fertility intentions are measured every wave in the HILDA Survey with the question *How many (more) children do you intend to have?* The respondents from whom fertility intentions have been collected have varied somewhat across waves. In most waves, the fertility intentions question has been asked of men aged 18 to 54 and women aged 18 to 44 years who indicated they were likely to have children in future (defined as a self-rating of 6 or more on a scale from 0 (very unlikely) to 10 (very likely)). In Wave 15, the age range for women was extended up to 49 years. Moreover, in Waves 5, 8, 11 and 15, when a sequence of additional questions were included in the personal interview on fertility-related topics, different criteria were used to determine who was asked the question. First, the prerequisite that the respondent believe it likely he or she will have (more) children is not imposed in any of these 'fertility' waves. Second, in all fertility waves, if the respondent or the respondent's partner had been sterilised, the respondent was not asked the question, the implicit assumption being that they did not intend to have any more children. Third, in Waves 5 and 8, respondents who reported having a physical or health reason that would make it difficult to have children were not asked the question. Finally, in Waves 5, 8, 11 and 15, for males with a female partner, it was the age of the *partner* (under 45 in Waves 5, 8 and 11, and under 50 in Wave 15) rather than the age of the male that determined whether fertility intentions were obtained. This results in some males aged 55 and over being asked the question in Waves 5, 8, 11 and 15, and some males aged 18 to 54 *not* being asked the question in those waves.

In order to examine a relatively consistent measure of fertility intentions across all waves, in this report, intended fertility is examined only among persons aged 18 to 44. In all waves, intended fertility is set equal to 0 if the self-assessed likelihood of having (more) children is 5 or lower on the 0 to 10 scale. In addition, in Waves 5, 8, 11 and 15, intended fertility is set equal to 0 if the question was not asked because the respondent or the respondent's partner was sterilised or would have difficulty getting pregnant for medical reasons.

² Using the information on the birth years of all children ever had (collected in the respondent's first ever personal interview), it is possible to calculate fertility at each age for birth cohorts prior to 1950, and at the missing younger ages for cohorts born from 1950 to 1979 (for example, at age 20 for the 1975 to 1979 cohort). However, for the purposes of this analysis, which compares actual and intended fertility, we restrict to the cohorts for which intended fertility is observed (that is, for those aged between 20 and 44 at some stage of the HILDA Survey period).

Table 2.5: Mean intended fertility (number of children had plus number of additional children intend to have) at different ages, by birth cohort

	Age 20	Age 25	Age 30	Age 35	Age 40	Age 44
Women						
1957–1960						2.25
1961–1965					2.24	2.25
1966–1970				2.06	2.22	2.26
1971–1975			2.05	2.12	2.23	
1976–1980		2.02	2.17	2.05		
1981–1985	2.01	1.96	2.08			
1986–1990	2.09	1.82				
1991–1995	2.00					
Men						
1957–1960						2.17
1961–1965					1.94	1.93
1966–1970				1.78	2.02	2.03
1971–1975			1.90	1.94	1.92	
1976–1980		1.97	1.98	1.97		
1981–1985	1.70	1.81	1.75			
1986–1990	1.84	1.72				
1991–1995	1.72					

higher mean fertility at age 40 than the 1966 to 1970 cohort, and the 1966 to 1970 male cohort had a slightly higher mean fertility at age 44 than the 1961 to 1965 cohort. Moreover, the declines that are evident probably reflect a trend towards having children later in life rather than a decline in total fertility.

Intended fertility across the lifecycle

Table 2.5 examines mean intended fertility of the same birth cohorts as examined in Table 2.4, where intended fertility is defined to be the

sum of the number of children the individual has already had, plus (additional) children the individual intends to have. As expected, there is much more consistency across ages in intended fertility than in realised fertility—although of course the composition of intended fertility shifts from planned future children towards children already had as we move from younger to older ages. Few clear and consistent patterns in fertility intentions by age and by birth cohort are evident, the main exception being that men consistently have lower fertility

intentions than women. For example, mean intended fertility at age 20 was approximately 2.0 to 2.1 for the female cohorts born between 1981 and 1995, but only 1.7 to 1.8 for the male cohorts born in the same period.

Fertility intentions and subsequent fertility

Having collected information on actual and intended fertility each year since 2001, the HILDA Survey is well placed to examine the extent to which intentions translate into actual fertility behaviour. This is considered in Table 2.6, which compares intentions with outcomes 10 years later. Thus, intentions are measured over the 2001 to 2005 period, and outcomes are measured over the 2011 to 2015 period.

The expressed intention to have (more) children is declining in age, although the estimates presented in Table 2.5 indicate this decline is attributable to people realising their fertility intentions, since total intended fertility (inclusive of children already had) does not systematically decline with age. Slightly fewer men than women intend to have children



Table 2.6: Intended fertility compared with actual fertility 10 years later, by age in the initial year

	Age in initial year					
	20	25	30	35	40	44
Women						
Intended to have (more) children (%)	74.1	70.3	48.8	23.7	5.7	1.3
<i>Intentions versus outcomes—all (%)</i>						
Did not intend to have (more) children and did not	17.9	14.6	34.8	64.4	91.4	97.2
Did not intend to have (more) children but did have more children	8.0	15.1	16.5	11.7	2.8	1.4
Intended to have (more) children but did not (yet) have more children	34.3	20.4	9.3	11.3	4.1	0.9
Intended to have more children and did have more children	39.8	49.9	39.4	12.5	1.6	0.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
<i>Those who intended to have more children</i>						
Mean number of additional children intended	2.6	2.3	2.0	1.6	1.5	1.5
Mean number of additional children had over next 10 years	0.9	1.4	1.4	0.8	0.3	0.6
<i>Intentions versus outcomes of those who intended to have children (%)</i>						
Had the intended number of children	11.4	26.9	35.2	30.3	13.2	35.1
Had more children than intended	8.8	13.5	19.1	12.3	0.7	*0.0
Had not (yet) had as many children as intended	79.8	59.6	45.7	57.5	86.0	64.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
Men						
Intended to have (more) children (%)	70.8	72.8	60.8	27.7	12.4	6.8
<i>Intentions versus outcomes—all (%)</i>						
Did not intend to have (more) children and did not	20.5	15.5	27.6	58.0	78.2	85.4
Did not intend to have (more) children but did have more children	8.7	11.9	11.4	14.1	9.4	7.7
Intended to have (more) children but did not (yet) have more children	49.0	26.7	18.6	10.6	4.5	5.0
Intended to have more children and did have more children	21.8	45.9	42.4	17.3	8.0	1.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
<i>Those who intended to have more children</i>						
Mean number of additional children intended	2.4	2.4	2.0	1.9	1.5	1.6
Mean number of additional children had over next 10 years	0.5	1.3	1.3	1.0	0.9	0.5
<i>Intentions versus outcomes of those who intended to have children (%)</i>						
Had the intended number of children	8.8	30.5	37.1	31.2	40.1	15.1
Had more children than intended	3.6	10.1	11.7	12.9	11.1	10.2
Had not (yet) had as many children as intended	87.7	59.4	51.1	55.9	48.7	74.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

Notes: Initial years comprise 2001 to 2005. * Estimate not reliable.

at age 20, but at all the older ages examined in Table 2.6, men are more likely to intend to have (more) children than women. The gap to women is largest at age 30, when 60.8% of men compared with only 48.8% of women report that they intend to have more children.

The panels headed 'Intentions versus outcomes—all' show the proportions in each combination for intended/did not intend more children and had/did not have more children over the subsequent 10 years. Note that an individual who

intended to have children but did not have any children over the subsequent 10 years may nonetheless subsequently have children, so we cannot infer that the individual failed to realise intentions, although for older women in particular (initially aged 35 or older), it is quite unlikely that intentions to have a child will be realised if they have not had a child within 10 years.

It is evident that fertility intentions are not realised within 10 years for substantial proportions of women

and men. In general, intentions are less likely to be realised at the younger ages, but this primarily derives from failure to have any children within 10 years, and it is likely that many of these individuals will subsequently have children. Perhaps most significant is that 11.3% of women aged 35 intended to have a child but had not done so by the age of 45. Since 12.5% of women aged 35 intended to have a child and did in fact have a child by the age of 45, the total proportion of women aged 35 who intended to



have a child is 23.8% (11.3 + 12.5), in turn implying that nearly half of the women aged 35 who intended to have a child did not do so by the age of 45.

Mismatches between intentions and outcomes are also quite common for men and women aged 20, 25, 30 and 35 who did not intend to have children. Between 8.0% and 16.5% of individuals at these ages did not intend to have children, but did in fact do so at some stage over the following 10 years. For women, the peak age (of those examined) for such mismatches is 30 (16.5%), while for men the peak age for such mismatches is 35 (14.1%).

The panels headed ‘Those who intended to have more children’ examine intentions and outcomes for the *number* of children had by those intending to have children. On average, people have fewer children than intended, although this is particularly unsurprising for those at the younger ages, since many will have children more than

10 years after the intention was stated. That said, for women, the gap between the intended and actual number of children is lowest among those initially aged 30, and is particularly high for those initially aged 40, who had a mean intended fertility of 1.5 and an actual fertility over the subsequent 10 years of 0.3. For men, there is a similar pattern, with the notable exception that those initially aged 40 had a similar gap between intended and actual fertility (0.6) as those initially aged 30 (0.7).

Examining the mismatch between the intended and actual number of children, we see that a minority of those intending to have children have the intended number of children within 10 years. For women, intentions are most likely to be realised among those initially aged 30. Even for this group, however, only 35.2% had the intended number of children within 10 years, with 45.7% not (yet) having as many children as intended, and 19.1% having more

children than intended. Notably, at younger ages (up to age 30), women are more likely than men to have more children than intended, while at older ages, men are more likely than women to have more children than intended.

Child support

When parents of dependent children aged under 18 live separately, often one of the parents is required by law to contribute to the cost of raising their children via payment of child support to the other parent or guardian.³ Moreover, irrespective of legal requirements, many parents—particularly those who (predominately) do not live with their children—are likely to voluntarily pay child support to the other parent, through payment for everyday regular expenses and/or payment for irregular or periodic expenses such as school fees.

Since 2002, the HILDA Survey has collected information on both receipt and payment of child support by separated parents. Since 2009, information has also been collected on whether each parent is expected to pay child support, either by the Child Support Agency or because of a private agreement, and the amount the parent is expected to pay.

Majority-care parents and minority-care parents

Table 2.7 reports estimates of the number of ‘majority-care’ parents and ‘minority-care’ parents in each year from 2001 to 2015. Majority-care parents are here defined to be parents or guardians with resident children aged under 18 who have a parent who lives elsewhere. Minority-care parents are defined to be individuals who have children aged under 18 who do not live with

³ Whether child support is payable, and how much is payable, depends on various factors, including the number of children, the income of each parent, and the extent to which care of the children is shared between the parents. An indication of child support obligations is provided by a child support estimator maintained on the Department of Human Services web site. See <<https://processing.csa.gov.au/estimator/About.aspx>>.

them at least 50% of the time.⁴ Note that minority-care parents include parents who do not have any care of the children (and indeed may have no contact with the children at all). Majority-care parents approximately correspond to potential recipients of child support, while minority-care parents approximately correspond to potential payers of child support. However, the correspondence is not exact, because in many cases no child support is payable. Indeed, because child support obligations depend on factors other than the extent of care provided by each parent, in some cases the minority-care parent is entitled to child support from the majority-care parent.

The table shows that the number of majority-care parents ranges from 788,357 (in 2002) to 900,948 (in 2013), accounting for between 22.1% (in 2014 and 2015) and 25.5% (in 2005) of all children aged under 18. The proportion of children aged under 18 in this situation peaked in 2005. Since then, the general trend has been downward, reaching its lowest level in the last two years of the HILDA Survey period.

The number of minority-care parents identified is somewhat lower than the number of majority-care parents, ranging from 537,179 (in 2010) to 620,503 (in 2001), and averaging approximately 70% of the number of majority-care parents identified. There are a number of possible reasons for this discrepancy, but perhaps most obvious is that many minority-care parents may not know of the existence of the children (since most of these parents are male).⁵

Table 2.7: Majority-care parents and minority-care parents, 2001 to 2015

	Majority-care parents			Minority-care parents
	Number of parents/guardians	Number of children	Percentage of all children	
2001	795,020	1,157,030	24.2	620,503
2002	788,357	1,172,363	24.4	584,157
2003	835,952	1,197,796	24.8	598,638
2004	829,501	1,210,958	25.1	552,181
2005	833,178	1,240,763	25.5	612,029
2006	830,011	1,218,208	24.7	574,232
2007	872,713	1,255,001	25.1	571,284
2008	868,402	1,247,385	24.6	599,154
2009	875,670	1,208,364	23.7	570,606
2010	883,167	1,215,826	23.7	537,179
2011	873,474	1,189,575	23.0	617,280
2012	870,404	1,207,766	23.1	566,068
2013	900,948	1,263,628	23.6	615,413
2014	842,867	1,194,788	22.1	617,579
2015	847,472	1,211,518	22.1	605,538

Notes: A 'majority-care' parent is defined to be a parent or guardian with children aged under 18 who are resident in that person's household at least 50% of the time and have a parent who resides elsewhere. A 'minority-care' parent is an individual with a child aged under 18 who does not reside in their household at least 50% of the time. The column headed 'Number of children' presents the total number of children of majority-care parents who are aged under 18 and have a parent who lives elsewhere.

Child support received and paid

Receipt of child support by majority-care parents and payment of child support by minority-care parents are examined in Table 2.8, which presents estimates of annual receipt and payment of child support for each of four subperiods of the HILDA Survey period: 2002 to 2004, 2005 to 2008, 2009 to 2012 and 2013 to 2015. The table distinguishes 'regular' child support, which is for everyday expenses (and usually ongoing and regular), from (irregular) payments for specific expenses such as school fees, clothing, and so on.

In all subperiods examined in Table 2.8, in each year approximately 33% to 34% of majority-care



⁴ In the HILDA Survey, children are classified as resident in the household in which they live at least 50% of the time. In instances where children reside with one parent for 50% of the time and with the other parent 50% of the time, they are classified as living with the mother. A more complete analysis would take into account the extent to which care of the children is shared between the parents. Also note that children aged over 18 are excluded from this analysis, yet it is certainly possible that child support is paid for children over the age of 18.

⁵ Other possible explanations include that some minority-care parents have children living in more than one other household (although it is also possible that a majority-care household has more than one minority-care parent living elsewhere), and that minority-care parents may, unbeknownst to the majority-care parent, be dead or living overseas (and therefore out of scope of the HILDA Survey). We also cannot rule out that some minority-care parents choose not to disclose that they have children who live elsewhere at least 50% of the time, or that attrition (dropping out of the study) is higher for minority-care parents and that the population weights supplied with the data do not adequately account for this higher rate of attrition.

parents received regular child support only, 4% to 5% received payments for specific expenses only, 7% to 8% received both regular child support and payments for specific expenses, and 54% to 55% received no child support at all. There was relatively little change in the proportion of majority-care parents receiving child support over the 2002 to 2015 period, although the total proportion receiving regular child support (either with or without additional payments for specific expenses) did rise slightly, from 40.3% each year in the 2002 to 2004 period, to 40.9% in the 2013 to 2015 period.

Among those receiving regular child support, the mean annual value of this regular support was (at December 2015 prices) \$6,978 in the 2002 to 2004 period and \$7,249 in the 2005 to 2008 period. It then fell to \$6,169 in the 2009 to 2012 period before rising again to \$6,429 in the 2013 to 2015 period. By contrast, mean irregular child support among those receiving it increased across all four subperiods, from \$1,748 in 2002 to 2004 to \$2,789 in 2013 to 2015.

Consistent with the findings for majority-care parents, there was relatively little net change in the proportion of minority-care parents paying child support over the 2002 to 2015 period. However, the data indicate there have been both small upswings and small downswings in reported payment of child support. For example, the proportion of minority-care parents reporting paying no child support was 28.7% in 2002 to 2004, 25.9% in 2005 to 2008, 30.8% in 2009 to 2012 and 28.0% in 2013 to 2015.

Overall, the total proportion reporting paying regular child support (with or without payments for specific expenses) fell slightly, from 63.2% in the 2002 to 2004 period, to 62.1% in the 2013 to 2015 period. This stands in contrast to the slight increase in

Table 2.8: Reported annual receipt and payment of child support, 2002 to 2015

	2002–2004	2005–2008	2009–2012	2013–2015
Receipt of child support by majority-care parents				
<i>Proportion in each category (%)</i>				
Receive regular child support only	32.5	33.3	33.8	34.0
Receive payments for specific expenses only	4.8	5.3	4.3	4.1
Receive both	7.8	7.6	6.8	6.9
Receive neither	54.9	53.7	55.1	55.1
Total	100.0	100.0	100.0	100.0
<i>Mean annual amount received by those receiving child support (\$, December 2015 prices)</i>				
Regular payments	6,978	7,249	6,169	6,429
Payments for specific expenses	1,748	2,593	2,777	2,789
Payment of child support by minority-care parents				
<i>Proportion in each category (%)</i>				
Pay regular child support only	29.7	30.8	28.9	29.3
Pay for specific expenses only	8.0	8.4	9.3	9.9
Both	33.5	34.9	30.9	32.8
Neither	28.7	25.9	30.8	28.0
Total	100.0	100.0	100.0	100.0
<i>Mean annual amount paid (\$, December 2015 prices)</i>				
Regular payments	7,955	8,445	8,118	7,815
Payments for specific expenses	2,116	2,863	3,014	3,217

Note: Cells may not add up to column totals due to rounding.

reported receipt of regular child support among majority-care parents. However, more significant than the slight contrast in trends in reported receipt and payment of child support is the large difference in the *levels* of the reported rates of receipt and payment. Reports by minority-care parents indicate a greater likelihood of paying child support than is suggested by the reports by majority-care parents. In any given year, approximately 69% to 74% of minority-care parents report paying at least some child support, whereas only 45% to 46% of majority-care parents report receiving any child support.

How do we reconcile the conflicting reports of majority-care parents and minority-care parents? One answer is that the 'missing' minority-care parents—the difference between the estimated number of majority-care parents and the estimated number of minority-care parents—do not pay any child support, which is, for example, consistent with these 'missing' minority-care

parents not knowing of the existence of the children. However, this cannot explain all of the gap. For example, in the 2013 to 2015 period, the total number of payers as reported by minority-care parents is approximately 440,000 each year (72% of approximately 613,000), whereas the total number of payers as reported by majority-care parents is approximately 388,000 each year (44.9% of approximately 864,000), which still leaves a (statistically significant) gap of approximately 52,000. It would therefore seem that there is a propensity for some recipients of child support to not report receiving it and/or for some minority-care parents to report paying child support they do not in fact pay.

Consistent with such reporting biases, mean child support payments reported by payers are somewhat higher than the mean reported by recipients. For example, in the 2013 to 2015 period, the mean for regular child

support payments is \$7,815 as reported by payers, but only \$6,429 as reported by recipients. Nonetheless, the trends in means of both regular child support and payments for specific expenses are similar for recipients and payers. Mean regular payments reported by payers peaked in the 2005 to 2008 period, while mean payments for specific expenses increased steadily over the four subperiods.

Expected child support

Since 2009, information has been collected from both majority-care parents and minority-care parents on whether and how much child support was expected to be paid. Table 2.9 compares reported expected and actual child support, in the upper panel for majority-care parents, and in the lower panel for minority-care parents.⁶

Each year, approximately 39% of majority-care parents report that child support is expected, with 31% reporting child support is expected and received, and 8% reporting that child support is expected but not received. Thus, approximately 80% of the people who expect to receive

child support actually receive the child support. A further 9.2% to 9.5% of majority-care parents report that child support is not expected, but is received, while 51% neither expect nor receive child support.

Among minority-care parents, a much higher proportion report being expected to pay child support. In 2009 to 2012, 47.4% reported being expected to pay child support and actually paying child support, and a further 12.5% reported being expected to pay but not actually paying. In the 2013 to 2015 period, 48.3% reported being expected to pay and actually paying and 13.8% reported being expected to pay but not paying. Very few reported paying child support without being expected to—3.8% in 2009 to 2012 and 3.6% in 2013 to 2015. The proportion of minority-care parents reporting neither being expected to pay nor paying was 36.4% in 2009 to 2012 and 34.3% in 2013 to 2015.

Among those receiving child support, the mean value of annual child support received is lower if child support is expected, at \$5,681 (at December 2015 prices)

in 2009 to 2012 and \$6,083 in 2013 to 2015, compared with respective means of \$7,874 and \$7,559 when child support is not expected. Among those expecting to receive child support, the mean value of expected child support is higher for those who actually receive child support. In 2009 to 2012, the mean annual value of expected child support was (at December 2015 prices) \$6,107 for those who received child support and \$5,235 for those who did not receive child support. The gap was even larger in the 2013 to 2015 period, when the mean value of child support expected was \$6,811 for those who received child support and \$4,702 for those who did not receive child support.

Similar patterns are evident from reports of mean expected and actual child support by payers. The mean annual value of child support reported by payers is somewhat higher among those not expected to pay, and the mean expected payment is lower among those not paying.

In most cases (approximately 83% as reported by majority-care parents and approximately 75% as reported

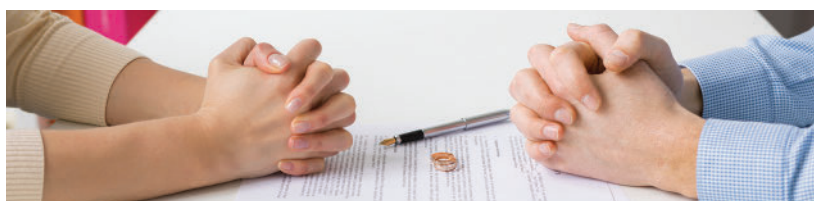


⁶ There is a variety of reasons why child support may not be expected. Most obviously, the criteria for determining liability for child support will in many cases mean that no child support is payable. Further reasons include that the identity or whereabouts of the other parent is unknown, the other parent is outside the reach of the Child Support Scheme, or one of the parents has an exemption from seeking child support (for example, due to fear of violence, or risk of social exclusion due to cultural reasons).

Table 2.9: Expected and actual annual child support payments, 2009 to 2015

	2009–2012	2013–2015
Majority-care parents: Expected and actually received regular child support		
<i>Proportion in each category (%)</i>		
Expected and received	31.5	31.3
Expected but not received	8.0	8.2
Not expected but received	9.2	9.5
Not expected and not received	51.4	51.0
Total	100.0	100.0
<i>Mean received (\$, December 2015 prices)</i>		
Child support expected	5,681	6,083
Child support not expected	7,874	7,559
<i>Mean expected (\$, December 2015 prices)</i>		
Child support actually received	6,107	6,811
Child support not received	5,235	4,702
<i>Who decided, or helped decide, expected amount (%)</i>		
Child Support Agency	82.8	83.0
Court	0.9	1.2
Other parent privately	14.0	13.3
Respondent on their own	2.2	2.1
Another party	0.3	0.3
Total	100.0	100.0
Minority-care parents: Expected and actually paid regular child support		
<i>Proportion in each category (%)</i>		
Expected and paid	47.4	48.3
Expected but not paid	12.5	13.8
Not expected but paid	3.8	3.6
Not expected and not paid	36.4	34.3
Total	100.0	100.0
<i>Mean paid (\$, December 2015 prices)</i>		
Child support expected	7,893	7,558
Child support not expected	8,972	8,724
<i>Mean expected (\$, December 2015 prices)</i>		
Child support actually paid	7,500	7,541
Child support not paid	3,720	6,568
<i>Who decided, or helped decide, expected amount (%)</i>		
Child Support Agency	75.3	73.0
Court	1.1	0.7
Other parent privately	20.0	21.0
Respondent on their own	3.0	4.7
Another party	0.7	0.6
Total	100.0	100.0

Note: Cells may not add up to column totals due to rounding.



by minority-care parents), the expected amount of child support was decided by the Child Support Agency. In most of the remainder of cases, the expected amount was determined by private agreement with the other parent or guardian.

Characteristics of recipients and payers of child support

Bearing in mind that there is a variety of reasons why child support may not be paid by a minority-care parent to a majority-care parent (see Footnote 6), it is of considerable interest to examine the factors associated with the payment and receipt of child support. Table 2.10 considers this issue, presenting estimates from regression models of the probability a majority-care parent receives regular child support, and of the probability a minority-care parent pays regular child support. The roles of a variety of characteristics are examined, with most being the same (or analogous) in the two models.

The table presents mean marginal effects estimates from Probit regression models. Most of the estimates are interpreted at the change in the probability of paying/receiving child support if the characteristic is present (that is, if the indicator variable is equal to 1; see the Technical Appendix for further explanation of Probit models). The exceptions are the variables for calendar year and age of the youngest child (of the majority-care and minority-care parents), where the estimated mean marginal effect is the change in probability as a result of increasing the variable (year or age) by one.

The upper panels of the table consider the effects of the family situations of the two parents. The estimates indicate that if the majority-care parent is partnered, the probability of receiving child support decreases by 7.5 percentage points, holding other factors constant. By contrast, the probability the minority-care parent pays child support increases by

7.1 percentage points if that parent is partnered.

The two models both show that if there are two or more children of the estranged parents, child support is more likely to be paid compared with if there is only one child. The model estimated on majority-care parents shows there is also a higher probability of receiving child support if there are three or more children compared with if there are two children. However, the minority-care parent model shows a slightly lower probability of paying child support if there are three or more children compared with if there are two children. The majority-care parent model shows no significant association between receipt of child support and the age of the youngest child, while the minority-care parent model shows a negative association, with each additional year of age of the youngest child associated with a 0.9 percentage-point decrease in the probability of paying child support.

The presence of other children in each parent's household is associated with significant effects on child support receipt. As with the partner status of the two parents, there are asymmetric effects of other children. Holding other factors constant, if there are other children present in the majority-care parent's household the probability of receiving child support increases by 3.7 percentage points, whereas if there are other children present in the minority-care parent's household, the probability of paying child support decreases by 10.3 percentage points.

The models consider effects associated with the population density and socio-economic disadvantage of the region of residence of each parent. The socio-economic status of the region of residence of both the majority-care parent and the minority-care parent, as measured by their SEIFA decile (see Box 2.4, above), is positively associated with payment

Box 2.4: 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 2001 to 2010, the measure based on the 2001 census is used, while for 2011 to 2015, the measure based on the 2011 census is used. For more information, see ABS (2003) and ABS (2013).



Box 2.5: 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 state or territory of residence or by the region's population density. Three levels of population density are distinguished: **major urban** (cities with populations of 100,000 or more); **non-major urban** (towns and cities with populations of 1,000 to 99,999); and **non-urban regions** (towns with populations less than 1,000, and rural and remote areas). The HILDA Survey data show that, in 2015, approximately 65% of the population resided in major urban areas, 20% resided in other urban areas and 15% resided in non-urban areas.

In some more-detailed analysis by region undertaken in this report, information on state or territory of residence, whether resident of the state's capital city, and population density is combined together to create 13 distinct regions, each of which has sufficient sample size to support the statistical analyses presented. The regions comprise: Sydney; other urban New South Wales; Melbourne; other urban Victoria; Brisbane; other urban Queensland; Adelaide; other urban South Australia; Perth; other urban Western Australia; urban Tasmania; Australian Capital Territory and urban Northern Territory; and non-urban Australia. Note that 'other urban' areas of each mainland state comprise both major urban areas (cities with populations of 100,000 or more) and non-major urban areas (towns and cities with populations of 1,000 to 99,999).

of child support. Each one-decile increase of the SEIFA decile of the majority-care parent acts to increase the probability of receiving child support by 0.7 percentage points, while each one-decile increase in the SEIFA decile of the minority-care parent acts to increase the probability of receiving child support by 0.8 percentage points. Significant effects are also evident for the population density of the region of residence (see Box 2.5, above), although here there are different effects for recipients

and payers. Other things being equal, majority-care parents living outside urban areas have a 6.0 percentage-point lower probability of receiving child support than those living in urban areas, while minority-care parents living in urban areas outside of cities of 100,000 or more have a 3.2 percentage-point higher probability of paying child support than those living in cities or non-urban areas.

The probability of receiving child support is lower the more the majority-care parent earns, while



the probability of paying child support is higher the more the minority-care parent earns. Both models also show that the probability of receiving child support is lower if the majority-care parent is employed full-time and higher if the minority-care parent is employed full-time. However, majority-care parents who are employed part-time are more likely to receive child support than those not employed.

The HILDA Survey asks majority-care parents how often the children see (have contact with) the minority-care parent, and minority-care parents are similarly asked about their frequency of contact with their children. This provides a measure of the extent of involvement of the minority-care parent in the lives of their children (with the majority-care parent). The estimates show that frequency of contact between the children and

Table 2.10: Characteristics associated with receipt of regular child support and with payment of regular child support, 2002 to 2015

<i>Receipt of child support by majority-care parents</i>		<i>Payment of child support by minority-care parents</i>	
	<i>Estimate</i>		<i>Estimate</i>
Partnered	-0.075	Partnered	0.071
<i>Number of children with a minority-care parent (Reference category: One)</i>		<i>Number of children with majority-care parent (Reference category: One)</i>	
Two	0.071	Two	0.079
Three or more	0.135	Three or more	0.057
Age of youngest child with minority-care parent (years)	<i>ns</i>	Age of youngest child with majority-care parent (years)	-0.009
Other children present in household	0.037	Has resident children	-0.103
<i>Population density of region of residence (Reference category: Major urban)</i>		<i>Population density of region of residence (Reference category: Major urban)</i>	
Non-major urban	<i>ns</i>	Non-major urban	0.032
Non-urban	-0.060	Non-urban	<i>ns</i>
SEIFA decile	0.007	SEIFA decile	0.008
Weekly earnings (\$'00, December 2015 prices)	-0.003	Weekly earnings (\$'00, December 2015 prices)	0.004
<i>Labour force status (Reference category: Not employed)</i>		<i>Labour force status (Reference category: Not employed)</i>	
Employed full-time	-0.039	Employed full-time	0.121
Employed part-time	0.077	Employed part-time	<i>ns</i>
Household equivalised income excluding child support income (\$'000, December 2015 prices)	-0.002	Household equivalised income (\$'000, December 2015 prices)	<i>ns</i>
<i>Labour force status of minority-care parent (Reference category: Not employed)</i>		<i>Labour force status of majority-care parent (Reference category: Not employed)</i>	
Employed full-time	0.239	Employed full-time	-0.106
Employed part-time	<i>ns</i>	Employed part-time	0.049
Not known	<i>ns</i>	Not known	-0.222
<i>Frequency of contact between the children and the minority-care parent (Reference category: At least weekly)</i>		<i>Frequency of contact between the minority-care parent and the children (Reference category: At least weekly)</i>	
Fortnightly or monthly	0.070	Fortnightly or monthly	0.081
Every 3 months to once a year	0.053	Every 3 months to once a year	0.053
Less than once a year or never	0.044	Less than once a year or never	0.123
<i>Distance from minority-care parent (Reference category: Less than 100 km)</i>		<i>Distance from majority-care parent (Reference category: Less than 100 km)</i>	
More than 100 km away	<i>ns</i>	More than 100 km away	<i>ns</i>
Minority-care parent lives overseas	-0.198	Majority-care parent lives overseas	-0.096
Distance not known	-0.161	Distance not known	-0.111
Year	<i>ns</i>	Year	-0.003
Number of observations	12,300	Number of observations	8,677

Notes: The table reports mean marginal effects estimates obtained from Probit models of the probability of receiving/paying child support. See the Technical Appendix for explanation of these models. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

the minority-care parent is associated with significant effects on the probability of child support being paid, although the nature of these effects is, on the surface, surprising. In particular, minority-care parents who have at least weekly contact with their children are less likely to pay child support than minority-care parents who see their children less frequently. However, this possibly reflects the existence of shared-care arrangements among those with frequent contact. Minority-care parents in this category could in fact look after the children as much as 50% of the time. As noted earlier, shared-care arrangements will, in some situations, result in no child support obligations, or indeed in the majority-care parent being required to pay child support to the minority-care parent.

Geographic proximity between the children and the minority-care parent (when known) does not appear to be an important factor in determining whether child support is paid, unless the minority-care parent or the majority-care parent lives overseas, in which case there is a considerably lower probability that child support is paid. The estimates for the variable labelled 'year' show there has been no significant trend change in the probability of receiving regular child support, but a slight trend decrease



in the probability of paying regular child support, with the estimate of -0.003 implying a minority-care parent had a 3.9 percentage-point lower probability of paying child support in 2015 than in 2002, holding other factors constant.

Duration of child support payments

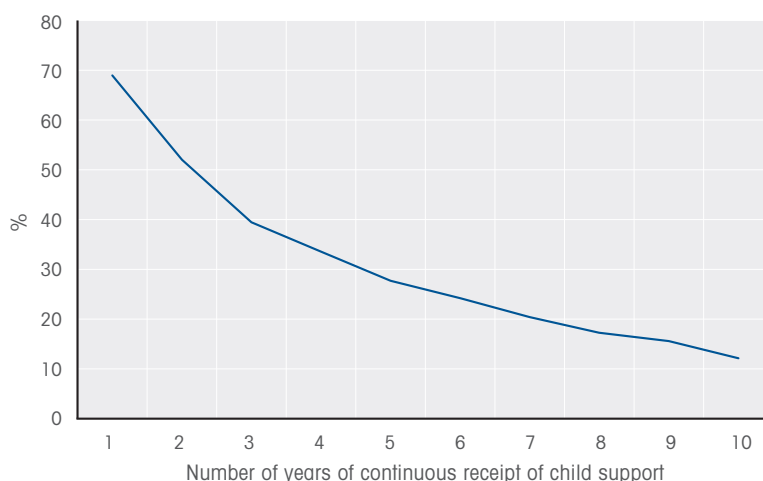
Drawing on the longitudinal information in the HILDA Survey, it is possible to examine the extent to which child support payments are consistently paid over multiple years, or whether they tend to be paid only intermittently. Clearly, the wellbeing of recipients of child support depends critically on whether the child support provides a steady and sustained source of

income. Here, we consider in only a cursory manner the extent to which child support payments are sustained over time by examining the length of child support 'spells'—that is, the number of consecutive years in which child support is received.

Figure 2.2 presents an 'empirical survival function' for child support spells. It shows, at each spell duration (measured in years), the proportion of majority-care parents who were still receiving child support at that spell duration. Importantly, at each spell duration, only those parents or guardians that could be considered eligible to receive child support at that spell duration are included. Specifically, if the parent or guardian no longer has resident children aged under 18 who have a minority-care parent, that individual is not included in the calculation of the proportion of majority-care parents still receiving child support at that spell duration.

The figure shows a surprisingly low rate of 'survival' of child support spells: approximately 70% of spells continue beyond one year, approximately half continue beyond two years, and approximately one-quarter continue beyond five years. Changing circumstances of the majority-care parent and the minority-care parent could explain this, but—as explained above—it cannot be because the majority-care

Figure 2.2: Survival function for receipt of regular child support (proportion continuing to receive child support at each spell duration)



parent ceases to be a majority-care parent, since this source of cessation of child support is eliminated from the graph. While it is likely that, subsequent to child support payments ceasing, many majority-care parents will again receive child support in future years, the findings in Figure 2.2 suggest that child support is often not a steady and sustained source of income.

Further support for the sporadic nature of child support payments is found by examining, for those years a parent is a potential recipient of child support, the proportion of years in which child support is received. This is not presented in a table or figure here, but the analysis shows that approximately 49% of majority-care parents receive child support in none of the years they are majority-care parents, while only 21% receive child support in three-quarters or more of the years. (The remaining 30% received child support in at least one year, but for less than three-quarters of the years they were majority-care parents.)

Paid child care for children not yet in school

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 for all households containing children under 15 years of age, although changes to the questionnaire between Waves 1



and 2 mean that strictly comparable data on *work-related* child care is only available from Wave 2 onwards.⁷

In this chapter we focus on child care for children not yet at school, which is perhaps where public discussion and debate is most heated. For some of the analysis presented in this chapter it is not known whether the children are in school, and it is therefore assumed that children aged under 5 as of 30 June of the survey year are not yet in school, while children born after that date are in school. This will not in fact be the case for all children.

Use of paid child care

Table 2.11 examines use of paid child care for children aged under 5 over the 2002 to 2015 period. Two-year periods are examined to reduce the number of estimates—for example, the first column presents pooled estimates for 2002 and 2003. The upper panel shows a consistent pattern of single parents being slightly more likely to use paid care than couple parents. In 2002 and 2003, for example, 42.4% of couple parents used paid care for children aged under 5, while 49.1% of single parents used paid care for children aged under 5. No clear trend change in the rate of use of paid child care is evident over the 2002 to 2015 period, although the proportion using care reached its highest level in 2014 and 2015,

when 46.5% of couple parents and 50.7% of single parents used paid child care.

The second panel of Table 2.11 disaggregates child care use by the type of care used, distinguishing formal care from paid informal care, which is defined to be use of a nanny or paid sitter. (See Box 2.6, page 23, for definitions of formal and informal care.) Most families who use paid care use only formal care. A small proportion use a combination of formal care and paid informal care, and an even smaller proportion use only paid informal care. Couple parents are more likely to use a nanny or paid sitter than single parents. Use of a combination of formal and paid informal care peaked for couples in 2008 and 2009, when 7.0% were in this category, while for single parents the peak was in 2004 and 2005; for both couples and single parents, combined use of formal and paid informal care reached its lowest level in the most recent years (2014 and 2015). The proportion of couple families using only paid informal care was also at its lowest in 2014 and 2015.

