

The Household, Income and Labour Dynamics in Australia Survey: Selected Findings from Waves 1 to 16



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

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The 13th Annual Statistical Report of the HILDA Survey

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1

Introduction

Roger Wilkins

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: Applied Economic & Social Research at The University of Melbourne. Roy Morgan Research has conducted the fieldwork since Wave 9 (2009), prior to which The Nielsen Company was the fieldwork provider.

The HILDA Survey seeks to provide longitudinal data on the lives of Australian residents. It collects information annually 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, in many cases, they allow causal inferences that are more credible than those permitted by other types of data. 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 16 waves of the study, which were conducted between 2001 and 2016. The report should of course be viewed as containing ‘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 has 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 that 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%.



2

Households and family life

Inga Lass



The HILDA Survey has examined many aspects of family life since its inception in 2001. 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 offers 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 2016 period on three aspects of family life: the changing living arrangements of Australians, as described by the household types they live in; child-care use for children not yet at school; and the characteristics and living conditions of ‘large’ families—that is, families with three or more children.

Household types 2001 to 2016

Table 2.1 considers the evolution of household types (as described in Box 2.3, page 7) over the 2001 to 2016 period. 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 2.3 (page 7)).

In broad terms, the distribution of household types has been relatively stable across the 16-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 households containing a couple (and no children) have remained the second-most common household type, accounting for approximately 20% to 21% of individuals.

Box 2.1: Dependent children

The definition of a dependent child used in this report is based on 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, living with one or both parents, not living with a partner, and who does not have a resident child of their own. Note that the definition of a child is based on social rather than biological parenthood, and that, in couple families, it is sufficient to be a child of only one member of the couple.

Box 2.2: Single parents

The definition of a single parent used in this report follows the Australian Bureau of Statistics (ABS) concept of a lone parent (see ABS, 1995). Based on this definition, a single parent is a person who has no spouse or partner usually resident in the household but who forms a parent-child relationship with at least one (dependent or non-dependent) child usually resident in the household. This does not preclude a single parent having a partner living in another household.

Table 2.1: Proportion of individuals in each household type, 2001 to 2016 (%)

	2001	2004	2007	2010	2013	2016	Change 2001 to 2016
Couple with dependent children	41.7	41.7	41.6	41.1	40.8	41.5	-0.2
Couple with dependent children and others ^a	2.4	1.8	2.0	3.0	2.4	2.0	-0.5
Couple with non-dependent children, with or without others ^a	8.4	9.1	10.0	8.9	8.1	8.6	0.3
Single parent with dependent children	7.1	7.4	6.9	6.5	6.7	6.5	-0.6
Single parent with dependent children and others ^a	1.5	1.4	0.9	1.5	1.5	1.4	-0.1
Single parent with non-dependent children, with or without others ^a	2.9	3.7	4.2	4.1	3.4	4.4	1.5
Couple, with or without others ^a	20.3	20.5	20.1	20.9	21.1	20.2	-0.1
Single person	9.4	9.3	9.2	9.4	9.4	9.4	0.0
Other family household	1.1	1.3	0.9	1.0	1.4	1.0	-0.1
Multiple-family household	2.6	2.6	3.0	2.6	4.2	4.1	1.5
Group household	2.5	1.4	1.2	1.3	1.3	1.0	-1.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	-

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

Some notable trends are nonetheless evident. The proportion of people living in multi-family households has risen by 1.5 percentage points to be the household type for 4.1% of people in 2016. Couple households with dependent children, with or without other household members, have collectively declined by 0.7 percentage points. Single parents with dependent children have also declined by 0.7 percentage points, but single parents with non-dependent children (and no dependent children) have increased by 1.5 percentage points. In contrast, the proportion of people living in group households has shrunk by 1.6 percentage points, although most of the decrease occurred between 2001 and 2004.

The stability of household types is examined in Table 2.2, which presents the proportion of individuals changing household type from one year to the next, disaggregated by the initial household type and the destination household type.



Box 2.3: 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

In interpreting these categories, note the following:

- 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 as well as unrelated persons.
- A couple comprises a married or de facto married couple, whether opposite sex or same sex.
- A dependent child is as defined in Box 2.1 (page 6), while a non-dependent child is any other child who is living with one or both parents. Note, however, that a person will never be classified as a non-dependent child if they are living with a partner or a child of their own. (While a non-dependent child can in principle be of any age over 15, 90% are aged under 40.)
- 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 (none of whom is residing with a related person).
- 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 30) 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 2.2: Proportion of individuals in different household types one year later, by initial household type, 2001 to 2016 (pooled) (%)

Initial household type	Next year's household type											Total
	1	2	3	4	5	6	7	8	9	10	11	
1 Couple with dependent children	91.0	0.7	3.3	1.8	0.2	0.1	0.9	1.1	0.1	0.7	0.1	100.0
2 Couple with dependent children and others ^a	17.8	69.4	4.7	1.1	1.3	0.4	1.0	2.2	0.1	2.0	0.2	100.0
3 Couple with non-dependent children, with or without others ^a	4.4	0.4	75.5	0.1	0.0	1.3	11.9	3.4	0.3	2.2	0.3	100.0
4 Single parent with dependent children	7.5	0.2	0.2	80.3	2.1	4.7	0.7	2.5	0.5	1.1	0.2	100.0
5 Single parent with dependent children, with others ^a	7.6	1.7	0.7	15.5	58.4	4.4	1.3	4.6	0.7	4.7	0.4	100.0
6 Single parent with non-dependent children and others ^a	0.5	0.3	1.3	2.4	0.7	80.8	2.9	8.5	1.0	1.0	0.7	100.0
7 Couple, with or without others ^a	4.0	0.2	1.2	0.0	0.0	0.1	91.1	2.2	0.1	0.7	0.4	100.0
8 Single person	1.4	0.2	0.7	0.6	0.2	1.1	5.3	88.6	0.6	0.2	1.2	100.0
9 Other family household	0.7	0.6	0.9	0.7	0.9	1.1	6.6	9.8	75.2	0.3	3.1	100.0
10 Multiple-family household	10.9	1.5	3.3	4.7	2.3	1.2	9.4	1.2	0.2	65.3	0.1	100.0
11 Group household	1.5	0.2	1.1	0.4	0.8	1.1	19.4	17.7	2.7	0.6	54.6	100.0

Notes: Cells may not add up to row 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.

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 remains in the household (and no other change occurs), the household type will not change for the household members remaining in the household. Similarly, if a couple separates and one of the partners moves out of the household but a new partner joins the household in the same year, this change of partners would not be captured. 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 14% of individuals. However, the likelihood of one's household type changing varies considerably across household types. The most stable household types are couples with dependent children (without others) and couples without children: 91% of individuals





in these household types are still in the same household type one year later. Single-person households are also relatively stable, with 88.6% remaining in this household type in the next year.

The least stable household types contain members who are not a partner, parent or child of one of the other members. For example, approximately 42% of single-parent households with dependent children that also contain 'others' change household type from one year to the next. This change is most often due to the 'other members' splitting off into separate households, so that only the single parent and dependent children remain in the household (15.5% of individuals initially in this household type).

A similar pattern can be seen for couple households with dependent children with 'others', where 17.8% of individuals experience a change to a couple household with dependent children but without 'others' from one year to the next. Further, multi-family households are relatively likely to split into other household types. In particular, 10.9% of individuals initially in this household type experience a change to a couple household with dependent children (without others), and another 9.4%

change into a couple household without children. Individuals in group households are the most likely to change household type, with many members forming independent couple households (without children) (19.4% of individuals initially in group households) or independent single-person households (17.7% of individuals initially in group households).

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.¹

In this section, we focus on child care for children not yet at school, which is perhaps where public discussion and debate is most heated. The analysis includes both couple and single-parent families; however, it excludes multi-family households in which there are two or more families with young children (five years or younger), as in these cases the information on child-care arrangements cannot be attributed to a specific family. For some of the analysis presented in this section it is not known whether the children are in school, and it is therefore assumed that children aged under five as of 30 June of the survey year are not yet in school, while children aged five and older at that date are assumed to be in school. This will not in fact be the case for all children.

Use of paid child care

Table 2.3 examines use of paid child care for children aged under five over the 2002 to 2016 period. Two-year periods are examined to reduce the number of estimates—for example, the first column presents pooled

¹ 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'.

estimates for 2002 and 2003. The middle period covers three years (2008 to 2010). The table shows a consistent pattern of single parents being slightly more likely to use paid care than couple parents. In 2002 and 2003, for example, 42.3% of couple parents used paid care for children aged under five, while 48.7% of single parents used paid care.

Over the 2002 to 2016 period, use of paid care has increased by 6.8 percentage points for couple parents and 1.7 percentage points for single parents, which considerably decreased the gap in child-care usage between these two groups of parents. The increase in use of paid care has been particularly marked in recent years. In 2015 and 2016, around half of parents with children under the age of five—49.1% of couple parents and 50.4% of single parents—used some type of paid child care, up from approximately 44% in 2013 and 2014.

Table 2.4 presents the shares of parents with children under the age of five using paid child care differentiated by the parents' employment status. Owing to the very low number of single fathers, single parents are again considered as a group (dominated by single mothers), while couple fathers and couple mothers are investigated separately.

The table shows that the use of paid child care is tied to the parents' employment status. For example, while approximately 59% of couple mothers working full-time or part-time use paid child care, the share is only 35.5% among unemployed couple mothers and 24.1% among couple mothers who are out of the labour force. The close link between employment participation and use of paid care in part explains the observed increase in child-care usage over the observation period. Additional analyses of the HILDA Survey (not presented) show that both couple and single mothers' employment participation has

Table 2.3: Use of paid child care for children aged under five, 2002 to 2016 (%)

	2002 and 2003	2004 and 2005	2006 and 2007	2008 to 2010	2011 and 2012	2013 and 2014	2015 and 2016	Change ^a
Couple parents	42.3	44.8	41.0	41.3	41.5	43.4	49.1	6.8
Single parents	48.7	42.2	43.0	45.6	43.2	44.3	50.4	1.7

Note: ^a Percentage-point change between 2002–2003 and 2015–2016.

Table 2.4: Use of paid child care for children aged under five, by parents' labour force status, 2002 to 2016 (pooled) (%)

	Couple parents		Single parents
	Father	Mother	
Employed full-time	44.3	59.2	59.5
Employed part-time	36.0	58.7	68.4
Unemployed	31.5	35.5	43.5
Not in the labour force	29.4	24.1	30.6
All persons	42.5	42.8	44.3



increased notably over the 2002 to 2016 period, and again the increase was particularly marked between 2013/14 and 2015/16.

Table 2.5 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 2.4, page 11, for definitions of formal and informal care.) The numbers relate to all parents using child care for children not yet at school, including those who are older than four years.

Most families who use paid care use only formal care. A small proportion

uses a combination of formal care and paid informal care, and an even smaller proportion uses only paid informal care. Couple parents are more likely to use a nanny or paid sitter than single parents. The trend shows an increase in the use of formal child care only over the 2002 to 2016 period, with usage of formal care increasing by 3.1 percentage points for couple parents and 1.5 percentage points for single parents. Correspondingly, the exclusive use of a nanny or paid sitter has decreased among couple families, and the combined use of formal and informal paid care has decreased among both couple and single-parent

Table 2.5: Type of care used for children not yet at school—Families using paid care, 2002 to 2016 (%)

	2002 and 2003	2004 and 2005	2006 and 2007	2008 to 2010	2011 and 2012	2013 and 2014	2015 and 2016	Change ^a
Type of care used								
<i>Couple parents</i>								
Only use formal care	89.8	90.1	89.5	89.1	90.8	92.1	92.9	3.1
Only use nanny or paid sitter	5.0	4.0	4.6	4.1	4.4	2.1	2.5	-2.5
Use both formal care and nanny/paid sitter	5.2	5.9	5.9	6.8	4.9	5.7	4.6	-0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-
<i>Single parents</i>								
Only use formal care	94.8	91.2	98.1	97.5	97.6	98.6	96.2	1.5
Only use nanny or paid sitter	1.5*	3.68*	0.8*	1.3*	0.0*	0.4*	2.0*	0.6
Use both formal care and nanny/paid sitter	3.7*	5.2*	1.1*	1.2*	2.4*	1.0*	1.8*	-2.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-
Use work-related care								
Couple parents	70.6	73.6	78.6	81.9	78.9	80.2	86.0	15.3
Single parents	56.8	48.8	58.0	64.7	53.4	63.5	63.2	6.4

Notes: ^a Percentage-point change between 2002–2003 and 2015–2016. Cells may not add up to column totals due to rounding. * Estimate not reliable.

families. For example, while 5% of couple parents used only nanny care or paid sitters in 2002 and 2003, the share is only 2.5% in 2015 and 2016.

Additional analyses (not presented) reveal that the type of care used is related to family income. In 2015 and 2016 (combined), families using only formal care had a median equivalised income of approximately \$49,000, families using only a nanny or paid sitter had a median equivalised income of approximately \$71,000, and families using both types of care had a median equivalised income of \$82,000.

The bottom panel of the table shows that for most of the couple families using paid care (between 71% and 86%, depending on the year), at least some of that care is work-related (see Box 2.4). Paid care used by single parents is less likely to be at least partially work-related; nonetheless, in most years, the majority of single parents use paid care for work-related purposes.

The gap in usage of work-related care between couple and single-parent families can at least in part be traced back to the fact that single parents are less likely

Box 2.4: 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 that 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.

to be employed than their coupled counterparts. Additional analyses (not presented) show that, over the pooled 2002 to 2016 period, 53% of couple mothers with children under the age of five were employed, compared to only 36% of single mothers. Further, 91% of couple fathers were employed, compared to 57% of single fathers. Over the 2002 to 2016 period, the share of couple parents who use child care for work reasons has increased by 15.3 percentage points. For single parents, work-related care has increased by 6.4 percentage points. As noted previously, the increase in work-related care reflects the increasing employment participation of both single and couple mothers over the period.

The number of hours of paid care used each week for each child not yet at school is examined in Table 2.6. The table focuses on the period since 2005 as full information on the

number of children not yet at school per household is only available from that point in time. The upper panel of the table differentiates weekly hours of care per child by family type. Among couple parents who used paid formal care, an average of approximately 18 hours per week were used for each child in 2005/06, which then rose across the observation period by 24% to 22 hours in 2015/16. Among single parents using formal care, mean hours per child are somewhat higher, at around 21 to 24 hours per week throughout the period. Weekly hours of formal care have also increased for single parents, by 10% between 2005/06 and 2015/16.

Mean hours of paid informal care among those using paid care are very low, particularly for single parents; while couple parents used around one hour of informal care per week in most years across the past 10 years, single parents used only

between 0.1 and 0.4 hours of nanny care or paid sitters per week.

The lower panel of Table 2.6 investigates the weekly hours of paid care separately for each third of the income distribution. The table shows a link between the number of child-care hours and the income position of the household. For example, in 2015/16, families in the bottom third of the income distribution averaged 18.3 hours of formal care and 0.1 hours of nanny or paid sitter care. Families in the middle third of the income distribution averaged 22.6 hours of formal care and 0.6 hours of informal paid care, and families in the top third used 24.7 hours of formal care and 1.5 hours of informal care. Over the 2002 to 2016 period, families in all deciles have increased the use of formal child care, with the rise in the middle third being the most marked. Use of informal paid care has also slightly increased for the middle and the top third, while it has decreased among the bottom third.

Expenditure on child care

In every wave of the HILDA Survey, households who use child care are asked to report their usual weekly expenditure on child care² for each child 'after any regular child-care benefit you may receive has been deducted'. Table 2.3 has shown that, each year, between 41% and 49% of couple families with children aged under five and between 42% and 50% of single-parent families with children aged under five usually pay for at least some child care for those children.

Table 2.7 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 2016 prices) on these children. As in most of the preceding tables in this section, estimates are presented for pooled two-year intervals over the 2002 to 2016 period (with the middle category comprising three years).



Table 2.6: Mean weekly hours of paid care per child not yet at school—Families using paid care, 2005 to 2016

	2005 and 2006	2007 and 2008	2009 and 2010	2011 and 2012	2013 and 2014	2015 and 2016	Percentage change over the full period
Weekly hours by parent type and type of care							
<i>Couple parents</i>							
Formal care	17.9	17.5	18.7	18.3	20.6	22.2	24.2
Nanny or paid sitter	0.9	1.4	1.0	1.0	0.6	0.9	3.3
<i>Single parents</i>							
Formal care	21.2	21.3	22.0	20.9	24.0	23.3	10.0
Nanny or paid sitter	0.4	0.2	0.1	0.1	0.3	0.4	-2.1
Weekly hours by tercile (third) of the income distribution and type of care							
<i>Bottom third</i>							
Formal care	15.0	16.7	16.1	15.7	18.1	18.3	21.6
Nanny or paid sitter	0.3	0.5	0.2	0.2	0.1	0.1	-55.9
<i>Middle third</i>							
Formal care	18.0	17.9	20.1	19.4	21.4	22.6	25.2
Nanny or paid sitter	0.5	0.6	0.7	0.5	0.3	0.6	33.9
<i>Top third</i>							
Formal care	21.2	20.8	19.9	20.7	22.8	24.7	16.6
Nanny or paid sitter	1.3	2.4	2.2	1.9	1.3	1.5	17.1

² Child-care costs mainly arise from the types of formal and informal child care analysed in the previous section on child-care usage. However, a minority (around 4%) of parents with child-care costs for children not yet at school report child-care costs incurred by paying relatives, friends or other persons for informal child care. This section of the report includes all types of child-care costs.

Table 2.7: Expenditure on child care for children not yet at school, by family type and income tercile—Families with expenditure on child care, 2002 to 2016

	2002 and 2003	2004 and 2005	2006 and 2007	2008 to 2010	2011 and 2012	2013 and 2014	2015 and 2016	Percentage change 2002/03 to 2015/16	Percentage change 2004/05 to 2015/16
<i>Median weekly expenditure (\$, December 2016 prices)</i>									
Couple-parent family	71	94	127	123	127	147	154	119	64
Single-parent family	44	41	51	69	71	84	102	133	146
<i>Median weekly expenditure per child (\$, December 2016 prices)</i>									
Couple-parent family	—	67 ^a	95	99	97	115	122	—	81
Single-parent family	—	39 ^a	46	60	61	73	81	—	108
<i>Median expenditure per hour of child care (\$, December 2016 prices)</i>									
Couple-parent family	4.6	5.5	6.2	6.6	6.6	6.5	6.3	27	15
Single-parent family	2.3	2.5	3.0	3.3	3.7	3.6	4.1	45	67
<i>Median proportion of household income spent on child care by tercile (third) of the income distribution (%)</i>									
Bottom third	3.8	4.0	5.1	5.2	5.7	6.3	7.9	107	95
Middle third	4.7	5.8	6.0	6.4	6.4	7.0	7.6	59	31
Top third	5.6	5.8	6.9	7.0	6.0	6.9	6.7	19	16

Note: ^a This number only relates to 2005.

The first panel in the table shows sustained and substantial rises in median expenditure for child care for children not yet at school over the 2002 to 2016 period for both couple families and single-parent families. In 2002 and 2003, among those with expenditure on child care for children not yet at school, median weekly expenditure on child care was \$71 for couple families and \$44 for single-parent families. In 2015 and 2016, the corresponding medians were \$154 and \$102, which translate to large real increases in child-care costs of 119% and 133%, respectively.

Theoretically, the increase in total child-care costs per family over the

2002–2016 period may be due to several factors. First, it is possible that child-care usage has increased through an increase in the number of children not yet at school in families using child care.

Second, child-care costs will increase if parents use more hours of child care for each child. As Table 2.6 has shown, the past years have seen a considerable increase in hours of formal child care per child, particularly among couple parents, who are using 24% more hours of formal child care in 2015 and 2016 than they were in 2005 and 2006.

Third, child-care prices per hour might have gone up. This might be due to increasing prices for a given

type of child care or due to parents shifting their demand from cheaper types of care (such as friends or relatives) to more expensive types of care (such as formal care or sitters). The middle parts of Table 2.7 investigate these different channels by providing child-care expenditure per child as well as per hour of child care.

The second panel of Table 2.7 breaks down the median weekly expenditure on child care per child not yet at school in order to investigate the extent to which the increase in child-care costs may be due to changes in the number of children in families using child care. Values are only reported for



the period 2005 to 2016 because, as mentioned, the total number of children not yet at school per household is only known since Wave 5.

While in 2005, couple parents spent an average of \$67 per child on child care, single-parent families spent \$39. Expenditure per child has increased over the period, to \$122 per child for couple families and \$81 per child for single-parent families. This translates to an 81% increase for couple parents and a 108% increase for single parents. The considerable rise in child-care costs *per child* indicates that changes in the number of children per family using care are not responsible for the large increase in overall child-care costs.

The third panel divides the child-care expenditure by the number of hours for which child care was used, to examine the extent to which increases in the hourly price of child care are responsible for the increase in overall child-care cost. In 2002/03, the median expenditure per hour of child care for children not yet at school was \$4.60, and for single parents it was \$2.30. Median hourly rates increased across the period, but not as fast as overall child-care expenditure. Couple families experienced an increase of 27% in hourly child-care prices to \$6.30 per hour in 2015/16, while single-parent families experienced an increase of 45% to \$4.10 in 2015/16.

In conclusion, the rising child-care costs are not due to changes in the composition of families by number of children, but are instead a consequence of both the use of more hours of paid child-care, especially formal care, and an increase in hourly child-care costs.

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 bottom panel of Table 2.7, which presents the median share of annual income

spent on child care for children not yet at school, restricted to those families with expenditure on child care for children not yet at school. 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.

Despite year-to-year volatility, the clearly evident trend is that, for 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 2016. 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 2.7 indicates, there was a change in the median proportion of household income spent on child care from 3.8% to 7.9% (a 107% increase) for those in the bottom third of the income distribution, from 4.7% to 7.6% (a 59% increase) for those in the middle third, and from 5.6% to 6.7% (a 19% increase) for those in the top third during this period.

These changes suggest that child-care costs may be acting to increase inequality of 'effective' income (income net of child-care costs) in 2015/16 compared with their effects in 2002/03. That is, income is reduced by child-care costs proportionately more for lower-income households in 2015/16, whereas in 2002/03, it was reduced by proportionately less.

Large families

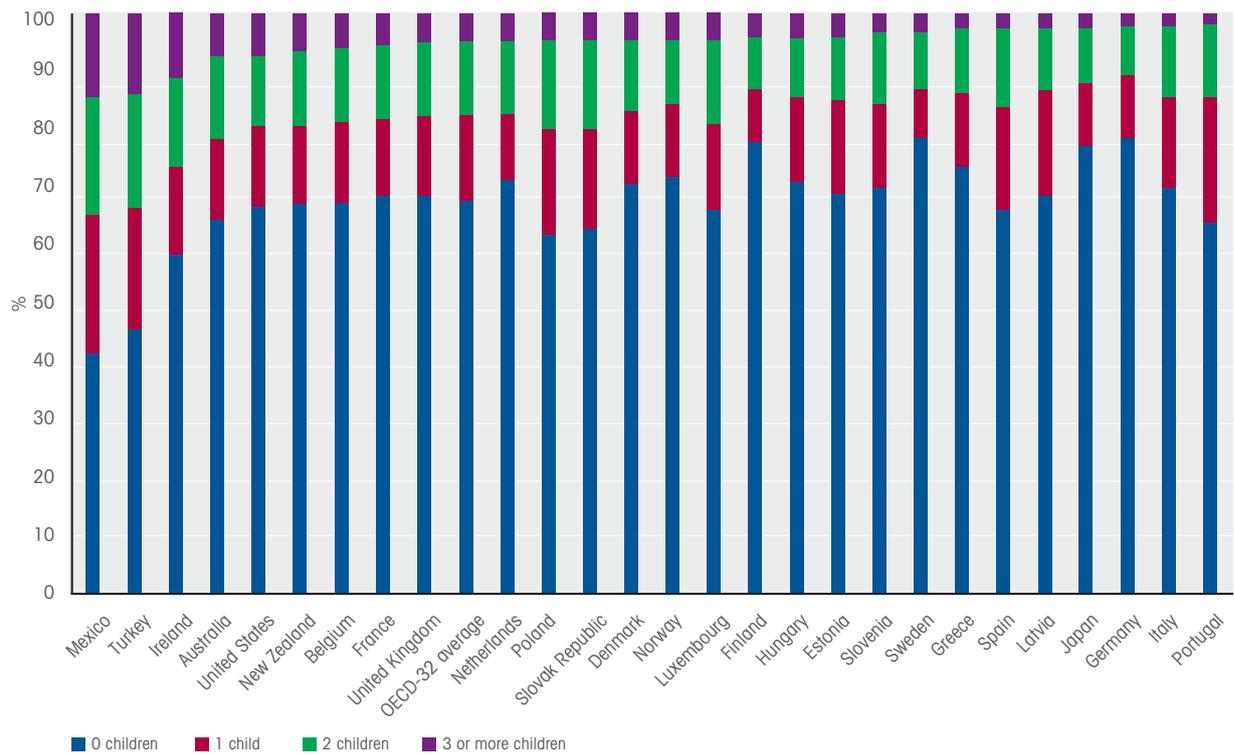
Families with three or more children, here referred to as 'large' families, are an important part of Australian society. In 2016, among families with co-resident (dependent or non-dependent) children below the age of 25, 38% had one child, 41% had two children and 21% had three or more children. Among the families with three or more children, almost three-quarters (74%) had three children,

while 20% had four children, and 6% had five or more children. From the children's perspective, more than a third (37%) of children lived with at least two siblings in 2016, while 43% had one other sibling in the family and 20% had no sibling living with them.

The high importance of large families also becomes apparent when comparing their prevalence in Australia to that in other OECD countries. Figure 2.1 compares the share of households with different numbers of dependent children below the age of 24 years in OECD countries in 2015. The figure shows that large families account for a relatively large share of all households in Australia: 7.3% of Australian households include three or more children, while the OECD average is 5.1%.



Figure 2.1: Share of households by number of children, OECD countries, 2015



Sources: Australia: HILDA Survey Release 16. All other countries: OECD Family Database.

Notes: Children are defined here as dependent resident children aged under 25, and include both biological children and step- or adopted children or any other children in the household, though exact definitions vary across countries. For Japan, 'children' refers to all unmarried children aged under 18. For Mexico, 'children' refers to children aged under 15. For New Zealand, 'children' refers to dependent children aged under 18 and not employed full-time. For Norway and the United States, 'children' refers to all people aged under 18.

Despite the numerical importance of large families in Australia, there has been comparatively little research on this group of families. Large families might be expected to differ in some important respects from smaller families given, for example, the higher number of children to care for and the correspondingly greater financial needs.

This section therefore investigates the characteristics and wellbeing of large families—that is, those with three or more children, with children being defined as dependent or independent children aged below 25 years. The focus is exclusively on the number of children (still) living with their parents, regardless of potential additional children living elsewhere. Further, the analysis considers the social parents living with the children

in the household, regardless of biological parenthood. This includes same-sex parents as well as parents of adopted, step- or foster children.

The unit of analysis is the family, not the entire household, meaning that in some cases several families might live together in the same household. Large families are compared to those with one or two resident children, and the results are further differentiated between couple-parent families and single-parent families. Single parents are defined here as parents who have no spouse or partner usually resident in the household (see Box 2.2, page 6). However, this does not preclude a partner living elsewhere.