The bottom panel of the table shows that for most of the couple families using paid care (between 69.8% and 85.3%, depending on the year), at least some of that care is work-related (see Box 2.6, page 23). Paid care used by single parents is less likely to be at least partially work-related; nonetheless, in most years the

⁷ Child care questions are administered to only one household member, who is usually a parent or guardian of the children. All questions concern 'usual' use of child care, with respondents left to decide for themselves what constitutes 'usual'.

Table 2.11: Use of paid child care for children aged under 5, 2002 to 2015 (%)

	2002 and 2003	2004 and 2005	2006 and 2007	2008 and 2009	2010 and 2011	2012 and 2013	2014 and 2015
Use paid care							
Couple parents	42.4	44.9	41.6	41.5	41.8	44.0	46.5
Single parents	49.1	45.6	49.4	47.6	48.2	46.8	50.7
Those using paid care: Type of care used							
<i>Couple parents</i>							
Only use formal care	89.4	90.5	89.4	88.9	89.1	90.9	93.2
Only use nanny or paid sitter	5.1	4.2	4.7	4.1	5.6	2.8	2.2
Use both formal care and nanny/paid sitter	5.5	5.3	5.9	7.0	5.3	6.4	4.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Single parents</i>							
Only use formal care	94.1	92.0	97.6	97.2	97.2	98.4	97.3
Only use nanny or paid sitter	2.1	2.3	1.0	1.1	1.1	*0.0	1.6
Use both formal care and nanny/paid sitter	3.7	5.7	1.4	1.7	1.7	1.6	1.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Those using paid care: Use work-related care							
Couple parents	69.8	74.0	79.0	83.6	79.2	77.0	85.3
Single parents	55.2	45.7	60.0	63.3	63.2	56.3	66.9

Notes: Cells may not add up to column totals due to rounding. * Estimate not reliable.

Table 2.12: Mean weekly hours of paid care per child not yet at school—Families using paid care, 2001 to 2015

	2002 and 2003	2004 and 2005	2006 and 2007	2008 and 2009	2010 and 2011	2012 and 2013	2014 and 2015
Couple parents							
Formal care	20.4	19.6	19.9	20.0	19.0	22.1	23.4
Nanny or paid sitter	8.2	6.5	13.1	13.2	14.8	14.6	9.4
Single parents							
Formal care	25.4	27.6	24.1	27.2	25.0	24.1	31.2
Nanny or paid sitter	3.0	1.8	3.1	1.3	0.3	4.8	2.3

majority of single parents use paid care for work-related purposes.

The number of hours of paid care used each week for each child not yet at school is examined in Table 2.12. Among couple parents who use paid care, an average of approximately 20 hours per week were used for each child up until 2011, after which the mean rose, to be 23.4 hours in 2014 and 2015. Among single parents using formal care, mean hours per child are somewhat higher, at around 25 hours per week up until 2013; moreover, in 2014 and 2015, there was a substantial rise in mean weekly hours to 31.2 hours.

Mean hours of paid informal care among those using paid care are relatively low, particularly for single

Box 2.6: 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 a parent is 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.



parents. For couple parents, mean weekly hours of informal care peaked at 14.8 in 2010 and 2011, but by 2014 and 2015 had fallen back to 9.4 hours.

Expenditure on child care

Every wave of the HILDA Survey, households who use child care are asked to report their usual weekly expenditure on child care for each child 'after any regular child care benefit you may receive has been deducted'. Table 2.11 shows that, each year, approximately 42% to 47% of couple families with children aged under 5 and approximately 46% to 51% of single-parent families with children aged under 5 usually pay for at least some child care for those children. Table 2.13 shows, for couple families and single-parent families with expenditure on child care for children not yet at school, the median usual weekly child care expenditure (at December 2015 prices) on children not yet at school. As in preceding tables in this section, estimates are presented for pooled two-year intervals over the 2002 to 2015 period.

The table shows sustained and substantial rises in median expenditure over the 2002 to 2015 period for both couple families and single-parent families. In 2002 and 2003, among those with expenditure on child care for children aged under 5, median weekly expenditure on child care was \$93 for couple families and \$56 for single-parent families. In 2014 and 2015, the



corresponding medians were \$162 and \$114, which translate to large real increases of 74% and 104%, 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 the lower panel of Table 2.13, which presents the median share of annual income spent on child care for children

aged under 5, again restricting to those families with expenditure on child care for children aged under 5. 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 each third of the income distribution: the bottom third, middle third and top third.

Despite year-to-year volatility, the clear trend evident is that, for

Table 2.13: Expenditure on child care for children aged under 5, by family type and by income tercile, 2002 to 2015

	2002 and 2003	2004 and 2005	2006 and 2007	2008 and 2009	2010 and 2011	2012 and 2013	2014 and 2015	Percentage change over the full period
Median weekly expenditure (\$, December 2015 prices)								
Couple family	93	119	136	157	149	163	162	74.5
Single-parent family	56	77	75	72	82	108	114	104.3
Median proportion of household income spent on child care, by tercile of the income distribution (%)								
Bottom third	5.7	4.9	6.6	6.2	6.9	8.6	8.5	48.1
Middle third	5.8	6.9	6.8	7.1	7.2	8.2	8.1	40.5
Top third	6.4	6.8	7.4	7.9	6.9	7.4	7.0	9.3

households with expenditure on child care for children not yet at school, the share of income spent on this child care has risen between 2002 and 2014. There are, moreover, indications of a systematic relationship between the trend in the child care expenditure burden and rank in the income distribution. As Table 2.13 indicates, there was a change in the median proportion of household income spent on child care from 5.7% to 8.5% (48.1% increase) for those in the bottom third of the income distribution, 5.8% to 8.1% (40.5% increase) for those in the middle, and from 6.4% to 7% (9.3% increase) for those in the top third during this period.⁸ These changes suggest that child

care costs may be acting to increase inequality of 'effective' income (income net of child care costs) in 2014 and 2015 compared with their effects in 2002 and 2003. That is, income is reduced by child care costs proportionately more for lower-income households in 2014 and 2015, whereas in 2002 and 2003, it was reduced by proportionately less.

Child care difficulties

Households that have, at any stage in the previous 12 months, used or thought about using child care to enable one or both of the parents or guardians to undertake paid work are asked about the difficulties they have faced with child care.

Specifically, they are asked to rate, on a scale from 0 to 10, how much difficulty they have had with each of 12 types of difficulty. In this report, these 12 types are classified into three categories of difficulty: quality, availability and cost. The 12 types of difficulty, and the category to which each is assigned, are provided in Box 2.7 (below).

Table 2.14 shows the proportion of households with children aged under 5 who have used or thought about using child care who have experienced moderate difficulty for at least one difficulty-type (defined as a rating of 1 to 5 on the 0 to 10 scale) and the proportion who have experienced substantial problems with at least one difficulty-type (defined as a rating of 6 to 10). Estimates are presented for each category of difficulty and all difficulty-types combined. As elsewhere in this section, estimates are presented for each two-year block over the 2002 to 2015 period.

In most years, approximately 80% of households that had used or thought about using child care reported experiencing moderate difficulties with at least one aspect of child care, with availability difficulties being the most

Box 2.7: Classification of types of difficulties with child care

In every wave of the HILDA Survey, parents who have used or thought about using child care in the last 12 months are asked to rate on a scale of 0 to 10 how much difficulty they have had in the past 12 months with each of 12 aspects of obtaining child care: (1) finding good quality care; (2) finding the right person to take care of your child; (3) getting care for the hours you need; (4) finding care for a sick child; (5) finding care during school holidays; (6) the cost of child care; (7) juggling multiple child care arrangements; (8) finding care for a difficult or special needs child; (9) finding a place at the child care centre of your choice; (10) finding a child care centre in the right location; (11) finding care your children are happy with; and (12) finding care at short notice.

In this report, these aspects are aggregated into three categories: availability (3 to 5, 7 to 10, 12); quality (1, 2, 11); and cost (6). Households are defined to experience a difficulty with a category if difficulty is reported for any of the types that make up that category. Moderate difficulties are defined as a rating of 1 to 5 on the 0 to 10 scale, while substantial difficulties are defined as a rating of 6 to 10.

Table 2.14: Experience of child care difficulties by households with children aged under 5, 2002 to 2015 (%)

	2002 and 2003	2004 and 2005	2006 and 2007	2008 and 2009	2010 and 2011	2012 and 2013	2014 and 2015
Used or thought about using child care	54.4	54.3	54.2	55.6	57.6	54.4	58.6
Households that had used or thought about using child care							
<i>Moderate difficulties (1–5)</i>							
Quality	30.0	35.5	38.0	38.6	39.5	39.0	38.8
Availability	63.3	71.4	72.9	73.6	74.8	73.2	71.6
Cost	35.2	34.1	37.1	37.8	37.9	33.4	37.6
Any moderate problem	73.3	79.2	79.9	80.0	81.4	80.3	80.0
<i>Substantial difficulties (6–10)</i>							
Quality	34.8	39.6	30.9	32.7	33.4	36.6	36.2
Availability	65.3	71.2	63.5	64.3	65.8	67.5	69.4
Cost	46.1	54.1	56.6	53.5	52.9	58.6	59.8
Any substantial problem	72.3	76.5	74.2	74.2	74.8	77.2	78.3

Notes: See Box 2.7, above, for the classification of difficulties into quality, availability and cost. A household is classified as having a moderate difficulty if a rating of 1–5 is reported for any component of the difficulty-type, and a household is classified as having a substantial difficulty if a rating of 6–10 is reported for any component. Note, therefore, that a household could be classified as having both moderate and substantial difficulties with both quality and availability, since these difficulty types have more than one component.

⁸ Further analysis not presented in this report shows that growth in *mean* child care expenditure is even stronger, and is more strongly ordered by income rank, than growth in the median.

Table 2.15: Experience of substantial child care difficulties, by household characteristics—Households with children aged under 5 who have used or thought about using child care, 2002 to 2015 (pooled) (%)

	Quality	Availability	Cost	Any substantial problem
Family type				
Couple	36.9	69.0	59.6	78.3
Single parent	37.6	70.9	59.5	78.2
Income tercile				
Bottom third	40.6	67.6	56.6	75.9
Middle third	34.4	69.4	62.6	79.2
Top third	35.4	68.3	57.2	77.6
Region				
Sydney	47.5	69.9	64.5	78.7
Other urban New South Wales	34.2	73.5	53.0	79.8
Melbourne	35.0	69.3	61.5	78.3
Other urban Victoria	29.4	62.6	40.6	70.7
Brisbane	28.7	67.2	59.8	77.7
Other urban Queensland	35.7	72.1	64.7	81.6
Adelaide	24.0	62.6	44.6	71.5
Other urban South Australia	27.7	73.5	66.4	84.3
Perth	33.1	65.8	56.9	74.6
Other urban Western Australia	41.2	73.4	60.2	73.4
Urban Tasmania	37.7	75.3	59.9	80.0
Australian Capital Territory and urban Northern Territory	47.9	56.6	70.4	80.7
Non-urban Australia	33.9	68.3	57.4	77.6

common. Approximately three-quarters reported experiencing substantial difficulties with at least one aspect, with availability difficulties again being most common. Notable, however, is that a significantly higher proportion report substantial cost difficulties than report moderate cost difficulties. Moreover, the proportion experiencing substantial difficulties with cost has risen over the period since 2002. This is consistent with the large real increase in child care expenditure documented in Table 2.13.

Table 2.15 examines how reports of child care difficulties differ by family type, location in the income distribution and region of residence. For this analysis, the entire period from 2002 to 2015 is collectively examined. The prevalence of substantial difficulties, be it with quality, availability or cost, is very similar for couple and single-parent families. This is perhaps surprising, since one might expect difficulties to be greater for lone parents, at least with respect to cost. Similarly, differences by location (third) in the income distribution are quite small,

and in fact substantial cost difficulties are most prevalent among those in the middle third of the income distribution.

Comparing across regions (see Box 2.5, page 19), the total proportion reporting substantial difficulties does not vary a great deal, although the nature of the difficulties does appear to differ across regions. Substantial difficulties with quality are most commonly reported in the Australian Capital Territory and urban Northern Territory, Sydney and non-Perth urban Western Australia. Substantial difficulties with availability are most commonly reported in urban Tasmania and in all non-capital-city urban areas other than Victoria. Reported substantial difficulties with cost are most common in the Australian Capital Territory and urban Northern Territory, non-Adelaide urban South Australia, non-Brisbane urban Queensland, and Sydney.

Persistence of difficulties

Child care difficulties may be temporary or persistent, and clearly persistent difficulties are of more concern than temporary difficulties that are resolved. Table 2.16 shows, however, that substantial difficulties are quite persistent from one year to the next. The table presents, for households that experienced substantial difficulties in one year, the proportion reporting substantial difficulties in the following year. Persistence of any substantial problem is in excess of 80%, and appears to have increased after 2009 (after having decreased since 2004). Among the types of problems, availability difficulties are the most persistent, followed by cost difficulties.

Table 2.16: Persistence of substantial difficulties from one year to the next—Households with children aged under 5 who have used or thought about using child care, 2002 to 2015 (%)

	2002 and 2003	2004 and 2005	2006 and 2007	2008 and 2009	2010 and 2011	2012 and 2013	2014 and 2015
Quality	48.9	55.2	56.4	51.7	51.0	55.5	56.3
Availability	79.1	84.1	78.2	77.7	80.4	83.4	82.0
Cost	68.0	77.3	79.5	73.2	68.9	77.9	73.3
Any substantial problem	83.0	88.4	86.8	83.0	87.1	89.0	88.3

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.¹ 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 incidence of income poverty, and the extent of welfare reliance in the Australian community.

Income levels and income inequality

Annual income

Cross-sectional estimates of mean and median household annual disposable income (as defined in Box 3.1, below) 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

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 2015 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.

¹ While the HILDA Survey is, by design, broadly nationally representative, sample selection and 'following' rules, as well as non-response and attrition, will lead to the sample under-representing certain groups in the community. See Part B of the Technical Appendix for more details.

Table 3.1: Household annual disposable incomes, 2001 to 2015

	Mean (\$, December 2015 prices)	Median (\$, December 2015 prices)	Number of households	Number of persons
2001	68,233	58,956	7,281,923	18,818,394
2002	68,599	59,809	7,357,921	19,035,542
2003	68,827	59,601	7,434,912	19,257,483
2004	70,863	61,826	7,506,823	19,470,042
2005	74,131	65,280	7,591,281	19,719,019
2006	78,092	67,090	7,695,523	20,008,594
2007	83,016	70,461	7,842,965	20,374,277
2008	83,881	72,411	8,013,031	20,798,070
2009	87,045	77,411	8,175,618	21,201,679
2010	87,541	74,894	8,295,733	21,502,507
2011	87,643	73,531	8,398,588	21,816,323
2012	89,046	77,157	8,542,340	22,199,959
2013	89,652	77,143	8,679,943	22,569,530
2014	89,940	76,838	8,803,789	22,901,450
2015	89,341	76,225	8,925,748	23,223,766

Box 3.2: Equivalised income

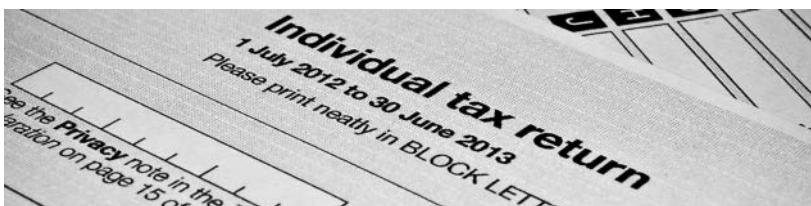
Equivalised income is a measure of material living standards, obtained by adjusting household disposable income for the household’s ‘needs’. Most obviously, a household of four people will require a higher household income than a lone-person household for each household member to achieve the same living 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.

population over the HILDA Survey period. Expressed at December 2015 prices, the mean increased by \$21,108 between 2001 and 2015, or \$1,508 per year; the median increased by \$17,269 over the period. However, growth was very much concentrated on the 2003 to 2009 period, when the mean increased by \$18,218 or 26.5%, and the median increased by \$17,810, or 29.9%. Indeed, between 2009 and 2015, the median household income fell slightly, while the mean grew by only \$2,296. Both the mean and median fell in real terms between 2014 and 2015.

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, opposite, for an explanation of how equivalised income is calculated and Box 3.3, opposite, 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



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, the ratio of the median to the 10th percentile 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.

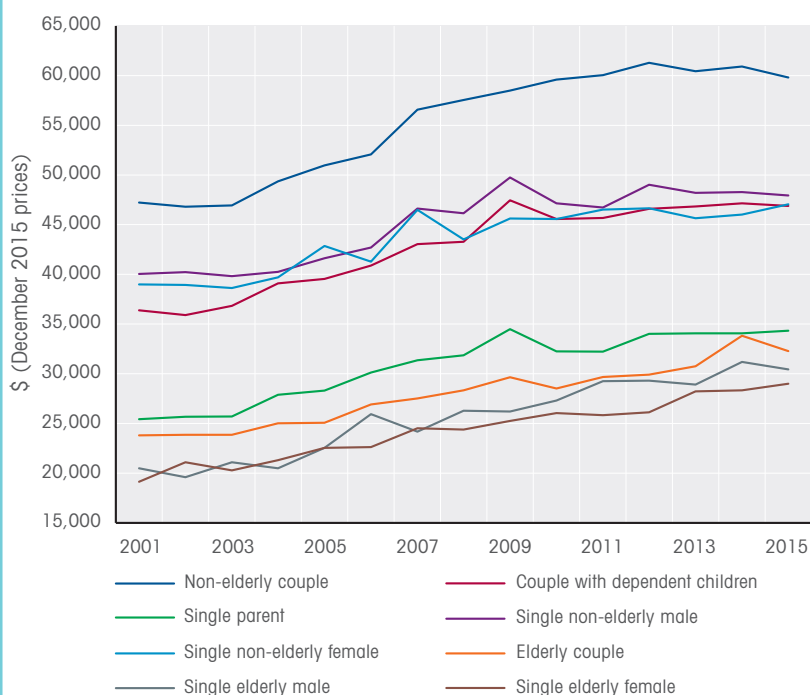
Table 3.2: Distribution of individuals' equivalised household disposable income, 2001 to 2015

	Mean (\$, December 2015 prices)	Median (\$, December 2015 prices)	Ratio of 90th percentile to the median	Ratio of the median to the 10th percentile	Gini coefficient
2001	40,362	35,797	1.91	2.13	0.303
2002	40,605	35,836	1.89	2.07	0.301
2003	40,826	36,164	1.88	2.08	0.298
2004	41,834	37,945	1.83	2.11	0.291
2005	43,712	39,027	1.87	2.09	0.295
2006	45,904	40,221	1.92	2.05	0.299
2007	49,209	43,023	1.92	2.18	0.314
2008	49,393	43,210	1.92	2.17	0.308
2009	51,478	46,762	1.81	2.16	0.291
2010	51,559	45,032	1.92	2.10	0.305
2011	51,652	44,677	1.99	2.09	0.311
2012	52,401	46,031	1.91	2.05	0.299
2013	52,669	45,954	1.91	2.02	0.301
2014	52,791	45,924	1.92	1.99	0.300
2015	52,611	46,007	1.93	1.98	0.296

average incomes, is robust to the move to equivalised incomes and the individual as the unit of analysis. This is unsurprising given there have been only modest changes in household composition of the population between 2001 and 2015. The HILDA Survey indicates there has been little net change in income inequality between 2001 and 2015. For example, the Gini coefficient, a common measure of overall inequality, has remained at approximately 0.3 over the entire 15 years of the HILDA Survey.

Figure 3.1 compares median incomes across family types (defined in Box 3.4, below). A reasonably consistent ordering of median incomes by type of family is evident across the 15 waves of the survey, ranging from single elderly 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 single-parent families and elderly people, who have low incomes. All family types have experienced

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) single 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. Also note that to be classified as having dependent children, the children must live with the parent or guardian at least 50% of the time. Consequently, individuals with dependent children who reside with them less than 50% of the time will not be classified as having resident dependent children. See the 2016 HILDA Survey Statistical Report (Wilkins, 2016) for an analysis of parents in this situation.

Figure 3.2 Median household equivalised income by region

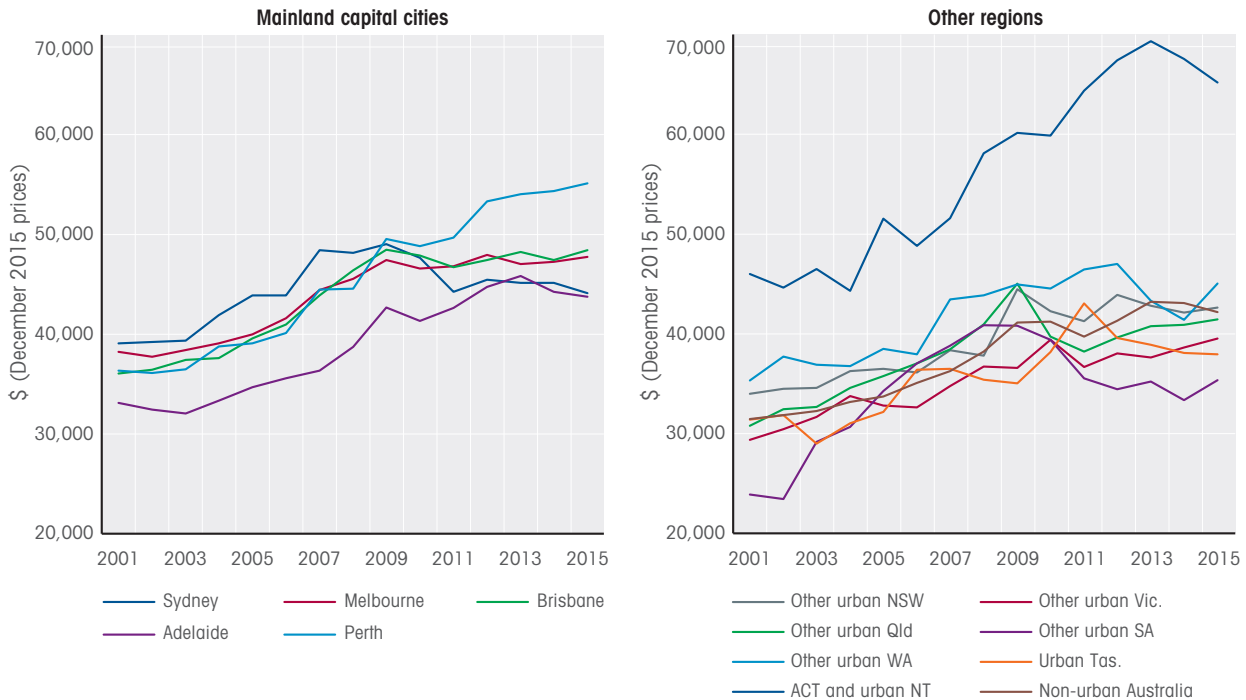


Table 3.3: Growth in median household equivalised income by region, 2001 to 2015

	Median in 2001 (\$, December 2015 prices)	Median in 2015 (\$, December 2015 prices)	Percentage change
Sydney	39,597	44,779	13.1
Melbourne	38,709	48,494	25.3
Brisbane	36,494	49,210	34.8
Adelaide	33,480	44,378	32.6
Perth	36,797	56,073	52.4
Other urban New South Wales	34,381	43,278	25.9
Other urban Victoria	29,636	40,072	35.2
Other urban Queensland	31,084	42,053	35.3
Other urban South Australia	23,996	35,802	49.2
Other urban Western Australia	35,753	45,753	28.0
Urban Tasmania	31,699	38,426	21.2
Australian Capital Territory and urban Northern Territory	46,702	66,464	42.3
Non-urban Australia	31,780	42,808	34.7

growth in median incomes between 2001 and 2015, with non-elderly couples without children faring slightly better than other family types up until 2012.

Income differences by region

There is much public discussion about how economic fortunes differ across regions, with particular interest in how regional areas are faring compared with the major cities. Figure 3.2 and Table 3.3 compare median equivalised incomes over the 2001 to 2015 period across 13 regions of Australia. The regions comprise each of the five mainland capital cities, other urban areas in each mainland state, urban Tasmania, the Australian Capital Territory and urban Northern Territory (combined), and non-urban Australia. Urban areas are defined as towns and cities with populations of 1,000 or more. (See Box 2.5, on page 19, for more details on classifications of region of residence used in this report.)

Median incomes are considerably higher in the mainland capital cities than in the other regions, with the notable exception being the



median income in the Australian Capital Territory and urban Northern Territory region, which is highest of all, and grew most strongly up until 2013.² Non-urban Australia looks very similar to the 'other urban' areas in terms of median income, and it is at the upper end of the 'other urban' areas in 2014 and 2015.

Of the 13 regions examined, Sydney experienced the weakest median income growth between 2001 and 2015. Income growth was 13.1%, compared with at least 21% in the other regions.³

Remarkably, among the mainland capital cities, the median income in Sydney fell from highest in 2001 to second-lowest in 2015, only slightly ahead of Adelaide. Median income growth was strongest in Perth, which clearly had the highest median income of the mainland capital cities in 2015.

Longer-term incomes

Table 3.4 takes advantage of the longitudinal information in HILDA to examine the distribution of income measured over longer time-frames than one year. The upper panel presents distributional statistics for five-year income, while the lower panel examines incomes measured over the full 15-year span of the HILDA Survey. Multi-year income is calculated for each individual as the sum of inflation-adjusted annual equivalised income over the (five or 15) years—that is, equivalised income is obtained for each of the years and these values are then added together. The measures apply only to individuals alive in all the relevant years—thus, for example, children born between 2001 and 2015 are not included in the population for which 15-year income is examined. Notwithstanding the need to



² Separate analysis of the Australian Capital Territory and urban Northern Territory shows that incomes are similarly high in the two regions, although there is more volatility in median incomes from year to year, reflecting the small sample sizes for each individual region—hence they are combined together in this analysis.

³ Analysis of comparable data from the ABS Survey of Income and Housing (SIH) shows a similar pattern for Sydney over the period 2001–02 to 2012–13 (the latest year for which annual income data is available for the SIH). The ABS data show an increase in median equivalised income of 17.1%, compared with 15.3% for the HILDA Survey.

Table 3.4: Medium and long-term equivalised incomes, 2001 to 2015

	Mean (\$, December 2015 prices)	Median (\$, December 2015 prices)	Ratio of 90th percentile to the median	Ratio of the median to the 10th percentile	Gini coefficient	Shorrocks R
5-year income						
2001–2005	207,740	188,920	1.75	1.95	0.268	0.901
2002–2006	211,801	191,122	1.78	1.92	0.268	0.903
2003–2007	219,776	196,492	1.77	1.89	0.272	0.908
2004–2008	229,414	206,006	1.79	1.93	0.274	0.909
2005–2009	238,166	214,084	1.78	1.92	0.274	0.909
2006–2010	244,982	221,048	1.79	1.94	0.274	0.903
2007–2011	251,839	225,926	1.80	1.97	0.277	0.906
2008–2012	256,534	229,875	1.80	1.98	0.274	0.905
2009–2013	260,531	232,564	1.79	1.95	0.275	0.912
2010–2014	264,004	235,102	1.81	1.95	0.277	0.914
2011–2015	261,383	233,512	1.80	1.91	0.276	0.916
15-year income						
All ages	725,280	661,311	1.68	1.84	0.252	0.836
Aged 18–50 in 2001	790,918	744,398	1.59	1.80	0.229	0.813



exclude some members of the population in order to examine longer-term income, to the extent that income fluctuates from year to year, distributional statistics for longer-term income provide a clearer sense of inequality in lifetime or ‘permanent’ income.

The upper panel of Table 3.4 shows that, consistent with fluctuations in income from year to year, inequality in five-year income is lower than inequality in 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 five-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 0.901, but has since trended slightly upwards, to be 0.916 for the 2011 to 2015 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.

That said, the lower panel of Table 3.4 shows that inequality of 15-year income is somewhat lower again than inequality of five-year income. Among all persons alive for the entire 15-year period, Shorrocks R is 0.836. If we restrict to adults of working age for the entire period—that is, aged 18 to 50 in 2001, and therefore aged 32 to 64 in 2015—

the Gini coefficient reduces to 0.229, or 81.3% of the average one-year value of the Gini coefficient.

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 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

Box 3.5: Relative and anchored 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 **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 'anchored' 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 anchored poverty line is set may be based on the level of a relative poverty line obtained at a particular point in time, for example (as is the case in this report) the beginning of the time period under study.

researcher consensus, it should nonetheless be acknowledged that there is an element of arbitrariness to this—or any other—definition of relative poverty.

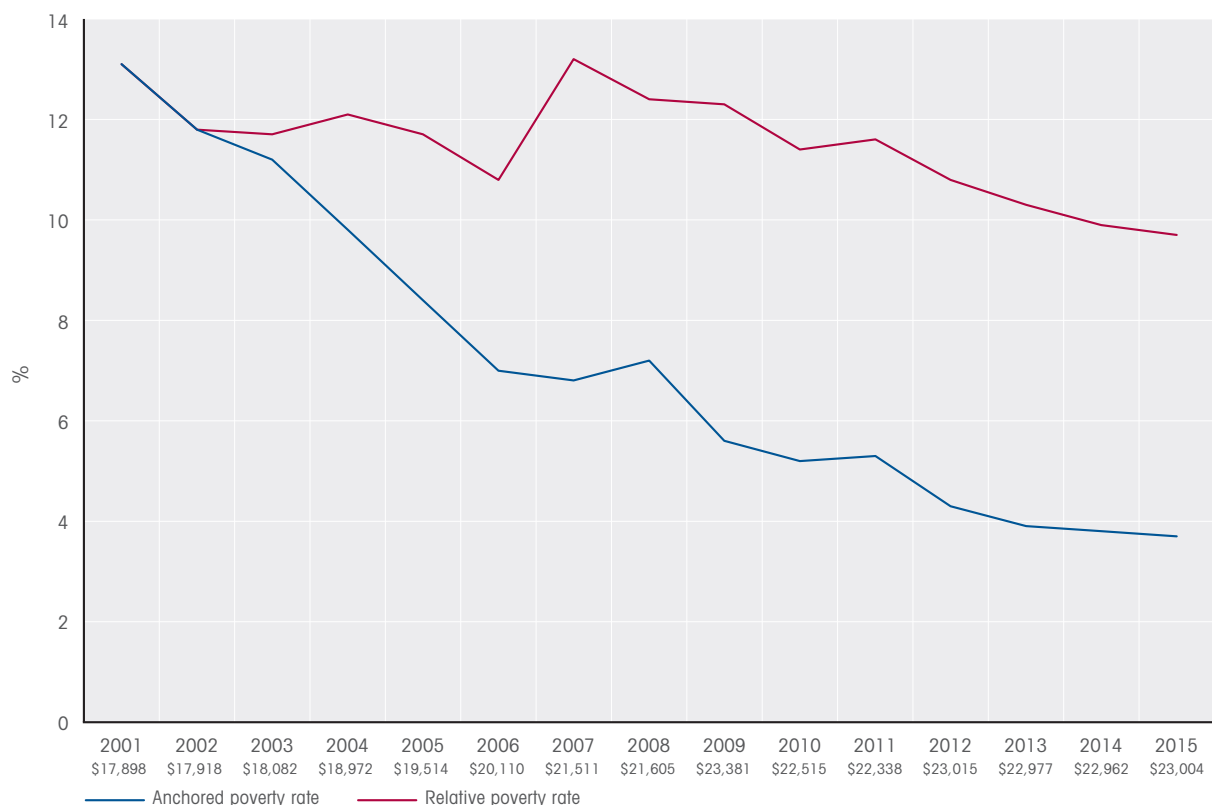
Cross-sectional poverty rates

Figure 3.3 presents relative poverty rates in each year covered by the HILDA Survey. It also presents poverty rates holding the purchasing power of the poverty line constant at the 2001 relative poverty line. This is referred to in the figure as the 'anchored' poverty line (see Box 3.5, above). Our income measure is equivalised income; thus, the poverty lines presented at the

bottom of Figure 3.3 can be interpreted as the annual income 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 \$17,898 in 2001 to \$23,381 in 2009 (expressed at December 2015 prices). Median income has fallen slightly since 2009, and as a result the relative poverty line was slightly lower in 2015 than in 2009.

Figure 3.3: 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 2015 prices.

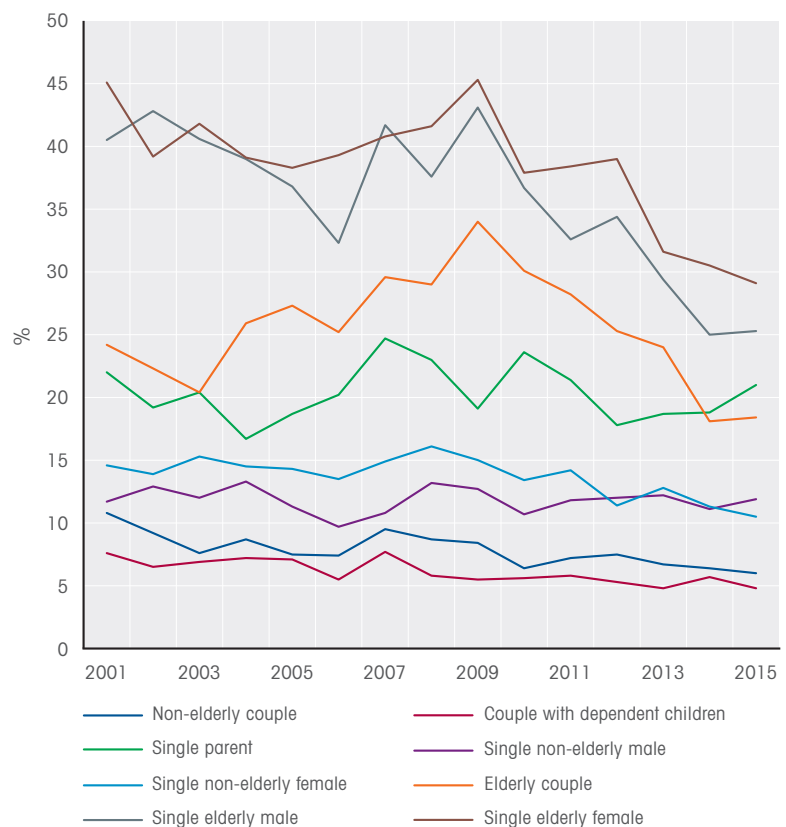
The proportion of the population below this poverty line has fluctuated over time, but three distinct phases are evident: slow decline in relative poverty between 2001 and 2006, from 13.1% to 10.8%; a sharp rise to 13.2% in 2007; and slow decline thereafter down to 9.7% in 2015. A key reason for this 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 2015 period as a whole. Moreover, the poverty rate obtained when the real value of the poverty line is maintained at its 2001 level of \$17,898 (at December 2015 prices) has fallen dramatically, from 13.1% in 2001 to 3.7% in 2015. Thus, even among the poor, average living standards have increased over the full 15-year period.

Poverty by family type

Figure 3.4 shows that (relative) 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. Indeed, an examination of direct measures of material deprivation presented in the 2016 edition of this report (Wilkins, 2016) provided evidence that deprivation is considerably lower among the

Figure 3.4: Relative poverty rates by family type



elderly than is implied by the relative income poverty measure.

Poverty rates are also high for people living in single-parent families, typically falling between 18% and 24%, and exhibit no trend decline between 2001 and 2015. In 2015, 21.0% of people living in single-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, which in the most recent years have been well below 10%.

Regional differences in rates of poverty

Regional differences in poverty rates over the 2001 to 2015 period are examined in Table 3.5. To reduce sampling variability, three-year means of poverty rates are presented for each region. For example, the upper left cell of the table indicates that the proportion of Sydney residents in relative income poverty averaged 11.8% over the 2001 to 2003 period.

Broadly consistent with the median income differences evident in



Table 3.5: Income poverty rates by region, 2001 to 2015 (%)

	2001–2003	2004–2006	2007–2009	2010–2012	2013–2015	Change
Sydney	11.8	10.2	11.1	11.5	10.5	-1.3
Melbourne	9.9	10.9	11.2	9.4	7.6	-2.3
Brisbane	9.2	9.4	9.2	8.0	7.9	-1.4
Adelaide	14.5	13.7	14.8	12.9	10.1	-4.4
Perth	9.6	8.6	10.2	8.3	6.3	-3.2
Other urban New South Wales	13.2	12.8	15.5	13.8	11.6	-1.6
Other urban Victoria	16.9	17.1	21.2	16.4	16.5	-0.5
Other urban Queensland	13.3	11.6	13.5	14.0	12.6	-0.7
Other urban South Australia	19.2	15.3	17.1	18.7	21.1	1.9
Other urban Western Australia	8.9	11.7	10.0	8.7	8.5	-0.4
Urban Tasmania	21.5	15.6	17.3	14.2	16.4	-5.0
Australian Capital Territory and urban Northern Territory	6.7	4.5	2.8	2.8	5.0	-1.7
Non-urban Australia	15.2	14.5	15.9	12.8	11.0	-4.2

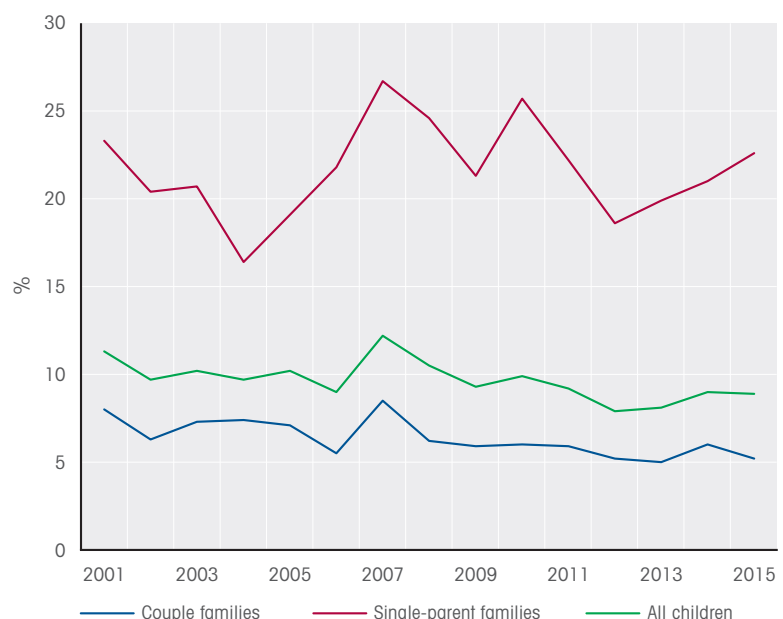
Figure 3.2 and Table 3.3, poverty rates tend to be higher outside the mainland capital cities, with the important exception that the Australian Capital Territory and urban Northern Territory have a very low poverty rate. Additionally, the poverty rate is quite low in Western Australian urban areas outside of Perth. Comparing the 2001 to 2003 estimates with the 2013 to 2015 estimates shows that the poverty rate fell in most of the 13 regions, with urban Tasmania, Adelaide and non-urban Australia experiencing the largest percentage-point declines. The poverty rate did, however, increase in non-Adelaide urban South Australia, which had an average poverty rate of 21.1% over the 2013 to 2015 period.

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 3.5 presents child poverty rates for all children aged under 18, and separately for children in couple families and children in single-parent families. The child poverty rate is consistently below the community-wide poverty rate, averaging just under 10% over the 2001 to 2015 period. However, this largely reflects the very low poverty rates



Figure 3.5: Child poverty rates by family type



for children in couple families. The probability of being in poverty is very high for children in single-parent families, in most years hovering between 20% and 25%.

Poverty over the longer-term

While poverty experienced for a short period of time is undesirable, there is a great deal more public policy concern attached to 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 3.6, which

depicts the distribution of the number of years spent in relative income poverty over the 15 years to 2015 of men and women aged 18 to 50 in 2001 (or 32 to 64 in 2015). Specifically, it presents the proportions of men and women in this cohort who were in poverty in no years, 1 to 2 years, 3 to 5 years, 6 to 10 years and 11 to 15 years. Thus, the figure focuses on the longer-term poverty experience of working-age adults.

Approximately 68% of men and 63% of women aged 18 to 50 in 2001 did not experience income poverty in that year or the subsequent 14 years, necessarily implying that 32% of men and 37% of women did

experience poverty in at least one year. For approximately 19% of men and 21% of women, poverty was experienced in only one or two years, and a further 8% of men and women experienced poverty in three, four or five of the 15 years. Highly persistent or recurrent poverty was confined to the approximately 5% of men and 7% of women who were in poverty in at least six years of the 15 years.

Long-term poverty experiences of children are considered in Figure 3.7 by examining the number of years children were in poverty in the first 12 years of their lives. This requires identification of poverty status in each of the first 12 years of each child's life, and as such the figure examines children born in the period from 1 July 2000 to 30 June 2004.

The figure shows that approximately two-thirds of children born in this period were not living in poverty in any of their first 12 years of life, and just under 20% were in poverty in only one or two years. Just under 9% were in poverty for three to five years, while nearly 6% were in poverty in at least six of the 12 years.

Figure 3.6: Distribution of number of years in poverty over the 15 years from 2001 to 2015—Individuals aged 18 to 50 in 2001

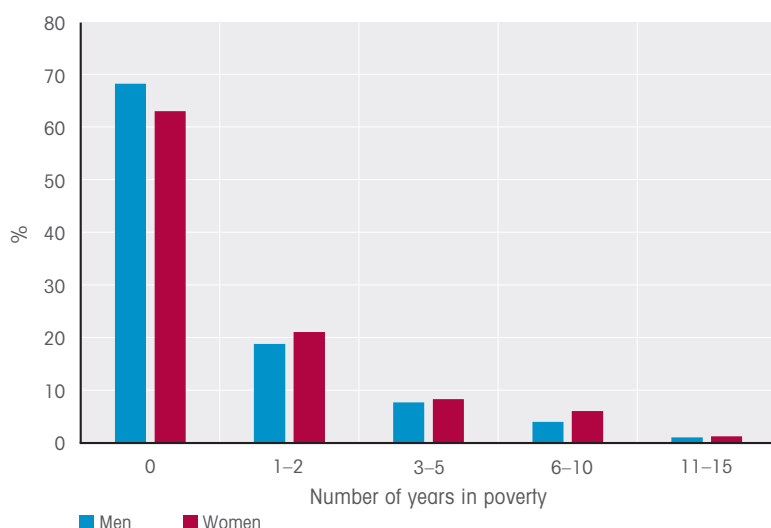
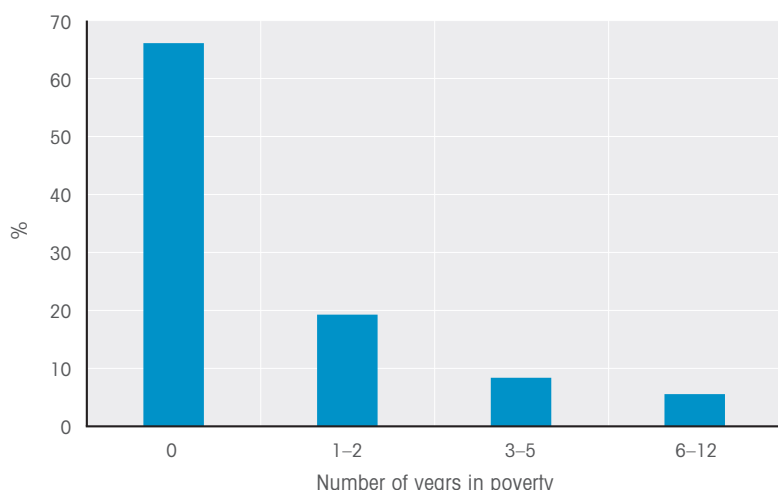


Figure 3.7: Distribution of number of years in poverty in the first 12 years of life—Children born 1 July 2000 to 30 June 2004



Welfare reliance

Dependence on welfare remains a significant concern for policy-makers in Australia (see Box 3.6, page 37, for a brief explanation of the Australian welfare system). 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



Box 3.6: 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.³ 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.

Note: ³ 'Welfare' is a somewhat contested term, and many would argue that a much broader range of government expenditures than income support and non-income support payments should be classified as welfare payments. However, the approach taken in this report is consistent with the approach taken by most Australian researchers on welfare reliance.

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

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 3.8 and 3.9 respectively present cross-sectional estimates of

welfare receipt and welfare reliance for 'workforce age' persons, defined here as people aged 18 to 64. In 2015, 32.2% of individuals aged 18 to 64 were living in a household that received income support at some stage of the financial year ending 30 June 2015. This is substantially lower than at the beginning of the HILDA Survey in 2001, when the corresponding figure was 38.1%. However, all of the decline in household welfare receipt was in the period to 2009, and in fact welfare receipt was slightly higher in 2015 than in 2009, when 31.3% of working-age individuals lived in a household which received income support at some stage of the financial year.

Figure 3.9 presents estimates of welfare reliance for two definitions of welfare reliance (as explained in Box 3.7, page 38): more than 50% of annual household income comes

Figure 3.8: Receipt of welfare by persons aged 18 to 64

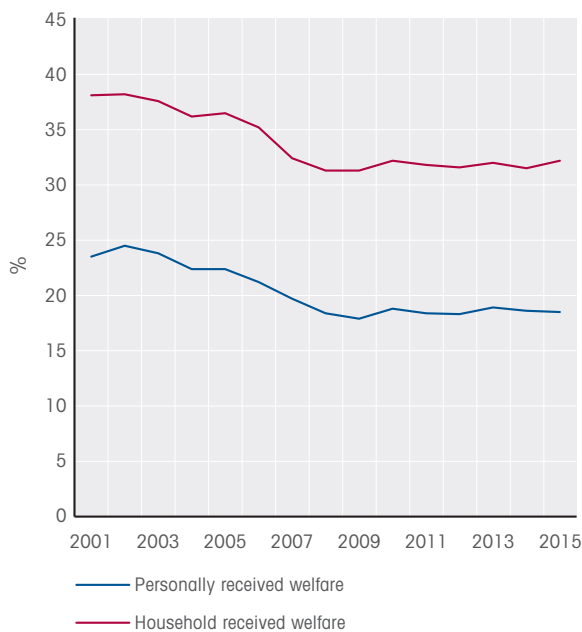
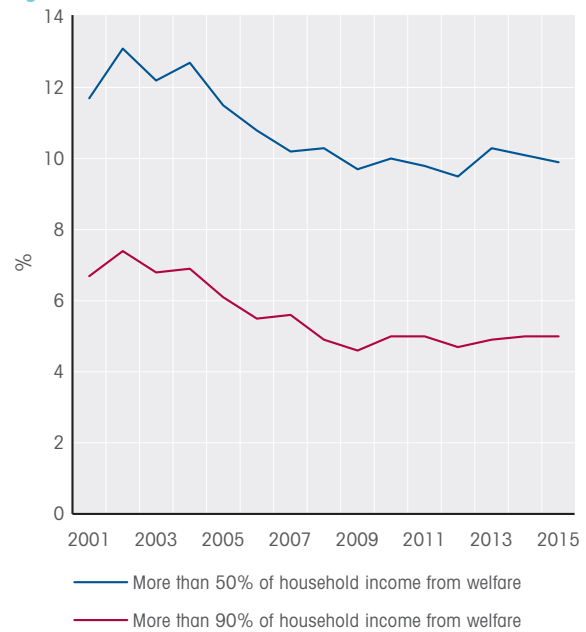


Figure 3.9: Reliance on welfare among persons aged 18 to 64



Box 3.7: 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.

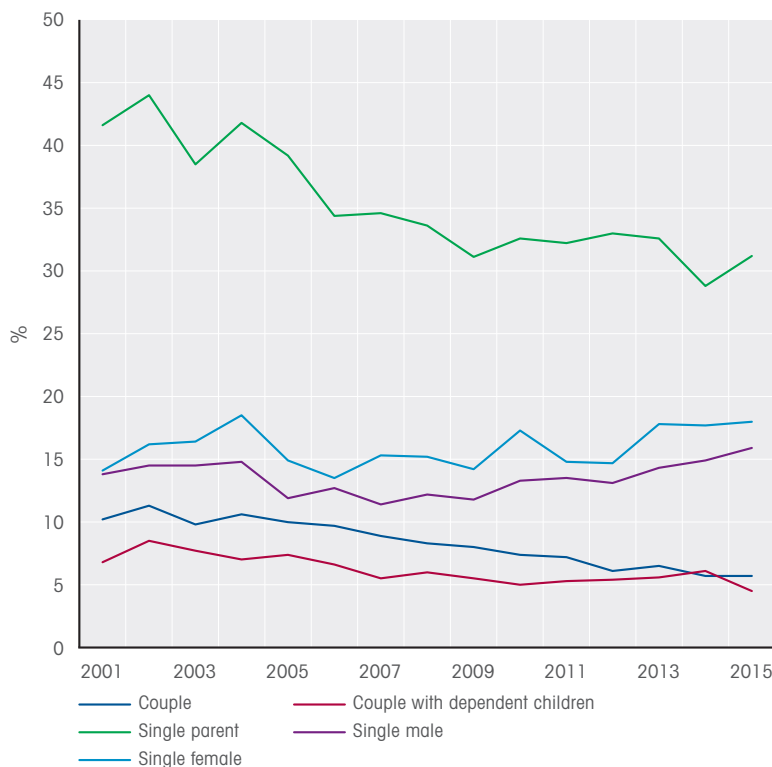
from welfare; and more than 90% of annual household income comes from welfare. As would be expected, the proportion of the population classified as welfare reliant depends on whether the 50% or 90% threshold is employed. However, the two measures show similar trends, both declining between 2004 and 2009, 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 2013 there was a sizeable (0.8 percentage-point) increase in the proportion deriving more than 50% of income from welfare, although there was then a slight decline in the subsequent two years. The proportion deriving more than 90% of income from welfare has been reasonably stable since 2012, with only a very slight increase between 2012 and 2014.

Figure 3.10 shows that welfare reliance among working-age people is very much associated with living in single-parent families. For each year from 2001 to 2015, the figure presents the proportion of individuals in each family type obtaining more than 50% of financial-year household income



from welfare benefits. Single parents have considerably higher rates of welfare dependence than people in other family types, although there was some decline in single-parent welfare reliance between 2002 and 2014, falling from a peak of 44.0% in 2004 to a low of 28.8% in 2014. Individuals in couple families, with or without dependent children, have the lowest rates of welfare dependence, and have also experienced declines in welfare dependence. The proportion of people who were welfare reliant fell from 8.5% in 2002 to as low as 5% in 2010 for couples with dependent children, although it subsequently rose slightly, to be 6.1% in 2014, before falling again to 4.5% in 2015. For couples without dependent children, the rate of welfare reliance steadily decreased from 11.3% in 2002 to 5.7% in 2015. Single men and women have welfare dependence rates slightly higher than couples, and have experienced no trend decline in welfare reliance. Indeed, since 2009, there has been a gradual rise in welfare dependence among single people, rising from 14.2% to

Figure 3.10: Welfare reliance of people aged 18 to 64, by family type



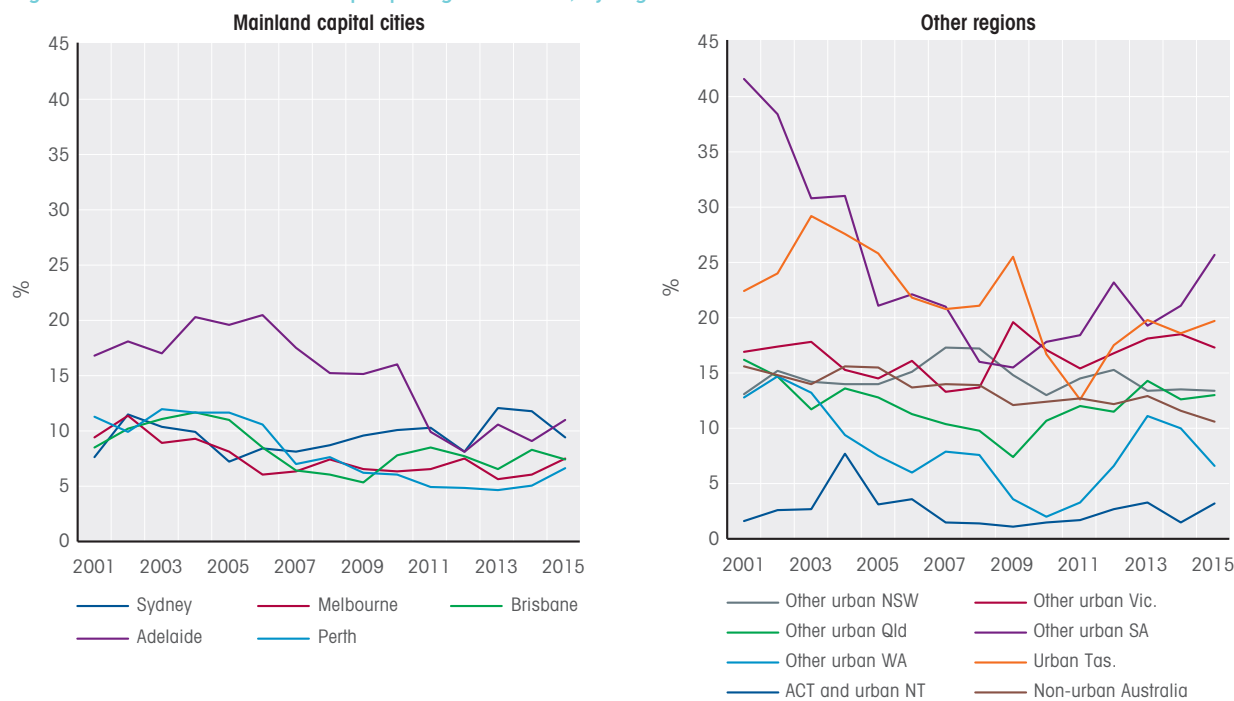
Note: A person is defined to be welfare reliant if more than 50% of household annual income comes from welfare.

18.0% for women and from 11.8% to 15.9% for single men. The gap between couples and single people has therefore risen over the HILDA Survey period.

Regional differences in welfare reliance

Figure 3.11 compares welfare reliance across regions. Among the mainland capital cities, up

Figure 3.11: Welfare reliance of people aged 18 to 64, by region



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



until 2010, Adelaide clearly had the highest rate of welfare reliance, with the other capitals being quite similar to each other. From 2011 to 2015, however, welfare reliance was reasonably similar across all five cities, although reliance was clearly higher in Adelaide and Sydney in 2015.

Of all 13 regions, the Australian Capital Territory and urban Northern Territory had the lowest welfare reliance across the 2001 to 2015 period, while non-Adelaide urban South Australia and urban Tasmania had the highest welfare reliance, particularly in the years up to 2007. Compared with other non-capital city regions, urban Western Australia (excluding Perth) had relatively low welfare reliance over most of the 15-year period.

Welfare receipt and welfare reliance over 15 years

Drawing on the full 15 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 2015 for persons aged 18 to 50 in 2001, in total and disaggregated by sex and 2001 age group. It shows the proportion personally receiving welfare (income support) at some stage of the 15-year period, and the proportion at some stage living in a household in which at least one member received welfare. The sample is restricted to people aged 18 to 50 in 2001, who

were in the 18 to 64 age range in all 15 years.

Strikingly, the bottom right cell of the table shows that over 70% of the population who were of working age across the entire 15-year period had contact with the income support payments system. Moreover, 45.6% of this cohort *personally* received income support payments at some stage between 2001 and 2015. Given that approximately 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 men and women across all age groups. For men, contact is lowest among those aged 25 to 34 in 2001 and thereafter increases as we move up the age distribution. Rates of contact are somewhat higher for women than men in all age groups, but particularly among those aged 25 to 34 in 2001. This is likely to be at least partly due to women being a high proportion of single parents.

The *extent* of working-age individuals' welfare reliance over the 15 years to 2015, 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

Table 3.6: Welfare receipt over the 15 years from 2001 to 2015, by sex and age group in 2001 (%)

	Age group in 2001				All aged 18-50 in 2001
	18-24	25-34	35-44	45-50	
Men					
Personally received welfare	51.2	32.8	35.4	38.0	37.6
Household received welfare	81.9	64.7	67.1	69.6	69.2
Women					
Personally received welfare	64.7	56.5	49.5	45.8	53.3
Household received welfare	77.4	67.1	71.7	74.5	71.8
All persons					
Personally received welfare	57.9	44.4	42.6	42.1	45.6
Household received welfare	79.7	65.8	69.4	72.2	70.5



Table 3.7: Welfare reliance over the 15 years from 2001 to 2015, by sex and 2001 age group

	Age group in 2001				All aged 18–50 in 2001
	18–24	25–34	35–44	45–50	
Number of years household received income support (%)					
<i>Men</i>					
0 years	18.0	35.3	32.9	30.4	30.8
1–3 years	40.3	33.7	30.9	30.8	33.3
4–6 years	19.5	13.2	13.5	15.3	14.7
7–9 years	8.4	6.3	7.6	7.6	7.3
10–14 years	9.1	8.0	9.0	6.6	8.3
15 years	4.7	3.5	6.1	9.3	5.6
Total	100.0	100.0	100.0	100.0	100.0
<i>Women</i>					
0 years	22.5	33.0	28.4	25.4	28.3
1–3 years	33.2	29.5	27.8	29.0	29.4
4–6 years	17.0	12.1	13.9	11.8	13.4
7–9 years	10.1	9.7	9.1	7.7	9.2
10–14 years	12.1	9.9	12.4	11.3	11.4
15 years	5.1	5.8	8.4	14.8	8.3
Total	100.0	100.0	100.0	100.0	100.0
Individuals whose household received welfare: Proportion of income from welfare (%)					
<i>Men</i>					
Mean proportion of income from welfare	10.0	12.7	15.2	15.9	13.6
Proportion in each category for proportion of income from welfare					
Less than 25%	89.8	85.2	82.6	81.0	84.5
25% to less than 50%	7.2	9.0	7.7	7.8	8.0
50% to less than 75%	0.6	3.3	4.5	4.0	3.3
75% to 100%	2.4	2.5	5.3	7.2	4.2
Total	100.0	100.0	100.0	100.0	100.0
<i>Women</i>					
Mean proportion of income from welfare	15.7	20.3	16.8	21.1	18.4
Proportion in each category for proportion of income from welfare					
Less than 25%	80.0	73.9	77.1	73.4	76.0
25% to less than 50%	9.5	12.7	13.2	9.7	11.7
50% to less than 75%	5.8	7.7	5.1	4.6	5.8
75% to 100%	4.8	5.7	4.6	12.2	6.5
Total	100.0	100.0	100.0	100.0	100.0

Note: Cells may not add up to column totals due to rounding.

support. It shows 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 21.2% of working-age men and 28.9% of working-age women had contact with the system in seven or more of the 15 years, and 5.6% of men and 8.3% of women had contact in all 15 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 to 34 in 2001 tended to have the least contact with the welfare system between 2001 and 2015, while those aged 45 to 50 in 2001 tended to have the most contact. For example, the proportion of men with 10 or more years contact is

13.8% for the 18 to 24 age group, 11.5% for the 25 to 34 age group, 15.1% for the 35 to 44 age group, and 15.9% for the 45 to 50 age group. The corresponding proportions for women are 17.2%, 15.7%, 20.8% and 26.1%.

The lower panel of Table 3.7 shows the extent of welfare reliance over the 2001 to 2015 period among the 69.2% of men and 71.7% 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 2015 derived 13.6% of household income from welfare, while working-age women who came into contact with the system on average derived 18.4% of income from welfare. Only 7.5% of working-age men and 12.3% of working-age women who came into contact with the welfare system—or

5.2% of all working-age men and 8.8% 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 to 24 in 2001, and highest for those aged 45 to 50 in 2001. For women, while those aged 18 to 24 in 2001 have the lowest mean proportion of income from welfare and those aged 45 to 50 in 2001 have the highest mean proportion of income from welfare, those aged 25 to 34 in 2001 have a higher mean proportion of income from welfare than those aged 35 to 44 in 2001. The relatively high level of reliance among the female 25 to 34 age group is likely to be related to child-rearing and in particular single-parent welfare receipt.



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 preferred hours of work, satisfaction with the current main job and likelihood of retaining the current job, 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, 2017b), 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 2015 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. Since then, the labour market has been relatively flat, with the proportions of males and females employed remaining below their 2008 peaks and the proportions unemployed remaining above the 2008 troughs. 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

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

	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	70.3	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	67.8	4.4	27.8	100.0	56.7	3.5	39.9	100.0
2015	68.0	4.2	27.8	100.0	57.7	3.4	39.0	100.0

Note: Cells may not add up to row totals due to rounding.

18 to 64 over the 2001 to 2015 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.



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:

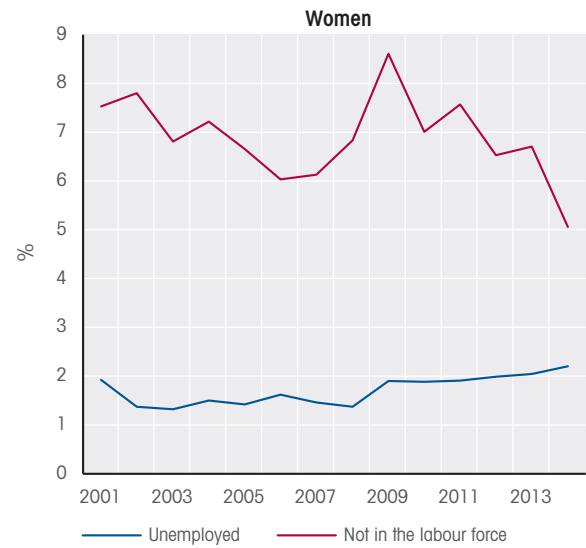
- A person is classified as **employed** if that person had a job, business or farm in the week leading up to the interview, and had either worked in the last four weeks or had not worked but: had been in paid work for any part of the last four weeks; or had been on worker's compensation and expected 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 to 64

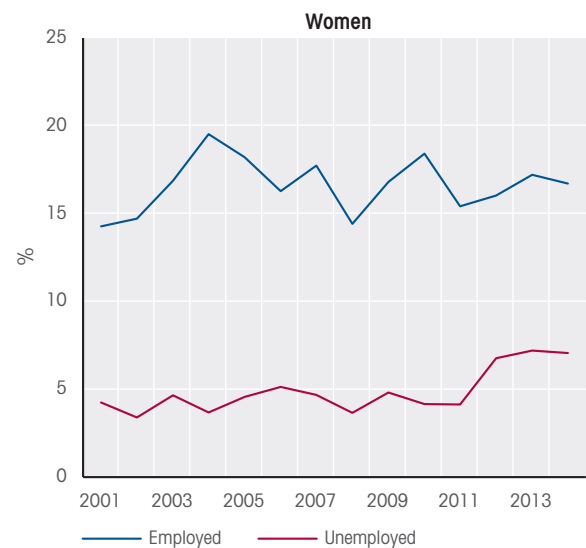
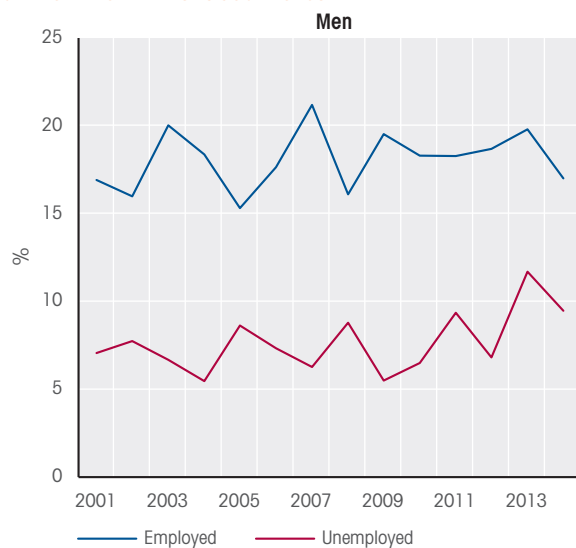
A. From employment



B. From unemployment



C. From not in the labour force



Note: The figures show the initial years for the two-year transitions. For example, 2001 indicates the rate of transition from 2001 to 2002.

There is more volatility in transitions out of the labour force (that is, to 'not in the labour force'), 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 has subsequently been a sustained trend decline in transitions out of the labour force, such that the female rate of transition out of the labour force from 2014 to 2015 was the lowest it has been over the HILDA Survey period. 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 average relatively less 'employable' than the unemployed in higher-unemployment times (when there is a larger pool of unemployed people).

For men, transitions from unemployment to employment rose substantially in 2009 (that is, for transitions from unemployment in 2009 to employment in 2010). The transition rate subsequently declined, then recovered to the 2009 rate, before once again declining substantially in 2014. For women, the transition rate to employment remained relatively stable at the 2009 rate up until 2012, but declined sharply in 2013. However, there was some improvement in the female rate of transition from unemployment to employment in 2014 to 2015.

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 remained relatively low, although there was a rise in 2014. For women, after declining in 2009, the rate of movement out of the labour force increased dramatically, particularly in the

2013 transition period. This rise was only partially offset by a subsequent decline in 2014.

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. The rate of movement into unemployment increased sharply for men in 2013, a rise that was only partially reversed in 2014. For women, a sharp rise in 2012 was followed by plateau at the new higher rate in the last two transition periods (2013 to 2014 and 2014 to 2015).

To summarise, overall, it seems that in the most recent years of the HILDA Survey period, transitions from employment to unemployment have increased slightly, from employment to not in the labour force have decreased, from unemployment to employment have decreased slightly, from unemployment to not in the labour force have increased, and from not in the labour force to unemployment have increased.



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 2015 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, 4.3 and 4.4 present graphs of summary measures of the male and female earnings distributions over the 2001 to 2015 period, plotting the mean, median, 10th percentile, 90th percentile and Gini coefficient. Figure 4.2 examines weekly earnings of full-time employees, Figure 4.3 examines hourly earnings of part-time employees and Figure 4.4 examines weekly earnings of all employees.¹

Over the full 2001 to 2015 period, the graphs show mean weekly earnings of full-time employees increased by 21% for males and



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.

22% for females, while the Gini coefficient (see Box 3.3, page 28) increased by 7% for males and 9% for females. However, these similarities between male and female full-time employees mask the considerable differences in the paths taken over the 2001 to 2015 period. While there is considerable growth in mean and median weekly earnings of full-time employee males over the period as a whole, since 2012 there has been very little growth and indeed mean and median weekly earnings fell between 2014 and 2015. Mean and median earnings of full-time employee females, by contrast, grew quite strongly between 2014 and 2015, although median

earnings were almost unchanged between 2009 and 2014 and mean earnings were almost unchanged between 2012 and 2014.

The figures also reveal a contrast between male and female full-time employees in recent movements in earnings inequality as measured by the Gini coefficient. After rising very strongly between 2002 and 2011, the male Gini coefficient has since declined. There was relatively little net change in the female Gini coefficient up to 2008, but since then it has grown from 0.227 to 0.249, a 9.7% increase. Collectively, these recent movements in male and female full-time employee earnings distributions imply there has been some convergence between full-time

¹ Figures 4.2, 4.3 and 4.4 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 Figures 4.2 and 4.3, where a respondent holds more than one job, we restrict analysis to earnings and hours worked in the respondent's main job. Figure 4.4 examines earnings in all jobs (combined).

employee male and female earnings distributions in recent years.

For hourly earnings of part-time employees, between 2001 and 2015, the mean increased by 20% for males and by 14% for females, while the Gini coefficient increased by 5% for males and *decreased* by

12% for females. However, the Gini coefficient for hourly earnings of part-time employees exhibits considerable year-to-year fluctuation for both males and females, so it is difficult to discern the underlying trend.

Figure 4.4 provides a sense of the total distribution of earnings among

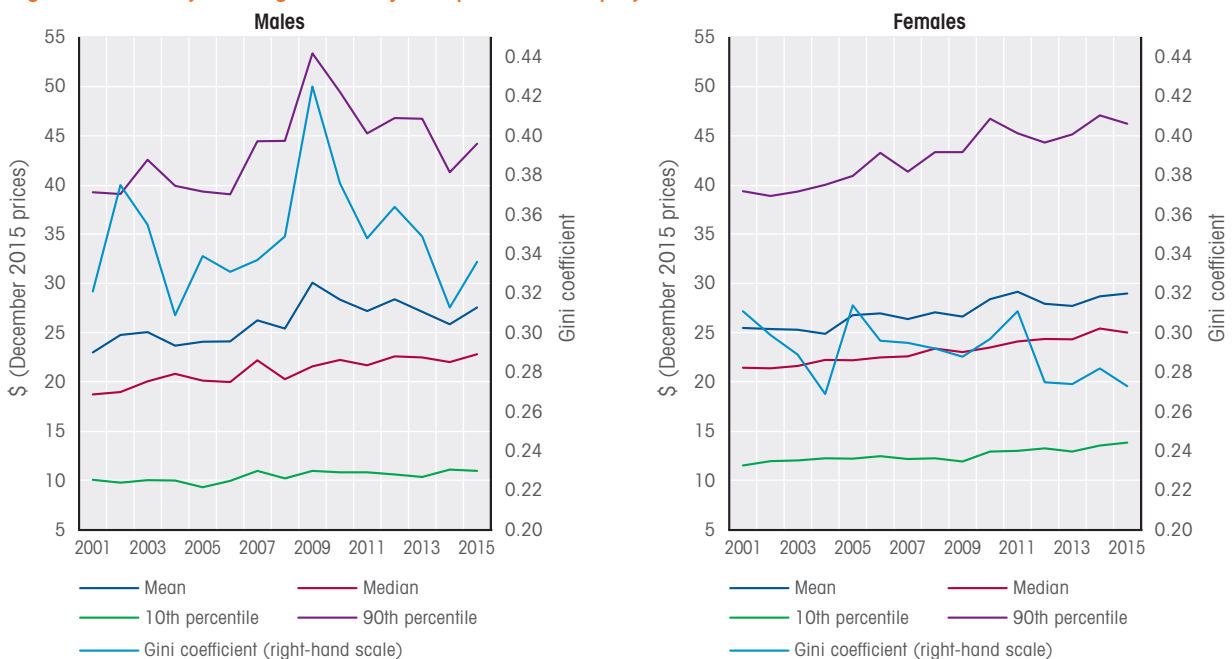
all employees—that is, how much total wage and salary income each employee receives, irrespective of part-time or full-time status. This perhaps gives a better indication of how on average employees are faring, and of the extent of inequality in the labour market.

Figure 4.2: Weekly earnings in main job of full-time employees



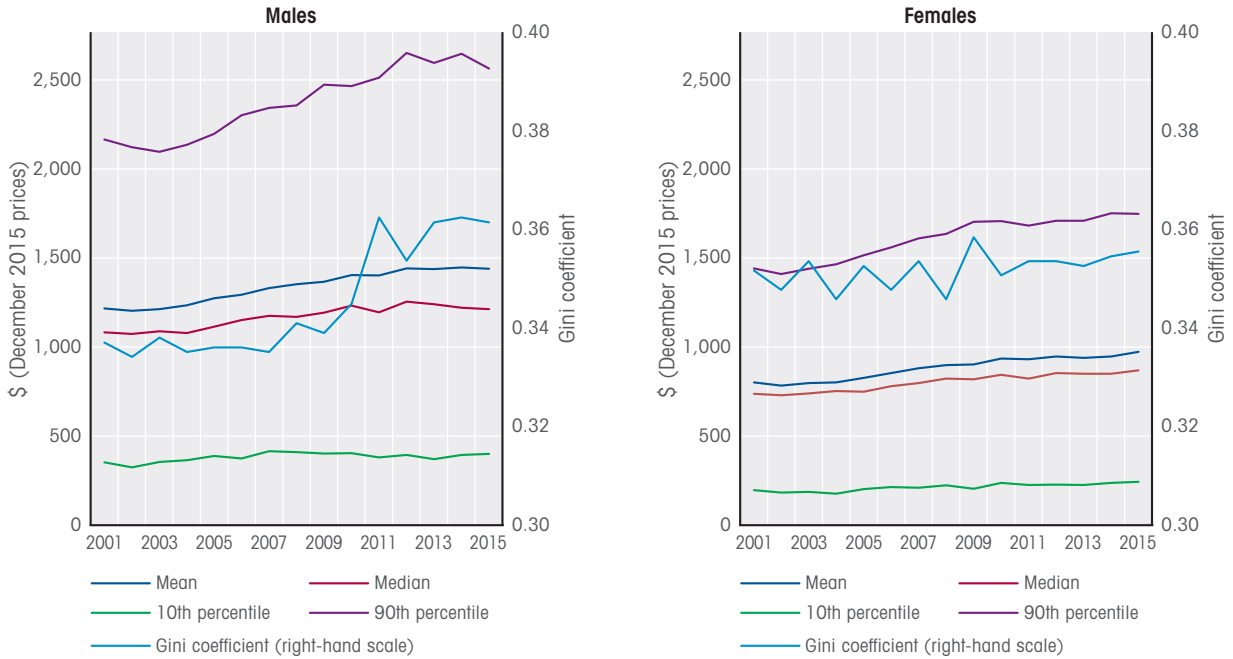
Note: Weekly earnings less than \$100 at December 2015 prices have been excluded.

Figure 4.3: Hourly earnings in main job of part-time employees



Note: Hourly wages less than \$2 and more than \$500 at December 2015 prices have been excluded.

Figure 4.4: Weekly earnings in all jobs of all employees



Growth in mean weekly earnings between 2001 and 2015 is more muted for all male employees than for male full-time employees, rising by 18%. Indeed, this growth is less than the 20% increase in mean hourly earnings of male part-time employees. This reflects an increase in the proportion of male employees who are part-time and/or a reduction in mean weekly hours of male part-time employees. Weekly earnings of all female employees increased by 22% between 2001 and 2015, which is the same as the growth in mean weekly earnings of female full-time employees, and markedly higher than the 14% increase in mean hourly earnings of female part-time employees. Thus, mean weekly hours of female part-time employees increased over the period and/or the proportion employed full-time increased.

The Gini coefficient for weekly earnings of all male employees was relatively unchanged between 2001 and 2007, but then rose sharply up to 2011, since when there has been little net change. The sharp rise in the Gini coefficient is not evident for female employees, although inequality does appear to have been on an upward trend since 2008, rising from 0.347 in 2008 to 0.357 in 2015, a 2.9% increase.



Box 4.3: How do HILDA estimates of average weekly earnings compare with Australian Bureau of Statistics estimates?

The Australian Bureau of Statistics (ABS) produces estimates of average weekly earnings of employees for May and November each year in its publication *Average Weekly Earnings* (ABS, 2017a). The estimates are derived from a survey of employers rather than households, and as a consequence they provide estimates of the average of weekly earnings per job rather than per individual. To the extent that there are individuals who hold more than one job (see the multiple-job holding section, page 60), average weekly earnings of jobs will not be the same as average weekly earnings of employees.