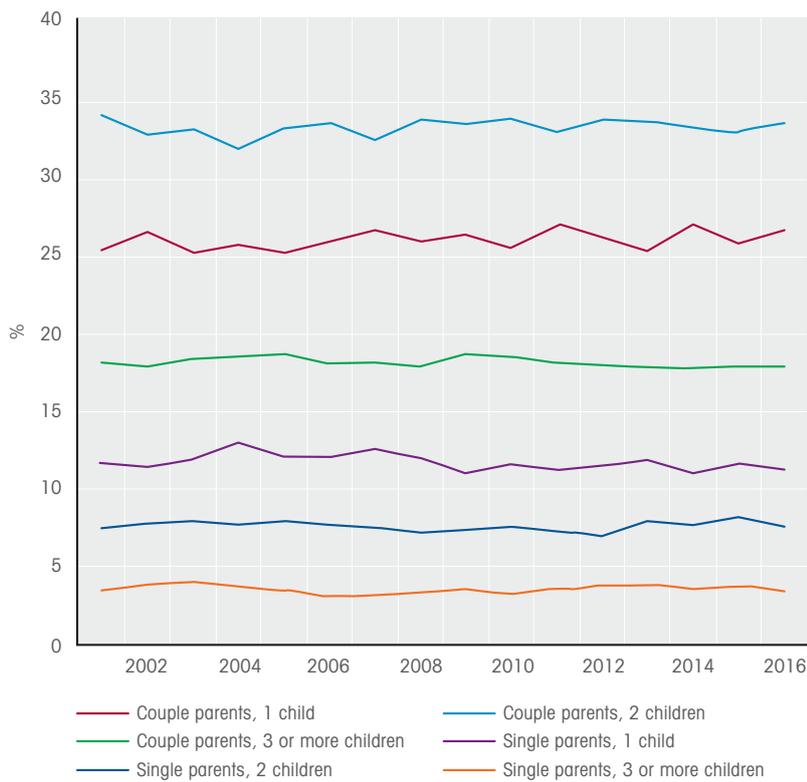
Figure 2.2 reports on how the number of children per couple- and single-parent family has evolved

over the 2001 to 2016 period. The figure shows that the shares of the different family types have remained very stable over this period. The most prevalent family type is couple-parent family with two children, accounting, on average, for 33% of families. This is followed by couple-parent families with one child, making up around 26% of families.

In contrast, large families with three or more children are relatively rare. Around 18% of families are couple-parent families with three or more children, while less than 4% of families are single-parent families with three or more children, rendering this family type the least frequent. Overall, large families account for 23% of couple-parent families and 16% of single-parent families.



Figure 2.2: Proportion of families by size and parent partner status— Families with children



Note: Children comprise all co-resident dependent and non-dependent children under the age of 25.



Characteristics of large families

Table 2.8 examines various characteristics of large families and compares them to the characteristics of smaller families. The results are disaggregated by whether the family is headed by couple parents or a single parent. Among the single-parent families, single-mother and single-father families are investigated jointly, with the characteristics relating to the resident parent. For example, mother's age relates to single-mother families, while father's age relates to single-father families.

Compared to families with one or two resident children, we see that mothers of large families tend to be younger: while partnered mothers of one child are, on average, 41.7 years of age, those with two children average 40.6 years of age and those with three or more children average 39.9 years of age. Similarly, single mothers with one child are,

on average, older (40.9 years) than single mothers with two children (40.4 years) or three children (39.3 years). The same is true for fathers in couple-parent families. Single fathers, however, are the exception, as the average age of single fathers of large families is greater than the average age of those of smaller families.

The comparatively young age of parents of large families is due to two factors. On the one hand, as can be seen from Table 2.8, parents of large families have their first child earlier. For example, the average age at first birth is 25.3 for mothers in large couple-parent families, compared to 27.6 for mothers in smaller couple-parent families. In large single-parent families, the average age at first birth is 22.8, compared to approximately 25 for single mothers with one or two children.

On the other hand, this age difference is due to a family life-

cycle effect: over time, originally large families turn into one-child and two-child families when some children move out. An indicator for this process is that the average age of the youngest child is lowest in large families (around seven years in both couple-parent and single-parent families) and highest in one-child families (11 years in couple-parent and 13 years in single-parent families). Also, the share of non-dependent children is lower in large families. For example, only 10.7% of children in couple-parent families with three or more children are non-dependent, while the share is 22.4% in couple-parent families with one child and 12.1% in couple-parent families with two children.

Large families are, furthermore, less likely to have two parents of the same sex: while 0.4% of couple-parent families with one child have same-sex parents, this applies to 0.1% of families with two or three or more children. Among the single-parent families, the table shows that

the share of female-headed families increases with the number of children: 80.9% of one-child single-parent families are single-mother families, compared with 88.8% of two-child families and 90.9% of families with three or more children. As large single-father families are such a small share of families, and consequently of the sample in the HILDA Survey, the results presented in the remainder of this chapter for this subgroup need to be treated with care.

Large families are relatively common among the native-born

Box 2.5: Classification of place of birth and Indigenous status

In this report, two groups of immigrants are distinguished: those born in one of the 'main' English-speaking countries, which comprise the United Kingdom, the United States, Canada, Ireland, New Zealand and South Africa; and those 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.

population, and comparatively rare among the immigrant population, both with respect to immigrants from the main English-speaking countries and immigrants from other countries. (See Box 2.5 for explanation of the classification of place of birth and Indigenous status used in this report.) Large couple-

parent families are particularly often headed by non-Indigenous native-born parents, who account for 73.7% of mothers and 71.7% of fathers in this family type. In contrast, large single-parent families are relatively common among Indigenous Australian parents, who account for 12.4% of single mothers

Table 2.8: Family characteristics by number of children and whether couple or single parent, 2001 to 2016 (pooled)

	Couple parents			Single parents		
	1 child	2 children	3 or more children	1 child	2 children	3 or more children
Parents' characteristics						
Mother's age (mean years)	41.7	40.6	39.9	40.9	40.4	39.3
Father's age (mean years)	44.5	43.0	42.7	47.2	45.8	47.7
Mother's age at first birth (mean years)	27.6	27.6	25.3	25.2	25.0	22.8
Father's age at first birth (mean years)	29.8	29.8	28.4	27.7	28.3	27.7
Female parent (%)	—	—	—	80.9	88.8	90.9
Same-sex parents (%)	0.4	0.1	0.1*	—	—	—
Mother has university degree (%)	30.9	33.2	26.3	19.4	18.0	14.2
Father has university degree (%)	28.5	31.2	24.4	14.8	21.3	24.3
<i>Mother's Indigenous status and country of birth (%)</i>						
Australia, non-Indigenous	61.1	67.5	73.7	67.2	67.9	65.5
Australia, Indigenous	1.9	1.3	2.9	5.6	6.8	12.4
Main English-speaking countries	9.8	8.9	7.4	9.7	8.1	7.3
Other immigrants	27.2	22.3	16.0	17.5	17.1	14.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
<i>Father's Indigenous status and country of birth (%)</i>						
Australia, non-Indigenous	62.4	66.6	71.7	74.6	69.7	61.9
Australia, Indigenous	1.5	1.0	1.6	5.3	1.4*	5.1*
Main English-speaking countries	11.4	11.8	10.0	6.4	10.0	8.9*
Other immigrants	24.8	20.6	16.7	13.7	19.0	24.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
Children's characteristics						
Age of youngest child (mean years)	11.0	8.7	6.9	12.5	10.0	7.3
Non-dependent children (%)	22.4	12.1	10.7	25.1	16.2	12.1
Region of residence (%)						
Major urban	74.1	74.6	68.8	69.5	67.8	66.3
Other urban	16.6	17.1	19.7	21.3	21.3	21.5
Other region	9.3	8.3	11.5	9.1	10.9	12.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

Notes: Children comprise all co-resident dependent and non-dependent children under the age of 25. Cells may not add up to column totals due to rounding.

* Estimate not reliable.

and 5.1% of single fathers with three or more children.

With respect to educational attainment, Table 2.8 shows that both mothers and fathers of large couple-parent families are less likely to hold a university degree (bachelor's or higher) than their counterparts with smaller families. In large couple-parent families, 26.3% of mothers and 24.4% of fathers hold a university degree, compared to 33.2% of mothers and 31.2% of fathers in two-child families and 30.9% of mothers and 28.5% of fathers in one-child families. Single mothers with three or more children are also less likely to hold a degree than single mothers with fewer children. However, this does not apply to single fathers, who are more likely to hold a degree if they have three or more children compared to single fathers with fewer children.

Large families are less likely to live in major urban areas (see Box 3.5, page 32, for the classification of

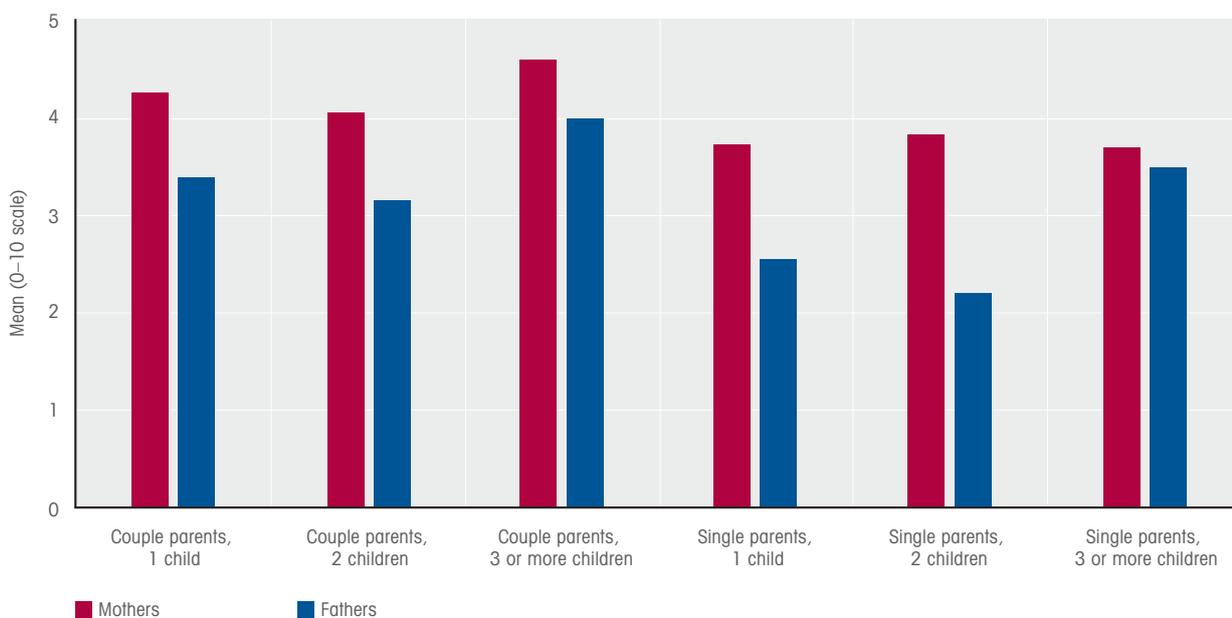
region of residence). While 74.1% of couple-parent families with one child and 74.6% of those with two children live in the major cities, this only applies to 68.8% of families with three or more children. In contrast, 11.5% of large couple-parent families live in outer regional, remote or very remote areas, compared to 9.3% of one-child couple-parent families and 8.3% of two-child couple-parent families. A similar pattern is also found among single-parent families.

Parents of large families not only differ in some socio-demographic characteristics from parents of smaller families, but also differ in attitudes towards various aspects of life. Figure 2.3 gives information on the importance of religion for parents, where importance is measured on a scale from 0 (one of the least important things in my life) to 10 (the most important thing in my life). This information was collected in 2004, 2007, 2010 and 2014.

The figure shows that religion is, on average, more important for parents of large families than for parents of smaller families. For example, mothers in large couple-parent families, on average, rate the importance of religion at 4.6 points, compared to 4.1 points for mothers in two-child couple-parent families and 4.3 points for mothers in one-child couple-parent families. A similar pattern can be seen for fathers, both in couple-parent and single-parent families. In contrast, single mothers of large families are, on average, no more religious than single mothers of smaller families.³

Parents of small and large families might also differ with respect to their attitudes towards family life. In order to investigate this, two summary measures were constructed that measure the degree of traditionalism of attitudes towards marriage and children on the one hand and towards parenting and paid work on the other. These summary measures were constructed from

Figure 2.3: Mean importance of religion for parents, by number of children and whether couple or single parent, 2004 to 2014 (pooled)



Note: Children comprise all co-resident dependent and non-dependent children under the age of 25.

³ Additional analyses further show that, among large families, the mean importance of religion to the parents is greater the more children they have. For example, while couple fathers with three children have a mean score of 3.9, those with four children have a mean score of 4.3 and those with five or more children have a mean score of 4.8. Similarly, the mean scores for couple mothers are 4.5 for those with three children, 4.6 points for those with four children and 5.7 for those with five or more children.



Box 2.6: 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: $[(8 - a) + b + (8 - c) + (8 - d) + e + (8 - f) + g + (8 - h)]/8$. The score potentially ranges from 1 to 7.

The measure for views on parenting and paid work is based on the extent of agreement, again on a 7-point Likert scale (where 1 is strongly disagree and 7 is strongly agree), 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 paid 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 paid 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.

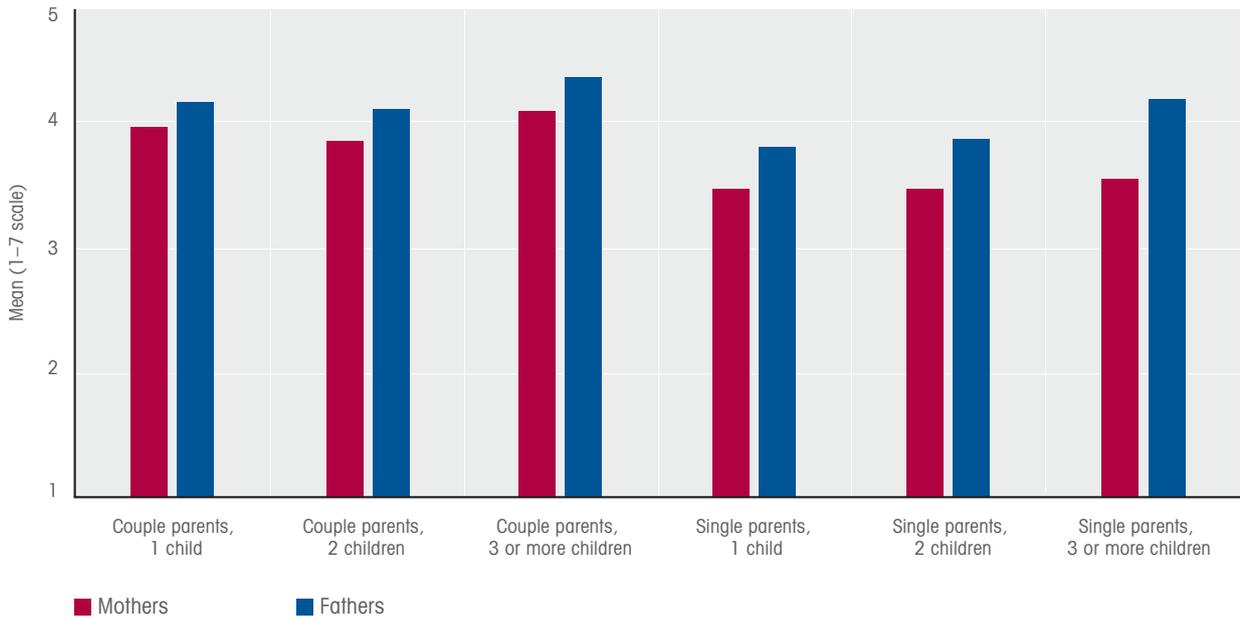
a range of individual statements that were included in the HILDA Survey in 2005, 2008, 2011 and 2015 (see Box 2.6). The extent of traditionalism is measured on a scale from 1 (least traditional) to 7 (most traditional). A value above 4 indicates that, on average, a person tends to agree with traditional attitudes towards marriage and children or parenting and paid work.

Figure 2.4 investigates parents' attitudes towards marriage and children, again distinguishing by number of children and between couple parents and single parents. We see that mothers and fathers

in large couple-parent families have more traditional attitudes towards marriage and children than parents in smaller couple-parent families. Fathers of three or more children hold the most traditional attitudes, with a mean score of 4.5, compared to couple fathers with one child, who have a mean score of 4.2 and couple fathers of two children with a mean score of 4.1.

Similarly, single fathers with three or more children have more traditional attitudes towards marriage and children than single fathers with fewer children. Again, the case is different for single mothers, among

Figure 2.4: Mean extent to which parents hold traditional attitudes about marriage and children, by number of children and whether couple or single parent, 2005 to 2015 (pooled)



Note: Children comprise all co-resident dependent and non-dependent children under the age of 25.

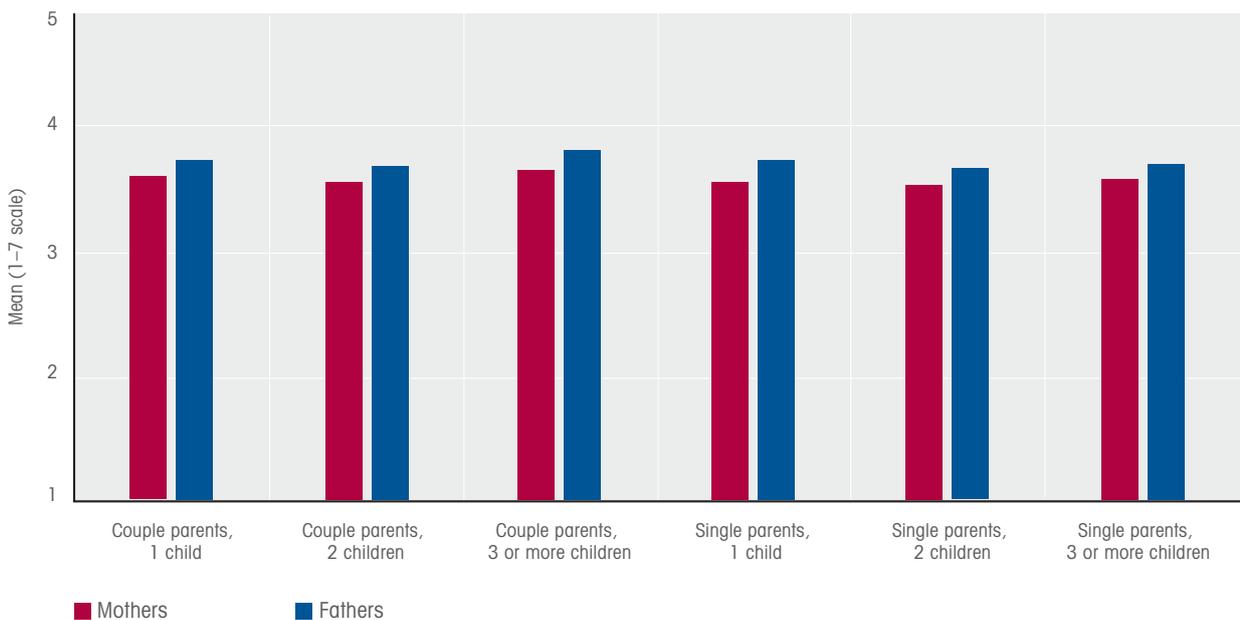
whom a larger number of children is associated only with a very small increase in traditional attitudes towards marriage and children: single mothers of one child and single mothers of two children both have a mean score of 3.3, while the

mean score is 3.4 for single mothers of three or more children.

In contrast to attitudes towards marriage and children, differences in attitudes about parenting and paid work by number of children are

relatively minor, as shown in Figure 2.5. For example, mothers of one-child couple-parent families have an average score of 3.3, mothers of two-child couple-parent families have an average score of 3.2 and mothers of large couple-parent families have

Figure 2.5: Mean extent to which parents hold traditional attitudes about parenting and paid work, by number of children and whether couple or single parent, 2005 to 2015 (pooled)



Note: Children comprise all co-resident dependent and non-dependent children under the age of 25.

an average score of 3.4. Gender differences and differences between couple-parent and single-parent families are also relatively small.

Relationships in large families

This section deals with the intra-family relationships in large families compared to smaller families. On the one hand, this relates to the couple relationship of the parents, such as marital status, relationship stability and relationship satisfaction. On the other hand, this comprises the parent-child relationship and the relationship between the children.

Table 2.9 presents 'objective' characteristics of the relationship between the parents—that is, marital status, relationship duration, and the likelihood of separating and re-partnering. With respect to the marital status of couple parents, the table shows that parents of large families are slightly more likely to be married than parents of smaller families: while the share of married parents is 83.5% in one-child families, it is 89% in two-child families and 89.7% in families with three or more children. This pattern matches the more traditional attitudes to marriage and children and the higher religiousness

of parents of large families, as discussed in the previous section.

Single parents of three or more children are more likely to be separated and less likely to be divorced compared to single parents of smaller families: 34.7% of single parents with three or more children are separated and 29.8% are divorced, whereas 17.3% of single parents with one child are separated and 35.5% are divorced. In part, this is an indicator for life-stage differences between single parents with different family sizes. Australian family law requires that the couple has lived separately and apart for at least 12 months before they can file for divorce, and during this time some children may become independent and leave the household. Furthermore, it is possible that some parents of large families are more reluctant to file for divorce after separation due to their higher religiousness and more traditional attitudes towards marriage and children (as shown in the previous section). Single parents of large families are also less likely to have never married: while approximately 29% of single parents with two or more children have never been married, the share amounts to 39.2% in one-child single-parent families.

With respect to relationship history, the average relationship duration (as measured since moving in together) of couple parents is very similar across the three family sizes distinguished in Table 2.9. The average duration is 16.5 years for couples with one child, 16.0 years for couples with two children and 16.3 years for couples with three or more children. However, among those couple parents who are married, there are some differences in the likelihood of premarital cohabitation. While 50.2% of one-child couple parents and 52.9% of couple parents with three or more children had cohabited before marriage, the share is 57% among couple parents with two children.

With respect to the duration of cohabitation before the current marriage, it seems that parents of large families cohabit for a slightly shorter time, on average, than parents of smaller families. The average duration of cohabitation before marriage was 2.8 years for parents of one or two children, but it was 2.6 years for parents of three or more children. Again, a faster transition to marriage possibly reflects more traditional attitudes towards marriage and children among parents of large families.



Relationship stability of couple parents is very similar across the three family size groups, with 2.5% of the parents of one-child and two-child families separating from one year to the next, and 2.4% of parents of large families separating from one year to the next. For single parents, the likelihood of partnering (that is, having a partner become co-resident) does, however, differ by family size. The probability of partnering from one year to the next is 7.7% for single parents with one child, compared with 8.3% for single parents with two children and 8.4% for those with three or more children.

Table 2.10 considers individual family members' perspectives on family life. In every wave, the HILDA Survey asks respondents in the self-completion questionnaire (SCQ) about their satisfaction with different areas of family life, with the scale ranging from 0 (completely

dissatisfied) to 10 (completely satisfied). The table reports on mothers' and fathers' average satisfaction with three different types of relationships: their relationship with their partner, their relationship with their children, and how well the children in the household get along with each other.⁴ The results are again disaggregated by number of children and by whether the family is couple-parent or single-parent headed.⁵

With respect to relationships with partners, the table shows that among couple-parent families there are only minor differences in satisfaction by number of children. For example, coupled mothers with one child have an average satisfaction with their partner of 8.1 points, compared to 7.9 points for mothers of two children and 8.0 points for mothers of three or

more children. Single parents are generally less satisfied with their relationship with their partners.⁶ Interestingly, single mothers report lower satisfaction if they have more children, while there is no clear association between number of children and satisfaction with partner for single fathers.

Satisfaction with the relationship with their children is relatively high among all parents. However, couple mothers and couple fathers, as well as single mothers of large families, are less satisfied than parents of smaller families, especially one-child families. For example, couple mothers of one child rate their satisfaction with their relationship with their children at 8.8 points, compared to couple mothers of two children, who rate it at 8.6 points, and those of large families, who rate it at 8.5 points. Only single fathers report a higher satisfaction

Table 2.9: Parents' relationship characteristics, by number of children and whether couple or single parent, 2001 to 2016 (pooled)

	Couple parents			Single parents		
	1 child	2 children	3 or more children	1 child	2 children	3 or more children
<i>Marital status (%)</i>						
Married	83.5	89.0	89.7	-	-	-
De facto	16.5	11.0	10.3	-	-	-
Separated	-	-	-	17.3	28.1	34.7
Divorced	-	-	-	35.5	37.4	29.8
Widowed	-	-	-	8.1	5.8	6.2
Never married and not de facto	-	-	-	39.2	28.7	29.3
Total	100	100	100	100	100	100
Relationship duration (mean years)	16.5	16.0	16.3	-	-	-
<i>Cohabitation before marrying (if married)</i>						
Cohabited (%)	50.2	57.0	52.9	-	-	-
Duration of cohabitation before marriage (mean years)	2.8	2.8	2.6	-	-	-
Separating from one year to next (%)	2.5	2.5	2.4	-	-	-
Partnering from one year to next (%)	-	-	-	7.7	8.3	8.4

Notes: Children comprise all co-resident dependent and non-dependent children under the age of 25. Cells may not add up to column totals due to rounding.

⁴ Satisfaction with how well the children in the household get along with each other is only analysed for families with at least two children. One-child families might also have several children in the household if the family lives in a multi-family household. However, in this section, the unit of analysis is the family and not the household. Furthermore, multi-family households in which there are several families with children are very rare.

⁵ Single parents, by definition, do not have a co-resident partner. To ensure that relationship satisfaction of single parents refers to a current partner rather than a former partner (who will often be the other parent, and therefore someone with whom the single parent still has a (co-parenting) relationship), only those who report having a partner living in another household are examined. Note, however, that information on non-co-resident partners is only available in Waves 5, 8, 11 and 15; consequently, estimates for single-parent satisfaction with partner are based on these four waves only.

⁶ Additional analyses reveal that, in general, persons in 'living-apart-together' relationships (that is, with partners outside the household) are less satisfied with the relationship with their partner than cohabiting or married persons.

Table 2.10: Parents' mean satisfaction with intra-family relationships, by number of children and whether couple or single parent, 2001 to 2016 (pooled) (0–10 scale)

	Couple parents			Single parents		
	1 child	2 children	3 or more children	1 child	2 children	3 or more children
<i>Mothers</i>						
Relationship with partner	8.1	7.9	8.0	6.2	6.1	5.7
Relationship with children	8.8	8.6	8.5	8.4	8.3	8.0
How well the children in the household get along with each other	–	8.0	7.6	–	7.5	6.8
<i>Fathers</i>						
Relationship with partner	8.4	8.1	8.2	5.9	6.1	6.3
Relationship with children	8.6	8.4	8.3	7.9	8.2	8.4
How well the children in the household get along with each other	–	8.1	7.7	–	7.6	7.5

Note: Children comprise all co-resident dependent and non-dependent children under the age of 25.

with their relationship with their children if they have more children, with mean satisfaction scores of 7.9 if they have one child, 8.2 if they have two children and 8.4 if they have three or more children.

Parents of larger families are also less satisfied with how well the children in the household get along with each other. For example, single mothers of two children rate the sibling relationship at 7.5 points, while single mothers of three or more children rate it at 6.8 points. Again, single fathers are the

exception, as mean satisfaction with the sibling relationship is similar whether they have two children (7.6 points) or three or more children (7.5 points).

Employment and financial situation of large families

Having a large family involves certain challenges. On the one hand, more time might be needed to care for the children, as there are more children to look after and, as shown in the previous section, the children are younger, on average. This potentially reduces the time one or both

partners can spend in employment. However, large families will also tend to have greater financial needs than smaller families due to the higher number of family members, which may result in more time spent in employment. This section therefore investigates the employment and financial situations of large families.

Table 2.11 presents couple parents' and single parents' employment situations, separated by number of children. The employment status is divided into three categories: employed full-time (usual weekly



working hours of 35 or more); employed part-time (usual weekly working hours less than 35); and not employed (whether unemployed or out of the labour force). For couple parents, the mother's and father's employment statuses are combined to create the parents' employment arrangement.

Starting with couple parents, the table shows that, among large families, the most prevalent employment arrangement is a part-time working mother and a full-time working father. More than one-third (34.5%) of large couple-parent families have this arrangement. The second most common arrangement is a mother who is not employed and a full-time working father, accounting for 30.9%. This is followed by dual full-time working parents, which applies to 20.1% of large couple-parent families.