Data from the two sources is, however, relatively comparable for total earnings of full-time adult employees, where in the HILDA Survey we restrict to earnings in the main job for those with more than one job. Since an individual with a full-time job and one or more other jobs is unlikely to have more than one full-time job, and will usually identify the full-time job as the main job (on the basis that this is the job that provides the most income), the two data sources should in principle examine the same populations—that is, all full-time jobs held by adults. The only difference is that the ABS estimates include individuals under the age of 21 who are paid the ‘adult rate’. These individuals cannot be reliably identified in the HILDA Survey and consequently employees aged under 21 are excluded from the sample used to produce the HILDA Survey estimate of average weekly earnings.

Table B4.1 below shows comparisons of the ABS and HILDA earnings data, where the November ABS data is compared with HILDA. The table shows that, for full-time employees, HILDA Survey estimates are on average slightly below the ABS estimates, but in most years the differences are quite small—less than 4%.

It is not clear where the differences arise from because we do not have any more information on the distribution of earnings in the ABS data. For example, it may be that HILDA tends to miss the highest-paid employees, or it may be that employees tend to slightly under-report their earnings. It is also possible that employers overstate what they pay to employees, particularly if they are not compliant with industrial awards.

Table B4.1: Comparison of ABS and HILDA Survey data on average weekly earnings of adult full-time employees, 2001 to 2015

	Males			Females		
	ABS (\$, December 2015 prices)	HILDA (\$, December 2015 prices)	Difference (%)	ABS (\$, December 2015 prices)	HILDA (\$, December 2015 prices)	Difference (%)
2001	1,353.71	1,396.58	3.2	1,103.41	1,092.74	-1.0
2002	1,387.13	1,381.76	-0.4	1,121.44	1,074.66	-4.2
2003	1,435.93	1,392.87	-3.0	1,150.54	1,112.93	-3.3
2004	1,452.56	1,412.32	-2.8	1,170.45	1,112.20	-5.0
2005	1,479.18	1,459.98	-1.3	1,193.82	1,152.48	-3.5
2006	1,475.29	1,491.37	1.1	1,179.88	1,155.49	-2.1
2007	1,502.76	1,525.95	1.5	1,215.39	1,212.46	-0.2
2008	1,532.26	1,538.71	0.4	1,228.42	1,213.32	-1.2
2009	1,587.38	1,555.74	-2.0	1,260.80	1,242.22	-1.5
2010	1,606.42	1,602.58	-0.2	1,284.80	1,257.95	-2.1
2011	1,635.23	1,640.71	0.3	1,293.96	1,267.00	-2.1
2012	1,679.46	1,667.31	-0.7	1,324.50	1,292.73	-2.4
2013	1,677.20	1,676.98	0.0	1,331.52	1,277.46	-4.1
2014	1,709.59	1,691.41	-1.1	1,333.14	1,284.46	-3.7
2015	1,688.60	1,673.86	-0.9	1,345.80	1,330.14	-1.2



Employment and earnings of women before and after childbirth

Australian Bureau of Statistics Labour Force Survey data (ABS, 2017b) show that a substantial proportion of mothers with young children are employed either full-time or part-time. Less clear from this Australian Bureau of Statistics' data, however, are patterns in women's employment participation in the periods leading up to and following childbirth. The longitudinal structure of the HILDA Survey allows us to examine these patterns in more detail than standard cross-sectional sources. This is because the HILDA Survey allows us to observe the labour force status of the same women in each year before and after childbirth, with information also obtained on the timing of the birth. Moreover, as part of a sequence of questions relating to fertility behaviour administered in Waves 5, 8, 11 and 15, mothers were asked about the length of time they spent out of paid employment both before and after their most recent birth.²

Employment participation before and after giving birth

In Table 4.2, we draw on the special module questions included in Waves 5, 8, 11 and 15 relating to fertility. For this module, women who had given birth to one or more children were asked 'Thinking about your most recent birth, how long before the birth did you stop paid employment?' and were then asked 'Again referring to your most recent birth, how long was it before you started paid employment (again)?'. These questions allow quite 'granular' examination of time out of paid work before and after the



Table 4.2: Time out of paid employment before and after most recent birth—Women aged under 45 with a youngest child aged 2 to 5 (%)

	2005	2008	2011	2015
Before birth				
≤ 2 weeks	22.5	21.7	25.7	27.8
> 2 weeks and ≤ 1 month	7.9	13.4	11.1	11.5
> 1 month and ≤ 3 months	19.8	19.7	21.1	15.1
> 3 months and ≤ 12 months	11.1	12.1	11.1	7.5
More than 12 months	20.2	16.7	15.3	16.3
Never worked before birth	18.5	16.4	15.7	21.8
Total	100.0	100.0	100.0	100.0
After birth				
< 3 months	12.8	11.4	9.8	8.2
≥ 3 months and < 6 months	9.8	9.7	7.8	8.5
≥ 6 months and < 12 months	13.7	17.1	18.5	20.9
≥ 12 months and < 2 years	17.0	20.5	21.7	18.3
≥ 2 years	46.7	41.4	42.2	44.1
Total	100.0	100.0	100.0	100.0

Note: Cells may not add up to column totals due to rounding.

² Each wave, respondents are also asked to report their labour market activity in each third of each month since July of the preceding year (for example, since July 2001 for those interviewed in Wave 2). This information can be combined with information on the timing of the birth to examine labour market activity of mothers in the months leading up to and following childbirth. Analysis of this data is not presented in this report, but it provides very similar information to that presented.

birth, although it should be noted that the information is likely to be susceptible to ‘recall error’, since reporting errors tend to be more prevalent when respondents are required to recall events from some years ago. Moreover, it is not clear how respondents interpret ‘paid employment’. In its monthly Labour Force Survey, the Australian Bureau of Statistics treats employees on paid leave, including paid maternity leave, as ‘employed’ (a convention also adopted by the HILDA Survey; see Box 4.1, page 44), but it seems likely that many respondents will interpret periods on paid maternity leave as periods of non-employment.

The questions on time spent out of employment before and after birth included in Waves 5, 8 and 11 were asked of mothers aged under 45, while in Wave 15 mothers aged under 50 were asked the

questions. For consistency across waves, Table 4.2 restricts to mothers aged under 45. In addition, the table restricts to mothers with a youngest child aged 2 to 5, so that the most recent birth occurred between two and five years ago. The lower limit of two years on the age of the child allows consistent estimation of the proportion of mothers not returning to paid employment within two years—for mothers with children aged under 2, it is not yet known whether they will return to work within two years. The upper limit of five years is to facilitate examination of changes over time, since it means that there is minimal (if any) overlap across the years examined in the table. For example, the births around which employment participation is examined in Wave 8 (2008) all occurred between late 2003 and

late 2006 (two to five years prior to the Wave-8 interview), while the births examined in Wave 5 (2005) all occurred between late 2000 and late 2003.

In relation to length of time out of paid employment prior to birth, there has been a trend increase in the proportion of women stopping work two or fewer weeks before the birth, rising from 22.5% for mothers having children between 2000 and 2003, to 27.8% for mothers having children between 2010 and 2013. However, for the other categories of length of time out of paid employment prior to birth, sustained trends are more difficult to discern. For example, the proportion reporting that they had never worked before the most recent birth declined up to 2011, but then rose sharply to 21.8% in 2015, up from 15.7% in 2011.

Clearer trends are apparent for time taken out of paid work after childbirth. Between 2005 and 2015, the proportion of mothers returning to work less than six months after childbirth declined, while the proportion returning to work in the six-to-12-month window rose. For children born from 2000 to 2003, 22.6% of mothers reported returning to work less than six months after the birth and 13.7% returned to work in the six-to-12-month window. For children born from 2010 to 2013, only 16.7% returned to work less than six months after birth, but 20.9% returned to work in the six-to-12-month window. On the assumption that most women do not regard periods of paid maternity leave as periods of employment, it seems likely that improved access to paid maternity leave, including with the introduction of the Paid Parental Leave Scheme in 2011, is responsible for this pattern.

Table 4.2 also shows that, between 2005 and 2008, there was a decline in the proportion of mothers reporting being out of paid work for two or more years after giving birth, falling from





46.7% in 2005 to 41.4% in 2008. However, after 2008, the proportion reporting being out of paid employment for at least two years rose slightly, to 42.2% in 2011 and 44.1% in 2015.

In Table 4.3, information collected on labour force status at the time of interview is used to describe employment patterns in the years leading up to and after childbirth. The table examines full-time and part-time employment rates (that is, the proportion employed full-

time and the proportion employed part-time) in the wave immediately prior to childbirth and in the two waves after childbirth. For this analysis, following Australian Bureau of Statistics' practice, a woman is classified as employed if she is on paid maternity leave. Three subperiods are examined, corresponding to: children born after Wave 1 (2001) and before Wave 5; children born after Wave 5 and before Wave 9; and children born after Wave 9 and before Wave

14. Women having their first child are distinguished from women having a subsequent (second or higher) child. Women having their first child might be expected to have higher participation prior to birth than women having children subsequent to the first because women in the latter group have existing children to look after.

Full-time employment rates in the wave preceding childbirth are indeed substantially higher for first-time mothers, with between

Table 4.3: Observed employment status of mothers in the waves before and after childbirth, 2001 to 2015 (%)

	First child			Children subsequent to first		
	Had child after Wave 1 and before Wave 5	Had child after Wave 5 and before Wave 9	Had child after Wave 9 and before Wave 14	Had child after Wave 1 and before Wave 5	Had child after Wave 5 and before Wave 9	Had child after Wave 9 and before Wave 14
Wave preceding birth						
Employed full-time	56.2	61.3	62.4	15.9	16.3	16.5
Employed part-time	16.3	16.8	12.4	29.4	31.9	32.7
Wave after birth						
Employed full-time	14.9	17.1	23.4	6.1	9.6	12.0
Employed part-time	19.6	25.4	24.9	24.5	22.6	20.8
Two waves after birth						
Employed full-time	16.1	14.4	16.5	12.2	12.6	11.8
Employed part-time	39.7	39.7	41.2	33.6	29.9	31.8

Note: Wave 1 interviews were predominately conducted in (late) 2001, Wave 2 interviews in (late) 2002, and so on.

56.2% (in the first subperiod) and 62.4% (in the last subperiod), compared with a range of 15.9% (in the first subperiod) to 16.5% (in the last subperiod) for mothers having children subsequent to their first child. Compared with women having a first child, part-time employment in the wave preceding childbirth is much more common for women having children subsequent to their first, with approximately twice as many employed part-time as employed full-time.

Overall, the trend over the HILDA Survey period is towards greater employment in the wave preceding childbirth, with the notable exception that women having their first child after Wave 9 and before Wave 14 had a significantly lower rate of part-time employment than in previous subperiods; this was only partially offset by a rise in full-time employment pre-birth.

In the waves following childbirth, full-time employment rates are substantially lower than in the wave preceding birth for first-time mothers and are also somewhat lower for other mothers. For first-time mothers, there is substantially more part-time employment post-birth, particularly in the second wave after childbirth, when approximately 40% are employed part-time, and only 14.4% to 16.5% are employed full-time. The estimates in the table suggest that first-time mothers retain greater attachment to the labour market than other mothers, with post-birth full-time employment rates always higher than for other mothers, and part-time employment rates higher in all cases other than in the first wave after childbirth in the first subperiod.

Full-time employment rates of both first-time mothers and other mothers in the wave immediately after childbirth increased substantially over the three

subperiods examined in the table, from 14.9% to 23.4% for first-time mothers and from 6.1% to 12.0% for other mothers. However, this trend does not apply to full-time employment in the second wave after childbirth, with full-time employment rates broadly similar across the three subperiods for both groups of women. This short-term increase in full-time employment post-birth—which in fact sees full-time employment rates higher in the wave immediately after giving birth than in the next wave—is likely to reflect receipt of paid maternity leave. As noted above, a woman who is on paid maternity leave is classified as employed, and in particular would be classified as full-time employed if that was her labour force status

prior to going on maternity leave. The increase over the HILDA Survey period in full-time employment in the wave immediately after giving birth is therefore likely to be driven by increased access to paid maternity leave.³

Longitudinal analysis of labour force trajectories

Table 4.3 does not tell us the specific labour force status trajectories that women follow around childbirth. For example, considering mothers who had their first child between Waves 1 and 5, we do not know from Table 4.3 what proportion of the 56.2% who were employed full-time in the wave preceding the birth were employed part-time in each of the two subsequent waves. In Table 4.4 we



³ The introduction by the Australian Government of the Paid Parental Leave (PPL) Scheme on 1 January 2011 is likely to be at least in part responsible for the apparent increase in full-time employment in the wave following childbirth. While PPL is *not* classified as paid leave by the Australian Bureau of Statistics (since it is government funded rather than employer funded), it appears that many recipients of PPL (which is paid for up to 18 weeks) report that they are on paid leave, and they are therefore classified as employed.

Table 4.4: Observed labour force trajectories before and after childbirth (%)

	First child			Children subsequent to first		
	Had child after Wave 1 and before Wave 5	Had child after Wave 5 and before Wave 9	Had child after Wave 9 and before Wave 14	Had child after Wave 1 and before Wave 5	Had child after Wave 5 and before Wave 9	Had child after Wave 9 and before Wave 14
NE, NE, NE	22.1	14.2	17.9	43.3	43.7	40.8
FT, NE, PT	14.8	10.9	13.3	2.8	1.6	1.1
FT, NE, NE	10.3	12.8	9.0	1.6	1.5	1.8
FT, PT, PT	8.0	10.9	6.5	2.5	3.1	2.3
FT, FT, PT	6.3	7.4	10.3	0.0	1.3	1.6
PT, NE, NE	7.3	9.4	4.6	5.2	7.8	8.4
FT, FT, FT	6.4	5.2	8.2	4.7	4.8	5.7
FT, NE, FT	5.2	4.3	3.3	2.6	1.9	1.3
FT, PT, FT	2.5	3.6	3.7	0.8	0.9	1.2
PT, PT, PT	2.8	3.1	3.1	12.4	11.7	11.7
FT, FT, NE	1.2	4.0	3.9	0.4	0.9	1.2
NE, PT, PT	2.7	2.2	4.0	3.4	1.5	1.7
FT, FT, NE	1.4	3.4	3.9	0.5	0.2	0.1
PT, NE, PT	3.5	2.2	2.0	6.6	6.0	7.8
NE, NE, PT	1.7	2.5	1.6	5.7	3.7	4.7
PT, PT, NE	1.2	0.9	1.3	2.1	2.4	1.9
All 11 other trajectories combined	2.6	3.1	3.3	5.5	7.0	6.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

Notes: NE—Not employed; PT—Employed part-time; FT—Employed full-time. Cells may not add up to column totals due to rounding.

therefore examine the 27 possible trajectories that can occur when examining three labour force states (not employed, employed part-time and employed full-time) over the three waves beginning with the wave immediately prior to the birth. The table shows only the 16 most common pathways, with the 11 least common pathways combined together. As in Table 4.3, first-time mothers are distinguished from other mothers, and three subperiods of the 2001 to 2015 period are examined.

The most common trajectory, for both groups of mothers, is to be not employed in all three waves, although its prevalence has declined over the three subperiods, substantially for first-time mothers and moderately for other mothers. This trajectory is especially prevalent among women having children subsequent to their first, applying to over 40% of these women in all three subperiods examined in the table.

There is more diversity in employment status trajectories for first-time mothers than other mothers. For first-time mothers, approximately seven trajectories are relatively common, each applying to at least 4.6% of these mothers. However, of these seven trajectories, five involve full-time employment in the wave preceding childbirth. Particularly common are: full-time employment in the wave preceding childbirth followed by non-employment in the wave after childbirth and then part-time employment in the second wave after childbirth; full-time employment followed by non-employment in the two waves after childbirth; full-time employment followed by part-time employment in the two waves after childbirth; and full-time employment followed by full-time employment and then part-time employment.

Other than non-employment in all three waves, there are only three trajectories that, in all subperiods, apply to at least 5% of women

having children subsequent to their first: part-time employment in all three waves, part-time employment followed by non-employment and then part-time employment; and part-time employment followed by non-employment in the subsequent two waves.

Other than the decline in the (sustained) non-employment trajectory, few consistent trends are evident in the table. Two trends do stand out, however. First, there has been growth in the full-time–full-time–part-time trajectory for first-time mothers, rising from 6.3% to 10.3% of the trajectories between the start and end subperiods. Second, the part-time–not employed–not employed trajectory has increased in prevalence for other mothers, rising from 5.2% to 8.4% of trajectories.

Table 4.5 presents the same information as Table 4.4 disaggregated by educational attainment of the mother rather than by subperiod. Specifically,

Table 4.5: Observed labour force trajectories before and after childbirth, by educational attainment (%)

	First child		Children subsequent to first child	
	No degree	Degree	No degree	Degree
NE, NE, NE	23.3	10.0	50.3	25.4
FT, NE, PT	9.5	18.1	1.7	1.7
FT, NE, NE	11.8	8.5	1.7	1.6
PT, NE, NE	9.3	3.1	7.3	7.3
FT, PT, PT	7.9	8.7	2.1	3.8
FT, FT, FT	5.0	9.4	3.7	8.3
FT, FT, PT	5.7	12.2	0.8	1.5
PT, PT, PT	3.0	3.0	8.8	18.4
PT, NE, PT	2.3	2.6	5.2	10.5
FT, NE, FT	4.6	3.5	2.0	1.5
NE, NE, PT	2.2	1.4	5.0	3.8
NE, PT, PT	4.0	1.8	2.5	1.1
FT, PT, FT	3.6	3.0	0.5	2.0
FT, FT, NE	1.1	6.2	1.0	0.8
FT, PT, NE	2.4	4.0	0.2	0.3
PT, PT, NE	0.9	1.5	1.6	3.3
All 11 other trajectories combined	3.2	2.9	5.5	8.7
Total	100.0	100.0	100.0	100.0

Notes: NE—Not employed; PT—Employed part-time; FT—Employed full-time. Cells may not add up to column totals due to rounding.

those with a university degree are distinguished from those without a university degree. The differences by educational attainment are striking, both for first-time mothers and other mothers.

Women holding a university degree are much less likely to follow the sustained non-employment trajectory than women without a university degree. Among first-time mothers, only 10.0% of degree-holders follow this trajectory, compared with 23.3% of other first-time mothers. Among mothers having children subsequent to the first, 25.4% of degree-holders follow the sustained non-employment trajectory, compared with 50.3% of other mothers having a child subsequent to the first.

The most common trajectory of university-qualified first-time mothers, applying to 18.1% of cases, is full-time employment, non-employment and part-time employment, while the second-most common trajectory is full-time employment in the waves immediately before and after

childbirth, followed by part-time employment. Full-time employment in all three waves is also relatively common for university-qualified first-time mothers, accounting for 9.4% of cases. (As noted above, many of those employed full-time in the wave immediately after giving birth are likely to be on paid maternity leave.) For first-time mothers without a university qualification, the second-most common trajectory is full-time employment followed by non-employment in the two post-birth waves.

While university-qualified women having a second or higher child are less likely to follow the sustained non-employment path than other women having a second or higher child, this is still their most common trajectory. However, compared with women without university qualifications, they are much more likely to have trajectories involving post-birth employment. Most notably, 18.4% of university-qualified women having their second or higher child are employed part-time in all three

waves and 8.3% are employed full-time in all three waves, compared with respective proportions of 8.8% and 3.7% for other mothers having their second or higher child.

Labour market earnings before and after giving birth

Mean earnings of women before and after giving birth are examined in Table 4.6, disaggregated by subperiod and educational attainment. The upper panel shows, for both first-time and other mothers and in all subperiods, the consistent pattern that mean earnings are highest before the birth, lowest in the wave immediately after the birth and then partially recover in the second wave after birth. Mean earnings of first-time mothers are always higher than mean earnings of other mothers.

Mean earnings are, unsurprisingly, considerably higher among women with university qualifications both before and after the birth. Indeed, in most cases, mean earnings are over twice as high among

Table 4.6: Mean weekly earnings of mothers in the waves before and after childbirth (\$, December 2015 prices)

By subperiod	<i>First child</i>			<i>Children subsequent to first child</i>		
	<i>Had child after Wave 1 and before Wave 5</i>	<i>Had child after Wave 5 and before Wave 9</i>	<i>Had child after Wave 9 and before Wave 14</i>	<i>Had child after Wave 1 and before Wave 5</i>	<i>Had child after Wave 5 and before Wave 9</i>	<i>Had child after Wave 9 and before Wave 14</i>
Wave prior to birth	777.68	834.56	945.21	315.04	367.59	413.09
Wave after birth	283.98	350.71	475.21	169.21	222.96	287.89
Two waves after birth	429.41	429.15	516.93	264.70	303.71	377.67
By educational attainment	<i>No degree</i>		<i>Degree</i>			
Wave prior to birth	610.32	1,243.99	251.64	632.76		
Wave after birth	247.22	593.06	145.14	427.12		
Two waves after birth	325.23	673.60	223.68	538.66		

degree-holders compared with their non-degree-holding counterparts. Nonetheless, for both groups of women, the same pattern is evident of earnings being highest in the wave before the birth, lowest in the wave immediately after the birth and recovering only partially in the second wave after birth.

The transition from study to the labour market

Concerns have recently been raised that labour market outcomes of higher education graduates have been deteriorating (for example,

Norton, 2016), prompting questions about whether the composition of graduates is matching the needs of employers, and indeed whether there are too many graduates. A significant source of the data underpinning these concerns is the Graduate Outcomes Survey, and its predecessor surveys (details about which can be found at <<https://www.qilt.edu.au>>). This survey is administered to all university graduates, but only at four months and three years after graduation.

The HILDA Survey, by following the same individuals every year for a number of years after graduation, is well placed to shed additional

light on the labour market fortunes of graduates in the years following graduation. In this section, the employment outcomes of graduates are examined in the five years following graduation. Only graduates aged under 30 at the time of graduation are examined, and outcomes after graduation are examined separately for bachelor degree qualifications and post-graduate qualifications. (See Box 4.4, page 58, for further details on the classification of educational attainment.)

Table 4.7 examines study status, employment status and earnings in each of the five years following completion of an undergraduate



qualification. To facilitate consideration of changes over time in graduate outcomes, four groups of graduates are examined: 2001 to 2005 graduates; 2006 to 2009 graduates; 2010 to 2011 graduates; and 2012 to 2013 graduates. Note that five-year outcomes are not known for all 2010 to 2011 graduates (specifically, 2011 graduates), and outcomes beyond two years are not known for all 2012 to 2013 graduates (specifically, 2013 graduates). Estimates for these outcomes are therefore not reported.

The upper panel of Table 4.7 shows that a significant proportion of bachelor's degree graduates are engaged in further (full-time) study in the years after graduation. Moreover, there appears to have been an increase in further study over the HILDA Survey period. For example, two years after graduation, 12.2% of 2001 to 2005 graduates were engaged in further study, while 17.5% of 2012 to 2013 graduates were engaged in further study. Three years after graduation, 10.0% of 2001 to 2005 graduates were studying, compared with 24.8% of 2010 to 2011 graduates.

There has also been a rise in part-time employment (not combined with full-time study) amongst recent graduates. In the year after graduation, 25.2% of those who graduated in 2012 or 2013 were employed part-time, compared with 19.3% of 2006 to 2009 graduates and 17.1% of 2001 to 2005 graduates. This pattern is, however, less consistently apparent two or more years after graduation.

Associated with the rise in further full-time study and in part-time employment (unaccompanied by full-time study) has been a decline in post-graduation full-time employment, particularly in the

Box 4.4: 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, four levels of attainment are distinguished: (1) Bachelor's degree or higher (including those with post-graduate qualifications); (2) Other post-school qualifications (comprising Diplomas and Certificate Levels 3 and 4); (3) High-school completion (Year 12); and (4) Less than high-school completion (that is, 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 'Less than high-school completion' includes people who hold a Certificate Level 1 or 2.

Table 4.7: Labour market and education participation outcomes following completion of a bachelor's degree

	<i>Graduated 2001–2005</i>	<i>Graduated 2006–2009</i>	<i>Graduated 2010–2011</i>	<i>Graduated 2012–2013</i>
Studying full-time (%)				
In the year after graduation	18.7	12.7	10.4	22.2
2 years after graduation	12.2	15.5	17.2	17.5
3 years after graduation	10.0	10.3	24.8	–
4 years after graduation	5.8	8.8	10.8	–
5 years after graduation	3.7	10.0	9.1	–
Employed part-time (and not studying full-time) (%)				
In the year after graduation	17.1	19.3	22.2	25.2
2 years after graduation	9.0	12.4	26.1	12.7
3 years after graduation	11.6	6.3	9.9	–
4 years after graduation	5.5	13.0	15.9	–
5 years after graduation	4.7	11.0	7.0	–
Employed full-time (%)				
In the year after graduation	56.3	61.7	51.5	43.8
2 years after graduation	75.5	64.5	52.2	62.2
3 years after graduation	77.0	73.0	56.6	–
4 years after graduation	81.8	71.6	71.8	–
5 years after graduation	86.5	69.4	75.0	–
Not employed or in full-time education (%)				
In the year after graduation	7.9	6.3	15.9	8.3
2 years after graduation	3.2	7.5	4.5	7.3
3 years after graduation	1.4	9.7	8.5	–
4 years after graduation	6.9	6.3	1.6	–
5 years after graduation	5.0	9.4	8.7	–
Mean weekly earnings of those employed (\$, December 2015 prices)				
In the year after graduation	859.92	947.31	835.95	791.58
2 years after graduation	1,037.93	1,018.29	942.89	926.21
3 years after graduation	1,126.49	1,080.45	968.74	–
4 years after graduation	1,278.74	1,167.42	1,023.16	–
5 years after graduation	1,407.56	1,266.05	1,189.54	–



Table 4.8: Labour market and education participation outcomes following completion of a post-graduate qualification

	Graduated 2001–2005	Graduated 2006–2009	Graduated 2010–2011	Graduated 2012–2013
Employed full-time (%)				
In the year after graduation	59.1	64.4	48.3	41.3
2 years after graduation	95.2	92.6	81.0	63.6
3 years after graduation	83.0	84.5	71.6	–
Mean weekly earnings of those employed (\$, December 2015 prices)				
In the year after graduation	1,170.69	1,428.22	1,000.44	956.92
2 years after graduation	1,468.13	1,442.28	1,160.27	1,023.59
3 years after graduation	1,625.81	1,511.87	1,445.40	–

2010 and 2011 graduate cohort in the first three years after graduation. For example, 56.6% of the 2010 and 2011 cohort were employed full-time three years after graduation, compared with 73.0% for the cohort graduating 2006 to 2009 and 77.0% of the cohort graduating 2001 to 2005. There is no clear consistent change in the proportion of graduates not employed or engaged in full-time education in the years after graduation.

Mean weekly earnings of graduates who are employed (and not engaged in full-time study) are presented in the bottom panel of Table 4.7. Consistent with the rise in part-time employment and decline in full-time employment, mean weekly earnings of new graduates have tended to decline over the HILDA Survey period. Even five years after graduation, where there is less decline in full-time employment, mean earnings are highest for the earliest graduate cohort and lowest for the most recent graduate cohort.

For graduates from post-graduate university education (Table 4.8), only full-time employment and mean weekly earnings are examined due to small sample sizes for these graduates. The estimates indicate that, in the first three years after graduation, the proportion in full-time employment and mean earnings of those employed have declined. For example, three years after graduation, mean earnings of

the employed were \$1,626 for the 2001 to 2005 cohort, \$1,512 for the 2006 to 2009 cohort and \$1,445 for the 2010 to 2011 cohort.

It would seem, therefore, that concerns about deteriorating labour market outcomes for university graduates are somewhat validated by the evidence available from the HILDA Survey. That said, labour market outcomes after graduation for those obtaining non-university post-school qualifications remain considerably worse than outcomes experienced by university graduates, and outcomes for those who do not complete any post-school qualifications (beyond Certificate Level 2) are worse still.

Table 4.9 presents some evidence of the superior post-education labour market outcomes of university graduates. It compares, across three education groups, and for males and females separately, the proportion employed full-time in each of the four years after completion of study. It excludes 2012 and 2013 graduates as well as individuals who return to full-time study.

Broadly, there has been deterioration in full-time employment for all education groups. Moreover, further analysis not presented in the table shows that the growth in the proportion of graduates who are female has played a role in the decline in full-time employment after graduation.



Specifically, there has been growth in the total proportion of those not employed full-time who are women with dependent children. For example, three years after graduation from a university qualification, 46% of women not employed full-time had dependent children. Thus, examining men only, the decline in full-time employment for more recent graduates is less clearly evident: approximately 80% or more of the 2010 to 2011 male graduate cohort were employed full-time in each of the four years after graduation.

While this is only one indicator, it suggests that post-education outcomes have not deteriorated for university graduates relative to the alternatives. Particularly noteworthy is the decline in full-time employment for males who complete high school only. For example, only 32.6% of the 2010 to 2011 cohort was employed full-time four years after completing high school, compared with 81.0% for the 2001 to 2005 cohort. Consequently, while there may be

Table 4.9: Graduates employed full-time, by sex, level of qualification and time since graduation (%)

	Men			Women		
	Graduated 2001–2005	Graduated 2006–2009	Graduated 2010–2011	Graduated 2001–2005	Graduated 2006–2009	Graduated 2010–2011
High-school completion only						
In the year after graduation	50.7	42.5	29.9	17.9	34.8	15.3
2 years after graduation	71.6	62.4	30.2	47.7	41.2	47.8
3 years after graduation	79.6	69.0	55.2	52.9	38.6	50.6
4 years after graduation	81.0	69.3	32.6	56.6	47.3	62.4
Other post-school qualification						
In the year after graduation	68.0	79.2	68.6	45.8	58.9	32.4
2 years after graduation	86.4	79.7	82.5	56.2	64.5	57.6
3 years after graduation	91.8	84.7	73.7	51.1	56.0	50.0
4 years after graduation	80.5	86.1	76.8	55.2	50.7	54.0
Bachelor's degree or higher						
In the year after graduation	62.6	68.0	83.0	62.9	64.3	68.2
2 years after graduation	88.8	82.6	87.8	83.1	74.0	76.2
3 years after graduation	96.0	85.6	79.3	79.2	77.5	75.4
4 years after graduation	91.0	76.5	87.4	85.6	78.7	73.4



gains attached to changing the field of study composition of enrolments (which is not explored in this report), it is not clear that a reduction in higher education enrolments would be desirable for young people, the labour market, or the community more broadly.

Multiple-job holding

Participants in the labour market may of course hold more than one job at the same time. For example, a person may have a full-time job from Monday to Friday and another part-time job at nights or on weekends, or a person may have two part-time jobs. There may be a number of reasons for multiple-job holding, but likely to be key among these is a desire to earn more income than is derived from one job.

Prevalence of multiple-job holding among employed persons aged 18 to 64 over the period from 2001 to 2015 is examined in Figure 4.5. Multiple-job holding has fluctuated somewhat over the period. It peaked at 8.3% of employed persons in 2004, declined to a low

of 6.6% in 2007, rose to 7.6% in 2009 and has since hovered between 7.3% and 7.8%.

Mean weekly hours of multiple-job holders in the main job and in all other jobs combined is examined in Figure 4.6. On average, the main job held by multiple-job holders, which will typically be the job from which an individual derives the most income, is part-time. In 2001 the mean weekly hours of work in the main job were 30, and this has

exhibited a trend decline, to be 28 in 2015. Mean weekly hours in all other jobs combined are considerably lower than mean hours in the main job, and have also declined slightly since 2001 when the mean was 12. In 2015, the mean was 11.

Multiple-job holding as a route to full-time employment

The extent to which multiple-job holding represents additional

employment for workers who hold full-time jobs versus combining of two or more part-time jobs is captured by the blue line in Figure 4.7. It shows that a slight majority are combining part-time jobs, and this proportion has grown over time. In 2001, 53% were part-time in the main job, while in 2015, 61% were employed part-time in the main job. The red line in Figure 4.7 shows the proportion of multiple-job holders who achieve full-time

Figure 4.5: Proportion of employed persons aged 18 to 64 with more than one job

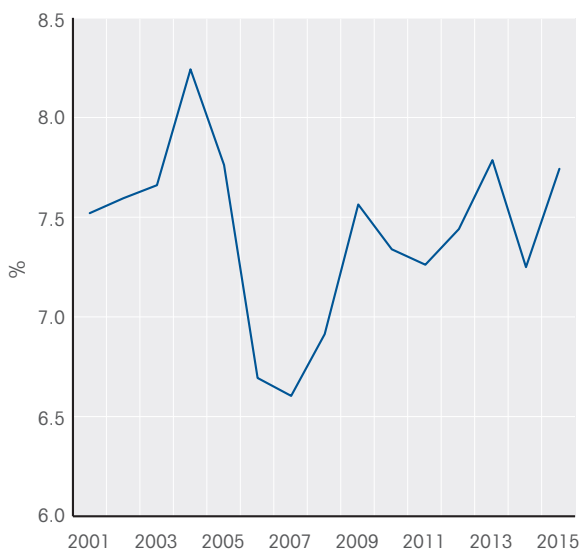


Figure 4.6: Mean hours per week worked by multiple-job holders

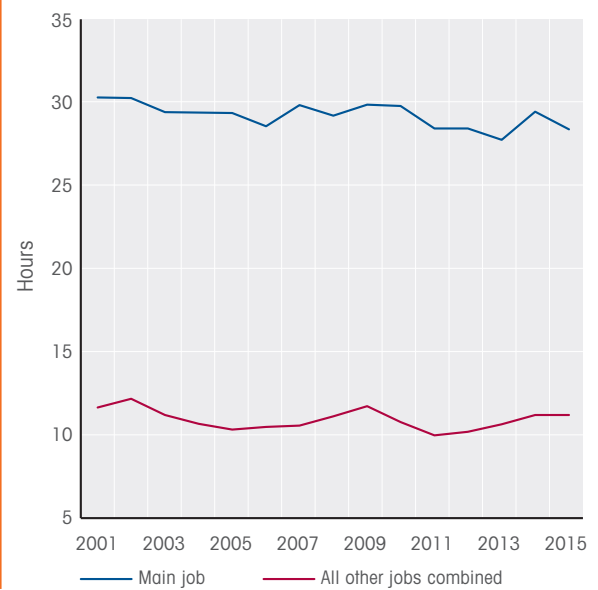


Figure 4.7: Proportion of multiple-job holders who are part-time in their main job

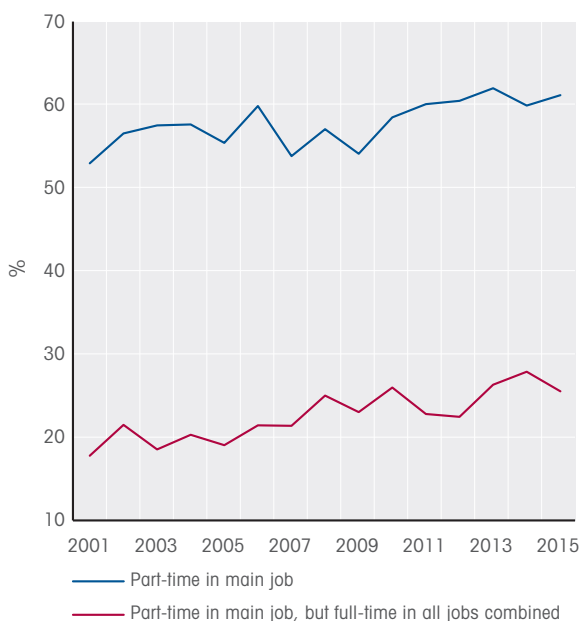
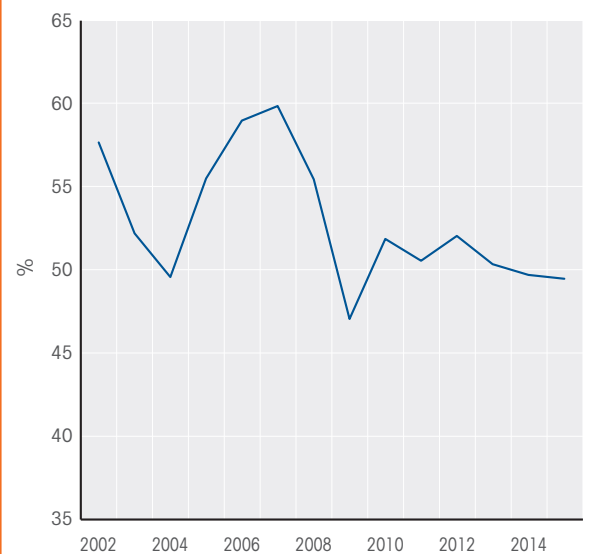


Figure 4.8: Rate of exit from multiple-job holding from one year to the next



Notes: The figure shows the proportion of multiple-job holders in one year who were no longer multiple-job holders in the next year. The year labels indicate the year in which exit (potentially) occurred.

Table 4.10: Sex and age composition of multiple-job holders compared with single-job holders, 2001 to 2015 (pooled) (%)

	All employed		Full-time employed	
	One job	More than one job	One job	More than one job
Male	55.1	45.4	65.9	55.5
Age group				
15–24	14.3	19.6	11.0	13.5
25–44	48.8	45.7	51.9	50.2
45–64	36.9	34.8	37.1	36.4
Total	100.0	100.0	100.0	100.0

employment only by combining part-time jobs. This has also grown since 2001, rising from 18% in 2001 to 26% in 2015. Multiple-job holding is therefore playing a greater role in delivering full-time employment to those who want full-time work.

Sex and age of multiple-job holders

Table 4.10 compares the sex and age composition of multiple-job holders with that of single-job holders. Females have relatively higher representation among multiple-job holders, accounting for 54.6% of all multiple-job holders, compared with 44.9% of all single-job holders, and accounting for 44.5% of full-time employed multiple-job holders, compared with

34.1% of full-time employed single-job holders. Differences in the age composition of single-job and multiple-job holders are relatively small, though multiple-job holders are relatively more likely to be aged 15 to 24.

Persistence of multiple-job holding

Figure 4.8 provides a sense of the persistence of multiple-job holding over time by examining the rate of exit out of multiple-job holding from one year to the next. For example, it shows that 58% of persons who held two or more jobs in 2001 were not multiple-job holders in 2002. In most years, over 50% of multiple-job holders are not multiple-job holders in the following year, suggesting that for the majority of people,

multiple-job holding is a relatively short-term labour market state.

Movements over time in the rate of exit from multiple-job holding to a large extent mirror the movements in the proportion of employed persons who hold more than one job. The rate of exit declined from 58% to 50% between 2002 and 2004, rose over the next three years to be 60% in 2007, then declined to 47% in 2009. Since 2010, the rate of exit has been more stable, but with a slight trend decline from 52% in 2010 to 50% in 2015.

Figure 4.9 presents a more complete picture of the persistence of multiple-job holding for the 2001 to 2015 period as a whole. It presents the empirical survival function, which shows the proportion of multiple-job spells still in progress in each year after commencement.⁴ It shows that only 35% of people who start working in more than one job are still working in multiple jobs one year later, while only 8% have multiple-job spells of at least four years duration. This confirms the indications in Figure 4.8 that multiple-job holding is typically not a long-term labour market state.

Impact of movements between single-job and multiple-job holding on hours and earnings

Changes in weekly hours of work and earnings associated with movements between single-job and multiple-job holding are examined in Table 4.11. Changes in weekly hours of work are broadly consistent with expectations. Employed persons moving from holding one job to holding multiple jobs on average increase their weekly hours of work by 7.6, while those moving from multiple jobs to one job on average decrease their



⁴ Note, however, that this will tend to overstate the length of multiple-job spells, since a person observed to hold multiple jobs at the time of interview in two consecutive waves is assumed to have been in multiple jobs for the entire (approximately one-year) period between interviews. Some of these individuals will have ceased holding multiple jobs at some stage between interviews (but recommenced multiple-job holding prior to the second interview).



weekly hours of work by 4.3. By comparison, those who remain single-job holding on average increase their weekly hours of work by 0.4 and those who remain multiple-job holding on average increase hours of work by 0.5.

While weekly hours of work on average decrease for those who move from multiple jobs to one job, it is nonetheless the case that hours of work increase for a significant minority—27.7%—of these individuals. This is likely to happen, for example, when an individual has multiple part-time jobs in one year and moves into a single full-time job in the next year. The second panel of Table 4.11 shows that this applies to 8.9% of workers who move from multiple jobs to one job. The remaining 18.8% (27.7% minus 8.9%) of those who experience an increase in hours of work therefore do so without a change in full-time/part-time status—that is, by increasing hours while remaining part-time or increasing hours while remaining full-time.

Similarly, while hours of work on average increase for those who move from one job to multiple jobs, 29.1% experience a decrease in weekly hours of work. The second panel of Table 4.11 shows that of those moving from one job to multiple jobs, 4.9% shift from a single full-time job to multiple part-time jobs that add up to less than 35 hours per week. The remaining 24.2% of those moving from one job to multiple jobs who experience

Figure 4.9: Empirical survival function for multiple-job spells (proportion continuing to be employed in more than one job at each spell duration)

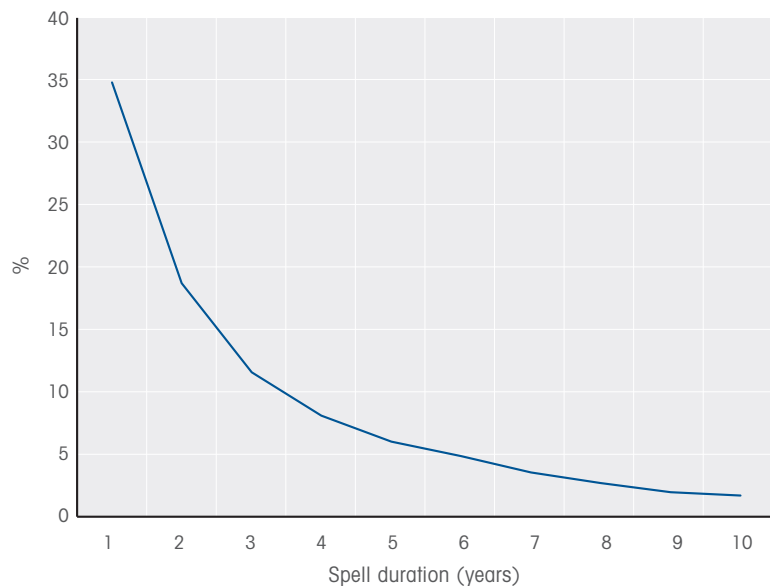


Table 4.11: Hours and earnings changes associated with movements between single-job and multiple-job-holding, 2001 to 2015 (pooled)

	<i>One job in both waves</i>	<i>Multiple jobs in both waves</i>	<i>Move from one job to multiple jobs</i>	<i>Move from multiple jobs to one job</i>
Mean change in hours worked per week	0.4	0.5	7.6	-4.3
Hours of work increased (%)	34.9	42.4	70.9	27.7
Full-time/part-time employment status in first year and second year (%)				
PT, PT	22.5	25.0	35.3	29.0
PT, FT	5.6	7.7	17.3	8.9
FT, PT	4.5	5.1	4.9	12.2
FT, FT	67.4	62.2	42.5	49.9
Total	100.0	100.0	100.0	100.0
Mean change in real weekly earnings (\$, December 2015 prices)	40	47	313	-145
Real weekly earnings increased by more than 10% (%)	30.6	37.0	60.2	23.9

Notes: PT—Employed part-time; FT—Employed full-time. Cells may not add up to column totals due to rounding.

a decrease in hours do so while remaining part-time or while remaining full-time.

The move from single-job employment to multiple-job employment delivers a move from part-time to full-time employment for 17.3% of those moving into multiple-job employment, while the move from multiple-job employment to single-job employment results in a move from full-time to part-time employment for 12.2% of these movers.

Overall, those who switch between single-job and multiple-job employment are more likely to change full-time/part-time status than those who remain in one job

or remain in multiple jobs: 22.2% of those switching to multiple-job employment and 21.1% of those switching to one-job employment change their full-time/part-time status, compared with 10.1% of those who remain in a single job and 12.8% of those who remain in multiple jobs. Those switching between single-job and multiple-job employment are also more likely to be employed part-time in both waves, applying to 35.3% of those moving into multiple jobs and 29.0% of those moving in the reverse direction. Consequently, those who move between single-job and multiple-job holding are considerably less likely to be employed full-time in both years

than those who remain employed in one job or remain employed in multiple jobs.

Reflecting the changes in hours, mean earnings on average increase by \$313 per week as a result of moving from one-job to multiple-job employment, while moving in the reverse direction on average decreases earnings by \$145. These compare with mean increases of \$40 and \$47 for the two respective groups of non-movers. Earnings increase by more than 10% for 60.2% of those moving into multiple-job employment, compared with only 23.9% of those moving into single-job employment.



5

Retirement



Retirement from the workforce is one of life's major events. While retirement status is ascertained in every wave of the HILDA Survey, every four years since 2003 the HILDA Survey has additionally contained a retirement 'module' focusing on this transition. This module has included questions on plans for retirement by those not yet retired, the transition process itself for those moving into retirement, and the experiences in retirement of those already retired. Most recently, in Wave 15 (2015), it also included questions on the use of superannuation at the point of retirement. In this chapter we draw on this information to examine the timing of retirement of those who are retired, the uses to which superannuation is put at the point of retirement, and the retirement plans of those aged 45 and over who have not yet retired.

Trends in the age of retirement

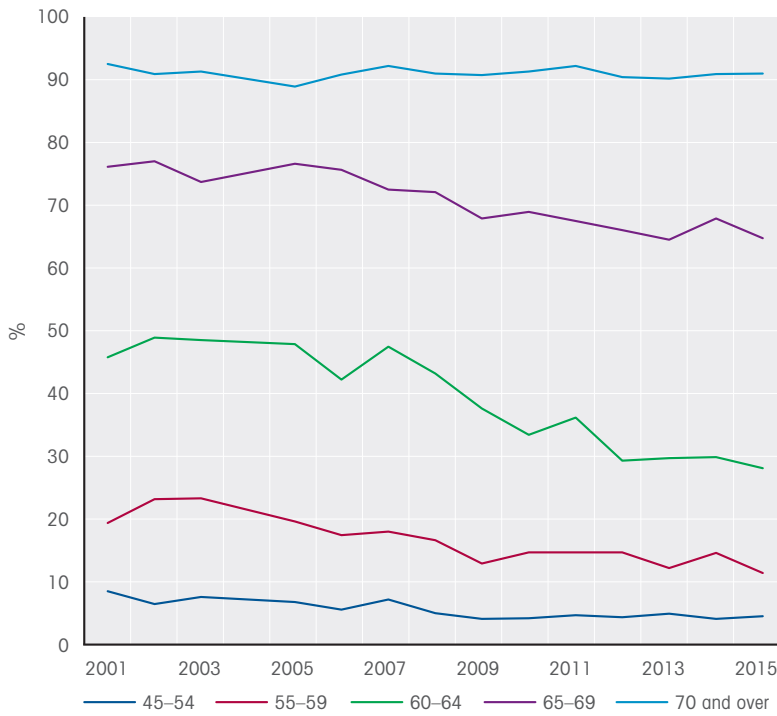
Figures 5.1 and 5.2 present cross-sectional estimates of the proportion of men and women who are retired in each year of the HILDA Survey, disaggregated by age group. Strong downward trends in the proportion of people retired are evident, particularly among men and women aged 60 to 64 and among women aged 55 to 59. In 2001, 49% of men aged 60 to 64 and 68% of women aged 60 to 64 were retired, while in 2015 only 28% of men and 48% of women in this age range were retired. Among women aged 55 to 59, the proportion retired fell from 45% in 2001 to 23% in 2015. However, for both men and women, most of the decrease in the proportion of each age group retired occurred prior to 2012, with relatively little change in the proportions retired between 2012 and 2015.

Table 5.1 shows more clearly the generational differences in retirement ages by comparing across birth cohorts. It shows the proportion of each cohort retired before each of three age levels: 60, 65 and 70. To minimise biases due to death and recall errors,

estimates are taken from the earliest wave for which all three statistics can be ascertained for the cohort. Thus, Wave 3 data is used for the cohort born in the 1920s, Wave 7 data is used for the 1930 to 1934 cohort, Wave 11 data is used for the 1935 to 1939 cohort and Wave 15 data is used for the remaining cohorts.

For both men and women, there is a general trend towards later retirement among the more recent birth cohorts. For example, for men, the cohort born 1935 to 1939 was the most likely to have retired before age 60, and the cohorts born 1920 to 1929 and 1935 to 1939 were the equal-most likely to have retired before age 65. By contrast, the male birth cohort *least* likely to have retired before age 60 is the most recent (1950 to 1954) cohort, and the male cohort least likely to have retired before age 65 is also the most recent cohort for which this is known (1945 to 1949). Indeed, in all but one case, the cohort with the lowest proportion retiring before a given age (60, 65 or 70) is the most recent birth cohort for which data is available as of 2015. The only exception is for the proportion of women retiring before age 70, which is lowest for the cohort born 1930 to 1934.

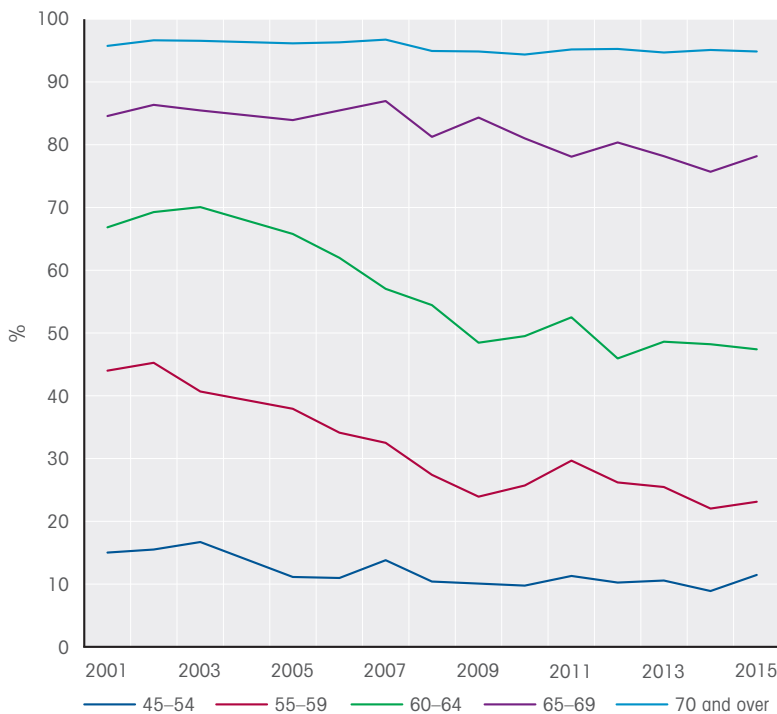
Figure 5.1: Percentage of men retired, by age group



Contemporary trends in recent retirements are examined in Table 5.2, which presents statistics on the age at retirement of those who retired in the four years leading up to each of the waves in which the retirement module has been administered. The mean age at retirement of recent retirees steadily climbs for men from 62.1 years for those retiring in the four years up to 2003 up to 66.1 for those retiring in the four years up to 2015. For women, the increase in the mean age at retirement of recent retirees is only evident from 2007, when the mean age at retirement of recent retirees was 61.0. The rise after 2007 is, however, more rapid, rising to 63.8 for retirees in the four years to 2015.

The increases in mean age at retirement have arisen via decreases in the proportions aged under 65 at the time of retirement and increases in the proportions aged 65 to 69 and 70 and over. However, between 2003 and 2011, the proportion of recent female retirees aged 60 to 64 at the time of retirement actually increased, and it is only between 2011 and 2015 that we see a decline in the proportion of recent retirees in this age range. Moreover, all of the decrease in the proportion of recent male retirees aged 60 to 64, and all of the increase in the proportion aged 70 and over, occurred up to 2011.

Figure 5.2: Percentage of women retired, by age group



Prevalence of transitions out of retirement

Retirement is typically perceived to be a one-time event: people retire once never to return to work again. However, as Table 5.3 shows, this is not entirely the case. The table presents, for each of five age groups and four subperiods of the 2001 to 2015 period, the proportion of retired men and





Table 5.1: Proportion retired before age 60, age 65 and age 70, by birth cohort (%)

<i>Birth year</i>	<i>Men</i>			<i>Women</i>		
	<i>Before age 60</i>	<i>Before age 65</i>	<i>Before age 70</i>	<i>Before age 60</i>	<i>Before age 65</i>	<i>Before age 70</i>
1920–1929	17.2	55.9	86.5	52.1	71.8	79.2
1930–1934	26.2	51.8	81.7	44.8	67.7	78.7
1935–1939	29.9	55.9	79.7	46.1	72.7	85.3
1940–1944	21.7	46.8	76.2	44.9	67.9	81.4
1945–1949	22.9	41.9	–	34.9	56.9	–
1950–1954	15.7	–	–	29.0	–	–

women who move out of retirement each year. It shows that a significant number of retired persons return to the workforce each year, particularly in the 45 to 54 and 55 to 59 age ranges, in which as many as 26.7% of retired persons return to the workforce each year. Even in the 60 to 64 age group, at least 8.0% of retired men and, in the last two subperiods, at least 6.9% of retired women, exit retirement each year.

It is difficult to decipher trends in movements out of retirement over the 2001 to 2015 period, with perhaps the notable exception that retired women in the 55 to 59 and 60 to 64 age ranges were more likely to move out of retirement in the 2009 to 2012 and 2013 to 2015 subperiods.

Table 5.2: Age of retirement of persons who retired within the last four years, 2003 to 2015

	<i>2003</i>	<i>2007</i>	<i>2011</i>	<i>2015</i>
Men				
Mean age at retirement (years)	62.1	64.2	65.6	66.1
<i>Proportion retiring in each age range (%)</i>				
45–54	12.4	4.5	6.6	4.3
55–59	22.5	17.7	12.6	8.8
60–64	29.6	30.7	19.3	20.0
65–69	22.0	27.9	35.1	41.0
70 and over	13.5	19.1	26.4	25.9
Women				
Mean age at retirement (years)	61.3	61.0	62.5	63.8
<i>Proportion retiring in each age range (%)</i>				
45–54	15.2	19.1	11.6	8.7
55–59	24.8	19.0	17.9	13.0
60–64	30.7	29.5	32.7	28.3
65–69	16.8	21.8	27.9	35.4
70 and over	12.5	10.7	9.8	14.6

Table 5.3: Proportion of retired persons moving out of retirement each year, by age group, 2001 to 2015 (%)

	2001–2004	2005–2008	2009–2012	2013–2015
Men				
45–54	23.0	13.5	23.6	16.4
55–59	8.4	12.8	17.0	17.3
60–64	9.4	9.0	8.0	13.3
65–69	3.3	3.2	3.7	4.2
70 and over	2.1	0.9	1.7	1.1
Women				
45–54	18.1	26.7	23.8	22.2
55–59	6.8	8.2	12.0	11.8
60–64	3.9	5.3	7.4	6.9
65–69	2.9	3.2	2.0	2.2
70 and over	0.5	0.8	0.5	0.8

Factors impacting on the timing of retirement

The timing of retirement is likely to be determined by a number of factors, including financial readiness for retirement, health,

employment opportunities, individual preferences, and the desire to coordinate with one’s partner. In this section, we first explore the association between certain characteristics and the age at retirement for individuals aged 70 to 79 who are already retired—and for whom the age of retirement

is therefore known. We then use contemporaneous data on people aged 45 and over who are not yet retired to examine the effects of various life events on the likelihood of moving into retirement. Finally, we draw on information directly obtained from respondents on the reasons for retirement.

Table 5.4 examines differences in retirement age by educational attainment (see Box 4.4, page 58), immigrant status (see Box 5.1, page 69), whether had ever had children, whether had ever been married, and occupation (see Box 5.2, page 69) in the last job prior to retirement. It presents, for men and women separately, coefficient estimates from regression models of the determinants of age at retirement.

Other factors held constant, men with a bachelor’s degree on average retired 1.38 years later than men who had not completed high school, while women with a bachelor’s degree on average retired 4.74 years later than women who had not completed high school. There are, however, no significant differences between the other educational attainment groups and the not completed high-school group.

Men and women exhibit contrasting differences in retirement age by immigrant status. Male NESB immigrants retired 0.82 years earlier than native-born males, other factors held constant, but female NESB immigrants retired 1.6 years later than native-born females. Moreover, while there is no significant difference in age of retirement between ESB immigrants and the native-born for men, female ESB immigrants retired 2.36 years later than native-born women.

No significant differences in retirement age by whether one had children or not are evident, even for women, but men who had ever been married retired 3.29 years later than men who had never

Table 5.4: Association between retirement age and characteristics—Retired persons aged 70 to 79

	Men	Women
<i>Educational attainment (Reference category: Less than high-school completion)</i>		
Bachelor’s degree or higher	1.38	4.74
Other post-school qualification	<i>ns</i>	<i>ns</i>
Completed high school	<i>ns</i>	<i>ns</i>
<i>Immigrant status (Reference category: Native-born)</i>		
ESB immigrant	<i>ns</i>	2.36
NESB immigrant	–0.82	1.60
Ever had children	<i>ns</i>	<i>ns</i>
Ever married	3.29	–5.37
<i>Occupation prior to retirement (Reference category: Labourers)</i>		
Managers	2.59	3.99
Professionals	<i>ns</i>	<i>ns</i>
Technicians and trades workers	<i>ns</i>	–5.41
Community and personal service workers	<i>ns</i>	2.27
Clerical and administrative workers	<i>ns</i>	<i>ns</i>
Sales workers	2.56	<i>ns</i>
Machinery operators and drivers	1.75	<i>ns</i>
Constant	57.88	57.97
Number of observations	1,714	1,942

Notes: The table reports coefficient estimates from OLS models of the determinants of retirement age. The data is drawn from Waves 3, 7, 11 and 15. Estimation samples exclude those who did not report a retirement age or for whom the occupation prior to retirement was not known. This resulted in the exclusion of 10.3% of retired women aged 70 to 79 (229 observations) and 1.8% of retired men aged 70 to 79 (32 observations). *ns* indicates the estimate is not significantly different from 0 at the 10% level.

married, while women who had ever been married retired 5.37 years earlier than women who had never been married.

The bottom panel of Table 5.4 examines differences by occupation of employment in the last job held prior to retirement. All estimates represent comparisons with those who were labourers. There are substantial differences in the estimated coefficients across occupations. For men, managers, sales workers and machinery operators and drivers on average retired the latest. For women, managers and community and personal service workers retired the latest, while technicians and trades workers retired the earliest.

The impacts of various life events on the likelihood of moving into retirement are examined in Table 5.5, which presents, for men and women separately, mean marginal effects estimates from a Probit model.¹ (See the Technical Appendix for an explanation of Probit models.)

First considered is the role of age, which unsurprisingly is positively related to the probability of retiring. Each additional year of age on average increases the probability of retirement by 0.7 percentage points for both men and women. Potential additional effects of reaching specific ages—specifically, 55, 60, 65 and 70—are also examined by including indicator variables (equal to 1 if the age was reached in the last year and 0 otherwise). For men, turning 60 on average increases the probability of retirement by 2.5 percentage points (over and above the 0.7 percentage-point effect of ageing an additional year), and turning 65 increases the probability of retirement by 5.1 percentage points (again, on top of the 0.7 percentage-point effect of ageing). There are no significant (additional) effects of turning 55 or 70 for men.

Box 5.1: 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.

Box 5.2: ANZSCO classification of occupations

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.

For women, turning 65 on average increases the probability of retirement by 3.1 percentage points (over and above the 0.7 percentage-point effect of ageing an additional year), but there are no significant effects of reaching the other 'milestone' ages.

Effects of health are captured by an indicator variable derived from the SF-36 measure of general health (see Box 5.3, page 70). This indicator is equal to 1 if the individual was in poor health in the previous year. To capture effects of the health of one's partner, a further indicator variable is included that is equal to 1 if the

individual was partnered and the partner was in poor health in the previous year. Poor general health in the previous year is associated with an average increase in the probability of retirement of 4.1% for men and 5.0% for women. In addition, experience of a serious personal injury or illness in the past 12 months is associated with an average 2.0 percentage-point increase in the probability of retirement for men and a 2.6 percentage-point increase in the probability of retirement for women.

No significant effects of partner general health are evident, and serious personal injury or illness to



¹ The analysis is of observed transitions into retirement. Consequently, an individual who retires more than once will contribute more than one observation.

a close relative or family member (which would include one's spouse) also has no significant effects on the retirement decision. Death of one's spouse or child in the last 12 months increases the probability of retirement by 4.3 percentage points for men, but has no significant effect on women's retirement decision.

Dismissal from one's job in the last 12 months increases the

probability of retirement by 2.8 percentage points for men, but there is no significant effect evident for women. A major improvement in finances in the last 12 months (for example, due to winning the lottery or receiving an inheritance) increases the probability of retirement by 2.8 percentage points for men and 1.5 percentage points for women. A major worsening of finances, such

as bankruptcy, also tends to precipitate retirement for men, on average increasing the probability of retirement by 1.6 percentage points. However, such an event does not significantly impact on the female probability of retirement.

Retirement might be expected to become more likely when there are fewer employment opportunities. The national unemployment rate is therefore included in the model as a measure of employment opportunities. However, no significant effect of this measure of labour market conditions is evident for men or women.

While there is no evidence that the general health of one's partner impacts on the retirement decision, there is strong evidence in Table 5.5 that couples tend to coordinate their retirement. The probability of retiring at some stage over the last year is on average increased by 5.5 percentage points for men and by 11.2 percentage points for women if the partner retired in the last year.²

In each of the waves in which the special sequence of retirement questions has been administered, retired persons have been asked their reasons for retirement. In these years, we can therefore directly examine the reasons for retirement as perceived (or at least as reported) by the retirees themselves. Figure 5.3 summarises these responses, classifying retirement reasons into six categories (see Box 5.4, page 71) and presenting the proportion reporting each as the *main* reason for retirement. To allow comparisons across time, estimates for each year are for persons who had retired within the last four years so that there is minimal overlap in the retirements being examined. That is, 2003 estimates are for persons who had retired since 1999, 2007

Table 5.5: Impacts of various life events on the probability of entering retirement—Non-retired persons aged 45 and over, 2001 to 2015

	Men	Women
Age (years)	0.007	0.007
Turned 55 in last year	<i>ns</i>	<i>ns</i>
Turned 60 in last year	0.025	<i>ns</i>
Turned 65 in last year	0.051	0.031
Turned 70 in last year	<i>ns</i>	<i>ns</i>
In poor general health in the year prior to the current year	0.041	0.050
Partner in poor general health in the year prior to the current year	<i>ns</i>	<i>ns</i>
<i>Life events in the last 12 months</i>		
Serious personal injury or illness to self	0.020	0.026
Serious personal injury or illness to a close relative/family member	<i>ns</i>	<i>ns</i>
Death of spouse or child	0.043	<i>ns</i>
Fired or made redundant by employer	0.028	<i>ns</i>
Major improvement in financial situation (e.g., won lottery, received an inheritance)	0.028	0.015
Major worsening in financial situation (e.g., went bankrupt)	0.016	<i>ns</i>
Unemployment rate	<i>ns</i>	<i>ns</i>
Partner retired in the last year	0.055	0.112
Year	-0.002	-0.002
Number of observations	19,135	18,541

Notes: The table presents mean marginal effects estimates from Probit models of the probability of entering retirement. See the Technical Appendix for more information on Probit models. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

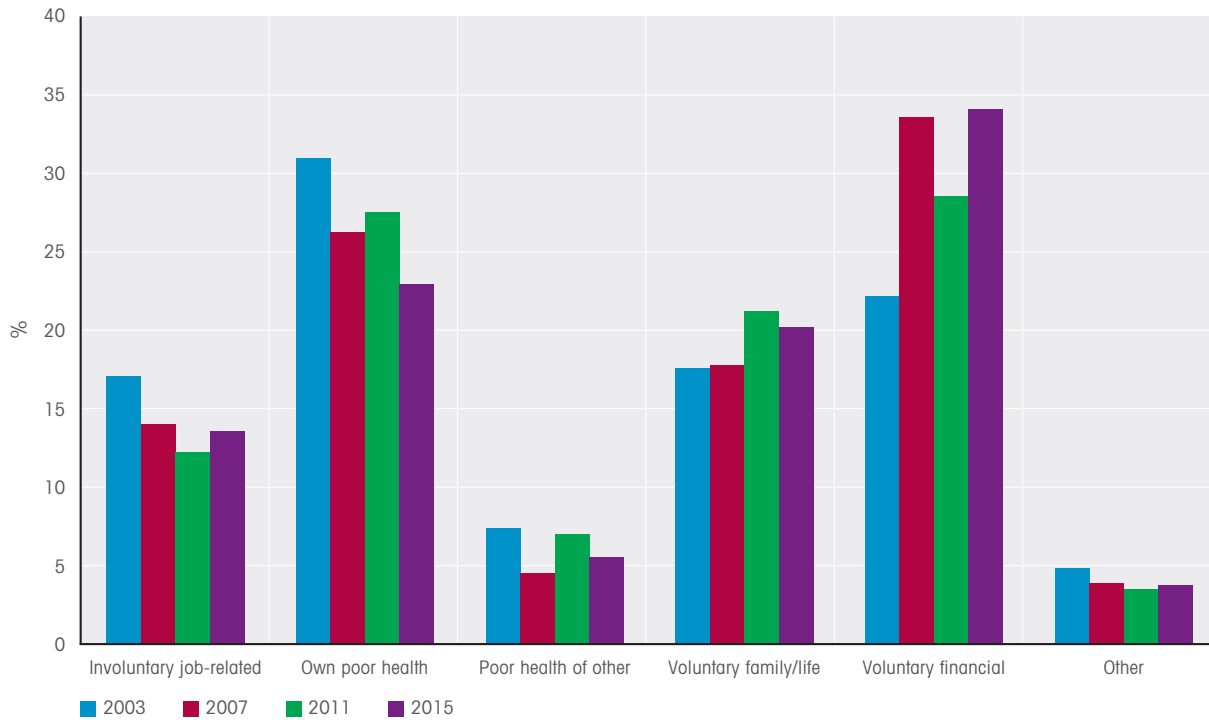
Box 5.3: SF-36 measures of health

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.

² Models were estimated excluding the indicator variable for partner retirement, on the basis that this may confound identification of the effects of other factors, especially partner health. Most estimates for other variables were insensitive to the inclusion or exclusion of this variable, but partner poor general health became statistically significant for women, acting to on average increase the probability of retirement by 1.3 percentage points.

Figure 5.3: Main reason for retirement of persons who retired within the preceding four years



estimates are for persons who had retired since 2003, 2011 estimates are for persons who had retired since 2007, and 2015 estimates are for persons who had retired since 2011.

Consistent with the regression results obtained in Table 5.5, one's own poor health is one of the most commonly reported main reasons for retirement: of those who retired between 1999 and 2003, 31% identified poor health as the main reason. This proportion subsequently fell, applying to 23% of those retiring between 2011 and 2015, but it was nonetheless still the second-most common reason for retirement.

While poor health appears to be an important factor in many retirement decisions, more positive reasons for retirement, here labelled 'Voluntary—family/life reasons' and 'Voluntary—financial reasons', are in fact collectively more common and, moreover, they have grown over time. Of those who retired between 1999 and 2003, 22% reported a main reason for retirement that falls in the 'Voluntary—financial reasons' category, and 18% reported a main reason that falls in the 'Voluntary—



Box 5.4: Classification of reasons for retirement

In HILDA Survey waves containing the retirement module, retired respondents are asked for the reasons for retiring. They are presented with 18 potential reasons, although may also offer additional reasons not specified. Respondents who nominate more than one reason are then asked to identify the main reason. In Figure 5.3, the reasons have been classified into six categories as follows:

- (1) *Involuntary—job-related reasons*: Made redundant, dismissed or had no choice; Reached compulsory retirement age; Could not find another job; Pressure from employer or others at work.
- (2) *Own poor health*: Own ill health.
- (3) *Poor health of another (for example, spouse)*: Ill health of spouse or partner; Ill health of other family member.
- (4) *Voluntary—family/life reasons*: Partner had just retired or was about to retire; Spouse or partner wanted me to retire; To spend more time with spouse or partner; To spend more time with other family members; To have more personal or leisure time; Fed up with working or work stresses, demands.
- (5) *Voluntary—financial reasons*: Became eligible for the old age pension; Offered reasonable financial terms to retire early or accept a voluntary redundancy; Superannuation rules made it financially advantageous to retire at that time; Could afford to retire or had enough income; Spouse's or partner's income enabled me to retire.
- (6) *Other reason*: To have children, start family or to care for children; Other reason.

family/life reasons' category. Among those who retired between 2011 and 2015, these proportions had respectively grown to 34% and 20%.

Associated with this somewhat positive development, not only has poor health become less frequently cited as the main reason for retirement, but so have job-related involuntary reasons. This category contained the main reason for retirement of 17% of the 1999 to 2003 retirement cohort, and 14% of the 2011 to 2015 retirement cohort.

What do people do with their superannuation when they retire?

With the introduction of compulsory superannuation contributions for most employees a quarter of a century ago, the superannuation system is beginning to mature, such that a significant proportion of people are now entering retirement with substantial superannuation



balances.³ As a consequence, additional questions were included in Wave 15 of the HILDA Survey on the superannuation balances at the point of retirement of people who had retired in the last four years, and what these retirees did with

their superannuation. Table 5.6 summarises this information.

The top panel of the table shows that 69.2% of men and 71.4% of women who retired between 2011 and 2015 reported that they had superannuation at the

Table 5.6: Use of superannuation by persons who retired in the last four years, 2015

	Men	Women
Percentage of retirees who had superannuation (%)	69.2	71.4
Mean balance (\$, December 2015 prices)	454,221	230,907
Median balance (\$, December 2015 prices)	325,200	110,952
Conversion of superannuation to a regular retirement income, such as an allocated pension or annuity		
Percentage of retirees with superannuation who created a regular income (%)	52.1	67.7
Mean superannuation balance of those who created a regular income (\$, December 2015 prices)	677,442	353,485
Mean proportion of superannuation used to create the regular income (%)	88.4	86.1
<i>Those who created a regular income: type of regular income^a (%)</i>		
Lifetime guaranteed pension	21.8	12.2
Account-based pension such as an allocated pension	75.6	87.9
Other	5.2	3.8
Superannuation other than that converted to a regular income		
Percentage of retirees with superannuation who had other remaining superannuation (%)	67.8	81.3
<i>Use of other remaining superannuation^a (%)</i>		
Left it in the superannuation account	59.4	61.2
Invested it in an approved deposit fund, deferred annuity or other superannuation scheme	11.0	9.2
Invested it elsewhere (e.g., bank accounts, shares, property)	17.0	15.2
Paid off debts (e.g., home loan, car loan, business debt)	9.9	13.1
Paid for large expenditure items such as home renovations, holidays and motor vehicles	9.0	8.6
Assisted family members	2.8	5.4
Other	*1.6	*2.3
Retirees who used superannuation to pay off debts		
Mean amount used to pay off debts (\$, December 2015 prices)	235,978	120,543
Mean proportion of superannuation used (%)	58.2	70.0
Retirees who used superannuation to pay for large expenditure items		
Mean amount spent on large items (\$, December 2015 prices)	403,862	68,770
Mean proportion of superannuation used (%)	32.6	69.6
Retirees who used superannuation to assist family members		
Mean amount used to assist family members (\$, December 2015 prices)	108,562	66,976
Mean proportion of superannuation used (%)	83.9	48.0

Notes: ^a An individual can be in more than one category. * Estimate not reliable.

³ The Superannuation Guarantee, introduced in 1992, requires employers to make contributions to a superannuation fund for most employees. Initially, the minimum contribution rate was 3% of earnings. This minimum rate was increased in steps over the subsequent 22 years to its current level of 9.5%. Increased superannuation balances at retirement also reflect 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.

point of retirement. Among retirees with superannuation at the time of retirement, the mean balance (at December 2015 prices) was \$454,221 for men and \$230,907 for women, while the respective medians were \$325,200 and \$110,952.

Of those who had superannuation when they retired, 52.1% of men and 67.7% of women converted at least some of that superannuation into a regular income, such as an allocated pension or annuity. These retirees tended to have larger superannuation accounts than other retirees with superannuation—the mean balance was \$677,442 for men and \$353,485 for women—and used most of their superannuation to create the regular income—on average 88.4% in the case of men and 86.1% in the case of women. The most common type of regular income created is an account-based pension rather than a lifetime guaranteed pension or annuity. The former type of income stream represents a (gradual) drawdown of the account-holder's superannuation and may run out before death. The latter type of income stream continues until death, and therefore insures the recipient against 'longevity risk'—that is, the risk of running out of retirement savings before death.

The third panel of Table 5.6 shows that 67.8% of men and 81.3% of women who retired in the four years to 2015 did not convert all of their superannuation to a regular income stream (and indeed 47.9% of men and 32.3% of women did not convert any of their superannuation into a regular income stream). Most commonly, retirees simply left the funds in their superannuation account. Nonetheless, significant proportions used superannuation to invest elsewhere, pay off debts and pay for large expenditure items (such as renovations, motor vehicles and holidays).



Mean superannuation balances are relatively low for those who used at least part of their superannuation to pay off debts, pay for large expenditure items or assist family members. Moreover, among those using superannuation for each purpose, a high proportion of their superannuation is used for that purpose. For example, the mean superannuation balance at retirement of men who used their superannuation to pay off debts was \$235,978 and on average 58.2% of their total superannuation balance was used to pay off debts. The corresponding figures for women are \$120,543 and 70.0%. It therefore seems that a significant proportion of people with relatively low superannuation balances at the time of retirement

are making the decision not to use their superannuation to help fund their retirement.

Retirement expectations of people not yet retired

In Waves 11 and 15, the HILDA Survey has obtained information from people aged 45 and over who were not yet retired about their expectations for the (after-tax) income they will require in retirement in order to have a standard of living which they regard as satisfactory.⁴ Table 5.7 summarises responses to this question in each wave, presenting the mean, median and

⁴ This information was also collected in Wave 7, but only from respondents who indicated that they had previously thought about how much money they would need in retirement.