When comparing this distribution with that of smaller couple-parent families, we see that the share of dual full-time working parents is largest among one-child families and then declines with the number of children. In contrast, the arrangement of a part-time working mother and a full-time working father is most common among families with two children. Overall, mothers' employment participation is lower in large families than in one- and two-child families, suggesting that it is mainly mothers who accommodate the additional care time needed at the arrival of a third child.

Single mothers' full-time employment rates are higher than those of their partnered counterparts. However, this only applies to one- and two-child families, where 35.5% and 31.0% of mothers, respectively, work full-time. In contrast, out of all family types, single mothers with three or more children are the least likely to work full-time (only 18.8%). Single mothers' likelihood of working part-time is highest among two-child families. Among large families, single mothers are particularly likely not to be employed, with 55.6% being out of paid work, compared

Table 2.11: Parents' employment participation, by number of children and whether couple or single parent, 2001 to 2016 (pooled) (%)

	1 child	2 children	3 or more children
Couple-parent families			
Both employed full-time	27.3	24.6	20.1
Mother part-time, father full-time	29.9	37.8	34.5
Mother full-time, father part-time	2.6	1.9	1.1
Both parents part-time	3.0	2.3	2.6
Mother not employed, father employed	24.7	25.6	30.9
Mother employed, father not employed	4.8	3.4	4.2
Both not employed	7.7	4.5	6.6
Total	100.0	100.0	100.0
Single-parent families			
<i>Mothers</i>			
Employed full-time	35.5	31.0	18.8
Employed part-time	25.8	29.1	25.7
Not employed	38.7	39.9	55.6
Total	100.0	100.0	100.0
<i>Fathers</i>			
Employed full-time	54.7	61.3	59.9
Employed part-time	14.7	16.0	11.2*
Not employed	30.6	22.7	28.9
Total	100.0	100.0	100.0

Notes: Children comprise all co-resident dependent and non-dependent children under the age of 25. The top panel excludes same-sex parents. Cells may not add up to column totals due to rounding.
* Estimate not reliable.

to 38.7% of single mothers with one child and 39.9% of those with two children.

As previously noted, single-father families constitute a relatively small share of all families, which is why some of the results for this family type are not reliable. The table reveals that, in contrast to single mothers, the majority of single fathers are employed full-time, and this applies regardless of the number of children. However, compared to partnered fathers, single fathers are still much more likely to be out of employment. Not-employed single fathers are particularly frequent among one-child (30.6%) and large families (28.9%) compared to two-child families (23%).

Next, this section investigates how parents of large families perceive their own employment and financial situation. Table 2.12 presents information on satisfaction with six



different areas: (i) the job overall (all things considered); (ii) flexibility to balance work and non-work commitments; (iii) hours worked; (iv) employment opportunities; (v) total pay; and (vi) financial situation. While items (i) to (v) only relate to employed persons, satisfaction with one's financial situation is collected from all respondents. The numbers represent average satisfaction scores on a scale from 0 to 10, with 0 indicating 'totally dissatisfied' and 10 indicating 'totally satisfied'. Again, the results are differentiated by family size, parent partner status and gender.

When broadly comparing partnered and single mothers, we see that single mothers score lower on practically all measures of employment and financial satisfaction than their partnered counterparts. The gaps regarding satisfaction with employment opportunities, total pay and financial situation are particularly large. Further, among coupled mothers, satisfaction with all six measures is very similar across different numbers of children, whereas single mothers' satisfaction is related to family size: single mothers with three

or more children are, on average, less satisfied with their employment and financial situation than single mothers with fewer children. For example, single mothers with three or more children have an average satisfaction with the hours they work of 6.8 points, compared to 7.1 points for single mothers with fewer children.

There is also a small gap with respect to the flexibility to balance work and non-work commitments, with single mothers of large families showing average satisfaction of 7.1 points compared to mothers of smaller families who have an average satisfaction of 7.3 points. Single mothers with three or more children are also relatively dissatisfied with their pay and with their overall financial situation. Average satisfaction with total pay is 6.6 for single mothers with one or two children, compared with 6.1 for single mothers of large families. Similarly, average satisfaction with one's financial situation is 5.2 for single mothers with one child, 5.1 for single mothers with two children and 4.7 for single mothers of large families.

The fact that single mothers' satisfaction with their employment

and financial situation declines with the number of children, while that of coupled mothers does not, suggests that the presence of a partner in the household helps buffer the time and financial challenges attached to additional children. Additionally, single mothers with three or more children may be particularly disadvantaged in the labour market, for example, given their comparatively low educational attainment (as shown in Table 2.8, page 17).

The pattern of fathers' perceived employment and financial situation by family type is in many respects different to that of mothers. When broadly comparing partnered and single fathers, there are only a few areas where satisfaction differs notably. Single fathers seem to be more satisfied with their flexibility to balance work and non-work commitments than partnered fathers. Further, they appear to be less satisfied with their employment opportunities and their financial situation than partnered fathers.

When comparing fathers' satisfaction with employment and financial situation across different family sizes, the table shows, as for mothers, no difference by number

Table 2.12: Parents' mean satisfaction with their employment and financial situation, by number of children and whether couple or single parent, 2001 to 2016 (pooled) (0–10 scale)

	Couple parents			Single parents		
	1 child	2 children	3 or more children	1 child	2 children	3 or more children
<i>Mothers</i>						
Job overall	7.7	7.8	7.9	7.6	7.6	7.5
Flexibility to balance work and non-work commitments	7.5	7.7	7.7	7.3	7.3	7.1
Working hours	7.3	7.4	7.4	7.1	7.1	6.8
Employment opportunities	6.9	6.9	7.0	6.4	6.3	5.8
Pay	7.0	7.0	7.0	6.6	6.6	6.1
Financial situation	6.5	6.4	6.4	5.2	5.1	4.7
<i>Fathers</i>						
Job overall	7.5	7.6	7.5	7.4	7.4	7.9
Flexibility to balance work and non-work commitments	7.3	7.3	7.2	7.3	7.4	7.9
Working hours	7.1	7.0	7.0	7.1	6.9	6.5
Employment opportunities	7.1	7.2	7.3	6.3	6.6	6.7
Pay	6.9	7.0	6.9	6.8	6.3	7.0
Financial situation	6.4	6.5	6.3	5.1	5.1	4.9

Note: Children comprise all co-resident dependent and non-dependent children under the age of 25.

of children for couple fathers. There is some variation by number of children for single fathers. However, unlike single mothers, fathers of large families are not in all cases less satisfied than fathers of smaller families. For example, single fathers of large families are more satisfied with their job overall, the flexibility to balance work and other commitments, and their pay.

Single fathers of large families are, however, less satisfied with their working hours: average satisfaction with working hours is 7.1 for those with one child, 6.9 for those with two children and 6.5 for those with three or more children.⁷ In contrast

to single mothers, satisfaction with one's financial situation is only slightly lower for single fathers of three or more children than for those with fewer children.

The results discussed so far have highlighted that parents of large families, particularly if single, are less satisfied with their financial situation than parents of smaller families. The last part of this section examines the extent to which this relative dissatisfaction is reflected in the actual financial situations of large families.

Figure 2.6 reports the median equivalised income of different

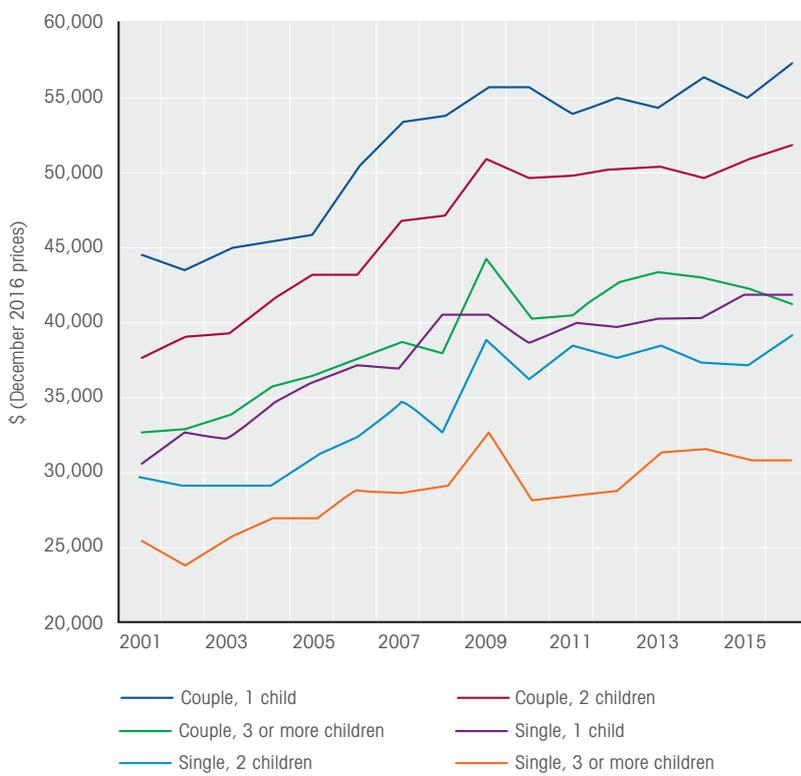
family types across the 2001 to 2016 period (at December 2016 prices). (For information on how this income measure is calculated, see Box 3.1, page 27, and Box 3.2, page 29.) It shows that there are two gradients in mean household income—from single-parent families to couple-parent families, and from large families to small families. Couple-parent families with one child are the most well-off, with a median equivalised income (at December 2016 prices) of \$44,414 in 2001 and \$57,231 in 2016. In contrast, single-parent families with three or more children are the least well-off, having a median equivalised income of \$25,475 in 2001 and \$30,844 in 2016.

When looking at the trend over time, we see a roughly continuous increase in income for couple-parent families with one or two children and for single-parent families with one child. In contrast, couple-parent families with three or more children and single-parent families with two children or with three or more children experienced a notable spike in household income in 2009. This was a consequence of the Commonwealth Government's stimulus package, providing one-off payments to families with school-age children, single income families and other groups.

Overall, income gains were smallest for large single-parent families over the 2001 to 2016 period, resulting in a widening income gap to smaller single-parent families and to couple-parent families. In 2001, single-parent families with three or more children had 86% of the income of single-parent families with two children and 57% of the income of couple-parent families with one child, whereas by 2016 these shares had decreased to 79% and 54%, respectively. These results suggest that income inequalities between family types have increased over the 2001 to 2016 period.



Figure 2.6: Median equivalised income, by number of children and whether couple or single parent



Note: Children comprise all co-resident dependent and non-dependent children under the age of 25.

⁷ Further analysis (not presented) reveals that the share of workers who would like to work more hours than they currently do is particularly high among single mothers and fathers with three or more children.

3

Household economic wellbeing

Roger Wilkins



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 household income at a point in time and how incomes of households change over time.

The HILDA Survey also regularly collects other information relevant to the assessment of economic wellbeing, most notably 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. In addition, three sections are included examining specific dimensions of economic wellbeing—specifically, experience of financial stress, experience of housing stress and expenditure on home energy.

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 grew very strongly for the in-scope population over the eight-year period from 2001 to 2009. Expressed at December 2016 prices, the mean increased by \$19,573, or \$2,447 per year;

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 2016 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.

Table 3.1: Household annual disposable incomes, 2001 to 2016

	Mean (\$, December 2016 prices)	Median (\$, December 2016 prices)	Number of households	Number of persons
2001	69,495	60,080	7,285,327	18,824,376
2002	70,574	61,312	7,361,492	19,039,091
2003	70,474	61,226	7,438,638	19,258,412
2004	72,871	63,219	7,510,765	19,468,326
2005	76,629	67,416	7,595,453	19,714,426
2006	80,354	69,270	7,698,118	20,013,530
2007	84,193	72,918	7,847,310	20,382,460
2008	86,764	75,317	8,019,262	20,809,743
2009	89,068	79,160	8,183,776	21,216,949
2010	89,256	76,740	8,305,706	21,521,078
2011	89,806	75,700	8,409,832	21,838,713
2012	90,671	78,550	8,558,648	22,237,290
2013	91,925	78,146	8,700,911	22,621,645
2014	92,050	78,829	8,828,831	22,968,953
2015	91,280	77,807	8,954,540	23,308,490
2016	91,236	79,244	9,084,617	23,670,061



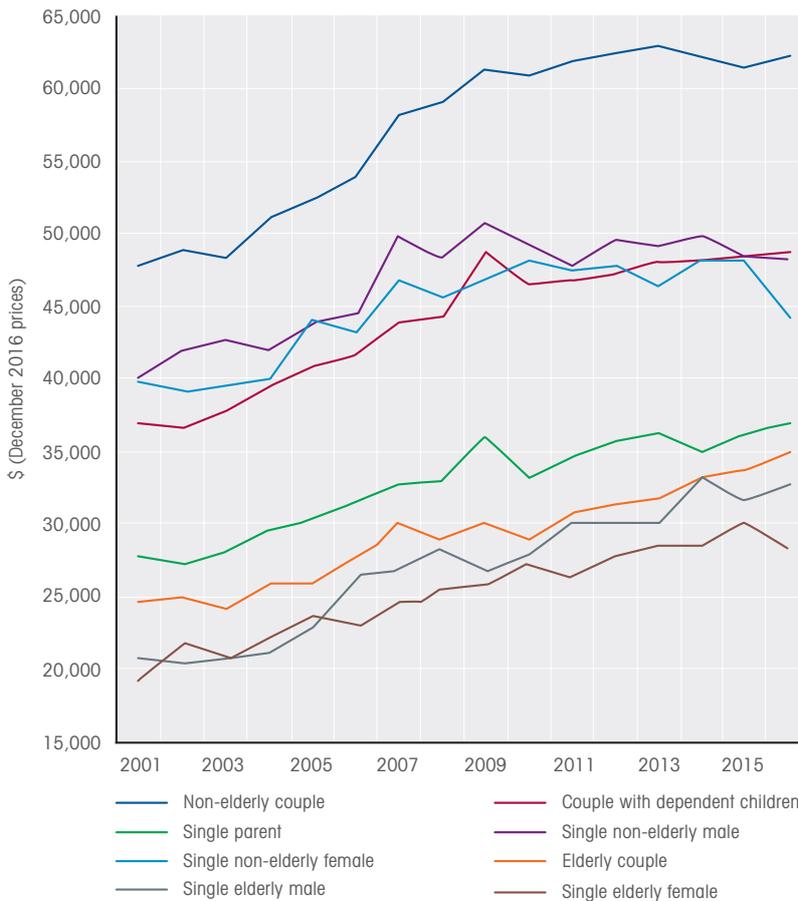
the median increased by \$19,080 over the same period. Indeed, most of this growth occurred between 2003 and 2009, when both the mean and median grew by approximately \$3,000 per year. However, since 2009, growth in both the mean and median has been much weaker. Over the seven-year period from 2009 to 2016, the mean household income grew by only \$2,168, or 2.4%, while the median was approximately the same in 2016 as it had been in 2009 (having fallen between 2009 and 2011, risen in 2012, and remained broadly unchanged thereafter).

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 for an explanation of how equivalised income is calculated and Box 3.3, page 30, 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.

Table 3.2: Distribution of individuals' equivalised household disposable income, 2001 to 2016

	Mean (\$, December 2016 prices)	Median (\$, December 2016 prices)	Ratio of 90th percentile to the median	Ratio of median to the 10th percentile	Gini coefficient
2001	41,151	36,373	1.93	2.13	0.304
2002	41,753	36,786	1.90	2.08	0.301
2003	41,875	37,320	1.87	2.10	0.298
2004	43,066	38,689	1.86	2.10	0.291
2005	45,236	40,484	1.85	2.08	0.292
2006	47,387	41,418	1.93	2.03	0.296
2007	49,943	44,144	1.91	2.15	0.306
2008	51,131	44,550	1.92	2.10	0.303
2009	52,707	47,822	1.82	2.21	0.294
2010	52,576	46,232	1.93	2.11	0.302
2011	52,977	45,866	1.97	2.11	0.308
2012	53,380	46,629	1.91	2.05	0.299
2013	54,038	46,808	1.94	2.02	0.302
2014	54,007	47,194	1.92	2.00	0.301
2015	53,761	47,085	1.92	1.98	0.294
2016	53,634	46,865	1.90	1.97	0.293

Figure 3.1: Median equivalised income by family type



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 single-person household to achieve the same living standard. 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 single-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 consumptions (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 equitably.

Growth in the average level of incomes between 2003 and 2009, and the subsequent levelling-off of average incomes, is robust to the move to equivalised incomes and the individual as the unit of analysis. This is unsurprising given there have been only modest changes in household composition of the population between 2001 and 2016. The HILDA Survey indicates there has been little net change in income inequality between 2001 and 2016. For example, the Gini coefficient, a common measure of overall inequality, has remained between 0.29 and 0.31 over the entire 16 years of the HILDA Survey.

Income differences by family type

Figure 3.1 compares median equivalised incomes across family types (defined in Box 3.4, page 30). A reasonably consistent ordering by type of family is evident across the 16 waves of the survey, ranging from 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 growth in median incomes between 2001 and 2016, with non-elderly couples without children faring slightly better than other family types in terms of median income growth up until 2013.

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 compares median equivalised incomes over the 2001 to 2016 period across 13 regions of Australia. The regions comprise each of the five mainland capital

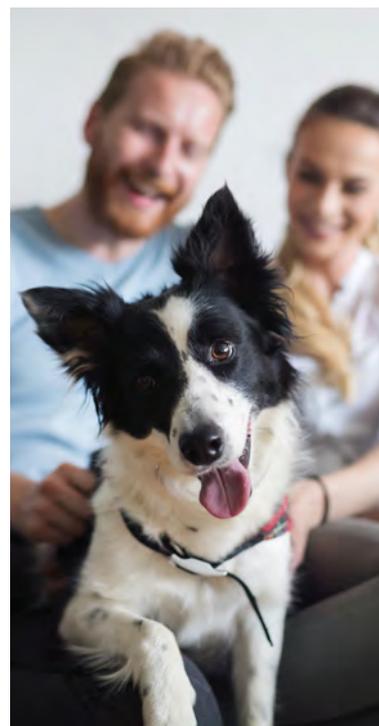
Box 3.3: Income distribution statistics

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.

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 65 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 65 years of age); (5) non-elderly single females; (6) elderly couples, where both persons are over 65 years of age; (7) elderly single males (aged 65 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 household 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 Wilkins (2016) for an analysis of parents in this situation.



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 3.5 on page 32 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 combined Australian Capital Territory and urban Northern Territory region, which is highest of all, and grew most strongly up until 2013 (although it has declined markedly in each year since).¹ Figure 3.2 also indicates that there has been considerable convergence of median incomes among the mainland capital cities between 2015 and 2016, due to a substantial decline in Perth and moderate increases in Sydney and Adelaide.

Table 3.3 focuses on recent changes in the median incomes of the 13 regions, examining the period since 2012. It shows considerable variation in median income changes across the regions, ranging from a 10.5% decline in other urban Western Australia to a 4.2% increase in Brisbane. In general, it appears that urban areas outside the mainland capital cities have fared worst. The median income fell in urban Tasmania, the Australian Capital Territory and urban Northern Territory, and in other urban regions of all states other than Victoria and Queensland. By contrast, of the mainland capital cities, only Perth experienced a decline in median income between 2012 and 2016.

A birth cohort perspective

Figure 3.3 considers income differences across birth cohorts, comparing the median incomes of seven cohorts defined by decade of birth (1920s, 1930s, and so on) over the period since 2001.

For this figure, children aged under 30 living with their parents are excluded to remove the (typically negative) effects of moving out of the parental home.²

The cohort born in the 1920s consistently had the lowest median income over the period from 2001 to 2016, although the 1930s cohort also had a low median income, and the gap between the two cohorts narrowed considerably between 2001 and 2016. The 1980s cohort also began with a similar median to the 1930s cohort, but its median increased rapidly between 2002 and 2010, to be at a similar level to the 1960s and 1970s cohorts from 2010 onwards.

The cohorts born in the 1940s, 1950s, 1960s and 1970s began in 2001 with relatively similar median incomes, but took somewhat different paths thereafter. The effect of retirement on median equivalised incomes is evident for

¹ 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 in this analysis.

² Note that those born in the 1980s would mostly have been living with their parents throughout much of the period, so the proportion of the cohort examined in the figure is relatively small, particularly in the early years.

Figure 3.2 Median household equivalised income by region

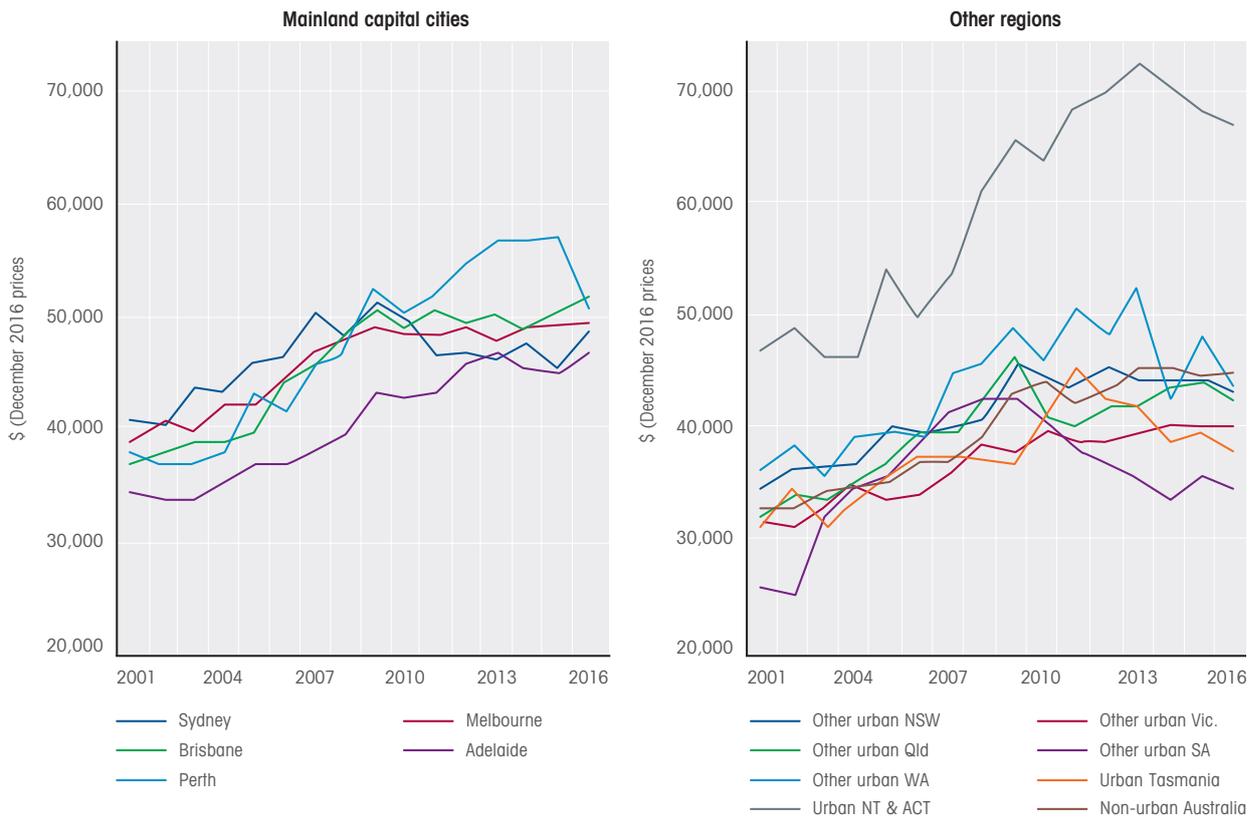


Table 3.3: Change in median household equivalised income by region, 2012 to 2016

	Median in 2012 (\$, December 2016 prices)	Median in 2016 (\$, December 2016 prices)	Percentage change
Sydney	46,629	48,381	3.8
Melbourne	48,997	49,359	0.7
Brisbane	49,637	51,726	4.2
Adelaide	45,926	46,758	1.8
Perth	54,698	51,252	-6.3
Other urban New South Wales	45,137	43,397	-3.9
Other urban Victoria	38,670	40,136	3.8
Other urban Queensland	41,546	42,479	2.2
Other urban South Australia	36,665	34,497	-5.9
Other urban Western Australia	48,193	43,125	-10.5
Urban Tasmania	42,350	37,962	-10.4
Australian Capital Territory and urban Northern Territory	69,778	67,090	-3.9
Non-urban Australia	43,461	44,686	2.8
Australia	46,629	46,865	0.5

the 1940s and 1950s cohorts, with the median income of the 1940s cohort tending to decline from 2001, when the cohort was aged 52 to 61, and the median income of the 1950s cohort declining from 2010, when the cohort was aged 51 to 60.

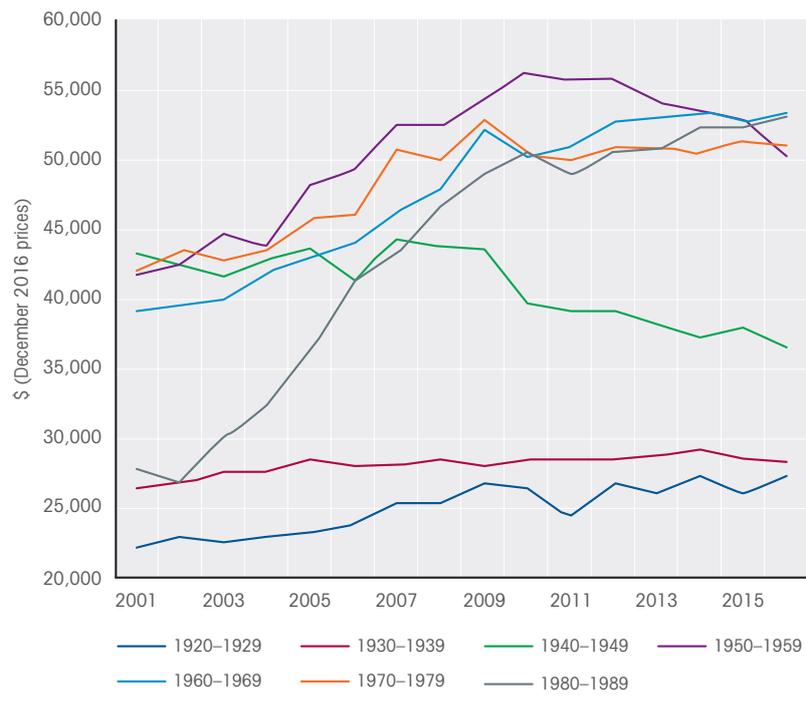
The decline for the 1950s cohort may have been exacerbated by the economic slowdown following the 2008 Global Financial Crisis. However, this cohort does appear to have fared very well between 2004 (aged 45 to 54) and 2010 (aged 51 to 60). Indeed, despite the median income of the 1950s cohort declining from 2010, it is not until 2016 that the median incomes of any of the younger cohorts overtake the median of the 1950s cohort.

Inequality within age groups

As Figure 3.3 suggests, there are reasons why we might expect equivalised household income to vary over the lifecycle. Studying, child-rearing and retirement, for example, tend to happen at different ages, and all have implications for equivalised income. Arguably, there is less concern about such life-stage-induced sources of inequality than there is about inequality of lifetime income.

Of course, measuring lifetime income is impractical from the standpoint of understanding contemporary levels and trends.

Figure 3.3: Median equivalised incomes by birth cohort



Note: Individuals aged under 30 living with their parents are excluded from the figure.