Table 5.7: Expected annual income required in retirement—Non-retired persons aged 45 and over, 2011 and 2015 (\$, December 2015 prices)

	Single		Partnered	
	2011	2015	2011	2015
Mean	46,671	43,128	63,233	62,340
10th percentile	21,723	20,838	28,240	30,055
25th percentile	28,240	26,048	43,447	40,074
Median	38,016	39,072	54,309	52,096
75th percentile	54,309	50,092	67,777	70,129
90th percentile	65,170	60,111	108,617	100,185



Table 5.8: Factors impacting on expected income required in retirement—Non-retired persons aged 45 and over, 2011 and 2015

	Estimate
Male	<i>ns</i>
Partnered	13,301
<i>Age group (Reference category: 45–49)</i>	
50–54	–3,563
55–59	–5,831
60–64	–11,800
65 and over	–5,307
Rank in the income distribution (percentile)	346
<i>Region of residence (Reference category: Major urban)</i>	
Non-major urban	–7,454
Non-urban	–5,282
<i>Extent to which have thought about how much money will need in retirement (Reference category: Not at all)</i>	
A little	<i>ns</i>
A lot	6,162
Year = 2015	<i>ns</i>
Constant	30,758
Number of observations	7,004

Notes: The table reports coefficient estimates from an OLS regression of the determinants of expected annual after-tax income in retirement (expressed at December 2015 prices). See the Technical Appendix for further details on OLS regression models. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

10th, 25th, 75th and 90th percentiles of the distribution of responses. Respondents were asked to report in ‘today’s dollars’, so all of the estimates have been adjusted to December 2015 prices to enable comparison of 2011 and 2015. In addition, results are presented separately for single people and partnered people because a single person is only asked about the income required for one person, whereas a partnered person is asked about the income required for the couple.

The mean required income reported in 2015 was \$43,128 for single people and \$62,340 for couples. However, considerable variation in estimated requirements is evident. Among single people, the 10th percentile (which has 10% of reported value below it and 90% above it) is only \$20,838, while the 90th percentile is \$60,111. Among partnered people, the 10th percentile is \$30,055, while the 90th percentile is \$100,185. Notably, for both singles and couples, the 10th percentile is somewhat below the 2015 relative poverty line (see Figure 3.3, page 33), which was \$23,004 for single people and \$34,506 for couples. Moreover, for both singles and couples, the median required income is, in equalised terms, below the median household income in 2015 (see Table 3.2, page 29). It therefore seems that most people do not have unreasonably high expectations of their income requirements in retirement.

Between 2011 and 2015, expected income requirements decreased at most points of the distribution for both singles and couples. That is, the mean, 10th, 25th, 75th and 90th percentiles of the distribution of expected income requirements all decreased for singles, while the mean, median, 25th and 90th percentiles all decreased for couples; only the median increased for singles and the 10th and 75th percentiles of the distribution increased for couples.

Given the substantial variation in reported income requirements in retirement evident in Table 5.7, it is useful to probe the factors that impact on individuals' assessments of their income needs. This is undertaken here by estimating a regression model of the factors impacting on expected income requirements, the results of which are reported in Table 5.8.

The table shows that there is no (significant) systematic difference between men and women in expected income requirements. Unsurprisingly, being partnered increases expected income requirements, since the income needs to support two people. On average, and holding other factors constant, partnered people estimate they require \$13,301 more per year than single people to achieve an acceptable standard of living.

Current age is also an important factor in expected income requirements. People aged 45 to 49 have the highest expected income requirement, other things being equal, while people aged 60 to 64 (who are not yet retired) have the lowest expected requirements, on average requiring \$11,800 less per year than people aged 45 to 49. There is in fact a negative relationship between age and expected requirements over the 45 to 64 age range, but this relationship does not hold in moving from the 60 to 64 age group to the 65 and over age group. It is possible that people aged 65 and over who are not yet retired tend to have higher income expectations than those aged 65 and over who are retired—which is one explanation of why they are still not retired.

Location in the income distribution is also an important factor, each one-percentile (one-hundredth) increase in income rank increasing expected income requirements by \$346—thus, in moving from the bottom of the income distribution (the first percentile) to the top of the income distribution (the 100th percentile), income requirements increase by \$34,600 per year holding all else constant.

People living in major urban areas have the highest income requirements, other things being equal, while people living in non-major urban areas have the lowest income requirements, on average requiring \$7,454 less than people living in major urban areas.

Respondents to the question on income requirements were also asked how much they had thought about their income needs in retirement, and it seems that giving a lot of thought to the matter results in a higher assessment of income needs in retirement. Those who had thought a lot about income requirements in retirement on average reported needing \$6,162 more per year than those who had not thought about it at all. Those who had given a little thought to the matter do not differ significantly from those who had not thought about it at all.

Finally, despite the evidence in Table 5.7 that expected income requirements tended to decrease between 2011 and 2015, on average there is in fact no

significant difference between 2011 and 2015 once we control for other factors. It would therefore seem that changes in the characteristics of people who are not yet retired, such as their age composition, are responsible for the decline evident in Table 5.7.

In all four waves of the HILDA Survey in which there has been a special focus on retirement, individuals aged 45 and over who were not yet retired have been asked about both their expected and preferred retirement ages. Table 5.9 makes comparisons of expected and preferred retirement ages across men and women in each of four age groups and for each of the years in which the information has been collected.

The top panel of the table presents the proportions not expecting to ever retire. It shows that in most cases men are more likely than women to expect to never retire, while for both men and women the proportion never expecting to retire is, in most years, greatest in the 60 to 64 age group. This is,



Table 5.9: Expected and preferred retirement ages of non-retired persons aged 45 to 64, 2003 to 2015

	Men				Women			
	45–49	50–54	55–59	60–64	45–49	50–54	55–59	60–64
Proportion not expecting to retire (%)								
2003	5.4	9.0	9.9	12.6	4.5	8.4	7.6	13.5
2007	9.7	5.5	9.8	15.1	4.6	5.7	6.4	6.0
2011	7.8	8.6	7.4	16.6	5.1	9.0	5.8	12.8
2015	9.9	8.7	9.6	11.9	7.2	6.9	6.4	7.9
Persons expecting to retire: Mean age expect to retire (years)								
2003	62.2	63.1	63.8	66.1	59.5	60.7	63.6	65.9
2007	63.1	63.3	64.5	66.5	61.2	61.3	63.5	65.5
2011	64.3	64.1	64.9	66.6	61.9	62.6	64.3	65.8
2015	65.6	65.4	66.2	66.8	64.3	64.2	64.9	66.5
Proportion preferring to never retire (%)								
2003	3.2	7.1	8.6	14.3	4.4	8.0	6.7	17.8
2007	6.3	3.6	9.4	15.0	5.6	4.0	7.2	7.4
2011	5.1	6.2	4.8	12.8	2.5	5.2	3.1	7.8
2015	6.8	5.6	4.9	9.9	4.2	5.0	3.1	6.3
Persons preferring to retire: Mean age prefer to retire (years)								
2003	56.7	57.9	61.1	64.4	55.1	57.5	60.9	63.6
2007	57.1	58.7	61.3	65.2	55.8	57.8	61.2	64.4
2011	57.0	58.8	62.2	65.2	56.5	58.6	61.4	64.6
2015	58.6	59.8	62.3	65.7	58.0	59.4	61.4	65.0

however, unlikely to be due to ageing into the 60 to 64 age group, but rather because a substantial fraction of people are already retired in this age group. While there is variation from year-to-year in the proportion expecting to never retire, there is no clear trend evident over the 2003 to 2015 period as a whole.

The second panel of the table reports the mean expected retirement age of those expecting to retire at some stage. The means for men are in most cases markedly higher than the means of their female counterparts (of the same age), but clearly evident for both men and women, and in all age groups, is a trend increase in the mean expected age of retirement. For example, among those aged 50 to 54 in 2003 (and not yet retired), the mean expected age of retirement was 60.7 for women and 63.1 for men, while among those aged 50 to 54 in 2015, the respective means were 64.2 and 65.4.

The third and fourth panels of Table 5.9 examine retirement preferences, respectively showing the proportion preferring to never retire and the mean preferred age of retirement of those who would like to retire. Consistent with differences between men and women in expectations, men are somewhat more likely to prefer to never retire. However, for both men and women, all age groups other than the 45 to 49 group show a trend decline in the proportion preferring to never retire. For example, in 2003, 8.6% of men aged 55 to 59 who were not yet retired reported preferring to never retire, while in 2015 only 4.9% of men in this age group who were not yet retired reported this preference. Similarly, 6.7% of women aged 55 to 59 in 2003 who were not yet retired reported preferring to never retire, while in 2015 only 3.1% reported this preference.

Among those preferring to retire, the mean preferred retirement age is in all cases lower than the mean

expected retirement age.

Nonetheless, the patterns are similar to those found for the mean expected retirement age. Mean preferred retirement ages are higher for men than women—although the differences are generally somewhat smaller than the differences in mean expected retirement ages—and mean preferred retirement ages have increased over time for all age groups of both men and women. For example, the mean preferred retirement age of women aged 45 to 49 rose from 55.1 in 2003 to 58.0 in 2015, and the mean preferred retirement age of men aged 45 to 49 rose from 56.7 in 2003 to 58.6 in 2015.

How do expectations about retirement age compare with subsequent outcomes? In Table 5.10 this is explored by comparing expectations of those not yet retired in 2003 with outcomes over the subsequent 12 years to 2015. It shows, for men and women separately, and disaggregated by

age group in 2003, the proportion retiring earlier than expected (which includes people who never expected to retire but were retired by 2015), the proportion retiring later than expected and the proportion for whom it was, as of 2015, too early to tell (comprising people who were not yet retired and either had yet to reach the expected age of retirement or had reported they never expected to retire). The table also reports the proportion of people who retired between 2003 and 2015 who retired within two years of the expected age.

Relatively few people are observed to retire at exactly the age they expected. Even among those aged 60 to 64 in 2003, most of whom would have been quite close to their expected age of retirement, only 16.6% of men and 6.5% of women retired at the exact age expected. Of course, the proportion for whom it is too early to tell (as of 2015) whether they will retire at the age expected is very high for the 45 to 49 age group, and also quite high for the 50 to 54 age group, but there are nonetheless considerable fractions of these age groups for whom it was already known by 2015 that they had retired earlier or later than expected.

With the exception of men aged 60 to 64 in 2003, a greater proportion retired later than expected than retired earlier than expected. Women aged 55 to 59 in 2003 were particularly likely to retire later than expected, this applying to 60.2% of these women as of 2015 (with outcomes still to be decided for 4.3%).

The proportion of retired people retiring within two years of their expected retirement age is also relatively low. Between 31.6% and 43.6% of those who retired between 2003 and 2015 had retired within two years of the age they expected to retire—implying, even at older ages, expected and actual retirement ages diverge considerably for the majority of people.

Table 5.10: Retirement expectations in 2003 compared with retirement outcomes over the subsequent 12 years—Persons aged 45 to 64 and not yet retired in 2003 (%)

	Age group in 2003			
	45–49	50–54	55–59	60–64
Men				
Retired when expected	2.2	4.3	9.2	16.6
Retired earlier than expected	8.1	19.2	28.3	32.1
Retired later than expected	26.5	43.3	54.4	45.3
Too early to tell	63.2	33.3	8.2	6.1
Total	100.0	100.0	100.0	100.0
Retired persons: Retired within 2 years of expected age of retirement	33.2	43.1	40.9	31.6
Women				
Retired when expected	1.1	9.7	8.7	6.5
Retired earlier than expected	16.0	25.5	26.7	47.2
Retired later than expected	41.0	47.1	60.2	42.6
Too early to tell	41.9	17.6	4.3	3.7
Total	100.0	100.0	100.0	100.0
Retired persons: Retired within 2 years of expected age of retirement	36.1	38.9	43.4	43.6

Note: Column totals may not add up to 100 due to rounding.



6

Gambling

Mark Wooden and Roger Wilkins

It is widely acknowledged that gambling is an important social issue in Australia. Previous survey evidence, for example, suggests while the incidence of gambling may be in decline, it is still an activity engaged in by most Australians at least once a year (Hing et al., 2014). More significantly, the amount spent on gambling is substantial. According to government estimates, \$22.7 billion was spent on gambling activities in Australia in 2014–15, which represents about \$1,240 for every person aged 18 years or older (Queensland Treasury, 2016; Tables D and E).¹ Further, and more importantly, it is well recognised that for some persons, gambling can become a major problem with serious consequences arising not only for themselves, but for their family and friendship networks (Productivity Commission, 1999; Kalischuk et al., 2006).

While cross-sectional surveys have been conducted that measure the extent of gambling in Australia (notably national telephone surveys conducted in 1999 as part of a Productivity Commission (1999) inquiry and more recently in 2011 as part of a national study of interactive gambling (Hing et al., 2014)), there is no ongoing survey providing nationally representative data on both gambling activity and on the socio-economic characteristics of gamblers and their families. And there is certainly no such survey providing longitudinal data on gambling, which is important for disentangling the different factors that both influence and are the consequence of gambling behaviours.

The HILDA Survey is thus seeking to fill this void, with questions about gambling activity included for the first time in Wave 15. This, of course, means that for the moment the HILDA Survey data can still tell us relatively little about the dynamics of gambling, but over

time, as the gambling questions are repeated in future survey waves, this will change.

The measurement of gambling activity in the HILDA Survey

Two broad groups of questions were added to Wave 15 of the HILDA Survey.² The first, presented in Box 6.1 (page 79) seeks to measure the amount of expenditure on 10 different types of gambling activities during a ‘typical month’. The selection of a ‘typical month’ ensures the focus is on regular gambling, and thus effectively excludes the occasional or once-off expenditure.

One weakness of the question on gambling expenditure is that it does not adequately deal with winnings. The format for the question does not allow respondents to report negative expenditure (that is,

¹ These figures are not a true estimate of gambling by Australian residents. First, they include gambling by overseas residents. Second, but working in the other direction, they exclude most expenditure by Australian residents on gambling activity that is based overseas (for example, online interactive gambling). Third, they do not include any forms of illegal gambling.

² The design of these gambling questions was undertaken in collaboration with staff from the Australian Gambling Research Centre at the Australian Institute of Family Studies.



Box 6.1: Measurement of gambling expenditure in Wave 15 of the HILDA Survey

Information on gambling expenditure was collected from the following question included in the Wave 15 (2015) self-completion questionnaire:

In a typical month, roughly how much do you spend on the following activities? This includes money spent on-line (on a computer, mobile/smart phone, iPad, etc.) If you are unsure please make your best guess.

Typical monthly expenditure was obtained for each of the following 10 types of gambling activity:

- (1) Instant scratch tickets ('scratchies')
- (2) Bingo
- (3) Lotto or lottery games, like Powerball or Oz Lotto
- (4) Keno
- (5) Private betting (for example, playing cards or mah-jong with friends and family)
- (6) Poker
- (7) Casino table games (for example, blackjack, roulette)
- (8) Poker machines ('pokies') or slot machines
- (9) Betting on horse or dog races (but not sweeps)
- (10) Betting on sports

winnings in excess of initial outlays), while at the same time the question does not specifically request respondents to ignore winnings and only report outlays.

The second component of the gambling information collected in Wave 15 is a widely used measure of problem gambling severity. It involves nine questions that are intended to identify symptoms of gambling behaviours that have the potential to be harmful to the respondent or other members of their family or household.

Responses to these questions can then be combined to form a summary measure of problem gambling, known as the Problem Gambling Severity Index (see Box 6.2, page 82).

Incidence and expenditure

Table 6.1 presents estimates of the prevalence of gambling and the mean monthly expenditure of those who gamble, disaggregated by sex and age group. While it is of course possible for individuals under 18 years of age to gamble, the table (and all subsequent analysis in this report) examines gambling only among the adult population—that

is persons aged 18 and over.³ The table shows that 39.1% of the Australian adult population engages in at least some form of gambling activity on a regular (that is, monthly) basis. The incidence of gambling is higher among men than women (43.2% versus 35.2%), and it also rises with age, at least until individuals reach their late-40s.

Table 6.1 also provides estimates of the total mean expenditure on gambling. Among those that gamble on at least one type of gambling

activity in a typical month, the mean total gambling expenditure per month is almost \$115. This translates to a mean monthly expenditure when averaged across the total adult population (that is, including the non-gamblers) of \$43, or about \$520 per annum, which is less than half the number derived from the official gambling statistics (Queensland Treasury, 2016). In part, this large variance from the official statistics simply reflects conceptual differences in the way gambling expenditure is measured in these two data sources. The HILDA Survey question, as emphasised above, concerns expenditure in a typical month, and thus will exclude all expenditure by occasional gamblers. It will also not take into account isolated episodes of 'binge' spending—expenditure in a typical month is not the same thing as mean monthly expenditure over the previous year. Nevertheless, it is also very likely that a large part of the difference will be due to under-reporting. This will be especially likely for those types of gambling which attract a social stigma, such as spending on poker machines.



³ The HILDA Survey data show that only 1.9% of people aged 15 to 17 report any gambling activity, compared with 39.1% of adults.

Table 6.1: Gambling in a typical month, by sex and age group, 2015

	Proportion gambling in a typical month (%)	Mean monthly expenditure (\$)	
		Among those with gambling expenditure	Among all persons
Men			
18–24	21.5	143.40	30.28
25–34	34.0	121.09	39.72
35–44	42.7	123.43	51.20
45–54	51.1	161.08	78.98
55–64	51.3	152.35	76.62
65–74	54.7	116.79	62.28
75 and over	52.1	129.56	65.15
All aged 18 and over	43.2	136.63	57.17
Women			
18–24	12.4	97.33	11.98
25–34	22.0	51.48	11.95
35–44	33.4	58.68	19.17
45–54	42.3	98.37	39.77
55–64	48.3	90.34	42.43
65–74	47.3	109.63	50.23
75 and over	45.4	122.14	52.15
All aged 18 and over	35.2	88.36	29.88
Persons			
18–24	16.9	126.68	21.03
25–34	28.0	93.52	25.26
35–44	38.0	94.56	35.00
45–54	46.6	132.03	58.93
55–64	49.8	121.72	59.14
65–74	50.9	113.40	56.12
75 and over	48.4	125.81	58.06
All aged 18 and over	39.1	114.55	43.24

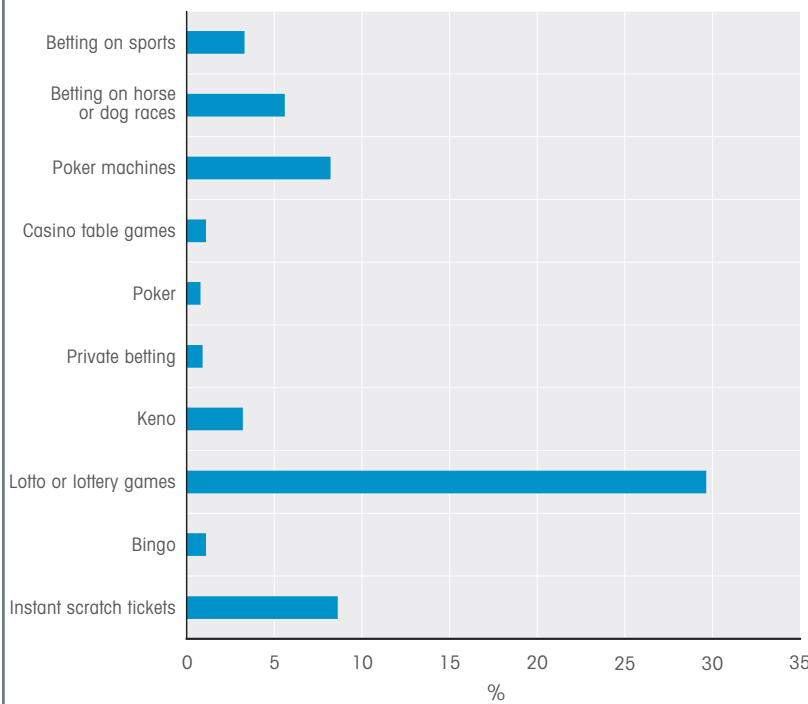
Table 6.1 also shows that while the incidence of gambling rises with age (at least over the 18 to 54 age range), this is far less obvious of expenditure. Indeed, mean expenditure among young persons (aged 18 to 24) who gamble is above the average for the gambling population.

Figures 6.1 and 6.2 report further details of the incidence of and expenditure on gambling, but this time disaggregated by the type of gambling activity. As illustrated very clearly by Figure 6.1, the type of gambling activity associated with the highest incidence of participation is lottery type games (such as Powerball or Oz Lotto), with almost 30% of adults in Australia reporting that they purchase lotto or lottery tickets in a typical month. And these rates would rise further if we included instant scratch tickets, which are ultimately just another form of lottery, but with the difference that the outcome is known almost immediately after purchase.

Betting on poker machines comes a distant second, with just over 8% of Australian adults reporting playing the pokies in a typical month. This is followed by betting on the races, with 5.5% of



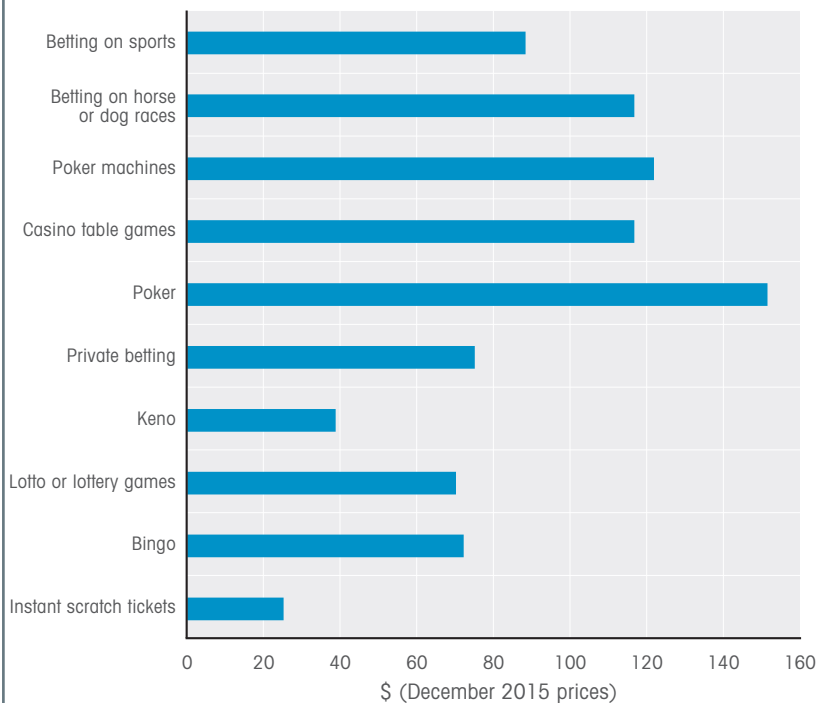
Figure 6.1: Prevalence of each type of gambling, 2015



Note: The figure presents the percentage of individuals aged 18 and over reporting that they have expenditure on each gambling activity in a typical month.



Figure 6.2: Mean monthly expenditure on each type of gambling among those with expenditure on the activity, 2015



Note: The figure presents the mean typical monthly expenditure on each activity of persons aged 18 and over who have expenditure on the activity.

Australians reporting having a regular punt on the horses or the dogs (though this is much more of an activity undertaken by men than women), sports betting and then Keno, with around 3% of Australians reporting regular expenditure on these two types of activities.

Perhaps surprisingly, Figure 6.2 suggests that the average expenditure by people who do gamble does not vary that much across activities. Poker is associated with the highest expenditure, with poker players spending on average about \$150 per month, but expenditure on casino table games, poker machines, and race betting all exceed \$100 per month. At the other end of the spectrum, instant scratch tickets are the least draining on personal finances, with only about \$25 per month spent on this type of activity.

Problem gambling

For most Australians, gambling has few adverse consequences. Nevertheless, for some, gambling can have very disastrous consequences, not only for personal and household finances, but also for the health and wellbeing of the gambler and his or her family.

A guide to the extent of problem gambling in the community is provided by scores on the Problem Gambling Severity Index (PGSI), devised by Ferris and Wynne (2001). (See Box 6.2, page 82.) Using the HILDA Survey implementation of the PGSI, individuals can be classified into one of four categories: non-problem gambling; low-risk gambling; moderate-risk gambling; and problem gambling.⁴

Figure 6.3 shows how the adult population is distributed across these categories. As should be immediately apparent, the problem

⁴ In the original form of the PGSI, questions about gambling harm are only asked of those who participated in at least some form of gambling in the previous 12 months. In the HILDA Survey, however, persons are not asked about gambling over the previous 12 months and hence this filter is not used. We therefore combine non-gamblers and non-problem gamblers into one group.



Box 6.2: The Problem Gambling Severity Index

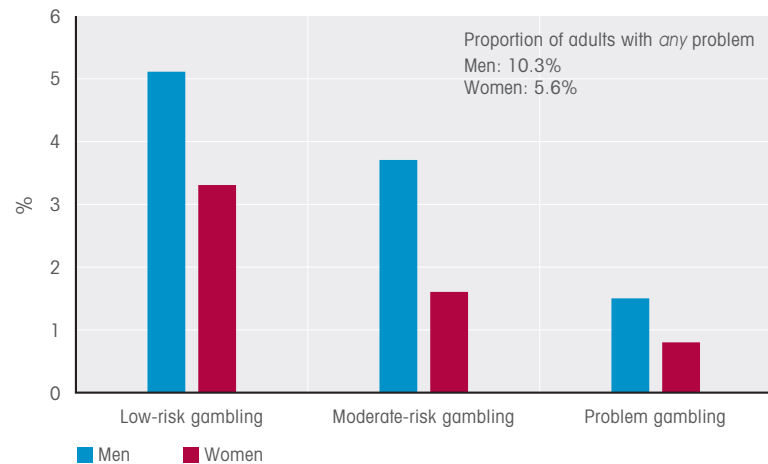
The Problem Gambling Severity Index (PGSI), developed by Ferris and Wynne (2001), provides a measure of the extent to which an individual suffers from 'problem gambling'. The index is derived from responses to nine questions about the frequency of different types of gambling-related harms over a 12-month period. Respondents can choose between four different answers—'never', 'sometimes', 'most of the time' and 'always'. The nine questions are as follows:

- (1) Have you bet more than you could really afford to lose?
- (2) Have you needed to gamble with larger amounts of money to get the same feeling of excitement?
- (3) When you gambled, did you go back another day to try to win back the money you lost?
- (4) Have you borrowed money or sold anything to get money to gamble?
- (5) Have you felt that you might have a problem with gambling?
- (6) Has gambling caused you any health problems, including stress or anxiety?
- (7) Have people criticised your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?
- (8) Has your gambling caused any financial problems for you or your household?
- (9) Have you felt guilty about the way you gamble or what happens when you gamble?

Each answer is scored on a 0 ('never') to 3 ('almost always') scale and summed to provide an index that potentially ranges from 0 to 27. Following the recommendations of Ferris and Wynne (2001), it is conventional to then use these scores to identify five groups of people, as follows:

- Non-gambling: Did not gamble in the preceding 12 months
- Non-problem gambling: Scores of 0
- Low level of problems with few or no identified negative consequences: Scores of 1 or 2
- Moderate level of problems leading to some negative consequences: Scores of 3 to 7
- Problem gambling with negative consequences and a possible loss of control: Scores of 8 or more

Figure 6.3: Prevalence of problem gambling by level of severity—Persons aged 18 and over, 2015



gambling population is quite small—just 1.5% of men and 0.8% of women. This estimated level of prevalence is almost identical to that reported in the 1999 National Gambling Survey (Productivity Commission, 1999), despite the use of very different measures of problem gambling.

While this percentage is small, at the population level this still equates to almost 200,000 people. Furthermore, close to 8% of the

population (10.3% of men and 5.6% of women) report at least one harmful consequence as a result of their gambling, which equates to almost 1.4 million people.

We can also identify the types of gambling activity that are most often associated with symptoms of problem gambling. As reported in Table 6.2, there are quite large variations in the incidence of problem gambling across activity types. While only 2.1% of monthly

gamblers report behaviours suggesting problem gambling, the proportion is 10 times as great among poker players (21.9%), though small sample sizes render this estimate unreliable. More reliable are the estimates for persons who play poker machines, bet on horse or dog races and bet on sports. Among these subgroups the rates of problem gambling all lie in the range of 5% to 7%, about three times higher than the average

Table 6.2: Problem gambling prevalence by type of gambling—Persons aged 18 and over who gamble, 2015 (%)

	No problem	Low-risk gambling	Moderate-risk gambling	Problem gambling
Instant scratch tickets	81.8	7.9	8.0	2.3
Bingo	68.6	19.6	*7.9	*3.9
Lotto or lottery games	86.8	7.1	4.7	1.3
Keno	67.4	12.6	15.8	4.2
Private betting	58.2	*16.1	*14.0	*11.5
Poker	52.7	*6.7	*18.7	*21.9
Casino table games	55.3	*14.7	15.3	*14.7
Poker machines	58.5	18.2	17.1	6.2
Betting on horse or dog races	58.6	19.4	16.5	5.5
Betting on sports	59.2	17.3	16.9	6.7
Any of above	83.2	8.7	5.9	2.1

Note: * Estimate not reliable.

for all gamblers. Further, in all these cases there are sizeable proportions—16% to 17%—identified as being moderate-risk gamblers.

Correlates of gambling and problem gambling

In this section, we look at some of the characteristics of individuals that are associated with gambling. To do this we estimate simple regression models of three

outcomes: (i) whether someone participates in at least one type of gambling each month (incidence); (ii) the total amount usually spent on gambling in a usual month (expenditure); and (iii) whether someone is classified as being either a moderate-risk gambler or a problem gambler, as distinct from a non-gambler or a no-problem or low-risk problem gambler (problem gambling). We combine moderate-risk gamblers with problem gamblers because of the relatively small size of the latter group. Further, for ease of exposition we



simply refer to this combined category as ‘problem gambling’ in what follows.

In each model we include measures of: sex; age; relationship status; Indigenous and immigrant status (see Box 5.1, page 69); educational attainment (see Box 4.4, page 58); moderate or severe disability (see Box 6.3, page 86); poor general health and poor physical health (see Box 5.3, page 70); risk preference (see Box 6.4, page 87); household equivalised disposable income (see Box 3.2, page 28); household net worth (derived from data obtained in Wave 14; see Box 6.5, page 87); labour force status (see Box 4.1, page 44); region of residence (see Box 2.5, page 19); and state or territory of residence.

The results from these models are presented in summary form in Table 6.3. To interpret these results, consider the figures presented for ‘Male’ in the first row. These numbers indicate that: the probability of a man being a gambler, other things held constant, is 5.1 percentage points higher than that of a woman (Model 1); men spend, on average, \$53 per month more on gambling than do women (Model 2); and the probability of a man being a problem gambler is 2 percentage points higher than that of a woman (Model 3). Clearly, gambling is an activity that is much more attractive to men than women.

These regression results also confirm the age patterns identified earlier—both the incidence of, and expenditure on, gambling clearly rise with age. In contrast, there is not such a clear age pattern in the likelihood of problem gambling. Those aged 25 to 34 have a lower probability of problem gambling than all other age groups, and those aged 55 to 64 have a higher probability of problem gambling than all other age groups, but there are no significant differences across the other four age groups.

Table 6.3: Factors associated with gambling and problem gambling—Persons aged 18 and over, 2015

	(1) Incidence (mean marginal effect estimate)	(2) Expenditure (coefficient estimate)	(3) Problem gambling (mean marginal effect estimate)
Male	0.051	53.2	0.020
<i>Age group (Reference category: 18–24)</i>			
25–34	0.140	78.0	–0.017
35–44	0.250	159.2	ns
45–54	0.313	212.1	ns
55–64	0.363	247.0	0.016
65 and over	0.400	275.7	ns
<i>Relationship status (Reference category: Single person)</i>			
Partnered without dependent children	ns	ns	ns
Partnered with dependent children	ns	–27.1	ns
Single parent	ns	ns	ns
<i>Indigenous and immigrant status (Reference category: Non-Indigenous Australian-born)</i>			
Indigenous	ns	ns	0.041
ESB immigrant	ns	ns	ns
NESB immigrant	–0.077	–42.5	ns
<i>Educational attainment (Reference category: Less than high-school completion)</i>			
Bachelor's degree or higher	–0.126	–107.1	–0.034
Other post-school qualification	ns	ns	ns
Completed high school	ns	ns	ns
Moderate or severe disability	–0.024	ns	ns
In poor general health	ns	ns	ns
In poor mental health	ns	ns	0.013
Smoker	0.066	46.2	0.024
Drink alcohol on 5 or more days per week	0.050	36.8	0.011
Financial risk taker	0.053	67.6	0.041
Household (equivalised) disposable income (\$ thousands)	0.048	61.4	0.018
Household net worth, 2014 (\$ millions)	–0.033	–24.6	–0.016
<i>Labour force status (Reference category: Not in the labour force)</i>			
Employed full-time	0.093	74.9	0.012
Employed part-time	0.053	31.8	ns
Unemployed	ns	ns	0.024
<i>Region of residence (Reference category: Major urban)</i>			
Non-major urban	ns	ns	ns
Non-urban	ns	ns	–0.013
<i>State or territory (Reference category: New South Wales)</i>			
Victoria	ns	ns	ns
Queensland	0.032	ns	–0.014
Western Australia	0.134	72.1	ns
South Australia or Northern Territory	ns	ns	–0.013
Tasmania	ns	ns	–0.028
Australian Capital Territory	ns	ns	ns
Number of observations	13,616	13,340	13,763

Notes: For Models 1 and 3, the table reports mean marginal effects estimates from Probit regression models of the determinants of the probability of having any gambling expenditure (Model 1) and the probability of being a moderate-risk or problem gambler (Model 3). For Model 2, the table reports regression coefficient estimates from a Tobit model of the determinants of the level of gambling expenditure. See the Technical Appendix for further details on mean marginal effects estimates and Probit and Tobit models. ns indicates the estimate is not significantly different from 0 at the 10% level.



Among the other variables considered we find, despite stereotypes to the contrary, that immigrants from non-English-speaking backgrounds are both significantly less likely to gamble and spend significantly less (\$42.50 less) per month than comparable native-born individuals. They are, however, no less (or more) likely to be a problem gambler. Indigenous respondents, on the other hand, despite being no more likely to gamble, have a probability of being a problem gambler that is 4.1 percentage points higher than non-Indigenous Australians, a difference which is very large given the mean incidence of problem gambling (bearing in mind the definition being used here combines two groups) is just 3.7%.

We also find evidence of a strong association with educational attainment, with the most highly educated (those with university degrees) being far less likely to gamble and on average spending less on gambling than their less-

educated counterparts. They are also far less likely (3.4 percentage points) to become problem gamblers.

Relationships with measures of health status were generally small and insignificant, though those in poor mental health have a higher risk of being a problem gambler. This association may, however, be the result of, rather than a cause of, problem gambling.

Strong associations, however, are uncovered with two health-related behaviours—smoking and alcohol consumption—with smokers and frequent drinkers being much more likely to gamble and to report symptoms of problem gambling. Again we emphasise that no causal explanation can be inferred from these results. All our results suggest is that drinking, smoking and gambling are correlated, which may suggest nothing more than that these are complementary activities. Many gambling venues, for example, are also venues that sell alcohol, facilitating their joint

consumption. Smoking is rather different given the many restrictions on smoking in enclosed public places, but the positive correlation may reflect general attitudes to risk. Indeed, and not surprisingly, some of the largest associations are found with a measure of attitudes to taking financial risk, with those who have the strongest preferences for risk being both more likely to spend on gambling and, more worryingly, to be problem gamblers.

Both income and household net wealth are also significantly associated with the three gambling outcomes, though interestingly in opposite directions. Higher income is associated with more gambling, while greater net worth is associated with less. The former is expected—higher income facilitates more expenditure on gambling—but the latter is possibly more surprising. One simple interpretation of this finding is that wealth is affected by, rather than causes, gambling behaviour; that

Table 6.4: Distribution of life satisfaction scores by problem gambling category—Persons aged 18 and over, 2015 (%)

	Life satisfaction score							Total
	< 5	5	6	7	8	9	10	
No problem	2.6	3.9	6.4	19.3	34.0	22.5	11.3	100.0
Low risk	3.6	7.4	6.9	20.9	35.2	17.5	8.6	100.0
Moderate risk	3.4	6.3	5.1	25.7	27.3	21.9	10.1	100.0
Problem gambling	11.1	8.3	16.3	25.9	19.6	12.2	6.6	100.0

Note: Cells may not add up to row totals due to rounding.

Box 6.3: 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 to 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 to 7); and severe work restriction (8 to 10). The latter two categories are respectively referred to as 'moderate disability' and 'severe disability'.

is, a person who gambles more of their income will accumulate less wealth in the long term.

Nevertheless, the importance of these relationships with income and wealth should not be overstated. While these relationships are all statistically significant, the magnitudes of the effects are quite small. Possibly related to income is employment status—employment, and especially full-time employment, is associated with a greater incidence of gambling. Nevertheless, it is the



unemployed who are at greatest risk of developing problem gambling behaviours.

Problem gambling and subjective wellbeing

Finally, we examine associations between problem gambling severity and an indicator of overall wellbeing—overall life satisfaction (measured on an 11-point scale from 0 (totally dissatisfied) to 10 (totally satisfied)). Our strong expectation is that problem gambling will tend to be associated with lower life satisfaction scores. The evidence presented in Table 6.4 supports this hypothesis. For the small group identified as problem gamblers, the distribution of life satisfaction scores lies well to the left of that for people without any indication of any gambling problems. In other words, problem gamblers are much more likely to report very low life satisfaction scores (they are more than four times as likely to report a score of less than 5 on the 0 to 10 scale) and much less likely to report very high scores (they are almost half as likely to report a score of 9 or 10).

Table 6.4 also shows that persons reporting some symptoms of gambling-related harm, but not enough to be classified as problem gamblers, also tend to report slightly lower satisfaction scores than those without any gambling problems. The mean life satisfaction scores of the low-risk and moderate-risk gambling groups are 7.6 and 7.7 respectively, compared with a mean of 7.9 for the no-problems gambling group.

These findings suggest that problem gambling is indeed a problem that adversely affects personal wellbeing. But at the same time, it is only among the relatively small group of individuals identified as problem gamblers (who represent just 1.1% of the population) where large problems are apparent.

Box 6.4: HILDA Survey measure of financial risk preference

In all waves other than Waves 5, 7 and 9, the self-completion questionnaire of the HILDA Survey has contained a question designed to elicit risk preferences of respondents. The question is as follows:

Which of the following statements comes closest to describing the amount of financial risk that you are willing to take with your spare cash? That is, cash used for savings or investment.

- (a) *I take substantial financial risks expecting to earn substantial returns*
- (b) *I take above-average financial risks expecting to earn above-average returns*
- (c) *I take average financial risks expecting to earn average returns*
- (d) *I am not willing to take any financial risks*
- (e) *I never have any spare cash*

Since Wave 6, this question has been supplemented by a follow-up question to elicit risk preferences of respondents who indicated they 'never have any spare cash' (option (e)):

Assume you had some spare cash that could be used for savings or investment. Which of the following statements comes closest to describing the amount of financial risk that you would be willing to take with this money?

In this report, an individual is classified as a 'financial risk taker' if responses (a) or (b) are selected for either of the above questions.

Box 6.5: Measurement of household wealth in the HILDA Survey

The HILDA Survey has obtained a measure of household wealth every four years since 2002 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 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.



7

Young home-owners

As documented in the 2016 edition of this report, home ownership has been declining in Australia for some years now. This decline has been particularly concentrated among young adults. In this chapter, we focus on individuals aged 18 to 39, examining the changing composition of home owners in this age range and the home debt carried by home owners in this age range.

Table 7.1 presents home-ownership rates—that is, the proportion of people who own the home in which they live—by sex and age group in each of the four years in which the HILDA Survey has identified the legal owners of owner-occupied housing.¹ In 2014, approximately 25% of men and women aged 18 to 39 were home owners, down from nearly 36% in 2002. All age groups have experienced substantial declines in home ownership over the 12-year period from 2002 to 2014. The decline is relatively small for individuals aged 18 to 24, but this reflects the very small proportion of this age group owning their home over the entire period—indeed, the 3.8 percentage-point decline represents a 61% decline in home ownership for this age group.

The decline in home ownership primarily occurred between 2002 and 2006 and between 2010 and 2014. This pattern is very much consistent with movements in house prices as measured by the Australian Bureau of Statistics over the 2002 to 2014 period, with house price growth particularly strong in the mid-2000s and since 2012 (ABS, 2017c).

In the 30 to 39 age range, women had considerably higher rates of home ownership than men in 2002, but have experienced greater declines between 2002 and 2014, so that male and female

home-ownership rates in this age range were very similar in 2014.

Home-ownership rates for demographic groups

The recent decline in home ownership among those aged 18 to 39 is an important economic and social development. To better understand the nature of this phenomenon, it is useful to examine which demographic groups within this age range have experienced the biggest declines in home ownership. Table 7.2 takes a first step in this direction, examining changes in home-ownership rates for groups defined by family type, educational attainment, location in the income distribution and region of residence.

Comparing across family types, the sharpest decline in home ownership has been among couples with dependent children. In 2002, 55.5% of individuals in this family type were home owners, but by 2014 only 38.6% were home owners. The decline in home ownership among couples without dependent children was also large, with 35.1% home owners in 2014, down from 46.7% in 2002. Single parents and single people (without



¹ In all other years, the HILDA Survey identifies whether the home is owner-occupied, but does not identify which household members are the legal owners of the home.

Table 7.1: Home-ownership rates by sex and age group—Persons aged 18 to 39, 2002 to 2014 (%)

	2002	2006	2010	2014	Change 2002 to 2014
Men					
18–24	5.9	4.6	3.6	2.2	–3.7
25–29	30.0	24.9	25.2	18.4	–11.6
30–34	45.1	45.9	44.1	38.9	–6.2
35–39	54.6	55.2	55.3	48.5	–6.1
All aged 18–39	32.5	30.7	29.6	24.9	–7.6
Women					
18–24	6.5	3.7	4.7	2.6	–3.9
25–29	31.9	24.7	29.7	21.2	–10.7
30–34	51.5	46.1	46.9	38.5	–13.0
35–39	66.8	61.4	58.5	48.2	–18.6
All women aged 18–39	38.5	33.3	32.7	25.5	–13.0
Persons					
18–24	6.2	4.2	4.1	2.4	–3.8
25–29	31.0	24.8	27.5	19.9	–11.1
30–34	48.5	46.0	45.6	38.7	–9.8
35–39	61.0	58.6	57.0	48.4	–12.6
All persons aged 18–39	35.7	32.1	31.2	25.2	–10.5

dependent children) had low home-ownership rates across the entire 2002 to 2014 period, but nonetheless also experienced significant declines between 2002 and 2014.

As might be expected, home-ownership rates in 2014 are ordered by educational attainment, with 37.1% of those holding a university qualification being home owners, compared with 28.2% of those with other post-school qualifications, 14.3% of those who completed high school and 12.6% of those with highest attainment of less than high-school completion. This clear ordering by educational attainment was not present in 2002. While all education groups have experienced a decline in home ownership, the extent of decline varies markedly across the four groups. The largest decline was for the lowest education group, which in 2002 actually had a substantially higher rate of home ownership than the completed high-school group. The decline was also very large for the ‘other post-school qualification’ group, which went from having a similar level of home ownership to degree-holders in 2002 to having a

home-ownership rate almost nine percentage points lower in 2014.

The third panel of Table 7.2 shows home ownership is also positively correlated with location in the distribution of household equivalised income (see Box 3.2, page 28). It presents home-ownership rates for individuals aged 18 to 39 in each quintile (fifth) of the overall income distribution. The broad pattern is that home ownership is greater the higher the income quintile, although there is essentially no difference between the top two quintiles. Home ownership has fallen for all quintiles, but most striking is the large decline for the second-lowest quintile. In 2002, 37.0% of people aged 18 to 39 who were in this quintile were home owners, but in 2014 this proportion had fallen to 16.6%.

The bottom panel of Table 7.2 examines home-ownership rates by population density of the region of residence, where regions are classified into three categories: major urban (cities of 100,000 or more people), non-major urban (populations of at least 10,000 but less than 100,000) and non-urban regions. (See Box 2.5, page 19, for more information on the



classification of regions.) In 2002, home ownership among those aged 18 to 39 years was highest in non-urban regions and lowest in major urban regions, although the difference between non-major urban regions and other (non-urban) regions was slight.

Between 2002 and 2014, the decline in home ownership was lowest for non-urban regions and highest for non-major urban areas, so that in 2014 there was a considerable gap in home-ownership rates between the two

Table 7.2: Home-ownership rates of persons aged 18 to 39, by characteristics, 2002 to 2014 (%)

	2002	2006	2010	2014	Change 2002 to 2014
Family type					
Couple	46.7	39.9	43.0	35.1	-11.7
Couple with dependent children	55.5	51.2	48.0	38.6	-16.8
Single parent	19.4	18.8	14.2	11.2	-8.2
Single	17.6	17.4	19.1	12.5	-5.1
Non-dependent child	4.4	3.1	3.1	3.6	-0.8
Educational attainment					
Degree	44.0	38.0	45.7	37.1	-7.0
Other post-school	43.2	40.5	36.7	28.2	-15.0
High school	22.5	21.4	19.8	14.3	-8.1
Less than high school	33.1	27.6	19.5	12.6	-20.5
Income quintile					
Bottom quintile	19.0	15.4	13.3	12.8	-6.3
2nd quintile	37.0	32.4	26.5	16.6	-20.5
3rd quintile	32.6	34.5	33.2	26.2	-6.3
4th quintile	41.0	37.2	36.0	33.0	-8.1
Top quintile	41.9	34.3	38.6	32.3	-9.6
Region of residence					
Major urban	34.3	29.0	30.5	23.7	-10.6
Non-major urban	38.9	38.0	29.7	24.5	-14.5
Non-urban	39.2	42.9	38.1	35.7	-3.5

region types, with a home-ownership rate of 24.5% in non-major urban regions and 35.7% in non-urban regions. Indeed, in 2014, home ownership among people aged 18 to 39 was only slightly higher in non-major urban regions than in major urban regions.

House prices do not move in complete unison across Australia. House price growth has tended to be stronger in the major capital cities and the magnitude and timing of increases also often varies across these cities. For example, Australian Bureau of Statistics data (ABS, 2017c) show that house price growth has been particularly strong in Sydney and Melbourne in recent years, whereas prices in Perth and Darwin have been flat or declining. Given that house price movements are likely to be a major driver of changes in home-ownership rates among people aged 18 to 39, it is

valuable to probe further how changes in home-ownership rates differ across Australia.

Table 7.3 disaggregates Australia into 13 regions, comprising each capital city and each other urban area of the mainland states, plus urban Tasmania, the Australian Capital Territory and urban Northern Territory (combined) and a single category for all of non-urban Australia (see Box 2.5, page 19).²

There are substantial differences across the regions in both initial home-ownership rates and the change in home-ownership rates over the 12-year period. In 2002, Sydney stood out for its exceptionally low level of home ownership among those aged 18 to 39 years, with only 29.2% being home owners. The other mainland capital cities all had home-ownership rates of approximately 35%, while home-ownership rates in

non-capital city urban areas of the mainland states were in most cases somewhat higher again. The notable exception is non-Perth urban Western Australia, which—at 35.0%—had a slightly lower home-ownership rate than Perth (37.2%). Of the regions distinguished in Table 7.3, in 2002 home ownership was highest in non-Sydney urban New South Wales (42.0%), followed by urban Tasmania (40.9%).

In 2014, Sydney continued to have the lowest level of home ownership among people aged 18 to 39, but the gap to Melbourne, which had the largest decline in home ownership of the mainland capital cities, narrowed considerably. Of the 13 regions distinguished in the table, non-Sydney urban New South Wales and non-Brisbane urban Queensland had the largest declines in home ownership. The Australian Capital Territory and

² Ideally, more disaggregated regions would be examined—most obviously, separating the Australian Capital Territory and urban Northern Territory and separately examining non-urban areas in each state—but HILDA Survey sample sizes do not support reliable analysis at a more disaggregated level.

Table 7.3: Home-ownership rates of persons aged 18 to 39, by region, 2002 to 2014 (%)

	2002	2006	2010	2014	Change 2002 to 2014
Sydney	29.2	27.9	30.6	19.7	-9.5
Other urban New South Wales	42.0	33.6	32.2	24.6	-17.4
Melbourne	35.7	26.9	25.5	21.3	-14.4
Other urban Victoria	36.6	33.1	28.3	24.7	-11.9
Brisbane	35.3	32.4	36.2	29.8	-5.5
Other urban Queensland	38.2	35.7	31.0	21.1	-17.1
Adelaide	35.4	33.2	27.8	25.4	-10.0
Other urban South Australia	38.7	36.0	35.6	25.4	-13.3
Perth	37.2	32.1	32.0	30.9	-6.3
Other urban Western Australia	35.0	44.8	31.9	25.2	-9.8
Urban Tasmania	40.9	29.6	31.6	30.4	-10.5
Australian Capital Territory and urban Northern Territory	37.4	35.8	35.5	37.7	0.3
Non-urban Australia	39.2	42.9	38.1	35.7	-3.5

Table 7.4: Home-ownership rates of employed persons aged 18 to 39, by occupation, 2002 to 2014 (%)

	2002	2006	2010	2014	Change 2002 to 2014
Males					
Managers	50.6	53.9	54.4	44.6	-6.0
Professionals	39.5	33.5	39.8	38.3	-1.2
Technicians and trades workers	40.0	33.4	33.7	32.2	-7.8
Community and personal service workers	34.7	26.8	20.3	15.0	-19.7
Clerical and administrative workers	37.1	35.3	24.1	18.0	-19.1
Sales workers	27.3	29.1	26.6	8.7	-18.6
Machinery operators and drivers	29.5	35.5	38.1	28.4	-1.1
Labourers	21.9	18.6	16.1	11.2	-10.7
Females					
Managers	49.9	38.5	53.9	39.2	-10.7
Professionals	45.4	37.1	47.5	43.3	-2.1
Technicians and trades workers	34.4	26.5	28.3	19.2	-15.2
Community and personal service workers	29.7	30.7	22.7	18.4	-11.3
Clerical and administrative workers	48.6	43.2	37.7	30.7	-17.9
Sales workers	20.8	25.0	24.3	11.1	-9.7
Machinery operators and drivers	*56.6	*44.0	*7.4	*2.1	*-54.5
Labourers	32.3	25.7	11.5	12.2	-20.1

Note: * Estimate not reliable.



urban Northern Territory collectively experienced almost no change in home ownership among people aged 18 to 39, while the decline in home ownership in non-urban Australia was relatively small.

Restricting to employed people, Table 7.4 compares home-ownership rates across occupations (see Box 5.2, page 69). Home-ownership rates are in general

higher the more high-skilled the occupation, more so for men than women. This relationship has tended to become stronger over the period from 2002 to 2014.

Declines have been very large for clerical and administrative workers of both sexes, while declines have also been very large (in excess of 15 percentage points) for male community and personal service

workers and sales workers, and for female technicians and trades workers. Significantly, home ownership has declined only very slightly for professionals aged 18 to 39, for both men (1.2 percentage points) and women (2.1 percentage points). Male machinery operators and drivers have also fared relatively well, experiencing a 1.1 percentage-point decline.

Table 7.5: Income rank (percentile of the household income distribution) of home owners and non-home owners compared—Persons aged 18 to 39, 2002 to 2014

	2002	2006	2010	2014	Change 2002 to 2014
Home owners					
Mean	61	61	63	63	2
25th percentile	40	41	44	46	6
Median	64	63	65	68	4
75th percentile	84	82	84	84	0
Non-home owners					
Mean	53	54	52	51	-2
25th percentile	28	29	29	27	-1
Median	54	55	53	51	-3
75th percentile	78	80	77	76	-2
Mean income rank of all persons aged 18–39	56	56	56	54	-2

Note: Statistics are for rank in the household equivalised income distribution, which ranges from 1 (bottom 1%) to 100 (top 1%).

Table 7.6: Employment, earnings and personal income of home owners and non-home owners compared—Persons aged 18 to 39, 2002 to 2014

	Men					Women				
	2002	2006	2010	2014	Change 2002 to 2014	2002	2006	2010	2014	Change 2002 to 2014
Home owners										
Employed full-time (%)	88.3	91.9	91.3	88.7	0.4	38.8	41.1	46.7	44.0	5.2
Employed part-time (%)	5.6	4.0	5.4	5.2	-0.4	31.7	35.2	32.7	34.4	2.7
Mean weekly wage and salary income of employed persons (\$, December 2015 prices)	1,434	1,511	1,718	1,855	421	862	924	1,159	1,155	293
Mean annual wage and salary income (\$, December 2015 prices)	65,845	73,037	83,991	87,182	21,337	31,802	37,166	48,081	47,814	16,012
Mean gross income (\$, December 2015 prices)	75,179	83,090	91,902	95,369	20,190	39,884	47,783	55,185	55,246	15,362
Non-home owners										
Employed full-time (%)	61.4	64.9	63.6	57.3	-4.1	37.4	40.6	39.8	35.7	-1.7
Employed part-time (%)	18.0	18.1	16.8	21.7	3.7	30.1	30.4	30.3	31.5	1.4
Mean weekly wage and salary income of employed persons (\$, December 2015 prices)	956	1,060	1,081	1,077	121	719	791	807	819	100
Mean annual wage and salary income (\$, December 2015 prices)	36,857	41,721	41,881	41,810	4,954	22,633	27,561	27,020	27,325	4,692
Mean gross income (\$, December 2015 prices)	42,485	47,003	48,715	48,166	5,681	30,960	35,824	34,915	34,922	3,962

Comparing home owners with non-home owners

The preceding analysis has indirectly provided information on the differences in characteristics between home owners and non-home owners and how this changed between 2002 and 2014. Here we focus explicitly on how certain characteristics differ between the two groups, and how the differences have changed between 2002 and 2014. Table 7.5 focuses on rank in the household income distribution, presenting statistics on the percentiles of the distribution in which home owners and non-home owners are found. Note that, in the population as a whole, the mean and median percentile is 50, since there are 100 percentiles, with 1% of the population in each percentile. Thus, we see in the bottom row of the table that people aged 18 to 39 tend to be higher in the income distribution than the population as a whole, having a mean income rank (percentile) of 56 up until 2010, and of 54 in 2014.

Consistent with the evidence presented in Table 7.2, home owners tend to have higher incomes than non-home owners. Moreover, the income differential has increased somewhat between 2002 and 2014: the mean percentile of home owners rose from 61 in 2002 to 63 in 2014, whereas the mean percentile of non-home owners fell from 53 to 51.

The estimates for the 25th percentile, median and 75th percentile show that there is considerable dispersion in income rank within both home owners and non-home owners. For example, in 2002, the 25th percentile indicates that 25% of home owners had an income rank of 40 or lower, while the 75th percentile indicates that 25% of home owners had an income rank of 84 or higher. Among



non-home owners, the corresponding estimates are 28 and 78. Nonetheless, the broad tendency for home owners to be higher up the income distribution (that is, be located at higher percentiles) is clear, and this tendency has increased over the 2002 to 2014 period. Most notably, the cut-off for the 25th percentile of home owners increased to the 46th percentile of the income distribution in 2014 (compared with the 40th percentile in 2002), whereas that same cut-off for non-home owners was the 27th percentile of the income distribution (compared with the 28th percentile in 2002).

The labour market and personal income situations of home owners and non-home owners are compared in Table 7.6. Among men, home owners have considerably higher rates of full-time employment than

non-home owners and, moreover, the gap has grown between 2002 and 2014. Among women, the differential in full-time employment is smaller, but has grown more over the 12-year period, rising from 1.4 percentage points in 2002 (38.8% versus 37.4%) to 8.3 percentage points in 2014 (44.0% versus 35.7%).

Mean weekly wage and salary earnings of employed people are also considerably higher among home owners, and the differential has likewise grown between 2002 and 2014. Mean real weekly earnings of employed men rose by 29% for home owners compared with 13% for non-home owners, while for women the respective increases were 34% and 14%. Unsurprisingly, annual wage and salary income (amongst all people), and total annual gross personal income, show a similar pattern.



Home debt of young home-owners

Rising household indebtedness, primarily connected with housing, has been documented in the 2016 HILDA Survey Statistical Report, and indeed has been the subject of concern of a number of public policy commentators. Home owners aged 18 to 39 are likely to be particularly susceptible to rising debt in an environment of rising house prices, since most are relatively new entrants to the housing market. That is, a new entrant to the housing market typically needs to borrow a large proportion of the price paid for the home; an existing owner, while needing to pay more for a new home in the event of moving house, also benefits from the rise in value of the existing home.

Table 7.7: Home value and home debt of home owners aged 18 to 39, 2002 to 2014

	2002	2006	2010	2014	Change 2006 to 2014	Change 2002 to 2014
All home-owners aged 18–39						
Have home debt (%)	89.3	91.9	92.6	94.1	2.2	4.8
<i>Nominal terms (\$)</i>						
Mean debt	120,813	201,751	275,140	330,687	128,936	209,874
Mean home value	283,197	420,542	523,924	567,514	146,972	284,317
Mean equity	162,384	218,791	248,784	236,827	18,036	74,443
<i>Real terms (\$, December 2015 prices)</i>						
Mean debt	169,201	252,247	308,430	336,586	84,339	167,385
Mean home value	396,622	525,799	587,315	577,639	51,840	181,017
Mean equity	227,421	273,552	278,885	241,053	–32,499	13,632
Negative equity (%)	2.4	3.2	3.2	3.9	0.7	1.5
New home-owners aged 18–39						
Proportion of all home-owners aged 18–39 (%)	–	12.1	13.1	8.7	–3.4	–
Have home debt (%)	–	93.8	92.8	96.2	2.4	–
<i>Nominal terms (\$)</i>						
Mean debt	–	230,624	299,913	343,346	112,722	–
Mean home value	–	397,032	510,651	521,593	124,561	–
Mean equity	–	166,408	210,738	178,247	11,839	–
<i>Real terms (\$, December 2015 prices)</i>						
Mean debt	–	288,346	336,201	349,471	61,125	–
Mean home value	–	496,404	572,437	530,898	34,494	–
Mean equity	–	208,058	236,236	181,427	–26,631	–
Negative equity (%)	–	3.7	2.7	3.2	–0.5	–

Note: New home-owners are defined to be home owners who were not home owners in the previous wave in which wealth data was collected (that is, four years ago).

Table 7.7 presents descriptive statistics on the home debt held by home owners aged 18 to 39, showing the proportion with home debt and their mean debt, both in nominal terms and in real terms (at December 2015 prices). The upper panels examine all home-owners aged 18 to 39, while the lower panels restrict to new home-owners, defined to be home owners who were observed to be non-home owners in the previous wave in which wealth data was collected.

In all years, over 89% of all home-owners in this age range have home debt, although there has also been a rise over the 2002 to 2014 period, from 89.3% to 94.1%. More significantly, the mean debt carried by these home owners has risen dramatically. In nominal terms, mean debt has risen from \$120,813 in 2002 to \$330,687, a 174% increase. Even in real

terms, the growth in mean debt is large, rising from \$169,201 to \$336,586, a 99% increase. Patterns are similar for new home-owners, but with a slightly higher proportion carrying home debt and with the average debt level also somewhat higher.

Arguably, concern over this rise is moderated by the strong growth in the mean value of the homes held by home owners aged 18 to 39, which rose in nominal terms between 2002 and 2014 from \$283,197 to \$567,514. Indeed, mean equity, equal to the mean home value minus the mean home debt, has grown in real terms by \$18,036, while the proportion with negative equity (home debt exceeding the home value) was, at 3.9%, still relatively low in 2014. That said, the mean value of homes held by home owners aged 18 to 39 has grown by 46% in real

terms, which is much less than the 99% real growth in their mean home debt. Moreover, all of the improvement in the net equity position of young home-owners occurred between 2002 and 2010, with mean equity actually deteriorating considerably between 2010 and 2014. This is true for both new home-owners and all home-owners aged 18 to 39.

Irrespective of the net equity position of home owners, which itself is highly vulnerable to house price falls, probably more pertinent is that the growth in debt renders the economic wellbeing of young home-owners much more sensitive to interest rate changes than it was in 2002. With mean nominal debt in 2014 of \$330,687 for all home-owners, and \$343,346 for new home-owners, even small changes in interest rates will have substantial impacts on the



effective income situation of many home owners aged 18 to 39.

In the broader context of rising home debt shown in Table 7.7, it is nonetheless possible that individual home owners, while acquiring ever larger debts when first entering the housing market, have been paying off that debt. That is, it may be, at the individual level, that home debt diminishes quite quickly over time. The longitudinal structure of the HILDA Survey allows us to investigate the changes in home debt occurring from year to year for each home owner.

Table 7.8 presents an analysis of individual-level changes in home debt from one year to the next, restricting to people (initially) aged 18 to 39 who were home owners in both years. For this analysis, we infer home-ownership status using the rule that if an individual was identified as a legal home owner in a 'wealth' wave (2002, 2006, 2010 or 2014), that individual is deemed to be a home owner up until the next 'wealth' wave as long as that individual remains living in an owner-occupied house.

The table presents, for each sequential year-pair from 2002 to 2015, the mean change in home debt from one year to the next of individuals who were home owners in both years. The mean change is presented in both nominal and real terms. Strikingly, in all but three of the 13 year-pairs, the mean change in home debt was positive. One might expect most people to be paying down home debt over time, so that on average debt declines from one year to the next, but the HILDA Survey data do not show this to be the case.

The last column of Table 7.8 presents the proportion for whom nominal debt increased, indicating that the mean debt increase is not entirely driven by a small proportion of home owners with large increases in debt. While the majority of home owners experience no increase in their nominal home debt

from one year to the next (with approximately 45% to 55% actually reducing their nominal debt), approximately 30% to 40% do increase their nominal debt from one year to the next. Further research is required to understand how this is occurring, but one suspects it is not simply due to 'upsizing' and refinancing of existing home loans. It would seem likely that loans with features such as 'redraw' facilities are also part of the explanation for how home debt increases from one year to the next.

The proportion for whom home debt increased from one year to the next was highest in the period up to 2007, when it was above 40%. In the most recent years, nominal home debt has increased from one year to the next for approximately one-third of home owners aged 18 to 39.



Table 7.8: Mean change in home debt from one year to the next of home owners aged 18 to 39, 2002 to 2015

	Nominal (\$)	Real (\$, December 2015 prices)	Proportion for whom nominal debt increased (%)
2002 to 2003	13,371	14,225	42.3
2003 to 2004	11,875	11,411	40.1
2004 to 2005	7,649	4,183	43.1
2005 to 2006	11,829	7,548	42.6
2006 to 2007	8,490	4,774	40.4
2007 to 2008	23,906	17,170	39.1
2008 to 2009	7,568	4,254	39.4
2009 to 2010	-7,909	-16,690	35.0
2010 to 2011	6,048	-3,050	36.7
2011 to 2012	-8,258	-15,074	29.1
2012 to 2013	9,963	3,418	34.7
2013 to 2014	2,071	-3,720	30.3
2014 to 2015	-3,187	-8,503	32.0

Note: The table reports mean changes in home debt among all home-owners aged 18 to 39, including those with no home debt.

Table 7.9: Mean change in home debt over four years of home owners aged 18 to 39, 2002 to 2014

	Nominal (\$)	Real (\$, December 2015 prices)	Proportion for whom nominal debt increased (%)
2002 to 2006	54,838	50,955	57.2
2006 to 2010	35,999	14,580	49.5
2010 to 2014	30,500	2,297	41.4

Note: Population comprises persons aged 18 to 39 in the initial year who were home owners in both the initial year and the end year.

Table 7.10: Whether ahead or behind on repayments—Home owners aged 18 to 39 with home debt, 2002 to 2015 (%)

	<i>Ahead of required repayment schedule</i>	<i>Behind required repayment schedule</i>
2002	61.1	2.7
2003	61.2	1.8
2004	57.5	3.1
2005	55.2	4.9
2006	50.9	3.1
2007	51.2	3.1
2008	53.7	3.6
2009	61.1	2.5
2010	54.5	1.3
2011	53.6	2.5
2012	61.2	2.2
2013	63.1	1.1
2014	59.2	1.7
2015	57.3	3.5

Examination of the mean change in home debt over a four-year time-frame rather than a one-year time-frame (Table 7.9) shows somewhat similar patterns. On average, for individuals initially aged 18 to 39 who were home owners at both the start and end of the four-year period, nominal home debt increased by \$54,838 between 2002 and 2006, \$35,999 between 2006 and 2010 and \$30,500 between 2010 and 2014. The proportion experiencing an increase in nominal home debt was 57.2% between 2002 and 2006, 49.5% between 2006 and 2010, and 41.4% between 2010 and 2014.

There has therefore been a downward trend in the prevalence of nominal debt growth and in the extent to which nominal (and real) debt increased over a four-year time-frame. Nonetheless, even in the 2010 to 2014 period, a substantial proportion experienced an increase in nominal home debt and the mean change in both nominal and real home debt was positive.

Table 7.10 contains perhaps somewhat contrary evidence to that provided by Tables 7.8 and 7.9. The table uses information reported by respondents with home debt on whether they are ahead or behind of the required repayment schedule for

their home loan—that is, whether they have made more, or fewer, home loan repayments than required by the loan contract at the current stage of the contract. For each year from 2002 to 2015, it presents the proportion of home owners aged 18 to 39 reporting that they are ahead of the required payment schedule and the proportion reporting that they are behind.

The proportion reporting they are ahead of the required payment schedule has been at least 50% across the entire period from 2002 to 2015, and since 2012 has been approximately 60%. The proportion reporting they are behind schedule is in all years less than 5% and has been as low as 1.1%. On the surface, this is hard to reconcile with the findings presented in Tables 7.8 and 7.9, since one might expect nominal debt to be decreasing for most individuals if they are ahead of the required repayment schedule. However, the two sets of findings are not necessarily inconsistent. Individuals may redraw on a home loan and still be ahead of the required repayment schedule, and of course they may refinance or extend their home loan, or indeed purchase a new, more expensive, home. Exploring the roles of these (and other) factors would seem to be a valuable undertaking for future research.



8

Attitudes to marriage, parenting and work

The HILDA Survey collects information that enables us to track community attitudes to marriage, parenting and work, providing objective evidence on the extent to which attitudes are indeed shifting. Specifically, in Waves 1, 5, 8, 11 and 15, a battery of statements about parenting and work—12 statements in Wave 1 and 17 statements in subsequent waves—was presented to respondents in the self-completion questionnaire (SCQ). Respondents were asked to indicate the extent to which they agreed with each statement on a scale of 1 (strongly disagree) to 7 (strongly agree). In addition, in Waves 5, 8, 11 and 15, the SCQ contained a set of 10 statements about marriage and children, for each of which the respondent was likewise asked to indicate extent of agreement.

Because the HILDA data are longitudinal, not only can we track changes in overall community attitudes over time, we can track changes in individuals' attitudes, allowing us to see who has changed their attitudes, and more generally how attitudes change as people age and move into different lifecycle stages. For example, it is generally thought that older people tend to be more conservative or traditional than younger people. What is less clear is the extent to which this empirical regularity is an effect of ageing and moving into different lifecycle stages, as opposed to an effect of fixed differences in attitudes across birth cohorts—that is, it may be that people born earlier were always more conservative than people born more recently. Longitudinal data such as provided by HILDA can help us resolve this uncertainty.

Table 8.1 presents mean responses to each of the statements on marriage and children in each year in which they have been administered. The higher the number, the greater the average level of agreement with the statement. Since the available response options range from 1 (strong disagreement) to 7 (strong agreement), a mean score in excess of 4 indicates that on

average people agree with the statement, while a mean score less than 4 indicates that on average people disagree with the statement. Agreement with statements *a*, *c*, *d*, *f* and *h* reflects a less traditional attitude, while agreement with the remaining statements reflects a more traditional attitude.

While there are exceptions, the direction of movement of attitudes between 2005 and 2015 is quite clear: attitudes have become more non-traditional over this period. Most strikingly, there has been a profound shift towards the view that homosexual couples should have the same rights as heterosexual couples. Between 2005 and 2015, the mean agreement score for this item increased from 4.0 to 5.3 for females and from 3.3 to 4.8 for males.

Possibly somewhat at odds with the general trend towards less traditional views is that agreement with the statement that children should start to live independently when they turn about 18 to 20 years old has remained largely unchanged. There is, however, some ambiguity in whether agreement reflects a more traditional view, since respondents



Table 8.1: Attitudes to marriage and children (mean extent of agreement with each statement)—Persons aged 15 and over, 2005 to 2015

	2005	2008	2011	2015	Change 2005 to 2015
Males					
a. It is alright for an unmarried couple to live together even if they have no intention of marrying	5.1	5.3	5.4	5.6	0.5
b. Marriage is a lifetime relationship and should never be ended	4.6	4.6	4.5	4.3	-0.3
c. Marriage is an outdated institution	2.7	2.8	2.8	2.9	0.2
d. It is alright for a couple with an unhappy marriage to get a divorce even if they have children	4.9	5.0	5.1	5.2	0.3
e. Children will usually grow up happier if they have a home with both a father and a mother	5.8	5.6	5.6	5.2	-0.6
f. It is alright for a woman to have a child as a single parent even if she doesn't want to have a stable relationship with a man	3.5	3.8	3.9	4.3	0.8
g. When children turn about 18–20 years old they should start to live independently	4.2	4.3	4.4	4.3	0.1
h. Homosexual couples should have the same rights as heterosexual couples do	3.3	3.8	4.1	4.8	1.5
Females					
a. It is alright for an unmarried couple to live together even if they have no intention of marrying	5.0	5.2	5.3	5.6	0.6
b. Marriage is a lifetime relationship and should never be ended	4.4	4.2	4.2	3.8	-0.6
c. Marriage is an outdated institution	2.5	2.6	2.5	2.6	0.1
d. It is alright for a couple with an unhappy marriage to get a divorce even if they have children	5.2	5.3	5.4	5.6	0.4
e. Children will usually grow up happier if they have a home with both a father and a mother	5.1	5.0	4.9	4.4	-0.7
f. It is alright for a woman to have a child as a single parent even if she doesn't want to have a stable relationship with a man	3.7	4.0	4.2	4.6	0.9
g. When children turn about 18–20 years old they should start to live independently	3.9	4.0	4.1	4.0	0.1
h. Homosexual couples should have the same rights as heterosexual couples do	4.0	4.4	4.8	5.3	1.3

Note: The table presents mean responses to each statement on a 1 to 7 Likert scale, where 1 is 'strongly disagree' and 7 is 'strongly agree'.

may not interpret 'living independently' as not requiring parental financial support.

Tables 8.2 and 8.3 present mean responses to each of the statements on parenting and paid work, for males and females, respectively. The estimates are interpreted in the same way as for Table 8.1. Agreement with statements a, c, d, f, j, k, l and n reflects a more traditional attitude, while the remaining statements reflect a less traditional attitude.

Here again, the broad trend towards less traditional attitudes is evident. The largest changes over the 2005 to 2015 period applicable to both males and females are increases in agreement with the assertion that a working mother can have as good a relationship with her children as a non-working woman (0.6 for males and 0.5 for



Table 8.2: Attitudes to parenting and work (mean extent of agreement with each statement)—Males aged 15 and over, 2001 to 2015

	2001	2005	2008	2011	2015	Change 2001 to 2015	Change 2005 to 2015
a. Many working mothers seem to care more about being successful at work than meeting the needs of their children	3.8	3.7	3.5	3.5	3.4	-0.4	-0.3
b. If both partners in a couple work, they should share equally in the housework and care of children	6.0	5.8	5.7	5.7	5.7	-0.3	-0.1
c. Whatever career a woman may have, her most important role in life is still that of being a mother	5.6	5.3	5.2	5.2	5.1	-0.5	-0.2
d. Mothers who don't really need the money shouldn't work	4.0	3.8	3.7	3.6	3.3	-0.7	-0.5
e. Children do just as well if the mother earns the money and the father cares for the home and children	4.9	4.9	5.0	5.0	5.2	0.3	0.3
f. It is better for everyone involved if the man earns the money and the woman takes care of the home and children	4.1	3.8	3.7	3.7	3.4	-0.7	-0.4
g. As long as the care is good, it is fine for children under 3 years of age to be placed in child care all day for 5 days a week	2.9	3.1	3.2	3.4	3.5	0.6	0.4
h. A working mother can establish just as good a relationship with her children as a mother who does not work for pay	3.9	4.0	4.1	4.4	4.6	0.7	0.6
i. A father should be as heavily involved in the care of his children as the mother	5.8	5.6	5.6	5.6	5.7	-0.1	0.1
j. It is not good for a relationship if the woman earns more than the man	-	2.7	2.7	2.7	2.5	-	-0.2
k. On the whole, men make better political leaders than women do	-	3.4	3.3	3.6	3.0	-	-0.4
l. A pre-school child is likely to suffer if his/her mother works full-time	-	4.2	4.1	4.0	3.7	-	-0.5
m. Children often suffer because their fathers concentrate too much on their work	-	4.6	4.5	4.4	4.2	-	-0.4
n. If parents divorce it is usually better for the child to stay with the mother than with the father.	-	3.6	3.6	3.6	3.4	-	-0.2

Note: The table presents mean responses to each statement on a 1 to 7 Likert scale, where 1 is 'strongly disagree' and 7 is 'strongly agree'.



females) and decreases in agreement with the statements that mothers who do not really need the money should not work and that a pre-school child will likely suffer if the mother works full-time (in all cases a 0.5 decline). Additionally, the mean agreement of females with the statement that it is fine for children under 3 years of age to be placed in child care all day for 5 days a week increased by 0.6 (0.4 for males), and female agreement with the statement that it is better if the man earns the money and the woman takes care of the children declined by 0.5 (0.4 decline for males).

The responses to the statements presented in Tables 8.1 to 8.3 can be aggregated to provide an overall summary measure of the extent to which a person holds traditional views on marriage and children, and on parenting and paid work (see Box 8.1, page 102). The

Table 8.3: Attitudes to parenting and work (mean extent of agreement with each statement)—Females aged 15 and over, 2001 to 2015

	2001	2005	2008	2011	2015	Change 2001 to 2015	Change 2005 to 2015
a. Many working mothers seem to care more about being successful at work than meeting the needs of their children	3.5	3.3	3.3	3.1	3.0	-0.5	-0.3
b. If both partners in a couple work, they should share equally in the housework and care of children	6.3	6.2	6.2	6.2	6.2	-0.1	0.0
c. Whatever career a woman may have, her most important role in life is still that of being a mother	5.8	5.6	5.5	5.5	5.4	-0.4	-0.2
d. Mothers who don't really need the money shouldn't work	3.8	3.5	3.5	3.3	3.0	-0.8	-0.5
e. Children do just as well if the mother earns the money and the father cares for the home and children	5.2	5.3	5.3	5.4	5.5	0.3	0.2
f. It is better for everyone involved if the man earns the money and the woman takes care of the home and children	3.7	3.5	3.4	3.3	3.0	-0.7	-0.5
g. As long as the care is good, it is fine for children under 3 years of age to be placed in child care all day for 5 days a week	3.1	3.1	3.2	3.4	3.7	0.6	0.6
h. A working mother can establish just as good a relationship with her children as a mother who does not work for pay	4.5	4.6	4.6	4.9	5.1	0.6	0.5
i. A father should be as heavily involved in the care of his children as the mother	6.0	5.8	5.8	5.8	5.9	-0.1	0.1
j. It is not good for a relationship if the woman earns more than the man	-	2.7	2.6	2.5	2.3	-	-0.4
k. On the whole, men make better political leaders than women do	-	2.6	2.5	2.6	2.2	-	-0.4
l. A pre-school child is likely to suffer if his/her mother works full-time	-	3.9	3.8	3.7	3.4	-	-0.5
m. Children often suffer because their fathers concentrate too much on their work	-	4.3	4.3	4.2	3.9	-	-0.4
n. If parents divorce it is usually better for the child to stay with the mother than with the father.	-	4.0	3.9	3.9	3.6	-	-0.4

Note: The table presents mean responses to each statement on a 1 to 7 Likert scale, where 1 is 'strongly disagree' and 7 is 'strongly agree'.

summary measure is essentially the mean response of the individual, but with the scale reversed (that is, 1 replaced with 7, 2 replaced with 6, and so on) for statements in favour of a more non-traditional attitude. Separate summary measures are produced for the two broad subject areas (marriage and children, and parenting and work).