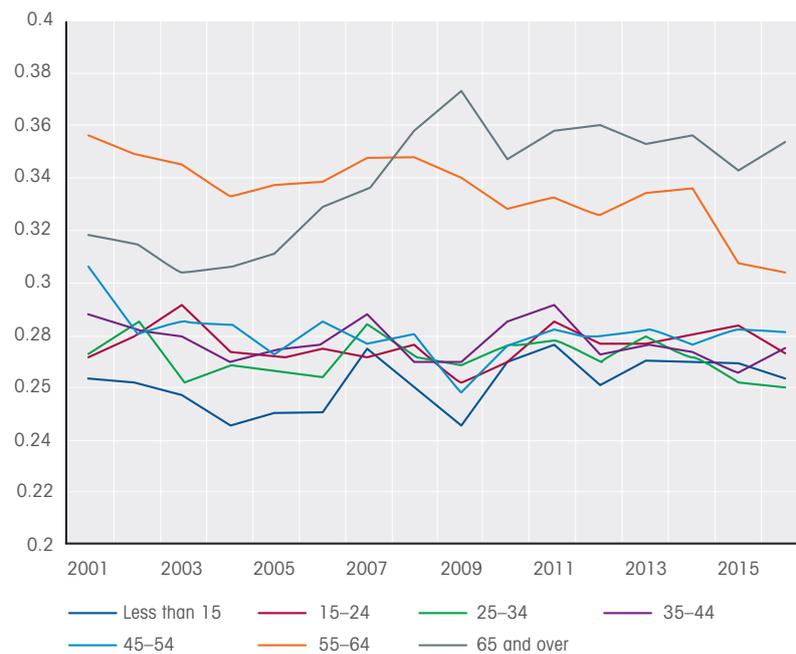
Box 3.5: Classification of region of residence

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. Based on the Australian Bureau of Statistics (ABS) Australian Standard Geographical Classification 2011 'Section of State' (ABS, 2011), 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 of less than 1,000, and rural and remote areas). The HILDA Survey data show that, in 2016, approximately 65% of the population resided in major urban areas, 20% resided in other urban areas and 15% resided in non-urban areas.

In 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 to create 13 distinct regions, each of which has a 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).



Figure 3.4: Income inequality within age groups—Gini coefficient



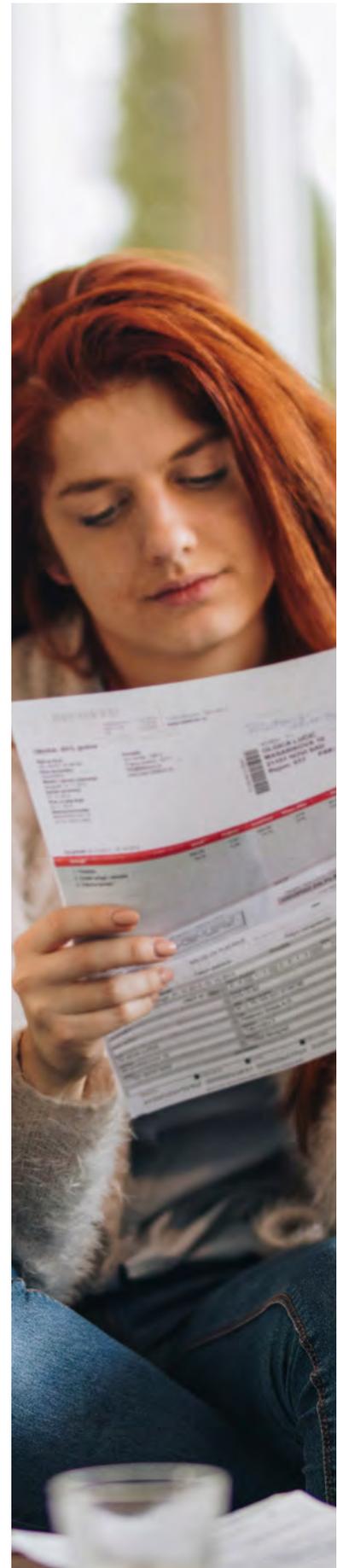
However, one step in this direction is to consider inequality among people who are, broadly speaking, at a similar lifecycle stage. This is considered in Figure 3.4, which presents graphs of Gini coefficients over the 2001 to 2016 period for each of seven age groups.

Within each of the youngest five age groups, there are similar levels of inequality, and this is at a level slightly less than exists across the population as a whole. For these age groups, the Gini coefficient generally hovers around 0.27, compared with a Gini coefficient of approximately 0.3 for the population.

Within the oldest two age groups, by contrast, there is considerably more inequality (as measured by the Gini coefficient) than exists across the population as a whole. For the 55 to 64 age group, this will in part be because a proportion of the age group is retired, and movement into retirement typically leads to a decline in income. That is, the age group will comprise a mix of employed people with

relatively high incomes, and retired people with relatively low incomes, leading to higher levels of inequality than if all were not retired or all were retired. Inequality in the 55 to 64 age group has steadily declined since 2001, which may reflect the trend to later retirement (see Volume 12 of this report), which has seen the proportion of the age group that is retired (and on associated low incomes) become relatively small.

Less easily explained is the high level of inequality among people aged 65 and over, and more particularly, the large increase in inequality between 2003 and 2008. Since 2008, the Gini coefficient for this age group has remained in excess of 0.34. Later retirement could potentially explain some of this rise, since a growing minority of the age group is not retired (and therefore receiving higher incomes). However, it may also be that growth in the number of retirees with significant superannuation holdings and other assets has increased inequality among this age group.



Longer-term incomes

Table 3.4 takes advantage of the longitudinal information in HILDA to examine the distribution of income measured over time-frames longer than one year. The upper panel presents distributional statistics for five-year income, while the lower panel examines incomes measured over the full 16-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 16) 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 2016 are not included in the population for which 16-year income is examined. Notwithstanding the need to 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 0.898, but has since trended slightly upwards, to be 0.917 for the 2012 to 2016 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 16-year income is somewhat lower again than inequality of five-year income. Among all persons alive for the entire 16-year period, Shorrocks R is 0.836. If we restrict our focus to adults of ‘working age’ for the entire period—that is, adults aged 18 to 49 in 2001, and therefore aged 33 to 64 in 2016—the Gini coefficient reduces to 0.232, or

Table 3.4: Medium- and long-term equivalised incomes, 2001 to 2016

	Mean per annum (\$, December 2016 prices)	Median per annum (\$, December 2016 prices)	Ratio of 90th percentile to the median	Ratio of median to the 10th percentile	Gini coefficient	Shorrocks R
<i>Five-year income</i>						
2001–2005	42,706	38,493	1.76	1.93	0.267	0.898
2002–2006	43,683	39,349	1.79	1.92	0.267	0.903
2003–2007	45,280	40,520	1.80	1.89	0.268	0.904
2004–2008	47,271	42,501	1.78	1.92	0.270	0.907
2005–2009	49,131	44,093	1.81	1.92	0.270	0.905
2006–2010	50,365	44,995	1.82	1.93	0.270	0.899
2007–2011	51,765	45,934	1.82	1.93	0.273	0.902
2008–2012	52,863	46,948	1.82	1.94	0.273	0.906
2009–2013	53,349	47,591	1.80	1.93	0.275	0.914
2010–2014	54,050	47,882	1.82	1.91	0.277	0.916
2011–2015	53,530	47,536	1.82	1.92	0.276	0.918
2012–2016	53,611	47,391	1.82	1.85	0.273	0.917
<i>16-year income</i>						
All ages	38,995	35,220	1.71	1.87	0.258	0.836
Aged 18–49 in 2001	42,491	39,451	1.64	1.78	0.232	0.813

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

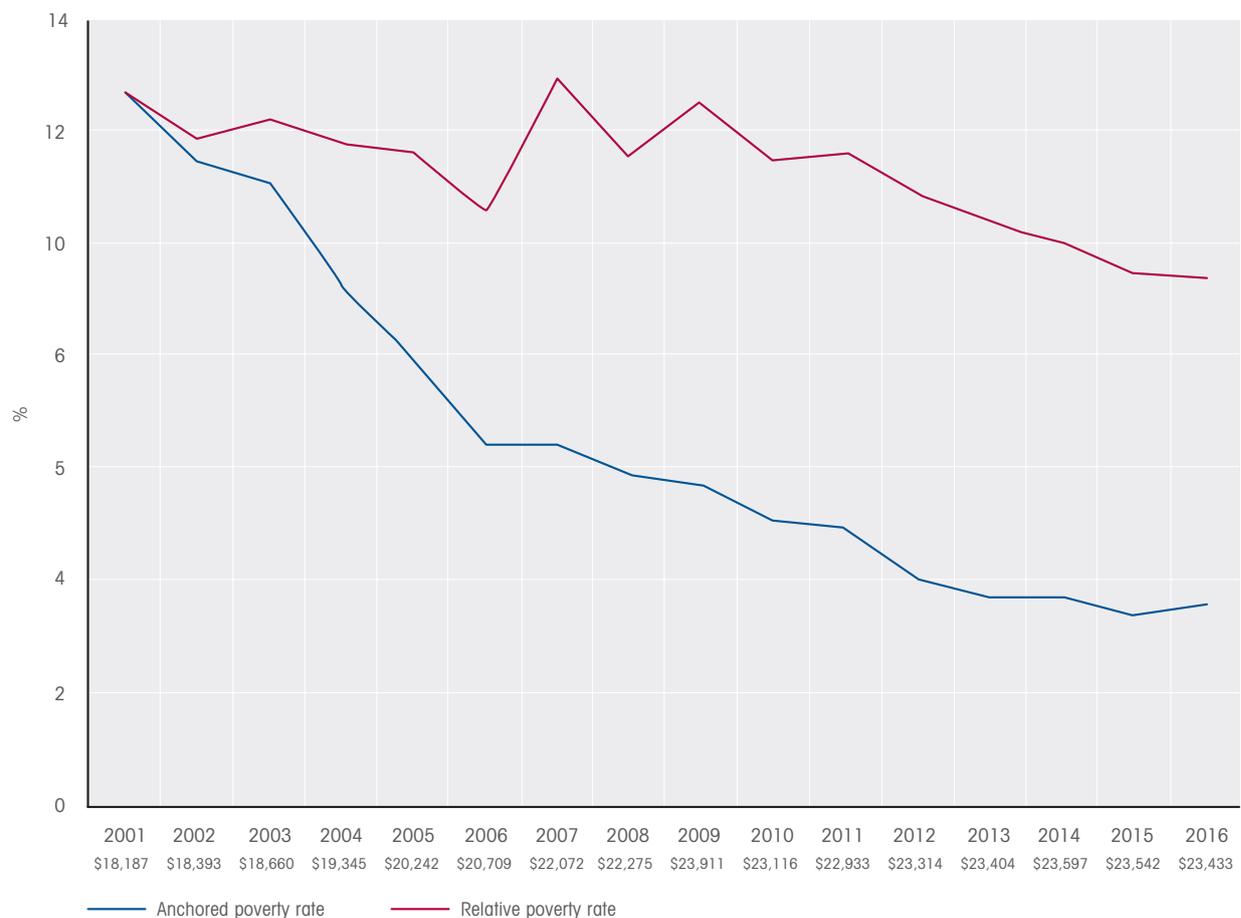
Box 3.6: Relative and anchored income poverty

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.



Figure 3.5: 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 2016 prices.

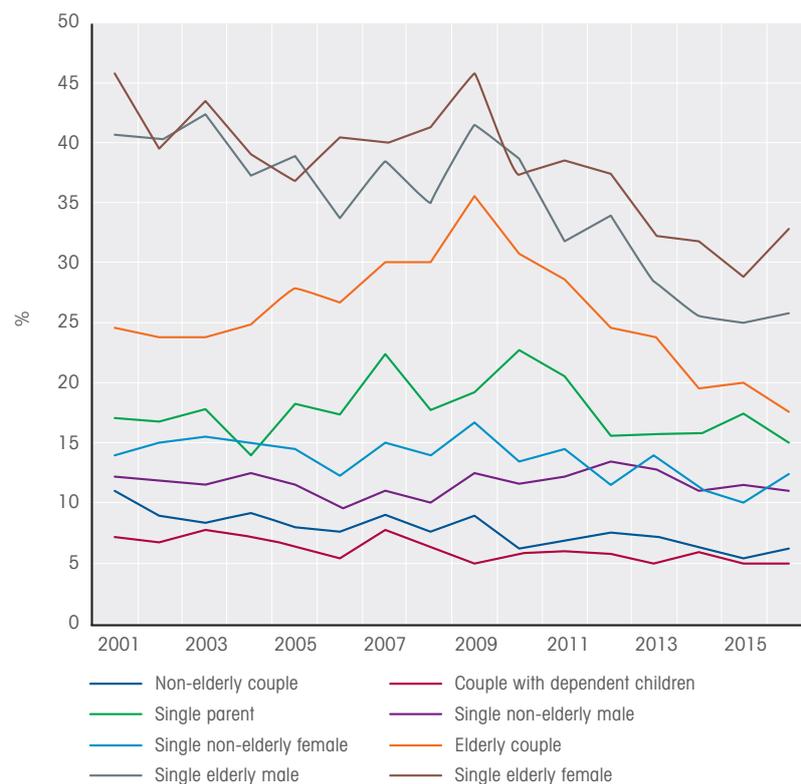
having a household income below 50% of median income. While based on a degree of public and researcher consensus, it should nonetheless be acknowledged that there is an element of arbitrariness to this—or any other—definition of relative poverty.

Cross-sectional poverty rates

Figure 3.5 presents relative income 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 3.6, page 35). Our income measure is equivalised income; thus, the poverty lines presented at the bottom of Figure 3.5 (page 35) can be interpreted as the minimum annual income after taxes and government benefits that a single-person household would require to avoid relative income 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 \$18,187 in 2001 to \$23,911 in 2009 (expressed at December 2016 prices). Median income has fallen slightly since 2009, and as a result the relative poverty line was slightly lower in 2016 than it was in 2009. The proportion of the population below this poverty line has fluctuated over time, but three distinct phases are evident: a slow decline in relative poverty between 2001 and 2006, from 12.6% to 10.6%; a sharp rise to 12.9% in 2007; and a slow decline thereafter down to 9.4% in 2016. 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

Figure 3.6: Poverty rates by family type



benefits or the median can bring about sizeable changes in the poverty rate.

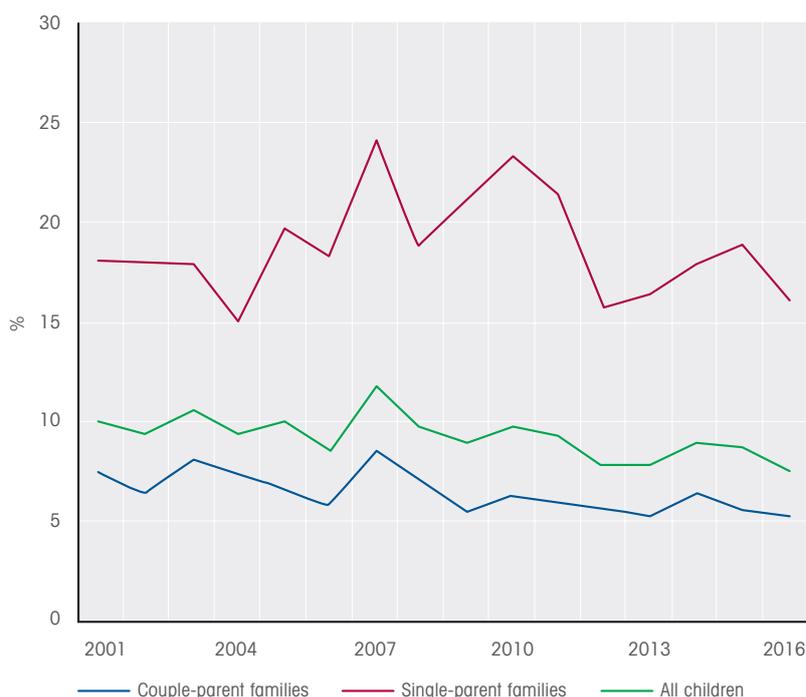
It therefore appears that there has been some progress in reducing income poverty over the 2001 to 2016 period as a whole. Moreover, the poverty rate obtained when the real value of the poverty line is maintained at its 2001 level of \$18,187 (at December 2016 prices) has fallen dramatically, from 12.6% in 2001 to 3.6% in 2016. Thus, even among those in relative income poverty, average living standards (as measured by equivalised income) have increased over the full 16-year period. That said, a small uptick in the anchored poverty rate (from 3.4% to 3.6%) is evident between 2015 and 2016, the first time in the HILDA Survey period an increase in this poverty measure has been observed.

Poverty by family type

Figure 3.6 shows that (relative) poverty rates vary substantially by family type. Rates are consistently high among the elderly, particularly



Figure 3.7: Child poverty rates by family type—Dependent children aged under 18



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, which examined Waves 1 to 14 (Wilkins, 2016), provided evidence that deprivation is considerably lower among the elderly than is implied by the relative income poverty measure.³

Poverty rates are also somewhat high for people living in single-parent families, typically falling between 16% and 20%. By contrast, non-elderly couples, whether with or without dependent children, have consistently low poverty rates, which in the most recent years have been in the vicinity of 5%.

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 3.7 presents child poverty rates for dependent children aged under 18, in total and separately for children in couple-parent families and children in single-parent families. The child poverty rate is consistently below the community-wide poverty rate, in most years being below 10%, and

in 2016 falling to 7.6%, the lowest it has been over the 2001 to 2016 period. However, consistent with the evidence in Figure 3.6, poverty is considerably more prevalent among children in single-parent families than among children in couple-parent families. In all years, the poverty rate for children in single-parent families is over twice the poverty rate for children in couple-parent families.

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. Table 3.5 considers the amount of time people spend in poverty over a 10-year period. Each of the table's top two panels examines the 10-year period from 2001 to 2010 and the 10-year period from 2007 to 2016. The first of these panels examines

³ Income poverty measures can also be calculated based on income net of housing costs. For example, an individual may be classified as in relative income poverty if equalised income net of housing costs—that is, the equalised income that is left over after housing costs have been paid—is less than 50% of the median of this income measure. These measures produce substantially higher poverty rates for renters in the private rental market, and substantially lower poverty rates for outright home owners. Notably, this leads to higher estimated poverty rates among single-parent families and non-elderly single people, relatively high proportions of whom are private renters.

Table 3.5: Experience of poverty over a 10-year period (%)

	Number of years in poverty					Total
	0	1 or 2	3 or 4	5 or 6	7 or more	
Persons aged 18–55 at the start of the 10-year period						
<i>2001–2010</i>						
Men	74.6	15.5	5.2	2.3	2.5	100.0
Women	69.4	18.8	5.4	3.4	3.0	100.0
<i>2007–2016</i>						
Men	75.8	15.0	4.5	2.5	2.1	100.0
Women	72.3	17.1	4.9	2.9	2.8	100.0
Persons aged 65 and over at the start of the 10-year period						
<i>2001–2010</i>						
Men	28.9	23.7	13.5	10.2	23.6	100.0
Women	23.7	22.4	16.3	9.5	28.1	100.0
<i>2007–2016</i>						
Men	33.9	24.7	12.8	11.0	17.6	100.0
Women	27.2	24.2	14.4	10.3	23.9	100.0
First 10 years of life for children born 1 July 2000 to 30 June 2007						
<i>2001–2016</i>	71.3	17.9	5.7	3.0	2.2	100.0

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

men and women who were aged 18 to 64 over the entire 10-year period (and therefore aged 18 to 55 at the start of the period), while the second panel examines people aged 65 and over for the entire 10-year period.

Approximately 75% of men and 69% of women aged 18 to 55 in 2001 did not experience income poverty in that year or the subsequent nine years, necessarily implying that 25% of men and 31% of women did experience poverty in at least one year. For approximately 16% of men and 19% of women, poverty was experienced in only one or two years, and a further 5% of men and women experienced poverty in three or four of the 10 years.

Highly persistent or recurrent poverty was confined to the approximately 5% of men and 6% of women who were in poverty in at least five of the 10 years.

Consistent with the downward trend in the rate of poverty over the HILDA Survey period (Figure 3.5), the 10 years from 2007 to 2016 saw slightly lower proportions of working-age people experience each level of poverty duration.

For people aged 65 and over at the start of the 10-year period, poverty tends to be much more persistent. Indeed, for women, it was more common to be in poverty in seven or more of the 10 years from 2001 to 2010 than it was to avoid poverty in all 10 years—28.1% were in poverty in seven or more years, whereas only 23.7% were never in poverty.

Similar to what is found for working-age people, elderly men are less likely to experience poverty, and less likely to experience entrenched poverty, than elderly women. The decline in experience of poverty between the 2001–2010 period

and the 2007–2016 period evident for ‘working-age’ persons is also evident for the elderly. Moreover, a substantial decline in entrenched poverty among the elderly is evident. The proportion experiencing poverty in seven or more years fell from 23.6% to 17.6% for men, and from 28.1% to 23.9% for women.

Long-term poverty experiences of children are considered in the bottom panel of Table 3.5 by examining the number of years children were in poverty in the first 10 years of their lives. This requires identification of poverty status in each of the first 10 years of each child’s life, and as such the figure examines children born in the period from 1 July 2000 to 30 June 2007.

The table shows that 71.3% of children born in this period were not living in poverty in any of their first



10 years of life, and 17.9% were in poverty in one or two years, while 5.2% were in poverty for at least half of their first 10 years.

Welfare reliance

Reliance on welfare remains a significant concern for policy-makers in Australia (see Box 3.7 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 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.

Income support receipt and 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 'working-age' persons, defined here as people aged 18 to 64. In 2016, 31.7% of individuals aged 18 to 64 were living in a household that received income

Box 3.7: Welfare payments

Welfare payments in Australia are known as income support payments, which are cash benefits paid to Australian residents that are intended to represent the primary source of income of recipients.⁴ Studies of welfare reliance in Australia correspondingly focus on receipt of income support payments, although supplementary government cash 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 comprise 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: ⁴ '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.



support at some stage of the financial year ending 30 June 2016. This is substantially lower than at the beginning of the HILDA Survey in 2001, when the corresponding figure was 38.0%. However, all of the decline in household welfare receipt was in the period to 2009, and in fact, welfare receipt was slightly higher in 2016 than in 2009, when 31.1% of working-age individuals lived in a household that 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 3.8, page 41): more than 50% of annual household income comes from welfare; and more than

90% of annual household income comes from welfare. As would be expected, the proportion of the population classified as welfare reliant depends on whether the 50% or 90% threshold is employed. However, the two measures show similar trends, both declining between 2004 and 2008, and both remaining relatively constant until 2012, at approximately 10% for the 50% threshold, and at approximately 5% for the 90% threshold. Since 2012, there has been a small increase in the proportion of people deriving more than 90% of household income from welfare, but a small decrease in the proportion deriving more than 50% of income from welfare.

Figure 3.8: Receipt of income support payments by persons aged 18 to 24

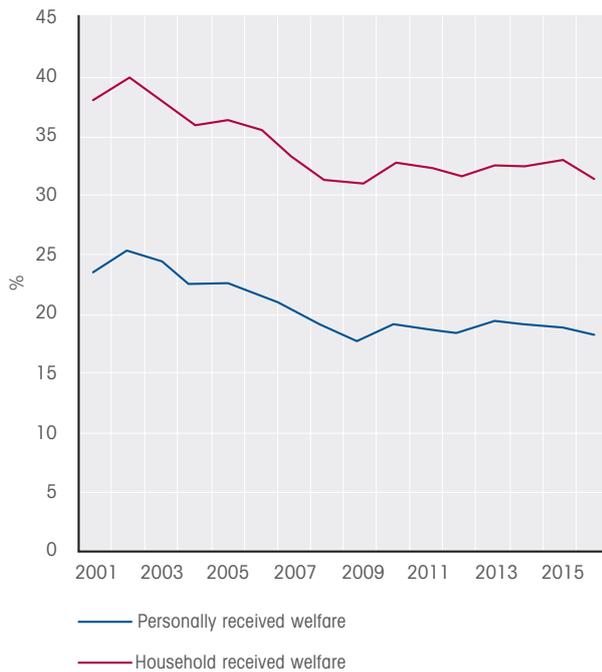


Figure 3.9: Reliance on welfare among persons aged 18 to 64



Figure 3.10, examining family types (see Box 3.4, page 30), shows that welfare reliance among working-age people is very much associated with living in single-parent families. For each year from 2001 to 2016, 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 reliance 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 44.6% in 2004 to a low of 29.4% in 2014.

Individuals in couple families, with or without dependent children, have the lowest rates of welfare reliance, and have also experienced declines in welfare reliance. The proportion of people who were welfare-reliant fell from 8.4% in 2003 to 4.5% in 2015 and 2016 for couples with dependent children, and from 10.9% in 2002 to 5.3% in 2016 for couples without dependent children.

Single men and women have welfare-reliance rates somewhat higher than couples, and have experienced no trend decline in welfare reliance. Indeed, since 2008, there has been a significant rise in welfare reliance among single people, rising from 13.4% to 15.4% for women and from 10% to 14.7% for men. The gap between couples (with or without dependent children) and single people (without dependent children) has therefore risen over the HILDA Survey period.

Income support receipt and welfare reliance over 10 years

Drawing on the longitudinal nature of the HILDA Survey data provides significant insights into long-term contact with the income support system. Table 3.6 examines contact with the system over a 10-year period, presenting the proportion of people who at some stage in the 10-year period personally received an income support payment, and the proportion who at some stage were living in a household in which at least one member received an income support payment. The

population examined is restricted to people who were aged 18 to 64 for the entire 10-year period (and therefore aged 18 to 55 at the start of the 10-year period and aged 27 to 64 at the end of the period). Estimates are disaggregated by sex and age group and, as in the analysis of poverty presented in Table 3.5, two 10-year periods are examined: 2001 to 2010; and 2007 to 2016.

The bottom right cell of the top panel of the table shows that 64.3% of the working-age population had direct or indirect contact with the income support payments system at some stage between 2001 and 2010. Moreover, 41.2% of this cohort *personally* received income support payments at some stage between 2001 and 2010. Given that approximately 20% of working-age individuals received income support in any given year of this period, this indicates that the income support system was indeed providing temporary rather than long-term support for most recipients, and was potentially playing a very important safety-net role. Contact

with the income support system was lower over the 10 years from 2007 to 2016 (lower panel of Table 3.6), but still substantial, with 59.2% having household contact and 35.9% having personal contact.

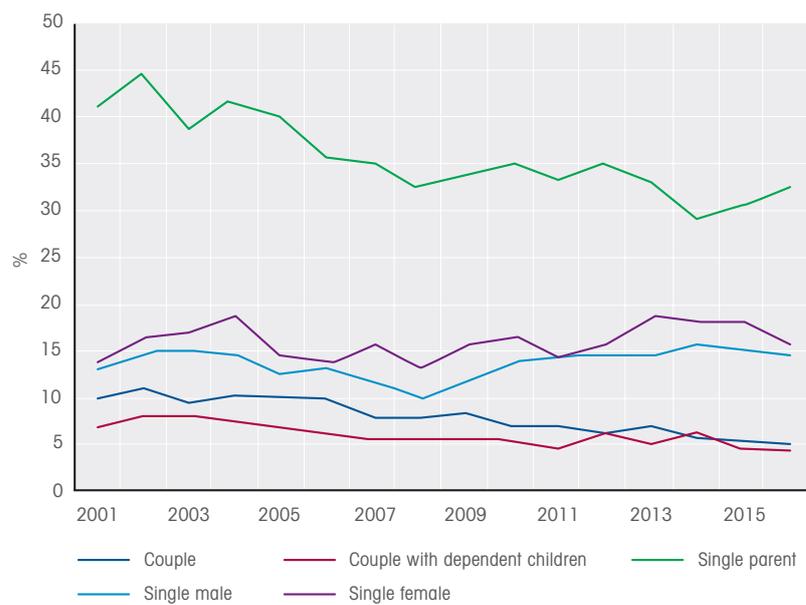
Rates of contact with the income support system are high for both men and women across all age groups. For both men and women, in all age groups, and in both the 2001 to 2010 and 2007 to 2016 periods, household contact with the income support system exceeds 50%.

Personal contact with the income support system does, however, vary more by sex and age group, and indeed also between the two 10-year periods. For men, over the 2001 to 2010 period, personal contact was lowest among those aged 25 to 34 at the start of the period, and thereafter increased as we move up the age distribution, rising from 26.7% of the 25 to 34 age group to 37.1% of the 45 to 55 age group. However, in the 2007 to 2016 period, rates of personal contact were similar across the 25 to 34, 35 to 44 and 45 to 55 age groups.

In both of the 10-year periods, rates of personal contact with the income support system are somewhat higher for women than men in all age groups, but particularly among those aged 25 to 44. This is likely to be at least partly due to women being a high proportion of single parents. That said, the gap between men and women in the 25 to 44 age range was considerably smaller in the 2007 to 2016 period than in the earlier period, with women in the 25 to 34 and 35 to 44 age groups experiencing approximately 10 percentage point declines in rates of personal contact with the income support system.

The extent of working-age individuals' contact with, and reliance on, the income support system over a 10-year period is examined in Table 3.7. The upper

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.

Box 3.8: Definitions of welfare reliance

Welfare reliance is usually conceived as a situation in which welfare payments represent 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.



Table 3.6: Income support receipt over 10 years, by sex and age group at the start of the 10-year period (%)

	Age group at the start of the 10-year period				All aged 18–55 in initial year
	18–24	25–34	35–44	45–55	
2001–2010					
<i>Men</i>					
Personal receipt	46.8	26.7	30.6	37.1	33.8
Household receipt	79.9	57.6	60.1	61.3	62.7
<i>Women</i>					
Personal receipt	61.9	51.0	47.0	41.6	48.5
Household receipt	74.2	60.2	65.1	67.9	65.9
<i>Persons</i>					
Personal receipt	54.1	38.7	38.9	39.5	41.2
Household receipt	77.1	58.9	62.7	64.7	64.3
2007–2016					
<i>Men</i>					
Personal receipt	45.6	28.1	25.5	28.4	30.5
Household receipt	75.1	51.5	52.4	58.6	57.8
<i>Women</i>					
Personal receipt	54.2	42.4	37.7	36.2	41.2
Household receipt	70.2	52.6	59.6	63.1	60.6
<i>Persons</i>					
Personal receipt	49.8	35.2	31.8	32.4	35.9
Household receipt	72.7	52.1	56.1	60.9	59.2

panel of the table shows the distribution of the number of years in which the individual’s household received income support. Measuring the extent of contact with the system by the number of years in which one’s household received income support payments, it is evident that the majority of working-age people have only temporary contact with the system. Over the 2001 to 2010 period, of those who came into contact with the system, 71.9% of men and 66% of women did so in six or fewer of the 10 years.

Notable, however, is that corresponding proportions in the 2007 to 2016 period are 65.5% and 64%, indicating a trend towards greater contact with the system among those to have any contact. This is perhaps not unexpected given the decline in the rate of income support receipt shown in Figure 3.8. It is likely that those coming into contact with the income support system in the

latter period are, on average, a more disadvantaged group, and are therefore more likely to spend longer on income support. That is, relatively fewer ‘needy’ people, who tend to have short income-support spells, were more likely to come into contact with the system in the 2001 to 2010 period than in the 2007 to 2016 period.

The bottom panel of Table 3.7 examines the mean extent of welfare reliance over a 10-year period among those having some contact with the income support system. It presents the mean proportion of household income deriving from welfare over the 10 years. On average, working-age men who came into contact with the system between 2001 and 2010 derived 16.9% of household income from welfare payments, while working-age women who came into contact with the system in that period, on average, derived 21.7% of household income from welfare. The increase in the extent

of contact with the income support system in the 2007 to 2016 period (among those to have any contact) was associated with an increase in the mean proportion of income from welfare for men (from 16.9% to 17.4%), but not women, for whom the mean proportion of income from welfare fell from 21.7% to 21.5%.

Financial stress

While income approaches remain the most widely used basis for defining and measuring inadequacy in material living standards, other measures also potentially provide useful information on individuals’ economic wellbeing. Measures of ‘financial stress’ provide one such piece of supplemental information. Experience of financial stress refers to an inability to meet basic financial commitments because of a shortage of money. Measures of financial stress therefore provide direct evidence on the adequacy of

Table 3.7: Reliance on income support over 10 years of those who at some stage received income support—Persons aged 18 to 55 at the beginning of the 10-year period

	2001–2010		2007–2016	
	Men	Women	Men	Women
<i>Number of years of household income support receipt (%)</i>				
1–3	51.5	44.5	46.5	41.1
4–6	20.4	21.5	19.0	22.9
7–9	12.9	16.8	19.9	17.5
10	15.2	17.1	14.5	18.5
Total	100.0	100.0	100.0	100.0
Mean proportion of household income from welfare (%)	16.9	21.7	17.4	21.5

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

economic resources of individuals and households.

In each wave, the self-completion questionnaire (SCQ) contains a question on whether, *because of a shortage of money*, the respondent had experienced each of seven events, such as not paying the rent or mortgage on time and going without meals, which facilitates the construction of measures of

financial stress. (Box 3.9, page 44, itemises all seven events.)

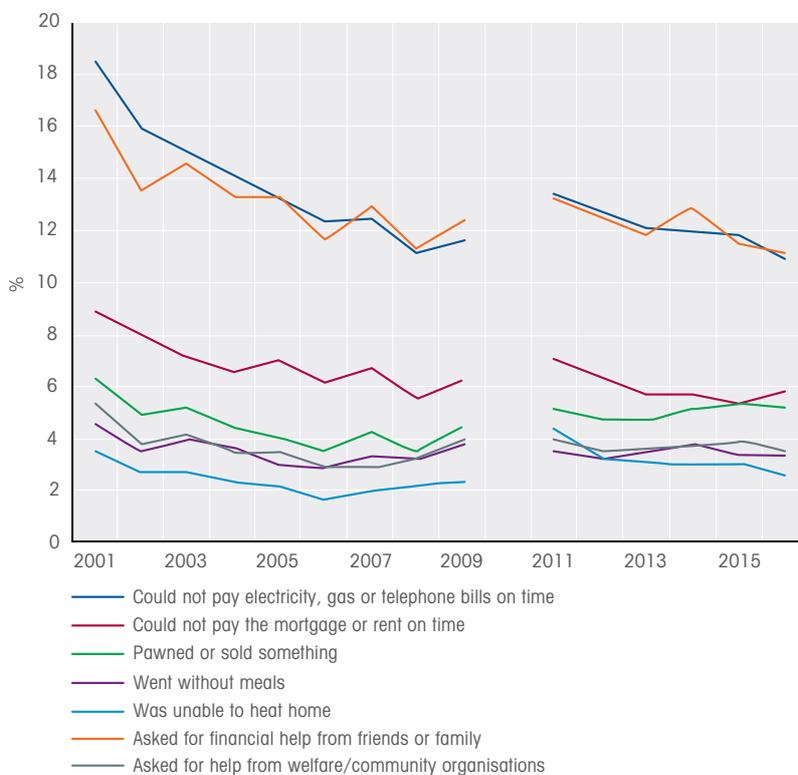
Figure 3.11 shows the prevalence of each of these seven indicators of financial stress over the 2001 to 2016 period.⁵ Inability to pay electricity, gas or telephone bills on time and asking for financial help from friends or family are the most commonly occurring of the seven indicators, followed by

inability to pay the rent or mortgage on time. In most years, inability to heat the home is the least-common indicator.

Prevalence rates tended to decline for all indicators up until around 2008, and then increased up to 2011. Since 2011, the prevalence of each indicator has tended to steadily decline, with the exception that there has been some rise in the proportion of people reporting selling something because of a shortage of money. It is possible that the rise of low-cost online platforms for selling possessions has increased the attractiveness of this option as a response to a shortage of money.

Figure 3.12 examines the proportion of people experiencing a measure of financial stress—specifically, experiencing two or more of the seven indicators shown in Figure 3.11. The figure presents estimates for all persons and for each of eight family types (see

Figure 3.11: Experience of indicators of financial stress



⁵ Estimates are not available for 2010 because the financial stress question administered in Wave 10 asked about the period since January 2009 rather than the period since January 2010.

Box 3.9: HILDA Survey measure of financial stress

In each wave, the self-completion questionnaire contains the following question:

Since January [survey year] did any of the following happen to you because of a shortage of money?

- a. Could not pay electricity, gas or telephone bills on time
- b. Could not pay the mortgage or rent on time
- c. Pawned or sold something
- d. Went without meals
- e. Was unable to heat home
- f. Asked for financial help from friends or family
- g. Asked for help from welfare/community organisations

Respondents are asked to indicate which of the seven events had occurred. Experience of any one of these events can be considered an experience of financial stress, although some events, such as going without meals, probably indicate more severe stress than other events, such as inability to pay bills on time. In this report, no distinction is made between the indicators, but the condition is imposed that two or more of the indicators must be experienced for a person to be classified as in financial stress.



Box 3.4, page 30, for an explanation of the family types).

The trend in financial stress over time is quite similar across most family types, tending to decrease in prevalence up until 2008, increasing between 2008 and 2011, and thereafter remaining relatively stable. However, levels of prevalence of financial stress are very different across family types. Single-parent families stand out as particularly prone to financial stress, while non-elderly single people also have relatively high prevalence rates.

In a marked contrast to the findings on poverty rates (Figure 3.6), the elderly have very low rates of financial stress. The high (outright) home-ownership rates of the elderly, and indeed their relatively high wealth more broadly (see Wilkins, 2016), is likely to be an important reason for this contrast.

Persistence of financial stress from one year to the next is examined in Table 3.8, which compares rates of persistence (of those experiencing financial stress in one year, the proportion experiencing it in the next year) across family types and across three sub-periods in the

2001 to 2016 period. As in Figure 3.11, a person is defined as reporting financial stress if two or more of the seven indicators applies.

For the population as a whole, persistence of financial stress appears to be quite high. In all three sub-periods, approximately 54% of those in financial stress in one year are also in financial stress in the following year.

There are considerable differences in rates of persistence across family types: persistence tends to be highest for the family types with the highest prevalence of financial stress (most notably, single-parent families), and lowest for the family types with the lowest prevalence of financial stress (the elderly). The notable exception is that couples with dependent children have similar rates of persistence to non-elderly single people, despite having markedly lower levels of financial stress.

Also notable is that persistence of financial stress among the elderly appears to have increased over time. In the 2001 to 2004 period, the persistence rate was 17.2% for elderly couples, 14% for single elderly men and 36.4% for single elderly women; in the 2010 to 2015 period, the persistence rates were 28.2%, 37.6% and 48.8%. For a given prevalence of financial stress, greater persistence implies concentration of financial stress on a smaller fraction of the elderly—that is, more often it is the same people every year experiencing financial stress. The reasons for this development are not clear, but certainly warrant investigation.

Characteristics associated with financial stress

To investigate who is most susceptible to financial stress, a ‘fixed-effects’ panel model was estimated of the probability of being in financial stress (experiencing two or more indicators of financial stress) as a function of a range of factors.

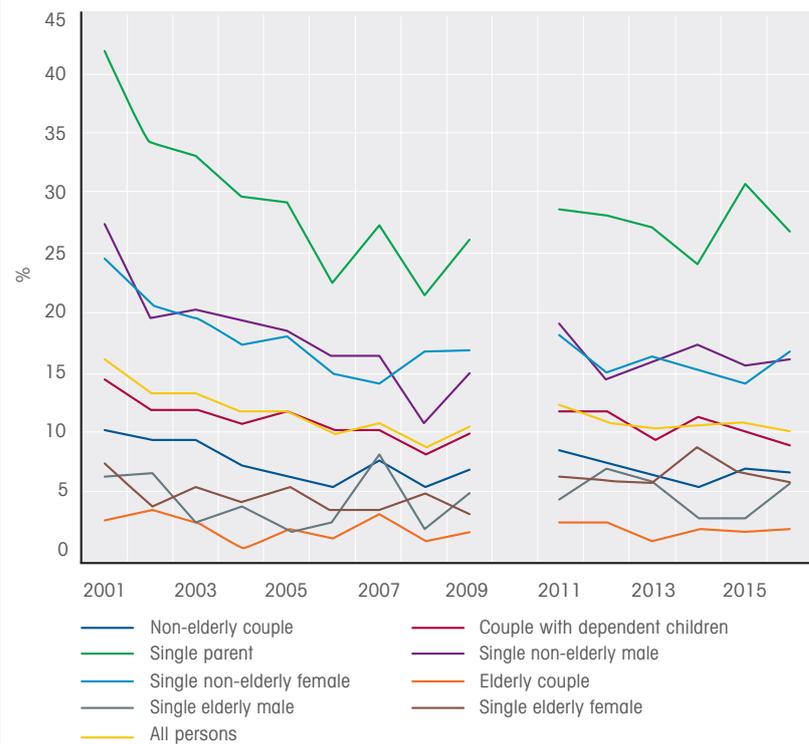
(See the Technical Appendix for an explanation of fixed-effects models.⁶) The results are reported in Table 3.9.

Unsurprisingly (but reassuringly), household income is a strong predictor of financial stress: each additional \$1,000 in equivalised income reduces the probability of financial stress by 3.7 percentage points.

Living in towns of between 1,000 and 99,999 people reduces the probability of financial stress by 2.7 percentage points compared with living in a town or city of 100,000 or more people. This is perhaps reflective of lower housing costs in towns and small cities. However, residing in a non-urban area does not significantly affect the probability of financial stress compared with living in a major urban area, perhaps because non-housing living expenses are higher in these regions.

Couple households, with or without children, are less likely to experience financial stress than single-parent, single-person and 'other' household types. All else being equal, single-person households are the most prone to financial stress—more prone, even, than single-parent households. On the surface, this

Figure 3.12: Proportion experiencing two or more indicators of financial stress, by family type



appears to be in stark contrast to the evidence presented in Table 3.8, which shows that the experience of financial stress is considerably higher among single-parent families. The explanation for this contrast is that other factors included in the model, such as low income, explain much of the financial stress experienced by

single-parent families. That is, it is not so much single-parent status itself that leads to greater financial stress, but rather circumstances that often go with being in a single-parent family, such as low income. Health and disability of household members have substantial impacts on the risk of financial stress. (See Box 3.10, page 47,

Table 3.8: Persistence of financial stress, by family type (%)

	Persons experiencing financial stress in one year: Proportion experiencing financial stress in the next year			Mean proportion in financial stress in any given year
	2001–2004	2005–2008	2010–2015	
Non-elderly couple	48.3	47.6	47.1	7.6
Couple with dependent children	54.7	56.2	56.8	11.1
Single parent	63.3	64.7	64.4	28.8
Single non-elderly male	55.4	54.9	53.7	17.5
Single non-elderly female	58.6	55.2	55.7	17.3
Elderly couple	17.2	27.6	28.2	2.7
Single elderly male	14.0	25.6	37.6	5.3
Single elderly female	36.4	42.8	48.8	6.2
All persons	54.2	54.4	54.5	11.5

⁶ The fixed-effects specification required 17,492 individuals to be dropped, accounting for 105,000 observations, because they were never in financial stress or always in financial stress. As a robustness check, a random effects model, which does not require exclusion of these individuals, was also estimated. While some differences were evident between the two models, for most explanatory variables the two models produced qualitatively very similar results.

Table 3.9: Household characteristics associated with experience of financial stress

	Estimate
Household equivalised income (\$ '000, December 2016 prices)	-3.7
<i>Region of residence (Reference category: Major urban)</i>	
Other urban	-2.7
Other region	ns
<i>Household type (Reference category: Couple)</i>	
Couple with dependent children	ns
Single parent	10.5
Single person	14.0
Other	5.8
<i>Disability and health of household members</i>	
Severe disability of a household member aged 15 or over	ns
Disability of a child aged under 15	2.5
Poor general health of a household member aged 15 or over	2.8
Poor mental health of a household member aged 15 or over	7.3
<i>Housing tenure type (Reference category: Owner outright)</i>	
Owner with mortgage	8.0
Renter of social housing	10.0
Renter of private housing	15.3
<i>Life events experienced by a household member in the last two years</i>	
Birth or adoption of a child	4.3
Serious injury or illness	1.7
Death of spouse or child	ns
Detained in jail/correctional facility	4.3
Victim of physical violence (e.g., assault)	3.0
Victim of a property crime (e.g., theft, housebreaking)	2.5
Changed residence	1.6
Promoted at work	-3.6
Changed jobs (i.e., employers)	4.5
Fired or made redundant by an employer	6.3
Retired from the workforce	ns
A weather-related disaster (e.g., flood, bushfire, cyclone) damaged or destroyed home	5.4
<i>Year (Reference category: 2002–2004)</i>	
2005–2008	-11.0
2009–2012	-7.0
2013–2016	-10.4
Number of observations	45,523

Note: Estimates are mean marginal effects (in percentage points) from a fixed-effects logit model of the probability of experiencing two or more indicators of financial stress. See the Technical Appendix for further explanation of fixed-effects models. The sample period is 2002 to 2016, but with 2010 excluded due to the absence of financial stress data for that year. 17,492 individuals, accounting for 105,100 observations, were dropped from the fixed-effects specification because the dependent variable was always 0 or always 1 for the individual. ns indicates the estimate is not significantly different from 0 at the 10% level.



for an explanation of the health variables and Box 3.11, page 47, for an explanation of the disability variables.) While disability of an adult member does not significantly impact on the risk of financial stress, the presence of a child with disability increases the probability of financial stress by 2.5 percentage points. Moreover, the presence of a household member in poor general health increases the probability of financial stress by 2.8 percentage points, and the presence of a household member in poor mental health increases it by 7.3 percentage points.

Renters in the private rental market are at considerably more risk of financial stress than people in other housing situations. Unsurprisingly, outright home owners (without a mortgage) are the least at risk of financial stress, all else being equal.

Significant effects are also found for a range of major (stressful) life events (experienced by a member of the household within the preceding two years). Birth or adoption of a child, serious injury or illness, detention in jail, being a victim of physical violence, being a victim of a property crime, moving house, changing jobs, being dismissed from one's job and having a weather-related disaster damage or destroy one's home all substantially increase the likelihood of financial stress. Being promoted at work reduces the likelihood of financial stress, while no significant effects of retirement are found.

Broadly consistent with Figure 3.12 is that, all else being equal, the probability of financial stress was lowest in the 2005 to 2008 and 2013 to 2016 periods and highest in the 2001 to 2004 period.

Housing stress

Another commonly examined dimension of economic wellbeing is experience of 'housing stress',

Box 3.10: 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.

Box 3.11: Definition and classification of disability

The International Classification of Functioning, Disability and Health (ICF), produced by the World Health Organization, 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 defined in terms of restrictions in the core activities of self-care, communication and mobility. The HILDA Survey does not collect information in 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'.

generally defined as a situation in which housing costs, such as rent or mortgage repayments, are unduly burdensome. While there is a degree of arbitrariness in deciding what constitutes 'unduly burdensome', a widely accepted definition (see Box 3.12, page 50) is that a household is in housing stress if housing costs are more than 30% of household income, and the household is in the bottom 40% of the income distribution. Thus, only relatively low-income households can be deemed to be in housing stress. Presumably, this reflects the judgement that higher-income households with housing costs in excess of 30% of their income could choose to relocate to lower-cost housing, but are instead making a choice to spend a large fraction of their income on housing.

The main housing costs are rent and mortgage repayments, but council rates should in principle also be included. However, the HILDA Survey does not collect data

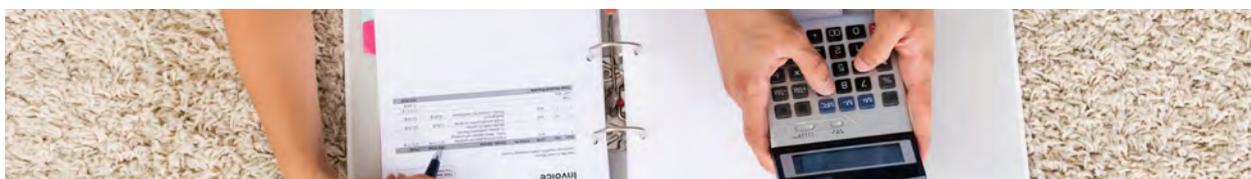


Table 3.10: Distribution of housing costs as a proportion of income—All persons, 2001 to 2016 (%)

	Mean	Median	75th percentile	90th percentile	Proportion with no housing costs
2001	17.4	12.5	22.6	33.8	36.1
2002	17.6	12.7	22.6	33.8	35.8
2003	16.7	13.4	23.5	35.3	34.5
2004	18.2	13.3	23.8	35.4	34.2
2005	17.2	13.8	24.4	36.2	33.8
2006	17.9	14.4	25.3	36.3	32.9
2007	18.3	15.1	26.2	37.8	32.6
2008	19.9	15.9	27.4	40.1	31.6
2009	19.5	15.1	24.4	36.4	30.1
2010	20.3	16.0	26.2	38.7	30.9
2011	21.2	16.6	27.5	40.5	29.6
2012	22.2	16.5	27.2	38.8	28.9
2013	22.0	16.5	25.9	37.4	29.0
2014	19.1	16.6	26.0	36.7	28.9
2015	19.0	16.4	25.9	36.9	28.7
2016	19.0	16.1	25.5	36.3	28.4

on expenditure on council rates, and so these are not included in the housing costs measure employed in this report.⁷

Table 3.10 (page 47) summarises the distribution of housing costs as a proportion of income across the entire Australian population. The mean share of housing costs in income over the 2001 to 2016 period ranges from a low of 16.7% in 2003 to a high of 22.2% in 2012. The mean of this ratio tended to rise up until 2012, but has declined since then, to 19% in 2016. A sizeable proportion of the population has no rent or mortgage payments, although this proportion has been declining: in 2001, 36.1% of the population had no housing costs; by 2016, only 28.4% had no housing costs.

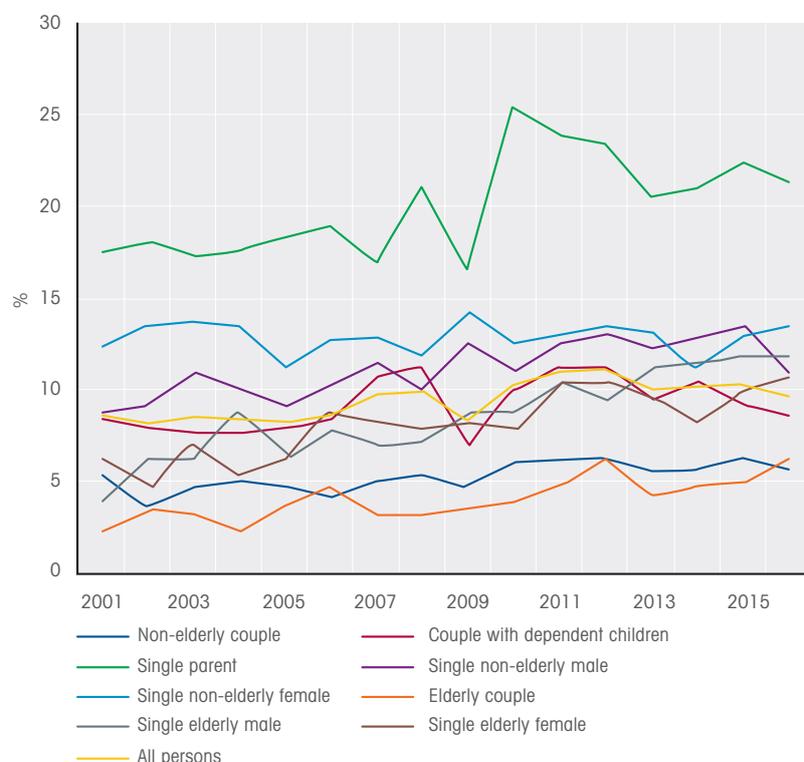
In all years, the 90th percentile is well above 30%, indicating that well over 10% of the population has housing costs in excess of 30% of household income—although not all of these households will be in housing stress, since some will not be in the bottom 40% of the income distribution.

Figure 3.13 presents graphs of the proportion experiencing housing stress each year based on the ‘30–40’ rule (as defined in Box 3.12, page 50), in total and disaggregated by family type. Among all persons, housing stress peaked in 2012, when 11.2% of the population was in housing stress. Since 2012, there has been a reasonably steady decline in housing stress, with 9.6% of the population in housing stress in 2016.

In common with the findings for financial stress (and indeed for poverty), single-parent families have the highest rate of housing stress. They experienced a particularly large increase in housing stress prevalence between 2009 and 2010, and the rate of housing



Figure 3.13: Proportion experiencing housing stress, by family type



⁷ Arguably, other expenses, such as maintenance and repairs and insurance premiums, should also be included, although studies of housing stress typically do not include these expenses.

Table 3.11: Rates of housing stress, by region, 2001 to 2016 (%)

	2001–2004	2005–2008	2009–2012	2013–2016	Change ^a
Sydney	10.1	9.8	12.7	13.0	2.8
Melbourne	7.9	8.7	9.6	9.7	1.8
Brisbane	7.4	8.4	10.7	10.5	3.1
Adelaide	7.1	7.9	9.1	8.4	1.3
Perth	9.2	9.3	8.2	8.8	-0.4
Other urban New South Wales	8.2	8.8	8.1	8.7	0.5
Other urban Victoria	6.4	8.7	8.3	8.7	2.4
Other urban Queensland	10.9	13.5	14.9	11.3	0.4
Other urban South Australia	7.2	8.8	8.8	9.5	2.3
Other urban Western Australia	7.1	6.7	6.7	9.4	2.3
Urban Tasmania	6.1	8.9	10.8	9.5	3.5
Australian Capital Territory and urban Northern Territory	6.1	5.6	7.9	6.6	0.5
Non-urban Australia	7.1	8.9	8.5	8.5	1.4

Note: ^a The percentage-point change between the 2001–2004 period and the 2013–2016 period.

Table 3.12: Rates of housing stress by housing tenure type and dwelling type, 2001 to 2016 (%)

	2001–2004	2005–2008	2009–2012	2013–2016	Change ^a
<i>Tenure type</i>					
Social housing	10.4	11.8	14.2	17.8	7.3
Private rental	17.8	17.2	20.0	20.0	2.4
Owner with mortgage	9.8	11.4	10.9	9.2	-0.6
<i>Dwelling type</i>					
Separate house	7.3	8.5	8.8	8.5	1.2
Semi-detached house	11.2	10.8	13.6	15.7	4.4
Flat	16.9	14.4	19.3	18.6	1.6

Note: ^a The percentage-point change between the 2001–2004 period and the 2013–2016 period.

stress has since remained considerably above the 2009 rate. Non-elderly single people also tend to have relatively high rates of housing stress, although the gap to the population as a whole is not large. Couples without children, both elderly and non-elderly, have the lowest levels of housing stress.

Rates of housing stress are compared across regions of Australia in Table 3.11. Housing stress is generally more prevalent in the mainland capital cities, with Sydney in particular standing out. However, differences across regions are perhaps not as large as one might expect given the differences in housing costs across the regions. Also notable is that housing stress is very high in other urban Queensland. It is only in the

last sub-period (2013 to 2016) that it is not the region with the highest rate of housing stress, and even in that period only Sydney has a higher rate.

The upper panel of Table 3.12 compares rates of housing stress across housing tenure types (where tenure types are as described in Box 10.1, page 127). Note that outright home owners, who do not appear in this table panel, by definition have a zero rate of housing stress, since they have no housing costs as defined in this report. Among those with housing costs, private renters have the highest rate of housing stress and owners with mortgages have the lowest rate. Moreover, over the HILDA Survey period, housing stress has increased considerably

among renters—particularly renters of social housing—whereas it has decreased slightly for home owners with a mortgage.

There are also differences in the incidence of housing stress by dwelling type. People living in flats have the highest rate of housing stress, followed by people living in semi-detached houses, while people living in separate houses have the lowest rates of housing stress. Growth in housing stress has been strongest for those living in semi-detached houses, perhaps reflecting strong rent and house-price growth in the inner urban areas of the major cities.

Table 3.13 (page 51) examines persistence of housing stress from one year to the next. There is a reasonably high degree of

Box 3.12: Housing stress

Various measures of housing stress have been proposed, but a common measure (for example, Rowley and Ong, 2012) is the so-called '30-40' rule: a household is in housing stress if housing costs are more than 30% of income and household income places the household in the bottom 40% of the income distribution.