Table 8.4 shows that males consistently have somewhat more traditional views than females on both marriage and children, and parenting and work. Nonetheless, the mean changes in attitudes over the period from 2005 and 2015 are identical for males and females for both subject areas, with a mean decline of 0.5 for marriage and children and 0.3 for parenting and work.

The magnitude of change for attitudes to parenting and work is approximately 60% of that for



Table 8.4: Mean extent to which traditional attitudes are held towards marriage and children, and towards parenting and work—Persons aged 15 and over, 2005 to 2015

	2005	2008	2011	2015	Change 2005 to 2015
Males					
Marriage and children	4.4	4.2	4.2	3.9	-0.5
Parenting and work	3.6	3.5	3.5	3.3	-0.3
Females					
Marriage and children	4.1	4.0	3.9	3.6	-0.5
Parenting and work	3.4	3.4	3.3	3.1	-0.3

Notes: Attitudes are measured by the summary measures described in Box 8.1 (below). A smaller number indicates a less traditional attitude.

Box 8.1: Summary measures of extent to which one has traditional views on marriage and children and on parenting and paid work

The measure for views on marriage and children is based on the extent of agreement, on a 7-point Likert scale (where 1 is strongly disagree and 7 is strongly agree), with the following eight statements:

- a. It is alright for an unmarried couple to live together even if they have no intention of marrying
- b. Marriage is a lifetime relationship and should never be ended
- c. Marriage is an outdated institution
- d. It is alright for a couple with an unhappy marriage to get a divorce even if they have children
- e. Children will usually grow up happier if they have a home with both a father and a mother
- f. It is alright for a woman to have a child as a single parent even if she doesn't want to have a stable relationship with a man
- g. When children turn about 18–20 years old they should start to live independently
- h. Homosexual couples should have the same rights as heterosexual couples do

The score for the extent to which views about marriage and children are 'traditional' is calculated as an average across the eight items as follows: $[(8 - a) + b + (8 - c) + (8 - d) + e + (8 - f) + (8 - g) + h]/8$. The score potentially ranges from 1 to 7.

The measure for views on parenting and work is based on the extent of agreement with the following 14 statements:

- a. Many working mothers seem to care more about being successful at work than meeting the needs of their children
- b. If both partners in a couple work, they should share equally in the housework and care of children
- c. Whatever career a woman may have, her most important role in life is still that of being a mother
- d. Mothers who don't really need the money shouldn't work
- e. Children do just as well if the mother earns the money and the father cares for the home and children
- f. It is better for everyone involved if the man earns the money and the woman takes care of the home and children
- g. As long as the care is good, it is fine for children under 3 years of age to be placed in child care all day for 5 days a week
- h. A working mother can establish just as good a relationship with her children as a mother who does not work for pay
- i. A father should be as heavily involved in the care of his children as the mother
- j. It is not good for a relationship if the woman earns more than the man
- k. On the whole, men make better political leaders than women do
- l. A pre-school child is likely to suffer if his/her mother works full-time
- m. Children often suffer because their fathers concentrate too much on their work
- n. If parents divorce it is usually better for the child to stay with the mother than with the father

The total score for the extent to which views about parenting and work are 'traditional' is calculated as $[a + (8 - b) + c + d + (8 - e) + f + (8 - g) + (8 - h) + (8 - i) + j + k + l + (8 - m) + n]/14$. Again, the score potentially ranges from 1 to 7.

The marriage and children items were first introduced in 2005. Items a to i of parenting and work were first administered in Wave 1, while additional items j to n were first administered in Wave 5. All items have subsequently been administered in Waves 8, 11 and 15. It is therefore possible to construct the two summary measures in Waves 5, 8, 11 and 15.

marriage and children, but this seems to reflect the fact that attitudes had less room to become less traditional: in 2005, the mean extent of agreement with the traditional viewpoint for parenting and work was 3.4 for females and 3.6 for males, compared with respective means of 4.1 and 4.4 for marriage and children.

Table 8.5 compares mean attitudes across age groups. The upper panel examines attitudes to marriage and children. It reveals a consistent pattern of more traditional views among older people, although attitudes are on average quite similar across the 15 to 54 age range. It is only in the 55 to 64 and 65 and over age groups where significantly more traditional views arise. The extent of this age 'gradient' has, moreover, diminished somewhat between 2005 and 2015, since the two eldest age groups experienced the largest decline in the summary measure of traditional views for both men and women.

The lower panel of Table 8.5 presents analogous information to the upper panel but this time for attitudes to parenting and work. Here we see a similar pattern of people in the older age groups tending to be more traditional. As was the case for attitudes to marriage and children, all age groups have experienced declines in the extent to which traditional views are held. Likewise, the extent of the mean decline between 2005 and 2015 also tended to be slightly greater for the two oldest age groups.

Similar information to Table 8.5 is presented in Table 8.6, but instead of examining attitudes across age groups, the table makes comparisons across birth cohorts. This allows us to more precisely assess how individuals' attitudes have changed—as opposed to the changes evident in Table 8.5, which simply reflect movement into higher age groups of people who already had less traditional views.

Table 8.5: Mean extent to which traditional attitudes are held towards marriage and children, by sex and age group, 2005 to 2015

	Males					Females				
	2005	2008	2011	2015	Change 2005 to 2015	2005	2008	2011	2015	Change 2005 to 2015
Marriage and children										
15–24	4.2	4.0	4.0	3.6	–0.6	3.9	3.7	3.7	3.3	–0.6
25–34	4.2	4.1	4.1	3.8	–0.4	3.8	3.8	3.8	3.5	–0.3
35–44	4.2	4.0	4.0	3.8	–0.4	3.9	3.8	3.7	3.4	–0.5
45–54	4.3	4.2	4.0	3.8	–0.5	4.0	3.9	3.7	3.5	–0.5
55–64	4.6	4.4	4.2	3.9	–0.7	4.4	4.1	3.9	3.6	–0.8
65 and over	5.0	4.8	4.7	4.3	–0.7	4.8	4.7	4.4	4.1	–0.7
Parenting and work										
15–24	3.5	3.4	3.4	3.2	–0.3	3.1	3.1	3.1	2.8	–0.3
25–34	3.4	3.4	3.5	3.2	–0.2	3.2	3.2	3.2	3.0	–0.2
35–44	3.5	3.4	3.4	3.3	–0.2	3.3	3.2	3.2	3.0	–0.3
45–54	3.6	3.5	3.4	3.4	–0.2	3.3	3.4	3.3	3.1	–0.2
55–64	3.7	3.7	3.5	3.4	–0.3	3.6	3.5	3.3	3.2	–0.4
65 and over	4.0	4.0	3.9	3.7	–0.3	3.9	3.9	3.7	3.5	–0.4

Notes: Attitudes are measured by the summary measures described in Box 8.1 (page 102). A smaller number indicates a less traditional attitude.





The mean changes are indeed in most cases smaller by birth cohort than by age group, indicating that changes at the individual level have been smaller than the aggregate change. That is, part of the change evident within age groups, particularly the older age groups, simply reflects younger birth cohorts who already had less traditional views moving into those age groups.

While the birth cohort analysis provides a good indication of how individuals' attitudes have changed, it is susceptible to changing composition of the birth cohorts, particularly among older cohorts,

whose composition is altered by deaths. The longitudinal structure of the HILDA Survey allows us to examine how each individual's attitudes have changed. Table 8.7 presents results, restricting attention to the summary measures of attitudes.

Results are, perhaps unsurprisingly, consistent with the findings presented in Table 8.6, even for the older age groups. That said, there are some notable differences for the older cohorts, and particularly those born before 1940 (or 1941). The decline in traditional attitudes to marriage and children among men born

Table 8.6: Mean extent to which traditional attitudes are held, by sex and birth cohort, 2005 to 2015

	Males					Females				
	2005	2008	2011	2015	Change 2005 to 2015	2005	2008	2011	2015	Change 2005 to 2015
Marriage and children										
1995–1999	–	–	3.9	3.7	–	–	–	3.6	3.3	–
1990–1994	4.3	4.0	4.0	3.5	–0.8	4.1	3.6	3.7	3.3	–0.8
1985–1989	4.2	3.9	4.0	3.7	–0.5	3.8	3.7	3.7	3.5	–0.3
1980–1984	4.2	4.1	4.1	3.8	–0.4	3.9	3.9	3.8	3.5	–0.4
1975–1979	4.3	4.2	4.2	3.9	–0.4	3.8	3.7	3.7	3.6	–0.2
1970–1974	4.2	4.2	4.0	3.8	–0.4	3.9	3.8	3.7	3.3	–0.6
1965–1969	4.2	4.0	3.9	3.8	–0.4	3.9	3.7	3.7	3.5	–0.4
1960–1964	4.3	4.1	4.0	3.8	–0.5	3.9	3.8	3.7	3.4	–0.5
1955–1959	4.3	4.2	4.1	3.9	–0.4	3.9	3.9	3.8	3.5	–0.4
1950–1954	4.3	4.3	4.2	4.0	–0.3	4.0	4.0	3.9	3.6	–0.4
1945–1949	4.5	4.5	4.3	4.1	–0.4	4.3	4.2	4.0	3.9	–0.4
1940–1944	4.7	4.6	4.5	4.2	–0.5	4.5	4.4	4.2	4.0	–0.5
Before 1940	5.0	4.8	4.8	4.6	–0.4	4.8	4.8	4.6	4.4	–0.4
Parenting and work										
1995–1999	–	–	3.3	3.2	–	–	–	3.0	2.8	–
1990–1994	3.3	3.4	3.5	3.1	–0.2	3.2	3.1	3.1	2.8	–0.4
1985–1989	3.5	3.4	3.4	3.2	–0.3	3.2	3.2	3.1	3.0	–0.2
1980–1984	3.5	3.4	3.5	3.2	–0.3	3.1	3.1	3.2	3.0	–0.1
1975–1979	3.4	3.4	3.5	3.3	–0.1	3.1	3.2	3.2	3.1	0.0
1970–1974	3.4	3.4	3.4	3.2	–0.2	3.2	3.3	3.2	3.0	–0.2
1965–1969	3.5	3.4	3.5	3.3	–0.2	3.3	3.2	3.2	3.1	–0.2
1960–1964	3.5	3.5	3.5	3.4	–0.1	3.3	3.4	3.3	3.1	–0.2
1955–1959	3.5	3.5	3.5	3.4	–0.1	3.3	3.4	3.3	3.2	–0.1
1950–1954	3.6	3.6	3.5	3.5	–0.1	3.3	3.4	3.3	3.2	–0.1
1945–1949	3.7	3.7	3.6	3.5	–0.2	3.6	3.6	3.3	3.3	–0.3
1940–1944	3.9	3.8	3.8	3.6	–0.3	3.7	3.6	3.5	3.5	–0.2
Before 1940	4.0	4.1	4.0	3.8	–0.2	3.9	3.9	3.8	3.7	–0.2

Notes: Attitudes are measured by the summary measures described in Box 8.1 (page 102). A smaller number indicates a less traditional attitude.

before 1941 obtained from longitudinal analysis of individuals is, at 0.28, somewhat smaller than the 0.4 decline obtained for the same cohort from the cross-sectional comparisons undertaken in Table 8.6. Similarly, for both men and women in this cohort, and indeed the cohorts born in the 1940s, the reductions in the extent to which traditional attitudes are held towards parenting and work are considerably smaller in Table 8.7. This suggests that the most traditional members of these cohorts were disproportionately likely to die between 2005 and 2015, creating an upward bias in cross-sectional estimates of the extent of actual change in attitudes among members of these cohorts.

Attitudes to the rights of homosexual couples

As indicated in Table 8.1, the most profound shift in attitudes on marriage and children is on the rights of homosexual couples. With little doubt, this reflects the substantial public discussion of same-sex marriage in Australia in recent years. Table 8.8 examines this shift in attitudes over the 2005 to 2015 period in more detail. The table presents the mean extent of agreement with the statement that homosexual couples should have the same rights as heterosexual couples in 2005, 2008, 2011 and 2015, disaggregated by age group and by birth cohort.

The broad impression from the table is that all age groups and all birth cohorts have shifted in their attitude to the rights of homosexual couples. The shift in attitude is consequently very broad-based, a consequence of which is that differences by sex, age and birth cohort have remained relatively stable between 2005 and 2015. Males have consistently lower levels of agreement than females,

Table 8.7: Mean individual-level changes in attitudes to marriage and children and to parenting and work, by sex and age group in 2005, 2005 to 2015

	Marriage and children		Parenting and work	
	Males	Females	Males	Females
15–24 (born 1981–1990)	–0.52	–0.63	–0.29	–0.25
25–34 (born 1971–1980)	–0.45	–0.50	–0.18	–0.17
35–44 (born 1961–1970)	–0.40	–0.54	–0.12	–0.18
45–54 (born 1951–1960)	–0.40	–0.47	–0.11	–0.18
55–64 (born 1941–1950)	–0.33	–0.40	–0.12	–0.11
65 and over (born before 1941)	–0.28	–0.41	–0.11	–0.10
All ages (born before 1991)	–0.41	–0.50	–0.16	–0.17

Notes: Attitudes are measured by the summary measures described in Box 8.1 (page 102). A negative number indicates a change to a less traditional attitude.



and older age groups, or older birth cohorts, consistently have lower levels of agreement than younger age groups or birth cohorts. That said, among women, there is some indication that older female birth cohorts have shifted more than

younger cohorts. For example, among women born between 1985 and 1989, the increase in the mean level of agreement with the statement is 0.5, whereas for women born between 1940 and 1944 the increase is 1.3.

Table 8.8: Extent of agreement with the view that homosexual couples should have the same rights as heterosexual couples, by age group and by birth cohort, 2005 to 2015

	Males					Females				
	2005	2008	2011	2015	Change 2005 to 2015	2005	2008	2011	2015	Change 2005 to 2015
Age group										
15–24	3.7	4.3	4.7	5.6	1.9	4.9	5.3	5.6	6.0	1.1
25–34	3.8	4.1	4.5	5.2	1.4	4.7	5.0	5.3	5.6	0.9
35–44	3.4	4.0	4.2	5.0	1.6	4.1	4.5	4.9	5.5	1.4
45–54	3.3	3.7	3.9	4.6	1.3	4.0	4.3	4.7	5.3	1.3
55–64	3.0	3.4	3.7	4.5	1.5	3.4	4.1	4.4	5.0	1.6
65 and over	2.6	2.9	3.1	3.9	1.3	2.9	3.3	3.5	4.3	1.4
Birth cohort										
1995–1999	–	–	5.2	5.5	–	–	–	6.0	5.9	–
1990–1994	3.8	4.4	4.6	5.7	1.9	4.7	5.6	5.8	6.1	1.4
1985–1989	3.8	4.2	4.4	5.2	1.4	5.1	5.3	5.3	5.6	0.5
1980–1984	3.6	4.3	4.5	5.2	1.6	4.8	5.1	5.3	5.5	0.7
1975–1979	3.8	4.0	4.3	5.0	1.2	4.9	5.0	5.2	5.3	0.4
1970–1974	3.9	3.9	4.3	4.8	0.9	4.4	4.4	5.0	5.5	1.1
1965–1969	3.5	4.0	4.2	4.7	1.2	4.2	4.5	4.8	5.3	1.1
1960–1964	3.4	3.8	3.9	4.7	1.3	4.1	4.5	4.8	5.3	1.2
1955–1959	3.3	3.7	3.9	4.6	1.3	4.1	4.2	4.5	5.0	0.9
1950–1954	3.3	3.6	3.8	4.4	1.1	4.0	4.3	4.5	4.9	0.9
1945–1949	3.0	3.1	3.4	4.0	1.0	3.5	4.0	4.2	4.6	1.1
1940–1944	2.8	3.2	3.2	4.1	1.3	3.1	3.7	3.7	4.4	1.3
Before 1940	2.6	2.9	3.0	3.5	0.9	2.8	3.2	3.3	4.0	1.2

Note: The table presents mean responses to each statement on a 1 to 7 Likert scale, where 1 is 'strongly disagree' and 7 is 'strongly agree'.



Who changed their attitudes most?

A key benefit of the longitudinal structure of the HILDA Survey is that we can probe more deeply into the characteristics of the individuals whose attitudes have changed most. To examine this issue, Table 8.9 reports results from regression models of changes in individuals' attitudes between 2005 and 2015 as a function of the individuals' characteristics in 2005 and various life events that occurred between 2005 and 2015. Three models are estimated. The first two models are for attitudes to marriage and children and attitudes to parenting and work, with the outcome variables being the change between 2005 and 2015 in the summary measures described in Box 8.1 (page 102). Since these

measures are higher the more traditional the attitude, a negative estimate in the table translates to a decrease in the extent to which views are traditional. The third model is for the change in attitude to homosexual couples' rights, where the outcome variable is the change in extent of agreement with the statement 'Homosexual couples should have the same rights as heterosexual couples do' (which is measured on a 1 (strongly disagree) to 7 (strongly agree) scale). Consequently, in the third model, a positive number indicates an increase in agreement with the view that homosexual couples should have the same rights as heterosexual couples.

Considering first the two models examining summary measures of attitudes, the estimates for the constants (second-last row) indicate large mean decreases in the extent

Table 8.9: Characteristics and life events associated with changes in attitudes—Persons aged 15 and over, 2005 to 2015

	Marriage and children	Parenting and work	Homosexual couples' rights
Characteristics in 2005			
Male	0.094	<i>ns</i>	0.095
<i>Age group in 2005 (Reference category: 15–24)</i>			
25–34	0.099	<i>ns</i>	<i>ns</i>
35–44	0.157	0.093	<i>ns</i>
45–54	0.164	0.085	<i>ns</i>
55–64	0.193	0.093	<i>ns</i>
65 and over	0.138	0.081	<i>ns</i>
<i>Place of birth and Indigenous status (Reference category: Non-Indigenous native-born)</i>			
ESB immigrant	<i>ns</i>	<i>ns</i>	–0.188
NESB immigrant	0.126	–0.045	–0.381
Indigenous	0.322	<i>ns</i>	–0.533
<i>Family type (Reference category: Other)</i>			
Couple	–0.052	0.044	<i>ns</i>
Couple with dependent children	–0.136	<i>ns</i>	<i>ns</i>
Single parent	<i>ns</i>	<i>ns</i>	<i>ns</i>
<i>Educational attainment (Reference category: Less than high-school completion)</i>			
Bachelor's degree or higher	<i>ns</i>	<i>ns</i>	–0.219
Other post-school qualification	<i>ns</i>	<i>ns</i>	<i>ns</i>
Completed high school	–0.105	<i>ns</i>	0.164
<i>Population density of region of residence (Reference category: Major urban)</i>			
Non-major urban	–0.070	<i>ns</i>	<i>ns</i>
Non-urban	<i>ns</i>	<i>ns</i>	<i>ns</i>
Religion important	0.060	<i>ns</i>	<i>ns</i>
<i>Income quintile (Reference category: Bottom quintile)</i>			
2nd quintile	<i>ns</i>	–0.050	<i>ns</i>
Middle quintile	–0.136	<i>ns</i>	0.362
4th quintile	–0.125	–0.047	0.310
Top quintile	–0.140	–0.080	0.324
Life events between 2005 and 2015			
Obtained a bachelor's degree	<i>ns</i>	–0.096	<i>ns</i>
Had first child	<i>ns</i>	0.095	–0.337
Got married (for first time)	0.132	<i>ns</i>	0.465
Separated from spouse	–0.047	<i>ns</i>	–0.143
Income quintile higher in 2015 than in 2005	<i>ns</i>	<i>ns</i>	<i>ns</i>
Income quintile lower in 2015 than in 2005	<i>ns</i>	0.045	–0.105
Moved from a non-urban area to an urban area	<i>ns</i>	<i>ns</i>	<i>ns</i>
Moved from an urban area to a non-urban area	–0.064	0.090	<i>ns</i>
Constant	–0.461	–0.213	1.034
Number of observations	6,662	6,482	6,766

Notes: The table reports coefficient estimates from OLS models of the change in the dependent variable indicated by the column heading. For 'marriage and children' and 'parenting and work', the dependent variable is the change in the summary measure reported in Box 8.1 (page 102). For 'homosexual couples' rights', the dependent variable is the change in the extent of agreement with the statement 'Homosexual couples should have the same rights as heterosexual couples do'. See the Technical Appendix for more information about OLS models. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

to which traditional views are held for the 'reference group' (female, aged under 25, and so on)—0.461 for the marriage and children measure, and 0.213 for the parenting and work measure. These estimates are larger than any of the estimates for the explanatory variables included in Table 8.9. Consequently, a positive coefficient estimate for an explanatory variable indicates a smaller change towards more progressive views than the reference group (rather than a change towards more traditional views).

The estimates for the 'male' indicator variable indicate that, other things being equal, males had a smaller move to more progressive views on marriage and children than females, but did not significantly differ from females in their change in attitudes to parenting and work. Examining differences by age, the positive estimates for all the age groups imply that the reference category, those aged under 25 in 2005, had the largest change towards more progressive views on both marriage and children and parenting and

work. Those aged 25 to 34 in 2005 also exhibited relatively greater shifts towards progressive views than older age groups (and in fact did not significantly differ from those aged under 25 in their change in attitudes to parenting and work).

NESB immigrants and Indigenous persons (see Box 5.1, page 69) had smaller changes in attitudes to marriage and children than other people, but Indigenous persons did not have significantly different changes in attitudes to parenting and work, while NESB immigrants actually had a bigger move towards progressive attitudes to parenting and work than others, all else being equal. Comparing across family types, individuals in couple families with dependent children had the largest shift towards more progressive attitudes to marriage and children, followed by couples without children. However, the only significant difference in the change in attitudes to parenting and work across family types was that couples without children had a smaller change towards more

progressive views than individuals in other family types.

The only significant difference by level of educational attainment (see Box 4.4, page 58) is that those with a highest qualification of high-school completion had a greater move away from traditional attitudes to marriage and children than those in other educational attainment groups. Differences by region of residence (see Box 2.5, page 19) are evident for marriage and children, with those living in non-major urban areas having a larger decrease in traditional attitudes than people elsewhere, all else equal.

In Wave 4 (and also in Waves 7, 11 and 15), HILDA Survey respondents were asked to rate the importance of religion in their life on a scale of 0 to 10, with 0 being 'One of the least important things in my life' and 10 being 'The most important thing in my life'. An indicator variable is included in the regression models that is equal to 1 if a rating of 8 or higher was reported by the respondent in Wave 4 (the wave immediately prior to the



beginning of the period over which changes in attitudes are examined), and is otherwise equal to 0. The coefficient estimate for this indicator variable is positive for the model of attitudes to marriage and children, implying that attitudes changed less for people for whom religion is very important. There was, however, no significant difference in the change in attitudes to parenting and work for people for whom religion is important compared with other people.

Estimates for the variables for income quintiles (see Box 3.2, page 28, for explanation of the income measure) show that people in the top three quintiles in 2005 became relatively more progressive in their attitudes to marriage and children than lower-income people. However, for parenting and work, it was the bottom and middle quintiles that had the smallest moves towards progressive attitudes.

In terms of major life events between 2005 and 2015, obtaining a university degree is associated with a greater move towards more progressive views to parenting and work (but not marriage and children), while having a child for the first time is associated with a move towards more traditional views to parenting and work (but, again, not marriage and children). Getting married is associated with less movement away from traditional views to marriage and children, while separation from one's spouse is associated with greater movement. Neither marriage nor separation significantly impact on the extent of change in attitudes. Finally, moving from an urban area to a non-urban area is associated with a move towards more progressive attitudes to marriage and children, but less progressive attitudes to parenting and work.

The last column of Table 8.9 presents coefficient estimates for the change in attitude to homosexual couples' rights. As with



the two preceding models, the negative coefficient estimates for attitude to homosexual couples' rights are all considerably smaller in magnitude than the estimated constant, which is 1.034. Consequently, a negative coefficient estimate for an explanatory variable implies a *smaller increase* in agreement with the statement (all else equal), not a decrease in agreement with the statement.

The table shows that males experienced a bigger change in attitude than females: other factors held constant, males on average increased their agreement with the statement on homosexual couples' rights by 0.095 more than did women. Notably, males experienced a *smaller increase* than females in the progressiveness of their views on marriage and family more generally, despite attitude to the rights of homosexual couples being one component of the overall measure of attitudes to marriage and children.

Consistent with the evidence in the upper panel of Table 8.9 that all age groups experienced an increase in agreement with the statement, there were no significant differences in the change across age groups. This is, again, in contrast to the finding for the broader measure of attitudes to marriage and children, where the two youngest age groups exhibited bigger shifts in attitudes. Estimates by place of birth and Indigenous status indicate that non-Indigenous

native-born Australians had the largest shift in attitude to homosexual couples' rights, followed by ESB immigrants, NESB immigrants and Indigenous persons. No significant differences are evident for initial (2005) family type.

Other factors held constant, those with a university degree had the smallest change in attitude to homosexual couples' rights, while those with a highest qualification of high-school completion had the biggest change. There are no significant differences by region of residence, but those in the bottom two income quintiles had substantially smaller changes in attitude to homosexual couples' rights than those in the top three income quintiles.

Significant effects are evident for several of the life events between 2005 and 2015. Having a first child reduces the change in attitude, other things being equal. Getting married is associated with a considerably larger increase in agreement than someone who did not marry, while experiencing separation from one's spouse is associated with a somewhat smaller increase in agreement. Finally, moving one or more quintiles down the income distribution between 2005 and 2015 is associated with a smaller increase in agreement with the statement compared with those who maintained or improved their income quintile.

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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.

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).

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.

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 household receives regular child support payments, presented in Chapter 2, the effects of wage earnings 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 one-unit increase in the explanatory variable. Specifically, continuing with the example above, the mean marginal effect estimate for weekly earnings, which are measured in hundreds of dollars, is the mean effect on the probability of having a first child, evaluated over all members of the sample, of increasing earnings by one hundred dollars.

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).
- **Tobit** models are used to estimate linear associations between a dependent variable and one or more independent (or explanatory) variables when the dependent variable has the apparent property of being 'truncated' at a particular value—that is, a number of observations have the same equal-highest (or equal-lowest) value of the dependent variable. For example, in this report, a Tobit model is estimated of the determinants of gambling expenditure because a large number of people have zero expenditure (and no-one in the HILDA Survey data has negative expenditure).

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

As discussed in Watson and Wooden (2002), the reference population for Wave 1 of the HILDA Survey was all members of private dwellings in Australia, with the main exception being the exclusion of people living in remote and sparsely populated areas. These coverage rules were broadly in line with those adopted by the Australian Bureau of Statistics in its supplements to the Monthly Population Survey. Households were selected using a multi-staged approach designed to ensure representativeness of the reference population. First, a stratified random sample of 488 1996 Census Collection Districts (CDs), each of which contains approximately 200 to 250 households, was selected from across Australia. Within each of these areas, depending on the expected response and occupancy rates of the area, a random sample of 22 to 34 dwellings was selected. Within each dwelling, up to three households were randomly selected. The frame of CDs was stratified by state and territory and, within the five most-populous states, by metropolitan and non-metropolitan regions. Nonetheless, despite the region-based stratification, Wave 1 of the HILDA Survey was an equal-probability sample; in particular, the smaller states and territories were not over-sampled. This reflects the focus of the HILDA Survey on producing nation-wide population estimates.

All members of the selected households were defined as members of the sample, although individual interviews were (and continue to be) only conducted with those aged 15 years and over. Since Wave 1, interviews have been sought with all members of Wave-1 responding households, which has meant following all individuals of these households wherever they go in Australia (including remote and sparsely populated areas). Individuals who move overseas are, however, not interviewed while they are living overseas. Note that, to ensure completeness of household information, any individuals who become part of an existing (permanent) sample member's household are also interviewed, but—aside from important exceptions explained below—these individuals are only interviewed as long as they remain in the same household as the permanent sample member.

The HILDA Survey is designed to have an indefinite life, primarily achieved by adding to the sample any children born to or adopted by sample members. The HILDA Survey aims to remain representative of the Australian population, but its original design as a longitudinal study meant that it would not be representative of immigrants who arrived after the initial (Wave 1) selection of the sample. To date, two approaches have been taken to address this source of declining representativeness. First, immigrants who join the household of an existing sample member automatically become permanent sample members. Second, in Wave 11, a general sample top-up (of 4,096 individuals) was conducted which allowed immigrants who had arrived between 2001 and 2011 to enter the HILDA Survey sample.

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 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 15, the household population weights sum to 8.93 million and the 'person' population weights sum to 23.22 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 15 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.

¹ Further details on how the weights are derived are provided in Watson and Fry (2002), Watson (2004b) and Summerfield et al. (2016).

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 subgroup, 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.

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. As noted in Section B of this Technical Appendix, 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' sample member. Persons who are known to have died are removed from the sample (but their existing data is retained). We also do not pursue interviews with persons who have moved overseas, persons who have requested to no longer be contacted, or persons that we have not been able 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 (including children aged under 15). 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 178 interviewers in Wave 15, 154 of whom undertook interviews in person, with the remaining 24 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 preferred a telephone interview. In Wave 15, 1,522 interviews (or 8.6% 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 15).³ Table A1 presents the number of households, respondents and children under 15 years of age in each wave. In Wave 15, interviews were obtained with a total of 17,606 persons, of which 13,753 were from the original sample and 3,853 were from the top-up sample. Of the original 13,969 respondents in 2001, 7,942, or 65.6%, of those still in scope (that is, alive and in Australia), were still participating at Wave 15.

Note that—the top-up sample 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,

	Households	Persons interviewed	Children under 15
Wave 1	7,682	13,969	4,787
Wave 2	7,245	13,041	4,276
Wave 3	7,096	12,728	4,091
Wave 4	6,987	12,408	3,902
Wave 5	7,125	12,759	3,907
Wave 6	7,139	12,905	3,764
Wave 7	7,063	12,789	3,693
Wave 8	7,066	12,785	3,577
Wave 9	7,234	13,301	3,842
Wave 10	7,317	13,526	3,822
Wave 11 (original sample)	7,390	13,603	3,840
Wave 12 (original sample)	7,420	13,536	3,888
Wave 13 (original sample)	7,463	13,609	3,947
Wave 14 (original sample)	7,441	13,633	3,880
Wave 15 (original sample)	7,546	13,753	3,879
Wave 11 (top-up sample)	2,153	4,009	1,180
Wave 12 (top-up sample)	2,117	3,939	1,182
Wave 13 (top-up sample)	2,092	3,892	1,204
Wave 14 (top-up sample)	2,097	3,879	1,173
Wave 15 (top-up sample)	2,085	3,853	1,150

Figure A1: HILDA Survey response rates, Waves 2 to 15 (2002 to 2015)



³ More detailed data on the sample make-up, and in particular response rates, can be found in Summerfield et al. (2016).

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

<i>Wave 1 characteristics</i>	<i>Interviewed in all waves</i>	<i>Interviewed in Wave 15</i>
Area		
Sydney	51.0	63.5
Rest of New South Wales	56.0	66.5
Melbourne	52.5	65.7
Rest of Victoria	53.2	63.7
Brisbane	58.4	68.1
Rest of Queensland	55.1	65.3
Adelaide	57.5	67.9
Rest of South Australia	53.2	69.7
Perth	53.0	62.0
Rest of Western Australia	48.9	63.7
Tasmania	56.3	68.3
Northern Territory	67.7	81.3
Australian Capital Territory	58.5	70.0
Sex		
Male	52.5	64.4
Female	55.5	66.7
Age group (years)		
15–19	38.2	56.5
20–24	41.7	57.8
25–34	50.0	63.7
35–44	56.8	67.4
45–54	60.1	69.5
55–64	64.2	73.2
65–74	62.2	69.4
75 and over	35.5	43.0
Marital status		
Married	57.5	67.2
De facto	52.4	65.3
Separated	55.2	68.0
Divorced	61.3	72.0
Widowed	60.8	67.1
Single	44.1	60.2
Country of birth		
Australia	55.7	67.2
Overseas		
Main English-speaking	57.5	66.1
Other	43.0	56.6
Indigenous status		
Indigenous	39.9	65.2
Non-Indigenous	54.4	65.6
Education attainment		
Year 11 or below	49.4	61.5
Year 12	52.0	64.0
Certificate	53.0	65.0
Diploma	61.2	71.0
Degree or higher	64.5	74.4
Dwelling type		
House	54.5	66.0
Semi-detached	54.3	66.6
Flat, unit, apartment	49.6	60.3
Other	52.9	65.4
Labour force status		
Employed full-time	54.6	66.1
Employed part-time	56.9	67.9
Unemployed	43.3	56.8
Not in the labour force	53.1	64.5
Employment status in main job^a		
Employee	55.4	66.8
Employer	53.3	65.4
Own account worker	56.3	66.3
Contributing family worker	54.0	71.2
Occupation^a		
Managers/administrators	56.3	69.0
Professionals	64.3	74.6
Associate professionals	55.5	65.9
Tradespersons	48.4	61.9
Advanced clerical/service	54.0	63.6
Intermediate clerical/sales/service	56.2	67.2
Intermediate production/transport	51.1	59.9
Elementary clerical/sales/service	52.9	65.9
Labourers	47.4	59.8
All Wave 1 respondents	54.1	65.6
Total number responding	6,347	7,942

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 1 characteristics (%)

<i>Wave 11 characteristics</i>	<i>Interviewed in all waves</i>	<i>Interviewed in Wave 15</i>
Area		
Sydney	74.9	79.2
Rest of New South Wales	81.1	84.1
Melbourne	81.6	85.1
Rest of Victoria	81.6	85.2
Brisbane	79.2	86.4
Rest of Queensland	77.2	83.3
Adelaide	80.9	81.7
Rest of South Australia	82.1	85.7
Perth	70.4	73.1
Rest of Western Australia	66.7	71.3
Tasmania	84.9	88.1
Northern Territory	76.9	80.8
Australian Capital Territory	80.4	85.7
Sex		
Male	78.3	82.3
Female	78.5	82.4
Age group (years)		
15–19	74.5	79.6
20–24	75.3	81.2
25–34	78.6	83.4
35–44	79.3	83.1
45–54	78.4	81.5
55–64	79.6	84.0
65–74	83.9	86.1
75 and over	72.5	75.1
Marital status		
Married	80.3	83.5
De facto	75.2	79.9
Separated	83.3	84.3
Divorced	76.7	81.5
Widowed	76.6	79.8
Single	76.0	81.6
Country of birth		
Australia	79.2	83.2
Overseas		
Main English-speaking	77.9	82.7
Other	75.8	79.2
Indigenous status		
Indigenous	79.0	85.3
Non-Indigenous	78.4	82.3
Education attainment		
Year 11 or below	76.0	80.5
Year 12	78.5	82.7
Certificate	78.8	82.9
Diploma	79.5	83.4
Degree or higher	80.3	83.5
Dwelling type		
House	78.7	82.6
Semi-detached	73.8	79.6
Flat, unit, apartment	80.1	82.9
Other	100.0	100.0
Labour force status		
Employed full-time	77.0	81.8
Employed part-time	78.0	81.6
Unemployed	84.9	87.2
Not in the labour force	79.6	83.0
Employment status in main job^a		
Employee	77.2	81.6
Employer	67.4	76.0
Own account worker	81.7	85.5
Contributing family worker	70.0	80.0
Occupation^a		
Managers	77.3	81.4
Professionals	79.9	84.5
Technicians and trades workers	72.8	77.9
Community and personal service workers	78.2	80.2
Clerical and administrative workers	76.7	82.6
Sales workers	74.0	79.3
Machinery operators and drivers	81.4	82.8
Labourers	78.6	83.7
All Wave 11 top-up respondents	78.4	82.4
Total number responding	2,972	3,147

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

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 15, the original-sample re-interview rate was 97.0%. We expect much lower response rates among new individuals joining the sample. Nevertheless, response rates for this group have averaged around 75% to 80% for much of the period since Wave 4. In Wave 15, the rate was 78.4%.

Within the top-up sample, the re-interview rate in Wave 15 was 95.0%. The comparable rate within the original sample is the rate recorded in Wave 5, which was 94.4%. The interview rate for new entrants to the top-up sample in Wave 15 was, at 85.6%, also comparatively high.

All persons who are interviewed are also asked to complete a separate paper-based questionnaire. Of the 17,606 persons who were interviewed in Wave 15, 15,509 (88%) 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 15 waves and the proportion responding in Wave 15, disaggregated by characteristics in Wave 1 (that is, in 2001). Table A3 presents analogous information for the Wave 11 top-up sample.



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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 at the University of Melbourne.

Roy Morgan Research has conducted the fieldwork since 2009, prior to which The Nielsen Company was the fieldwork provider.