A point of contention in the implementation of the '30-40' rule is whether to use gross (pre-tax) or disposable (post-tax) income, particularly for the determination of the ratio of housing costs to income. However, given that disposable income is more relevant to a household's living standard than gross income, and that different households with the same gross income will have different disposable incomes (for example, a single parent with the same gross income as a couple who each earn half the household's income will have a lower disposable income), the disposable income criterion is employed in this report.

persistence, and it has tended to increase over time. In the 2001 to 2004 period, 42.7% of those in housing stress in one year were also in housing stress in the next year. In the 2013 to 2016 period, this measure of persistence had increased to 49.2%. That said, it is notable that housing stress appears to be slightly less persistent than financial stress (Table 3.8).

Persistence of housing stress is lowest for non-elderly couples, with or without children, and highest for elderly people. The degree of persistence of housing stress has increased to an especially large degree for elderly people, rising from 45% to 72.9% for elderly couples, 47% to 71.6% for single elderly men and 55.5% to 69.2% for single elderly women. This is the same phenomenon as that found for financial stress, and again indicates concentration of housing stress on a smaller fraction of the elderly—that is, more often it is the same (elderly) people every year experiencing housing stress.

Table 3.14 considers the relationship between changes in housing stress from one year to the next and changes in household income, housing costs and household composition, as well as moving house. It presents the mean change in household income, the mean change in housing costs, the mean change in the number of adult household members, and the percentage who moved house for each of the following four groups: those not in housing stress in either year; those who entered

housing stress (that is, were not in housing stress in the first year but were in the second year); those who exited housing stress; and those who were in housing stress in both years.

The table shows that entering housing stress is associated with a large fall in household income (on average, \$38,702), and a significant increase in housing costs (\$4,835). Thus, movements into housing stress appear to be caused by both decreases in income and increases in housing costs (although of course an individual household may experience only one of these changes). Also evident is that moving into housing stress is associated with a reduction in the number of adult household members (of 0.52, which is likely to be a major cause of the reduction in income), and a high probability of moving house (37.9%, which is likely to be a major cause of the increase in housing costs).

Conversely, exiting housing stress is associated with a large average increase in income (and a small average increase in the number of adult members) and a sizeable average fall in housing costs (and a relatively high probability of moving, of 26.6%). Among those who remain in the same housing stress 'state' (not in stress, or in stress), income, housing costs and the number of household members change relatively little on average. Notable, however, is that 19.2% of those remaining in housing stress move house, which is considerably above the 12.8% of those not in





housing stress in either year who move. Moving house may be a way of escaping housing stress, but it is clearly not always successful.

Home energy expenditure

One potentially important source of economic hardship is the cost of home energy. There has been

considerable public discussion in recent years about growth in electricity and gas prices—and the price increases have no doubt been large—but the ramifications of these price increases for household budgets in particular, and economic wellbeing more broadly, are not entirely clear. One might expect energy expenditures to have risen, but this is not inevitable. Increased adoption of energy-efficient lighting

and solar panels, for example, could in principle offset the effects of price rises. And households may of course change their energy consumption behaviour, for example by reducing the extent to which they heat (or cool) their homes. Moreover, impacts are likely to differ across households, depending on their composition, income, location and various other factors.

Table 3.13: Persistence of housing stress from one year to the next by family type (%)

	<i>Persons experiencing housing stress in one year: Proportion experiencing housing stress in the next year</i>				<i>Mean proportion in housing stress in any given year</i>
	2001–2004	2005–2008	2009–2012	2013–2016	
Non-elderly couple	37.9	42.9	39.7	43.1	5.3
Couple with dependent children	38.4	43.0	50.1	45.4	9.3
Single parent	46.9	47.5	54.2	51.2	20.1
Single non-elderly male	46.0	43.2	48.0	50.3	11.3
Single non-elderly female	49.1	47.4	52.4	49.5	12.9
Elderly couple	45.0	56.9	53.4	72.9	4.2
Single elderly male	47.0	64.7	72.6	71.6	9.0
Single elderly female	55.5	68.7	67.8	69.2	8.3
All persons	42.7	45.4	50.4	49.2	9.5

Table 3.14: Income and housing changes associated with changes in housing stress status from one year to the next, 2001 to 2016

	<i>Household income (\$, December 2016 prices)</i>	<i>Housing costs (\$, December 2016 prices)</i>	<i>Number of adults</i>	<i>Moved (%)</i>
Not in housing stress in either year	-156	166	-0.06	12.8
Entered housing stress	-38,702	4,835	-0.52	37.9
Exited housing stress	28,550	-6,003	0.11	26.6
In housing stress in both years	219	66	-0.02	19.2



Table 3.15 presents statistics based on reported annual household expenditure on ‘Electricity bills, gas bills and other heating fuel (such as firewood and heating oil)’, which is available for each wave of the HILDA Survey since 2006.⁸ It shows that mean expenditure on home energy has indeed risen in real terms since 2006. In the 2006 to 2008 period, mean household expenditure was \$1,727 per year (at December

2016 prices), while in the 2015 to 2016 period, mean household expenditure was \$2,118. The HILDA data show, however, that mean household expenditure on home energy was actually higher in real terms in the 2013 to 2014 period. Indeed, the second row of Table 3.15 shows that home energy expenditure peaked as a share of household income in the 2011 and 2012 period, when it accounted for 3.1% of income.

The lower panel of Table 3.15 compares mean expenditure on home energy as a share of income across income quintiles. It shows that the share of income going on home energy expenditure declines as we move to higher income quintiles. Home energy expenditure is a particularly large share of household income for households in the bottom 20% of the income distribution: the income share of home energy expenditure is

Table 3.15: Household expenditure on home energy, 2006 to 2016

	2006–2008	2009–2010	2011–2012	2013–2014	2015–2016	Change ^a
Mean annual expenditure (\$, December 2016 prices)	1,727	1,922	2,064	2,185	2,118	390
Mean expenditure share of income (%)	2.5	2.7	3.1	3.0	2.8	0.3
<i>Mean expenditure share of income by quintile of the income distribution (%)</i>						
Bottom quintile	5.0	5.7	7.6	6.4	5.6	0.6
2nd quintile	2.5	2.6	2.7	2.9	2.6	0.1
Middle quintile	2.0	2.1	2.3	2.3	2.3	0.3
4th quintile	1.7	1.8	1.9	2.0	1.9	0.2
Top quintile	1.2	1.2	1.3	1.4	1.4	0.2

Note: Individuals with negative or zero household incomes are excluded from the calculation of the expenditure share estimates. ^a Change is between the 2006–2008 period and the 2015–2016 period.

⁸ Detailed household expenditure data were first collected in 2005, but the expenditure categories were changed in 2006 and so consistent measures of home energy expenditure are only available from 2006.

Table 3.16: Determinants of household home energy expenditure, 2006 to 2016 (\$, December 2016 prices)

	<i>Estimate</i>
<i>Household type (Reference category: Single person)</i>	
Couple without children	43
Couple with children	333
Single parent	122
Other household type	-176
Number of persons aged 15 and over minus 1	158
Number of children aged under 15	163
Household equivalised income (\$ '0,000, December 2016 prices)	68
All household members are retired	-52
<i>Dwelling type (Reference category: Separate house)</i>	
Flat	-365
Semi-detached house	-269
<i>Housing tenure type (Reference category: Home owner)</i>	
Private rental	-336
Social housing	-413
<i>State of residence (Reference category: New South Wales)</i>	
Victoria	218
Queensland	-290
South Australia	248
Western Australia	-42
Tasmania	118
Australian Capital Territory	539
Northern Territory	366
<i>Year (Reference category: 2006–2008)</i>	
2009–2010	186
2011–2012	338
2013–2014	452
2015–2016	381
Constant	787
Number of observations	220,489

Note: The table presents estimates from a regression model of the effects of household characteristics on annual energy expenditure.

approximately four times that of the top income quintile. Moreover, despite the overall decline in the share of income spent on home energy after 2011–2012, the share of the bottom quintile's income consumed by home energy was still 0.6 percentage points higher in 2015–2016 than in 2006–2008, compared with 0.1 to 0.3 percentage-point increases for the other four income quintiles.

The determinants of home energy expenditure are examined in Table 3.16 by estimating a regression model as a function of household characteristics. Unsurprisingly, the estimates are consistent with larger households spending more on home energy, and expenditure being higher for larger dwellings. Higher income is also associated with higher expenditure, holding other factors constant. Additionally, home owners have higher expenditure than renters, with social housing tenants in particular having the lowest expenditure, all else being equal.

Differences across states are likely to derive primarily from differences in energy prices and differences in climate. Households in Queensland have the lowest expenditure, while households in the Australian Capital Territory have the highest expenditure. The estimates for the effects of year confirm that expenditure was highest in 2013–2014, and lowest in 2006–2008.



4

The labour market

Inga Lass and Roger Wilkins



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, 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 those produced by the Australian Bureau of Statistics (ABS) for its monthly publication, *Labour Force, Australia* (ABS, 2018a), divide the population aged 15 and over into 'employed', 'unemployed' and 'not in the labour force' (see Box 4.1, page 56). 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 those 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 18 to 64 for each year over the 2001 to 2016 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 men and women employed remaining below their 2008 peaks and the proportions unemployed remaining above the 2008 trough.

For men in the 18 to 64 age range, the proportion employed part-time rose after the GFC and has remained at approximately 14% since 2013, up from 10.2% in 2008. Full-time employment of men, by contrast, has shown a continued trend decline since 2008, falling from a peak of 73.3% in 2008 to 67% in 2016. For women aged 18 to 64, while full-time employment declined in the wake of the GFC, it has since recovered somewhat, although the proportion employed full-time in 2016 was still lower than the 2008 peak of 39.6%.

What is not clear from Table 4.1 is how this overall softening of the labour market has translated into the rates at which various transitions in labour force status occur. For

Table 4.1: Labour force status of the population aged 18 to 64, 2001 to 2016 (%)

	<i>Employed</i>	<i>Unemployed</i>	<i>Not in the labour force</i>	<i>Total</i>	<i>Employed full-time</i>	<i>Employed part-time</i>
Men						
2001	79.7	5.8	14.5	100.0	68.8	10.9
2002	80.2	4.9	14.9	100.0	69.2	11.1
2003	80.6	4.0	15.4	100.0	69.1	11.5
2004	82.0	3.4	14.6	100.0	70.3	11.7
2005	82.3	3.6	14.1	100.0	71.4	10.9
2006	82.6	3.2	14.2	100.0	70.7	11.9
2007	82.8	2.9	14.3	100.0	71.5	11.3
2008	83.5	3.0	13.5	100.0	73.3	10.2
2009	81.6	4.8	13.6	100.0	70.0	11.5
2010	83.1	3.8	13.1	100.0	71.5	11.4
2011	83.1	3.6	13.3	100.0	69.8	13.2
2012	82.6	4.3	13.1	100.0	68.9	13.5
2013	81.4	4.3	14.3	100.0	67.3	13.7
2014	81.7	4.9	13.5	100.0	67.1	14.4
2015	82.1	4.8	13.1	100.0	67.6	14.4
2016	81.1	4.5	14.4	100.0	67.0	13.9
Women						
2001	64.2	3.7	32.1	100.0	35.1	29.1
2002	64.0	3.7	32.3	100.0	34.4	29.6
2003	64.5	3.0	32.5	100.0	34.5	29.9
2004	65.5	3.5	31.1	100.0	34.9	30.6
2005	66.7	3.1	30.1	100.0	35.5	31.3
2006	68.7	2.5	28.8	100.0	37.8	30.9
2007	69.8	2.8	27.4	100.0	38.7	31.1
2008	70.3	3.0	26.7	100.0	39.6	30.7
2009	69.8	2.8	27.4	100.0	37.6	31.9
2010	69.7	3.1	27.3	100.0	38.4	31.2
2011	68.7	3.7	27.6	100.0	36.9	31.6
2012	68.6	3.1	28.3	100.0	36.6	31.8
2013	68.7	3.8	27.5	100.0	37.1	31.5
2014	68.7	3.8	27.5	100.0	36.6	32.0
2015	70.1	3.9	26.1	100.0	37.2	32.8
2016	69.6	3.6	26.8	100.0	38.2	31.2

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



example, weaker employment growth could arise from fewer transitions into employment, or increased transitions out of employment.

Figure 4.1 examines this issue by describing one-year transitions between employment and non-employment of persons aged 18 to 64 over the 2001 to 2016 period. The figure shows the proportion of non-employed individuals moving into employment from one year to the next, and the proportion of employed individuals moving into non-employment from one year to the next.

Compared with women, men have lower transition rates out of employment, and higher transition rates into employment, in large part because of the effects of childbirth on women's employment participation. In any given year, approximately 25% of non-employed men aged 18 to 64 transition into employment, while approximately 5% of employed men aged 18 to 64 leave employment. Approximately 20% of non-employed women aged 18 to 64 move into employment each year, and just under 10% of employed women aged 18 to 64 leave employment.

While there is movement in transition rates from year to year, it is difficult to identify clear trends. For

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**. 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).

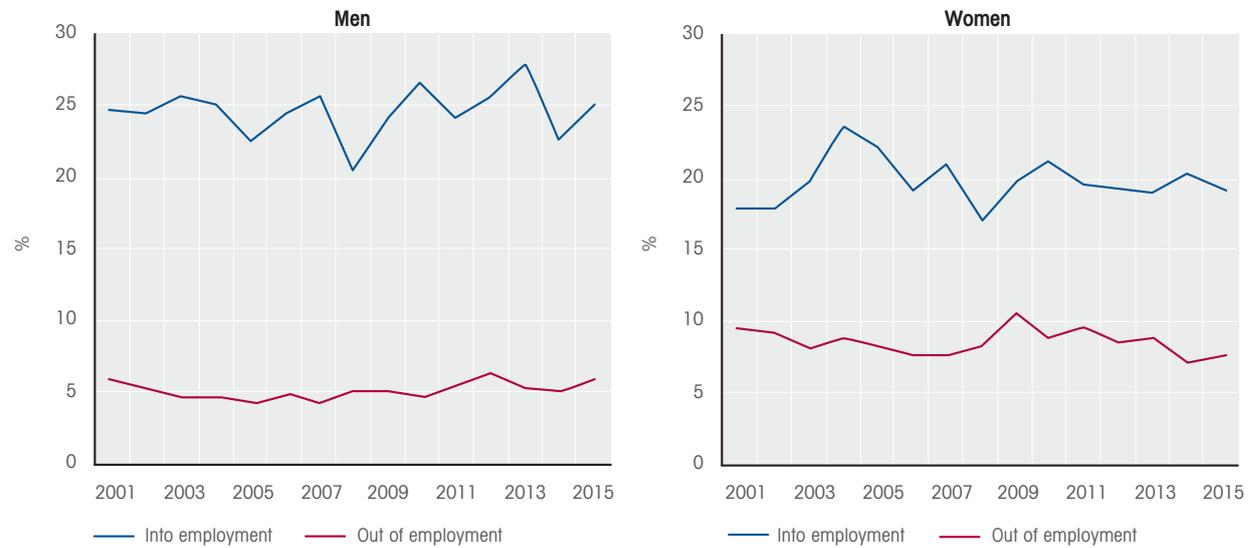
^a The definition of part-time employment adopted in this report differs from the definition the ABS uses in its Labour Force Survey. The ABS definition requires both usual and current actual weekly hours to be less than 35.

men, there appears to be a slight increase in the rate of transition out of employment since around 2007; the transition rate was 4.3% between 2007 and 2008, and 5.8% between 2015 and 2016. For women, there was a sharp rise in transitions into employment between 2002 and 2004, but since then the rate of transition into employment appears to have been trending downwards very slightly. Also notable for women is that the

rate of transition out of employment spiked upwards in the 2009 to 2010 transition period, but has since trended downward.

Figure 4.2 probes more deeply into labour market transitions by distinguishing between full-time and part-time employment. The upper two panels present transitions from non-employment, showing that men have higher rates of transition to full-time employment, while in most years, women have

Figure 4.1: Rates of movement into and out of employment from one year to the next—Persons aged 18 to 64



Note: Years on the horizontal axis refer to the first year of the two-year transition period. For example, 2015 refers to transitions between 2015 and 2016.

a higher rate of transition into part-time employment. However, consistent with the evidence in Table 4.1, it appears that there has been a significant change for men in the post-GFC period. Between 2008 and 2013, there was a large increase in the rate of transition from non-employment to part-time employment. Over the 2001 to 2016 period as a whole, there has also been a trend decline in the proportion of non-employed males moving into full-time employment from one year to the next. Between 2015 and 2016, the rate of transition from non-employment was approximately the same for full-time and part-time employment.

The second panel of Figure 4.2 examines transitions from part-time employment to non-employment and from part-time employment to full-time employment. Men are much more likely than women to

move from part-time employment to full-time employment, and similarly likely to move from part-time employment to non-employment. However, it is also apparent that the rate of movement from part-time employment to full-time employment has tended to decline for men over the course of this century. Between 2001 and 2002, 30.7% of part-time employed men moved into full-time employment; between 2015 and 2016, only 25.1% of part-time employed men moved into full-time employment. For women, there also appears to be a slight trend decline in the rate of movement from part-time employment to full-time employment up until 2013, but the rate of transition into full-time employment subsequently increased quite rapidly over the following two year-pairs.

The bottom panel of Figure 4.2 examines transitions out of

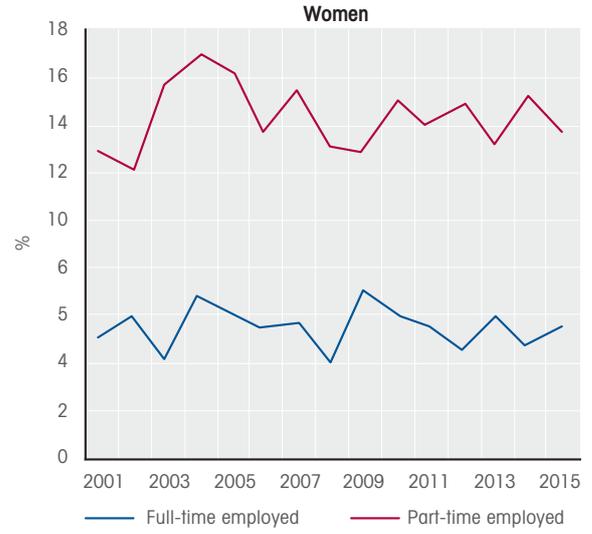
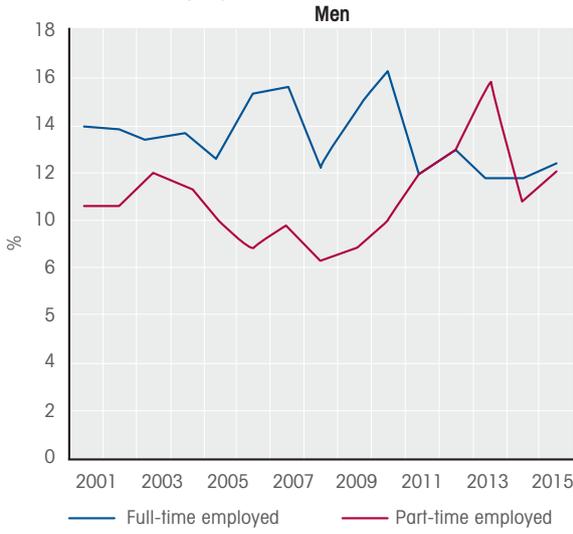
full-time employment. Women have higher rates of transition out of full-time employment, to both non-employment and part-time employment. The rate of transition to part-time employment is around 10–12% for women, compared with approximately 4% for men, while the rate of transition to non-employment is around 5% for women and 4% for men.

Since 2007, there has been a slight but steady rise in the proportion of full-time employed men transitioning to both part-time employment and non-employment. For women, the rate of transitions from full-time employment to non-employment has declined slightly over this century, while transitions from full-time employment to part-time employment, after rising between 2005 and 2008, have since declined slightly.

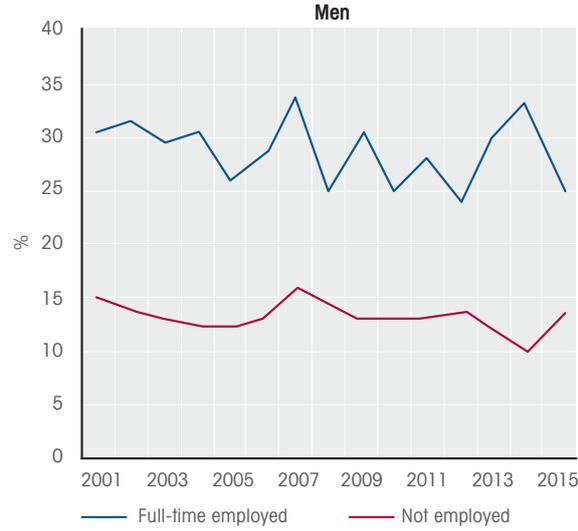


Figure 4.2: Rates of movement between non-employment, part-time employment and full-time employment from one year to the next—Persons aged 18 to 64

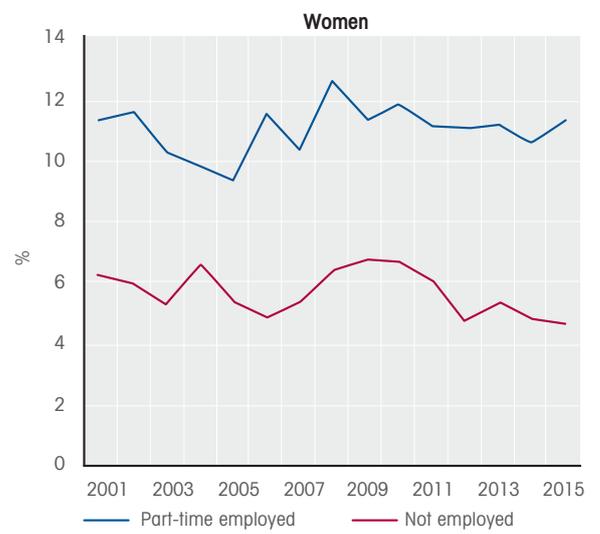
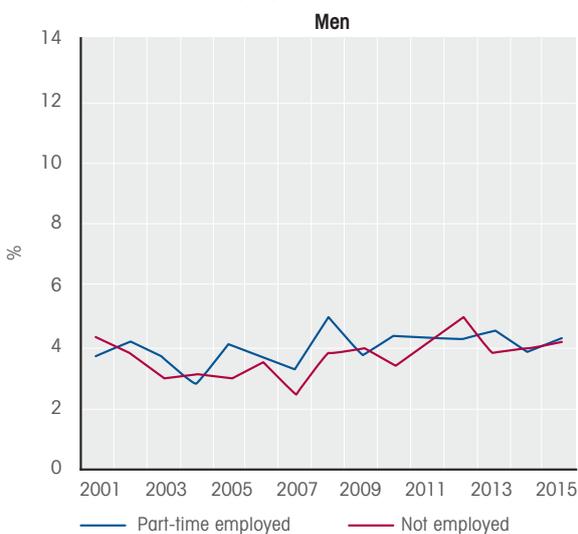
A. From non-employment



B. From part-time employment



C. From full-time employment



Note: Years on the horizontal axis refer to the first year of the two-year transition period. For example, 2015 refers to transitions between 2015 and 2016.

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.

Figures 4.3, 4.4 and 4.5 provide an overall picture of earnings outcomes and changes over the period spanned by the HILDA Survey. They present graphs of summary measures of the male and female earnings distributions over the 2001 to 2016 period, plotting the mean, median, 10th percentile, 90th percentile and Gini coefficient. Figure 4.3 examines weekly earnings of full-time employees, Figure 4.4 examines hourly earnings of part-time employees and Figure 4.5 examines weekly earnings of all employees.¹

Over the full 2001 to 2016 period, the graphs show mean weekly earnings of full-time employees increased by 23% for males and 22% for females, while the Gini coefficient (see Box 3.3, page 30) increased by 5% for males and 8% for females.

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 and only partially recovered in 2016. Mean and median earnings

of full-time employee females, by contrast, grew quite strongly between 2014 and 2015, but then declined between 2015 and 2016; mean and median earnings of full-time employee females were only marginally above their 2012 levels in 2016.

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 2013, 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 0.228 to 0.246, a 7.9% increase. Collectively, these recent movements in male and female full-time employee earnings distributions imply there

has been some convergence between full-time employee male and female earnings distributions in recent years.

For hourly earnings of part-time employees, between 2001 and 2016, the mean increased by 17% for males and by 16% for females, while the Gini coefficient decreased by 7% for males and 11% for females. However, the Gini coefficient for hourly earnings of part-time employees exhibits considerable year-to-year fluctuation, especially for males, so it is difficult to discern the underlying trend.

Figure 4.5 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



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 38 hours per week, but may implicitly only be paid for 38 hours.

¹ See Box 4.2 for explanation of the earnings measures. Note further that Figures 4.3, 4.4 and 4.5 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. In addition, in Figures 4.3 and 4.4, where an employee holds more than one job, we restrict analysis to earnings and hours worked in the employee's main job. Figure 4.5 examines earnings in all jobs (combined).

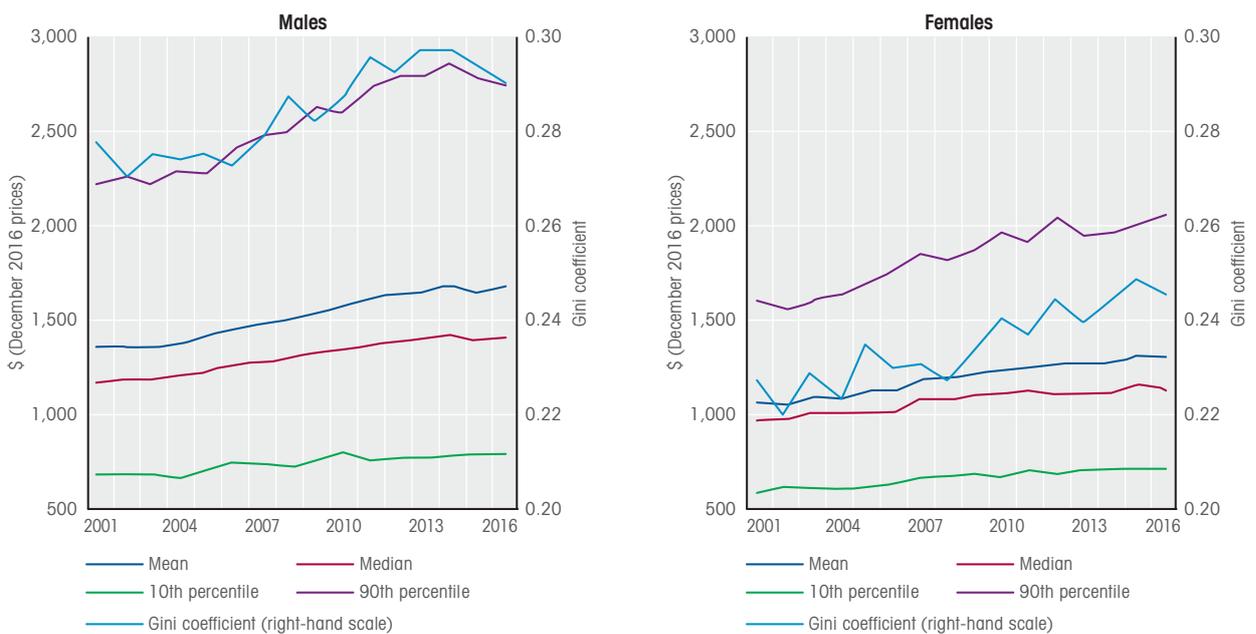
perhaps gives a better indication of how, on average, employees are faring, and of the extent of inequality in the labour market.

Growth in mean weekly earnings between 2001 and 2016 is slightly more muted for all male employees than for male full-time employees, rising by 20%. Weekly earnings of all female employees increased by 23% between 2001 and 2016, which is almost the same as the growth in mean weekly earnings of female full-time employees, and markedly higher than the 16% 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 remained relatively unchanged between 2001 and 2007, but then rose sharply up to 2014, since when there has been a decline. The sharp rise in the Gini coefficient is not evident for female employees, and indeed the Gini coefficient was lower in 2016 than at any other time in the 2001 to 2016 period.

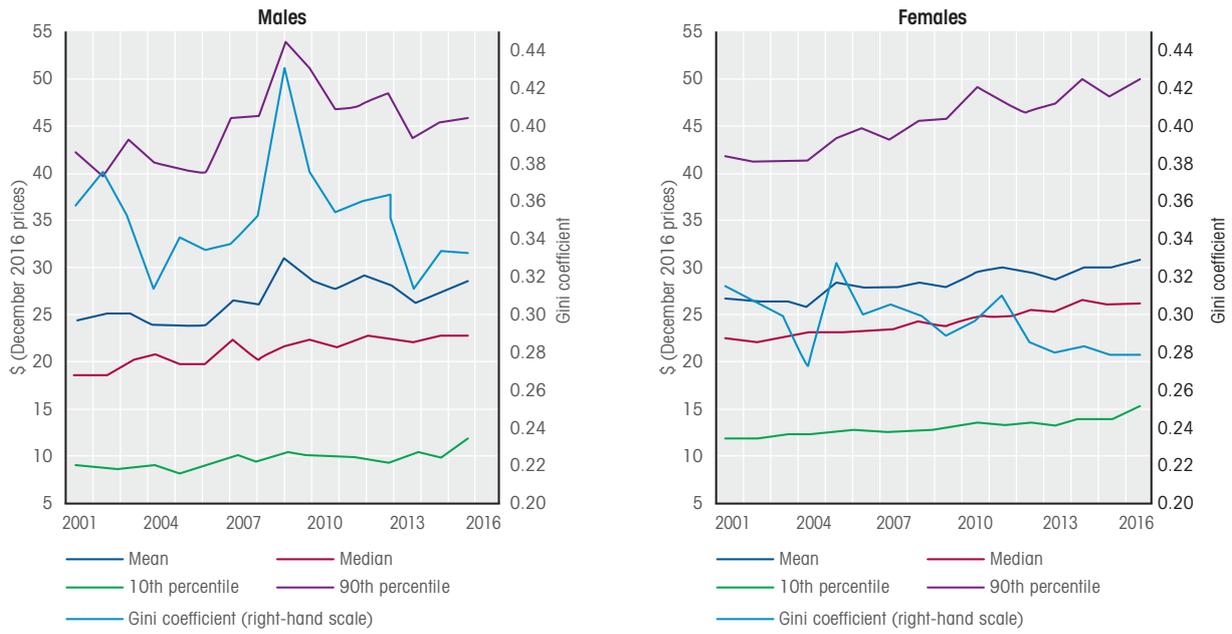


Figure 4.3: Weekly earnings in main job of full-time employees



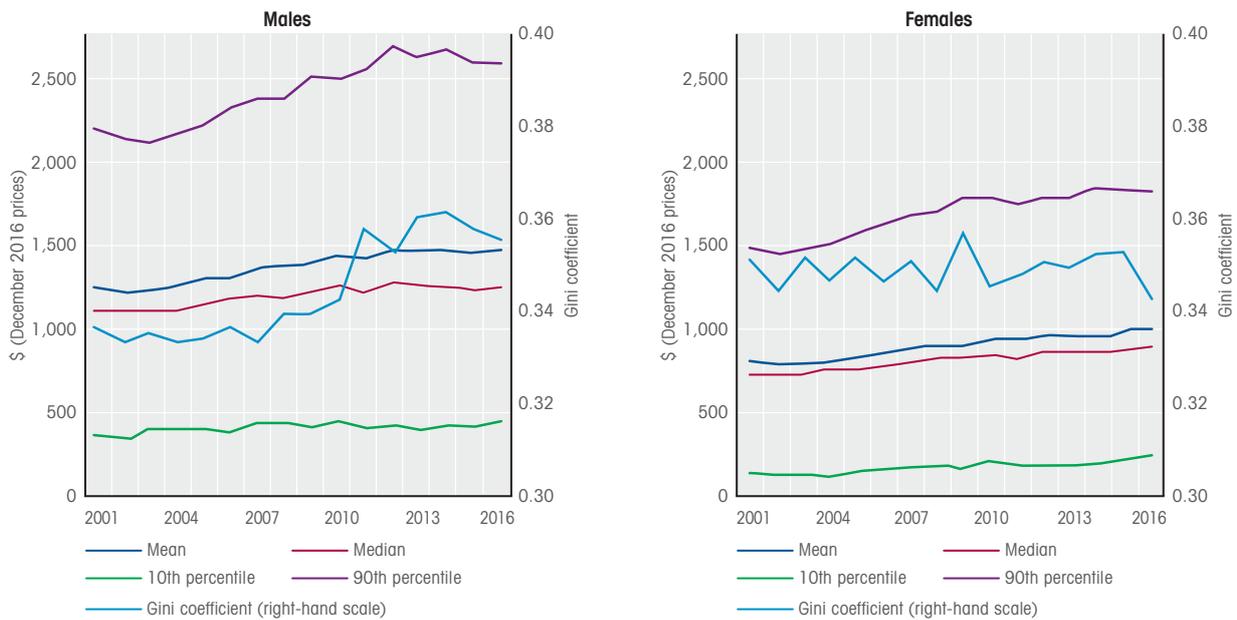
Note: Weekly earnings less than \$100 at December 2016 prices have been excluded.

Figure 4.4: Hourly earnings in main job of part-time employees



Note: Hourly wages less than \$2 and more than \$500 at December 2016 prices have been excluded.

Figure 4.5: Weekly earnings in all jobs of all employees



Underemployment²

Figure 4.6 depicts the development of the underemployment rate since 1978 using ABS data, showing its rise as a feature of the Australian labour market over the last two decades. According to the ABS definition, underemployed workers are part-time workers who would like to work more hours (and are available to do so) as well as full-time workers who work part-time for economic reasons (see Box 4.3, page 63). The underemployment rate, in turn, is the number of underemployed workers as a percentage of the labour force.

The figure shows large increases in the underemployment rate over the past 40 years, starting out from as low as 2.6% in February 1978 to an all-time high of 8.7% in February 2017. In order to provide a comprehensive

picture of underutilised labour in Australia, it has thus increasingly become important to look at underemployment as well as unemployment.

Against this background, we provide a broad picture of the evidence from the HILDA survey on the underemployment phenomenon in Australia. As explained in Box 4.3 (page 63), the definition of underemployment adopted for the HILDA Survey analysis presented in this report differs slightly from the ABS definition. Specifically, full-time workers working part-time for economic reasons are excluded, while part-time workers wanting more hours are included regardless of whether they are available to work those additional hours.³

The analysis includes all workers from age 15 and comprises both employees and the self-employed.

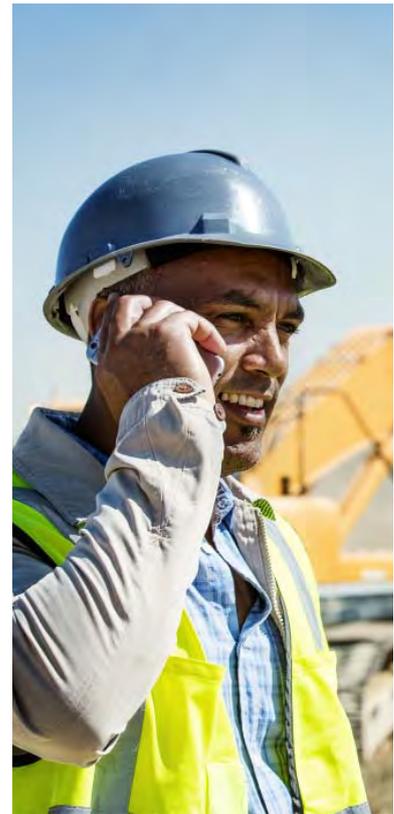
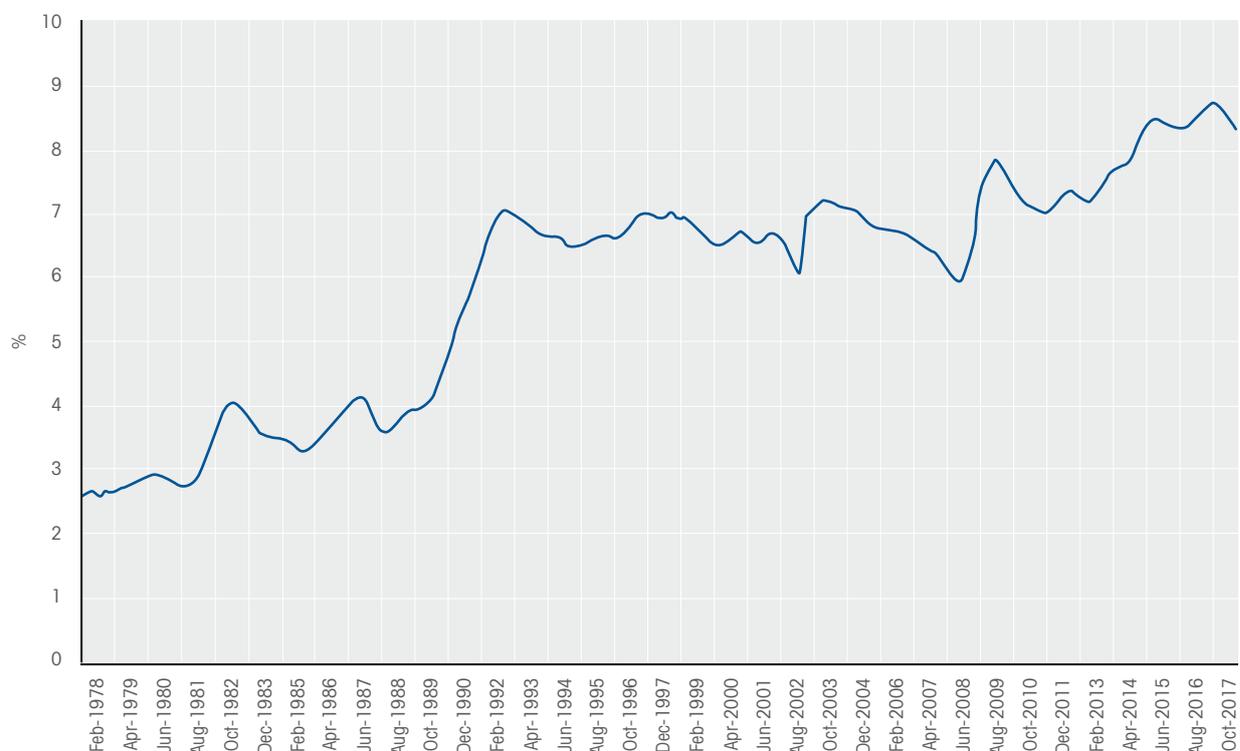


Figure 4.6: Underemployment rate (as a percentage of the labour force), 1978-2017



Source: ABS (2018a), quarterly trend series.

² Parts of this section are based on work undertaken in Lass and Wooden (2018).

³ Workers reporting wanting more hours of work have only been asked about their availability to work those additional hours since Wave 10. The requirement that the worker be available to work the additional hours is therefore not used for the identification of the underemployed in this report, which focuses on the entire 2001 to 2016 period. However, an additional analysis of Waves 10 to 16 data revealed that the vast majority (87%) of part-time workers wishing to work more hours are available to work those hours.

Box 4.3: Definition of underemployment

The definition of underemployment used in this report is based on the Australian Bureau of Statistics (ABS) concept (see ABS, 2014a), which in turn is based on the concept of time-related underemployment used by the International Labour Organization (ILO). The ABS defines underemployment as comprising:

- part-time workers who want, and are available for, more hours of work than they currently have; plus
- full-time workers who worked part-time hours during the reference week for economic reasons (such as being stood down or insufficient work being available).

It is not possible to precisely replicate the ABS definition with the HILDA Survey data. First, full-time workers who worked part-time hours for economic reasons cannot be identified. Second, the availability to work more hours is only measured in the HILDA Survey from Wave 10 onwards. In order to use the entire 16-wave period, the analysis of underemployment is therefore restricted to part-time workers who would like to work more hours, regardless of availability.

Workers are defined as part-time if they usually work fewer than 35 hours per week in all jobs (including any paid or unpaid overtime). This differs slightly from the definition employed by the ABS in its Labour Force Survey, which imposes the requirement that a worker must also work less than 35 hours in the survey reference week.



Who is most at risk of underemployment?

Table 4.2 provides information on the distribution of employment states among different socio-demographic groups. The first three columns of data give the *shares of all employed* in three different employment states:

- full-time employed*, that is, usually working 35 or more hours per week in all jobs;
- fully part-time employed*, that is, part-time employed but not desiring more hours; and
- underemployed*, that is, part-time employed and wishing to work more hours.

Since underemployment as defined in this chapter is part-time by definition, a group's underemployment rate may be related to the overall likelihood of this group to work part-time. Therefore, the table contains a fourth column of data, which gives the group's underemployment rate as a *share of part-time workers*. The results are pooled across the entire 2001 to 2016 period.

As can be seen in the last row of the table, pooled over the entire period, 68% of workers are employed full-time, 21.2% are fully part-time employed and 10.8% are

underemployed. Of all workers who are part-time employed, roughly one in three (33.8%) is underemployed.

The remainder of the table shows that the risk of being underemployed varies strongly with the characteristics of the worker.⁴ For example, the share of underemployment declines steadily with age: while 31% of workers below the age of 20 are underemployed, this applies to only 5.7% of workers aged 65 and older.

This age-gradient is not merely a result of young workers' higher propensity to work part-time. As can be seen in the last column, among those working part-time, the share of underemployment is also highest among younger workers: 41.2% of part-time employees aged 15 to 19, and 47.1% of part-time employees aged 20 to 24, are underemployed. Like the overall underemployment rate, the share of underemployment among part-time workers is lowest among the highest age group, amounting to only 9.4% of part-time workers aged 65 or older.

Furthermore, the risk of underemployment is associated with educational attainment (see Box 7.1, page 103), with the least-educated workers the most likely to be underemployed: 14.5% of workers whose highest educational

level is Year 11 or lower, and 15.6% of workers who have completed Year 12, are underemployed, compared to 6.3% of those with a postgraduate qualification. However, these differences are to some degree the result of the overall higher propensity of workers with low educational levels to work part-time. When looking at the underemployment share among part-time workers only, the differences by level of educational attainment are much smaller.

Those who are still studying full-time have the highest underemployment rate of all groups considered, with 30.2% of employed full-time students being underemployed. Yet, this is also mainly a function of full-time students' higher propensity to work part-time, as the underemployment share is similar between students and non-students when only looking at part-time workers.

Furthermore, having a disability that limits the ability to work (see Box 3.11, page 47) increases the risk of underemployment, with 16.1% of workers who have a moderate or severe disability being underemployed, compared to 10.3% of those without such a condition. However, this difference almost disappears when taking into account the higher likelihood of working

⁴ It should be noted that some of the worker characteristics investigated in this section are correlated. For example, being young often goes together with being single, childless and/or a full-time student. For a recent example of a study that uses regression analyses to disentangle the effects of these individual characteristics on the risk of underemployment, see Rozenbes and Farmakis-Gamboni (2017).

Table 4.2: Underemployment as a share of total employment and as a share of part-time employment in different socio-demographic groups—Employed persons aged 15 and over, 2001 to 2016 (pooled) (%)

	Share of total employment			Share of part-time employment
	Full-time	Fully employed part-time	Underemployed	Underemployed
<i>Age</i>				
15–19	24.5	44.4	31.0	41.2
20–24	58.0	22.3	19.8	47.1
25–34	78.4	13.0	8.6	40.0
35–44	72.8	18.6	8.5	31.4
45–54	74.6	17.8	7.6	30.0
55–64	66.7	26.2	7.2	21.5
65 and over	39.4	55.0	5.7	9.4
<i>Educational level</i>				
Postgraduate degree	79.8	13.9	6.3	31.4
Graduate diploma/Certificate	71.7	21.8	6.5	23.0
Bachelor or Honours degree	73.7	18.5	7.8	29.6
Advanced diploma or Diploma	71.7	19.6	8.7	30.7
Certificate III or IV	76.7	14.8	8.5	36.7
Year 12	59.8	24.5	15.6	39.0
Year 11 or lower	56.1	29.3	14.5	33.2
<i>Study status</i>				
Not studying full-time	73.1	17.9	8.9	33.3
Full-time student	14.0	55.9	30.2	35.1
<i>Disability</i>				
No disability that restricts work	69.3	20.4	10.3	33.6
Moderate or severe disability	53.4	30.5	16.1	34.6
<i>Relationship status</i>				
No partner in household	61.0	22.4	16.6	42.6
Married or de facto	72.0	20.6	7.4	26.5
<i>Own children in household</i>				
No child aged below 14	67.7	20.8	11.5	35.8
Youngest child aged 0–4	69.2	22.4	8.4	27.3
Youngest child aged 5–14	68.1	22.4	9.5	29.9
<i>Area of residence</i>				
Major urban	68.8	20.7	10.5	33.7
Other urban	64.1	23.4	12.6	35.0
Other region	68.7	21.4	9.9	31.6
<i>State or territory of residence</i>				
New South Wales	69.4	19.8	10.8	35.5
Victoria	66.2	22.9	11.0	32.5
Queensland	69.8	19.3	10.9	36.2
South Australia	64.3	23.1	12.6	35.4
Western Australia	66.9	23.6	9.5	28.8
Tasmania	61.5	26.4	12.2	31.5
Northern Territory	73.9	20.3	5.7	22.0
Australian Capital Territory	72.9	19.6	7.5	27.6
<i>Country of birth and Indigenous status</i>				
Australia—Indigenous	66.4	22.6	11.0	32.7
Australia—Non-Indigenous	74.3	18.3	7.4	28.8
Main English-speaking country	71.6	17.0	11.4	40.4
Other country	63.4	19.2	17.4	47.6
All persons	68.0	21.2	10.8	33.8

Note: The first three columns of data in each row sum to 100% (subject to rounding error).

part-time among workers with a work-limiting disability: 34.6% of part-time workers with a moderate or severe disability are underemployed, compared to 33.6% of other part-time workers.

With respect to the private living arrangement, the table shows that persons without a partner in the household are more likely to be underemployed: they have an underemployment rate of 16.6%, compared to 7.4% among persons who live with a partner. Persons without a partner in the household are also more at risk of underemployment when only focusing on part-time workers: 42.6% of part-time workers without partner are underemployed, compared to 26.5% of partnered part-time workers. Persons without children below the age of 15 are more likely to be underemployed, and this applies both to the overall underemployment share and the share of part-time workers who are underemployed.

Considering region of residence (see Box 3.5, page 32), the table shows that workers in 'other urban' areas of Australia are more likely to be underemployed than workers living in other regions, and this relationship also holds when only looking at part-time workers. The risk of underemployment also varies across state or territory. Workers in the Northern Territory, the Australian Capital Territory and Western Australia are the least likely to be underemployed, while workers in South Australia and Tasmania are the most likely to be underemployed. The order changes to some degree when focusing only on part-time workers, with those from Queensland and New South Wales being most at risk of underemployment. However, part-time workers in the Northern Territory, the Australian Capital Territory and Western Australia are still the least likely to be underemployed.

Finally, immigrants are more likely to be underemployed than Australian-born persons, with more than 11%

Box 4.4: 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.



of workers from the main English-speaking countries, and more than 17% of workers from other countries, being underemployed. The underemployment risk of Indigenous Australians is very close to the national population average (11%), while non-Indigenous native-born Australians are the least likely to be underemployed (7.4%). These relationships also hold when only focusing on part-time workers.

In sum, underemployment is spread unevenly across different socio-demographic groups. However, there is a systematic component to it. With very few exceptions (in particular, in respect of educational attainment and disability), those groups that have the highest overall underemployment rates are also the groups that have the highest share of underemployment among part-time workers. Furthermore, as can be seen from a comparison with the first column of data in

Table 4.2, the groups with the highest underemployment risks are often the groups that have the lowest shares employed full-time. In other words, underemployment (both as a share of all employment and as a share of part-time employment) is concentrated on groups with the highest rates of part-time employment.

Employment characteristics of underemployed workers

Table 4.3 investigates the extent to which underemployed workers have different job characteristics to fully employed part-time and full-time workers, using the same definitions as above. The table shows that underemployed workers have the lowest mean working hours of the three types of workers: on average, they work 17 hours per week in all jobs, which is more than two and a half hours less than fully employed part-time workers, who work almost



Table 4.3: Employment characteristics of the underemployed compared to full-time workers and fully employed part-time workers—Employed persons aged 15 and over, 2001 to 2016 (pooled)

	Full-time	Fully employed part-time	Underemployed	Total
Working hours (mean)	45.0	19.8	17.2	36.7
Multiple job holders (%)	7.3	9.3	10.9	8.1
<i>Employment type (%)</i>				
Permanent contract	68.4	37.7	24.7	57.2
Fixed-term contract	9.2	5.6	5.0	8.0
Casual contract	6.8	39.5	57.3	19.2
Self-employed with employees	7.4	5.0	1.6	6.2
Self-employed without employees/other arrangements ^a	8.3	12.2	11.5	9.4
Total	100.0	100.0	100.0	100.0
Years with employer/in current business (mean)	7.5	6.7	3.6	6.9
Public sector (%)	22.6	25.2	17.1	22.5
<i>Occupation (%)</i>				
Managers	16.7	6.5	2.8	13.0
Professionals	24.8	21.6	13.7	22.9
Technicians and trades workers	17.2	5.9	7.2	13.7
Community and personal service workers	6.8	16.5	20.4	10.3
Clerical and administrative workers	14.1	18.3	10.5	14.6
Sales workers	5.1	16.3	21.1	9.2
Machinery operators and drivers	7.9	2.4	4.1	6.3
Labourers	7.5	12.6	20.2	9.9
Total	100.0	100.0	100.0	100.0
<i>Firm size (%)</i>				
Less than 20 employees	30.2	40.6	43.3	33.7
20–99 employees	14.9	14.1	15.3	14.8
100–499 employees	12.3	9.3	8.4	11.3
500 or more employees	42.5	35.9	33.0	40.2
Total	100.0	100.0	100.0	100.0

Note: ^a The 'other arrangements' employment type includes employees whose employment arrangements are not easily classifiable (for example, persons working on commission) as well as unpaid family workers. Cells may not add up to column totals due to rounding.

20 hours per week. By definition, full-time workers have the longest working hours, averaging 45 hours per week. Despite the low working hours, underemployed workers are the most likely to hold multiple jobs: 10.9% of underemployed workers have more than one job, compared to 9.3% among fully employed part-time workers and 7.3% among full-time workers.

With respect to employment type, the table shows that underemployed workers are much more likely than other workers to work on a casual basis: 57.3% of underemployed workers have a casual contract, compared to 39.5% of fully employed part-time workers and 6.8% of full-time workers. In contrast, underemployed workers are much less likely than other workers to hold a permanent contract or to be self-employed with employees.

Underemployed workers have considerably shorter job tenure than other workers, having worked for their current employer (or in their current business) for an average of 3.6 years, compared with 6.7 years for fully employed part-time workers and 7.5 years for full-time workers.

With respect to sector and occupation of employment, underemployed workers are less likely than full-time workers and fully employed part-time workers to work in the public sector or to work in one of the high-skilled occupations—that

is, as managers or professionals. In contrast, they are more likely than others to work as community and personal service workers, sales workers and labourers. Furthermore, underemployed workers are more likely to work in small firms of less than 20 employees, and less likely to work in large firms of 500 or more employees.

Transitions out of underemployment

In order to evaluate the long-term effects underemployment might have on workers, it is important to know whether underemployment is a transitory or permanent experience for most workers and whether underemployed workers exit underemployment through obtaining their desired number of working hours or through other ways.

Figure 4.7 provides information on the share of underemployed workers who exited underemployment from one year to the next between 2001 and 2016. We see that close to two-thirds (on average, 64%) of workers left underemployment from one year to the next, suggesting that underemployment is a transitory experience for most workers.

The figure also shows that the rate of exiting underemployment has varied over the observation period. Prior to 2008, the share of workers exiting underemployment was rising, from 62% exiting between 2003 and 2004 to 70% exiting

between 2007 and 2008. The exit rate subsequently fell, most likely as a consequence of the economic slowdown during the GFC, and has remained at a lower level since. Between 2015 and 2016, 62% of underemployed workers exited this state.

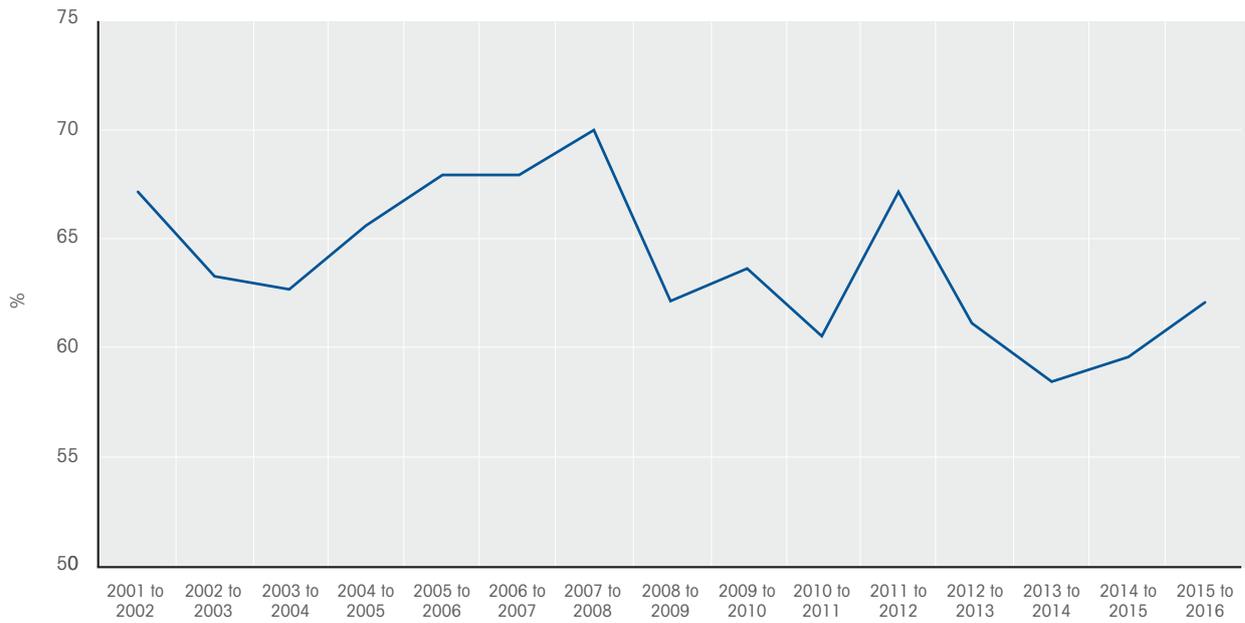
While underemployment appears to be a short-term state for most of the underemployed, an important question is whether these workers leave underemployment by obtaining their desired working hours or whether they exit in a different way.

Figure 4.8 shows the average year-to-year transitions to different employment states for underemployed workers. At the broadest level, three destination states are distinguished:

- i) *Still underemployed*: Workers who are still underemployed in the following year—that is, they continue to be part-time workers who desire more hours.
- ii) *Fully employed*: Workers who have increased their hours to full-time (regardless of whether they might desire even more hours) and workers who are still working part-time but no longer desire additional hours.
- iii) *Exited employment*: Workers who are either unemployed or out of the labour force in the following year.



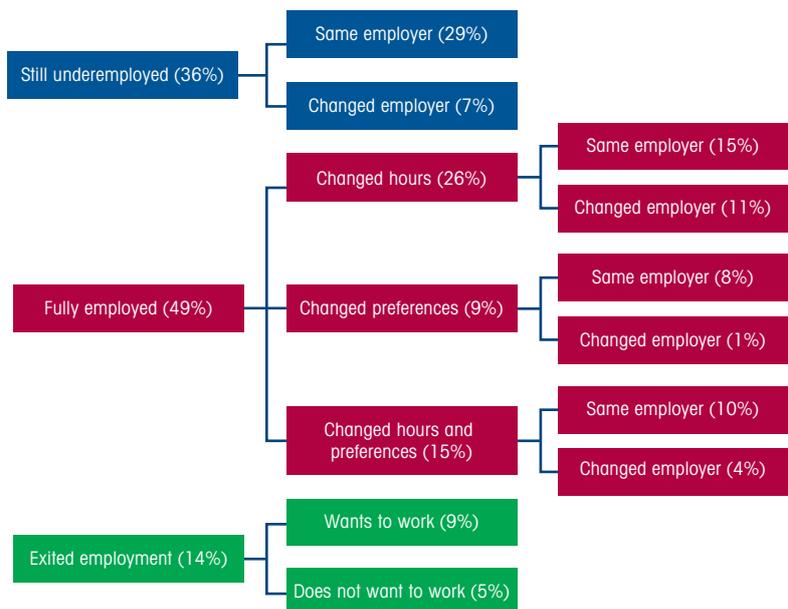
Figure 4.7: Year-to-year exit rate out of underemployment—Employed persons aged 15 and over



Of all workers observed as underemployed, one year later 36% are still underemployed, 49% are fully employed and 14% have left employment. Among those who are still underemployed, most (80%) have remained with the same employer (representing 29% of all underemployed workers). Nevertheless, this still leaves a small fraction who, despite changing employer, are unable to escape underemployment (7% of all underemployed workers).

With regard to those who become fully employed, there are two ways through which this state is achieved: either additional working hours are obtained; or working hours preferences change (or a combination of both). It is the former that is most common: around 26% of all underemployed workers obtain a sufficient increase in their working hours so that one year later they are no longer underemployed. In contrast, just 9% of the underemployed achieve a match by altering their preferences (effectively settling for the original number of hours). However, there is also a relatively large group (15% of all underemployed workers) that exits underemployment by adjusting

Figure 4.8: Destination states of underemployed workers—Employed persons aged 15 and over, 2001 to 2016 (%)



both their actual and desired working hours.

These exits from underemployment into a fully employed state can take place while remaining with the same employer or via a change of employer. Exiting underemployment through a change of hours is more likely when workers remain with their employer (15%) than when they change employer (11%).

Nevertheless, the relative likelihood of achieving preferences through increased hours is highest for those who change employers. Very few of those underemployed workers who exit underemployment by adjusting only their preferences do so while changing employer (just 1% of all employees). Similarly, exiting underemployment via adjustment of both hours and preferences is more likely if a person remains with the same employer (10%), but also happens through a change of employer (4%).

Finally, among those underemployed who one year later are no longer employed, the majority (65%, or 9% of all underemployed workers) still want to work (that is, are either unemployed or marginally attached to the labour market). Only a minority leave employment and do not wish to work anymore (5% of all underemployed).

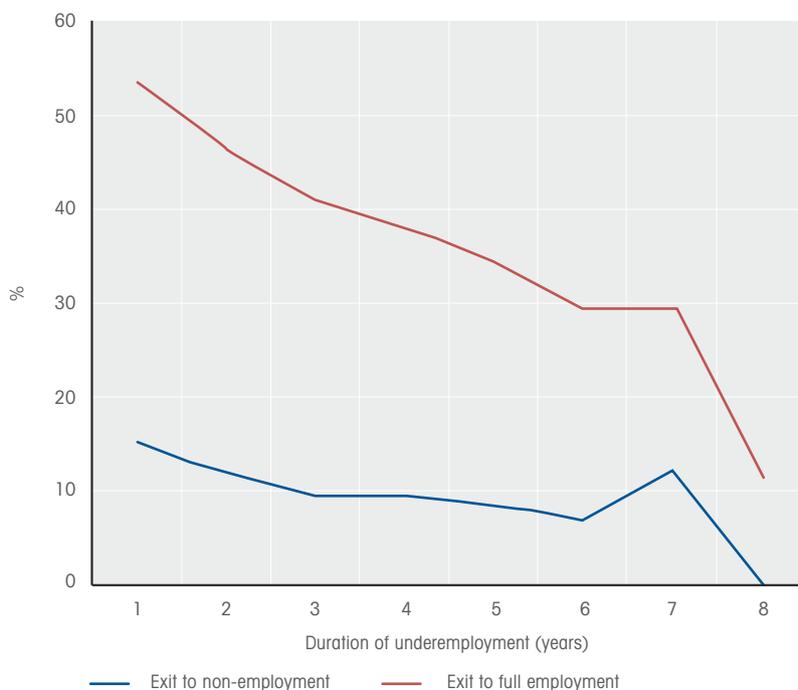
Duration of underemployment

This section moves beyond year-to-year transitions to analysing workers' entire underemployment spells and the chances of exiting underemployment at different spell durations. This type of analysis follows workers from entry into underemployment up until they exit underemployment (or until the end of the HILDA Survey period is reached).⁵

Owing to its long-run panel nature, the HILDA Survey is well suited to analysing the duration of



Figure 4.9: Rate of exit from underemployment, by duration of underemployment, 2001 to 2016

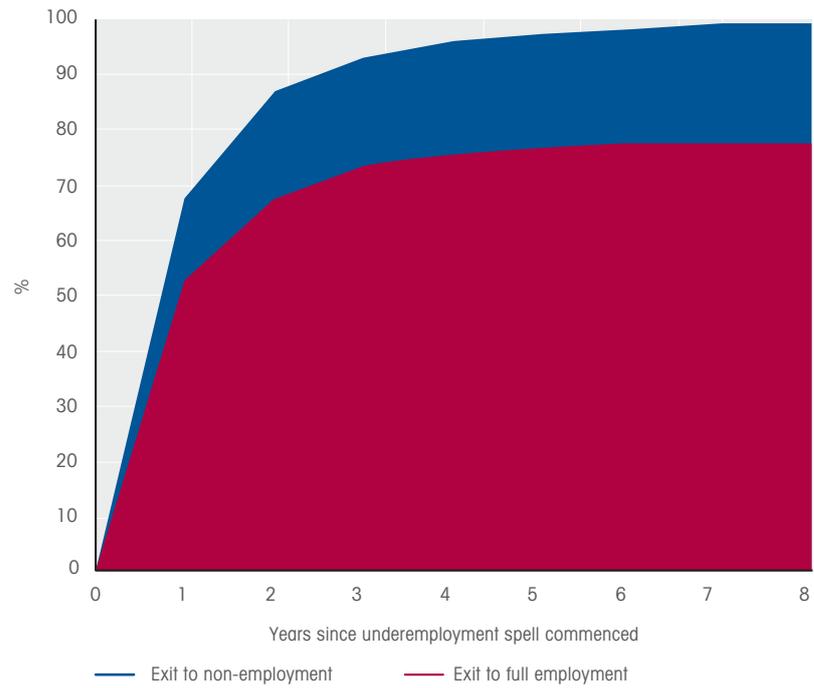


Notes: The figure presents 'hazard rates', giving the probability of exiting underemployment at each duration of underemployment (in years) given the individual has not yet exited underemployment. Estimates are unweighted.

⁵ It should be noted that the unit of analysis is underemployment spells (rather than persons), and that some workers contribute more than one underemployment spell to this analysis. As a sensitivity check, the analysis was repeated using only the first underemployment spell observed for every worker. This approach yielded very similar results.



Figure 4.10: Cumulative rate of exit from underemployment, by duration since commencement of underemployment spell, 2001-2016



Note: Estimates are unweighted.

underemployment. One caveat must be noted, however, which is that comprehensive information on workers' employment situation, including whether workers are underemployed, is only collected in respect of the time of the annual interview—that is, relatively little is known about the employment situation over the course of the year between interviews. This has two consequences. First, the analysis must focus on transitions between employment states from one year to the next, and hence movements out of and back into underemployment between survey waves are not captured. Second, the duration of underemployment must be measured on a yearly scale (that is, rounded up to full years), possibly resulting in an overstatement of underemployment durations.

Figure 4.9 (page 69) depicts the 'hazard rate' for underemployment, which is the probability of leaving underemployment at each spell duration given that the person is

still underemployed at that spell duration. For example, the hazard rate at year 5 is the probability of leaving underemployment within the next year for workers who have already been underemployed for five years. For easier interpretation, the hazard is expressed in percentage terms. Two destination states are distinguished:

- i) *full employment* (that is, becoming full-time employed or remaining part-time employed but no longer desiring more hours); and
- ii) *non-employment* (which comprises both becoming unemployed and leaving the labour force).

Focusing on the first eight years of underemployment,⁶ it becomes apparent that the (conditional) probability of leaving underemployment for full employment is highest in the first year and then declines steadily. While 53% of workers entering underemployment become fully

employed within the next year, this applies to only 12% of those who have already been underemployed for eight years.

The probability of exiting underemployment into non-employment is much lower than the probability of becoming fully employed. Of those who become underemployed, 15% head into non-employment within one year, with the probability then declining with underemployment duration, but not as steeply as the probability of moving into full employment.

Figure 4.10 shows how the probability of exiting underemployment at each underemployment duration translates into the total share of workers having left underemployment after each duration. The figure represents the cumulative rate of exit—the total proportion that has exited underemployment (either into full employment or into non-employment) at each duration.

⁶ The number of persons who are still underemployed declines rapidly with underemployment duration. After eight years, the sample contains only a small number of underemployed workers, and thus no results are presented for underemployment durations beyond this point.

We can see that the share of workers who have exited underemployment increases steeply in the initial years of underemployment. One year following entry into underemployment, 68% of workers will have left, with 53% entering full employment and 15% non-employment. Three years after entry, 94% of workers will have left—73% will have moved to full employment and 20% to non-employment upon leaving underemployment. The share of workers having exited underemployment increases to 98% after five years and then approaches

100% (99.4% after eight years). Overall, eight years after entry into underemployment, 78% of workers will have left to full employment and 21% to non-employment.

Job quality

In 2016, 73% of Australian residents aged 15 to 64 were employed, spending an average of 36 hours per week at their jobs. Having a ‘good job’ or a ‘bad job’ can therefore be expected to have a considerable influence on people’s wellbeing. This chapter thus steps beyond measures of the *quantity* of

work (such as unemployment and underemployment) to investigate (non-wage aspects of) the *quality* of jobs.

Specifically, job quality is examined by drawing on workers’ responses to 21 statements that are administered in the self-completion questionnaire (SCQ) of the HILDA Survey each year. As described in Box 4.5 (below), workers are asked to indicate the extent to which they agree with each of these statements, which provides measures of different job attributes such as: work demands (that is, in terms of time and intensity); autonomy and freedom in the job; skills usage and variety in the job; and job security. In later parts of this chapter, these individual items are combined to create four summary measures capturing different dimensions of job quality.

Before proceeding, we should note that job quality is a multidimensional construct that lacks an agreed conceptualisation in international research, and thus a wide range of measures have been used to capture the quality of jobs (for an overview see, for example, Munoz de Bustillo et al., 2011). Moreover, while the measures examined in this report capture important dimensions of job quality, they are far from comprehensive. There are many other factors, such as occupational health and safety or social relations at the workplace, that are not captured by these measures.⁷

Box 4.5: Dimensions of job quality

This chapter examines four summary measures that reflect different dimensions of job quality: (1) Demands; (2) Autonomy; (3) Skills and Variety; and (4) Security. The summary measures are based on workers’ extent of agreement, on a 7-point Likert scale (where 1 is ‘strongly disagree’ and 7 is ‘strongly agree’), with 21 statements about their current main job, stemming from an item battery in the Self-Completion Questionnaire. Besides theoretical considerations, factor analysis and reliability analysis were used to identify the number of job-quality dimensions captured by these statements and to select the specific statements that should be included in each dimension. Some statements were not included in the summary measures as they did not match any dimension, or reflected several dimensions at the same time. The following 17 statements were used to construct the four job-quality dimensions:

Dimension 1: Demands

- a. My job is more stressful than I had ever imagined
- b. I fear that the amount of stress in my job will make me physically ill
- c. I have to work fast in my job
- d. I have to work very intensely in my job
- e. I don’t have enough time to do everything in my job

The score for the Demand dimension is calculated as an average across the five items as follows: $(a + b + c + d + e)/5$.

Dimension 2: Autonomy

- a. I have a lot of freedom to decide how I do my own work
- b. I have a lot of say about what happens on my job
- c. I have a lot of freedom to decide when I do my work
- d. I have a lot of choice in deciding what to do at work
- e. My working times can be flexible
- f. I can decide when to take a break

The score for the Autonomy dimension is calculated as an average across the six items as follows: $(a + b + c + d + e + f)/6$.

Dimension 3: Skills and Variety

- a. I use many of my skills and abilities in my current job
- b. My job provides me with a variety of interesting things to do
- c. My job requires me to take the initiative

The score for the Skills and Variety dimension is calculated as $(a + b + c)/3$.

Dimension 4: Security

- a. I have a secure future in my job
- b. The company I work for will still be in business 5 years from now
- c. I worry about the future of my job

The total score for the Security dimension is calculated as $[a + b + (8 - c)]/3$.

All four summary scores potentially range from 1 to 7. Most of the items contributing to the four summary measures were first administered in Wave 1. However, items c, d and e of the Demands dimension, items d, e and f of the Autonomy dimension, and items b and c of the Skills and Variety dimension were first administered in Wave 5. Therefore, total values for all dimensions can be calculated for each wave from Wave 5 onwards.



⁷ Another important indicator of job quality, earnings, has been examined earlier in this chapter and is therefore not discussed here.

Table 4.4 presents workers' agreement with 17 different statements about their current (main) job. Agreement is measured on a scale from 1 (strongly disagree) to 7 (strongly agree), with a value of 4 thus reflecting a neutral or medium assessment of the respective job attribute. The statements are sorted according to the job-quality dimension they reflect, which can broadly be labelled as 'Demands', 'Autonomy', 'Skills and Variety' and 'Security'.

The table shows how agreement with the statements has developed over the 2001 to 2016 period, but results are presented for two-year intervals

in order to reduce the number of estimates. For example, the first column of data presents results for the pooled 2001 and 2002 period. While most statements have been included in the HILDA Survey since Wave 1, some statements were only added in Wave 5, so no values can be reported for these items for the 2001 and 2002 or 2003 and 2004 intervals. The final two columns report the changes in the mean values over the 2001 to 2016 period and over the 2005 to 2016 period.

With respect to job demands, the table shows that agreement with the first two items, which both relate to work-related stress, is relatively



Table 4.4: Mean agreement with statements about one's (main) job—Employed persons aged 15 and over, 2001 to 2016 (1–7 scale)

	2001 and 2002	2003 and 2004	2005 and 2006	2007 and 2008	2009 and 2010	2011 and 2012	2013 and 2014	2015 and 2016	Change 2001/02 to 2015/16	Change 2005/06 to 2015/16
Demands										
My job is more stressful than I had ever imagined	3.3	3.1	3.3	3.1	3.1	3.2	3.1	3.2	-0.1	-0.1
I fear that the amount of stress in my job will make me physically ill	2.5	2.4	2.6	2.4	2.4	2.5	2.4	2.5	0.0	-0.1
I have to work fast in my job	-	-	4.9	4.9	4.9	5.0	5.0	5.1	-	0.2
I have to work very intensely in my job	-	-	4.7	4.7	4.7	4.8	4.8	4.9	-	0.2
I don't have enough time to do everything in my job	-	-	4.1	4.0	4.0	4.0	4.0	4.1	-	0.0
Autonomy										
I have a lot of freedom to decide how I do my own work	4.8	4.7	4.7	4.8	4.6	4.7	4.6	4.6	-0.2	-0.1
I have a lot of say about what happens on my job	4.4	4.3	4.3	4.4	4.3	4.4	4.2	4.3	-0.1	0.0
I have a lot of freedom to decide when I do my work	3.6	3.6	3.7	3.7	3.6	3.7	3.7	3.7	0.1	0.0
I have a lot of choice in deciding what to do at work	-	-	3.7	3.8	3.7	3.8	3.7	3.7	-	0.0
My working times can be flexible	-	-	4.2	4.2	4.2	4.2	4.2	4.2	-	0.0
I can decide when to take a break	-	-	4.5	4.6	4.5	4.6	4.6	4.6	-	0.1
Skills and Variety										
I use many of my skills and abilities in my current job	5.3	5.2	5.2	5.3	5.3	5.3	5.3	5.3	0.0	0.1
My job provides me with a variety of interesting things to do	-	-	4.6	4.7	4.6	4.7	4.6	4.7	-	0.1
My job requires me to take the initiative	-	-	5.3	5.4	5.4	5.4	5.4	5.5	-	0.2
Security										
I have a secure future in my job	4.8	4.9	5.0	5.0	5.1	4.9	4.8	4.8	0.0	-0.1
The company I work for will still be in business 5 years from now	5.6	5.8	5.8	5.9	5.9	5.8	5.7	5.7	0.1	-0.1
I worry about the future of my job	3.1	2.9	2.9	2.8	2.8	3.0	3.1	3.1	0.1	0.3

low, and there has not been much change over the 2001 to 2016 period. For example, workers' agreement with the statement 'My job is more stressful than I had ever imagined' was 3.3 in 2001 and 2002 and is 3.2 in 2015 and 2016. In contrast, workers tend to agree more with the statements that they have to work fast and that they have to work intensely in their jobs, and the means for both of these measures have increased since 2005 and 2006. For example, in 2005 and 2006, workers, on average, rated the statement 'I have to work fast in my job' at 4.9 points, compared to 5.1 points in 2015 and 2016. With respect to the last statement relating to job demands, 'I don't have enough time to do everything in my job', the mean is always around the scale mid-point of 4 points, indicating overall medium agreement with the statement.

Among the six items measuring autonomy and freedom at work, workers agree most with the statement 'I have a lot of freedom to decide how I do my own work'. However, this is also the statement that has seen the largest decline in agreement over the period, from 4.8 points in 2001 and 2002 to 4.6 points in 2015 and 2016. The second strongest agreement is with the statement 'I can decide when to take a break', scoring at 4.5 or 4.6 throughout the period. In contrast, freedom to decide when to do the work and what to do at work is less prevalent as the respective statements are rated at values below 4 throughout the period.

The three items measuring aspects of skills usage and variety all receive relatively strong agreement from workers, and partly the scores have further increased over time. For example, agreement with the statement that the job requires taking the initiative is 5.5 points in 2015 and 2016, designating a 0.2 point increase since 2005 and 2006. There is also strong agreement with the statement 'I use many of my skills and abilities in

my current job', rated at 5.2 or 5.3 throughout the period. Furthermore, workers tend to agree with the statement that the job provides a variety of interesting things to do, which is rated at 4.6 or 4.7 throughout the 2005 to 2016 period.

The mean scores of the three items measuring job security suggest that workers tend to perceive their jobs as relatively secure. However, job security seems to increase until the 2009 and 2010 period and then decline again. For example, the mean agreement with the statement 'I have a secure future in my job' increased from 4.8 in 2001 and 2002 to 5.1 in 2009 and 2010, and then decreased again to 4.8 in 2015 and 2016.

Job quality by workers' characteristics

Which workers have relatively high-quality jobs and which workers have relatively low-quality jobs? We can examine this question in terms of the four dimensions described in Box 4.5 (page 71), which are broadly labelled 'Demands', 'Autonomy', 'Skills and Variety' and 'Security'. All four dimensions are measured on the same scale, ranging from 1 to 7, with the mid-point of 4 corresponding to 'medium' job quality. However, in the case of Autonomy, Skills and Variety, and Security, higher values reflect more desirable working conditions (and thus higher job quality), while in the case of Demands, higher values correspond to less favourable conditions (lower job quality). As some items used to construct the dimensions were only added to the HILDA Survey in 2005, all results presented on these job-quality dimensions are based on pooled data from the 2005 to 2016 period.

Table 4.5 presents mean values for the four job dimensions, separately for men and women of different age groups. Focusing on gender differences first, the table shows that men and women have similar scores on the Demands dimension. However, men's jobs score



Table 4.5: Dimensions of job quality by age and sex—Employed persons aged 15 and over, 2005 to 2016 (pooled) (mean scores on 1–7 scale)

	Demands		Autonomy		Skills and Variety		Security	
	Males	Females	Males	Females	Males	Females	Males	Females
15 to 24	3.6	3.6	3.7	3.5	4.7	4.6	5.2	5.3
25 to 34	4.0	4.0	4.3	4.1	5.1	5.2	5.2	5.4
35 to 44	4.1	4.0	4.5	4.2	5.3	5.2	5.1	5.4
45 to 54	4.0	4.0	4.5	4.1	5.3	5.2	5.1	5.3
55 and over	3.6	3.7	4.7	4.2	5.4	5.3	5.2	5.4
All aged 15 and over	3.9	3.9	4.4	4.0	5.2	5.1	5.2	5.3

considerably higher on the Autonomy dimension, with the average gap being 0.4 points. This gender gap in autonomy increases with age: while the gap is 0.2 points for workers aged 15 to 24, it amounts to 0.5 points for workers aged 55 and over. Men’s jobs also score slightly higher on the Skills and Variety dimension. In contrast, women rate their jobs as more secure than men, and in most age groups the difference is about 0.2 points. For example, men aged 25 to 34 score 5.2 on the Security dimension, while women of the same age score 5.4.

Comparing across age groups, workers in the youngest age group of 15 to 24 stand out as scoring considerably lower than all other age groups on all dimensions except for job security. For example, males and females aged 15 to 24 score 3.6 on the Demands dimension, compared to an average of 3.9 points for all men and women. Additional analyses (results not displayed) show that almost half (45%) of the workers in the youngest age group are still full-time students, who tend to work in comparatively low-skilled occupations. Males and females in the youngest age group also score only 3.7 and 3.5 respectively on the Autonomy dimension, compared to the overall male average of 4.4, and the overall female average of 4.0. The mean scores on the Autonomy and the Skills and Variety dimensions broadly increase linearly with age, especially for males, while there is no clear age pattern concerning perceived job security. Demands, in contrast, are highest among the three middle age groups



and lower for workers younger than 25 and workers aged 55 and over.

Table 4.6 examines mean scores of the different job-quality dimensions disaggregated by whether workers are employed full-time or part-time in their (main) job. The results are further disaggregated into five employment types: employees on a permanent contract; employees on a fixed-term contract; casual employees; self-employed with employees; and self-employed without employees, combined with ‘other arrangements’, such as unpaid family workers.

Comparing full-time and part-time jobs in general, we see that part-time workers score lower on all four dimensions of job quality. While the gaps between full-time and part-time workers are considerable in the Demands, Autonomy, and Skills and Variety dimensions, the differences in the Security dimension are relatively minor, with part-time workers averaging 5.2 and full-time workers averaging 5.3. However, among casual workers, the gap between full-time and part-time workers in job security is more pronounced, with full-time casual

workers averaging 5.0 and part-time workers averaging 4.7.

Table 4.6 also reveals marked differences in job quality by employment type. First, casual workers score relatively lowly on all four dimensions. For example, part-time and full-time casual workers average 3.7 and 3.6, respectively, on the Autonomy dimension, compared to an average of 4.0 points among part-time workers and 4.3 points among full-time workers. They also score lower than average on the Skills and Variety and Security dimensions. However, demands are also lower in casual jobs than in other jobs. Casual part-time and full-time workers score 3.4 and 3.8 on the Demands dimension, compared to overall averages of 3.5 and 4.1, respectively.

A second group that stands out is the solo self-employed, who have relatively low scores on the Demands and Security dimensions, but score highly on Autonomy and Skills and Variety. For example, with respect to Demands, the solo self-employed average 3.3 (part-time) and 4.0 (full-time), compared to

Table 4.6: Dimensions of job quality by employment type and whether full-time or part-time—Employed persons aged 15 and over, 2005 to 2016 (pooled) (mean scores on 1–7 scale)

	Demands		Autonomy		Skills and Variety		Security	
	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time
Permanent contract	3.8	4.1	3.9	4.1	5.0	5.3	5.5	5.4
Fixed-term contract	3.7	4.2	3.9	4.1	5.2	5.4	5.0	5.0
Casual contract	3.4	3.8	3.7	3.6	4.5	4.8	5.0	4.7
Self-employed with employees	3.4	4.3	5.9	5.8	5.2	5.8	5.5	5.4
Self-employed without employees (and other arrangements) ^a	3.3	4.0	5.6	5.5	5.3	5.5	4.8	4.8
All employed persons	3.5	4.1	4.0	4.3	4.8	5.3	5.2	5.3

Notes: ^a The 'other arrangements' employment type includes employees whose employment arrangements are not easily classifiable (for example, persons working on commission) as well as unpaid family workers.



an overall average of 3.5 for part-time and 4.1 for full-time workers. In contrast, on the Autonomy dimension, the part-time solo self-employed average 5.6, and full-time solo self-employed average 5.5, compared to overall averages of 4.0 and 4.3, respectively.

Prevalence and persistence of low-quality jobs

Figure 4.11 examines the prevalence of 'low-quality' jobs. To this end, for each of the four job-quality dimensions discussed above, the original 1–7 scale is collapsed into three categories: 'low' (score of less than 4), 'medium' (score of 4) and 'high' (score of more than 4). In the case of Autonomy, Skills and Variety, and Security, the 'low' category reflects low-quality jobs, while in the case of the Demands dimension, where higher values correspond to less desirable conditions, the category 'high' reflects low-quality jobs.

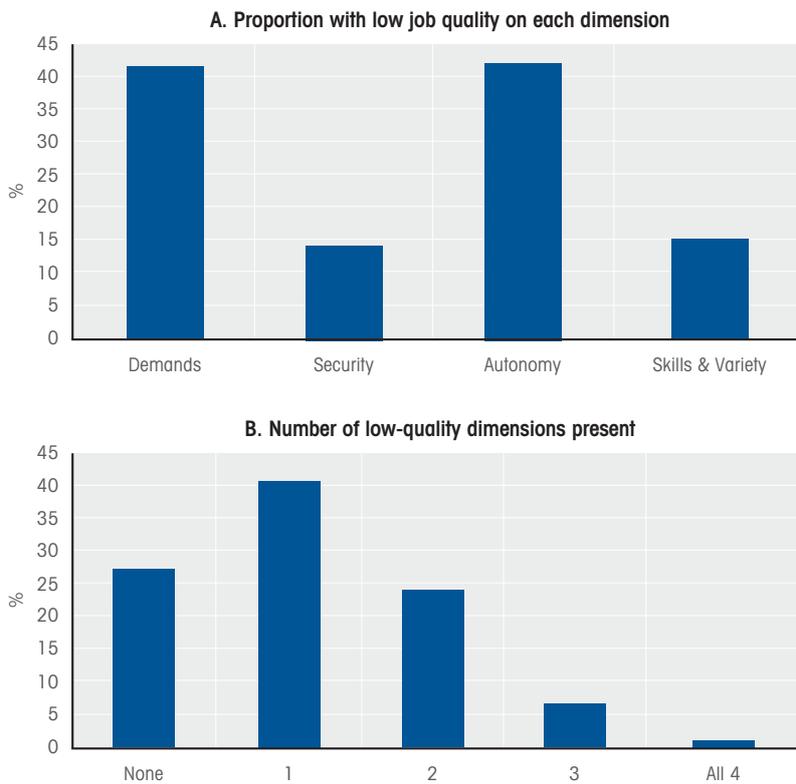
The shares of workers whose jobs can be classified as 'low quality' according to these measures are reported in the upper graph of Figure 4.11. As can be seen, workers are most likely to score low on Autonomy, with 43% of workers falling into this category. The second most common form of 'low quality' is to score highly on Demands, applying to 42% of workers. Jobs scoring low on Security or Skills and Variety are much less common, applying to only 14% and 15% of workers, respectively.

The bottom graph of Figure 4.11 examines the distribution across workers of the count of the number of low job-quality characteristics (where a worker's job could have anywhere from zero to four low job-quality characteristics). Overall, 73% of workers have low job quality according to at least one of these dimensions, with 41% having one low job-quality characteristic, and 25% having two low job-quality

characteristics. Additional analyses (not presented) show that, among those with two low-quality job characteristics, it is most common for the job to be low quality in terms of Demands and Autonomy, a combination that accounts for 50% of jobs with two low-quality characteristics. This is followed by jobs that are low quality in terms of Autonomy and Skills and Variety (25%), and then jobs that are low quality in terms of Demands and Security (13%).

In contrast, it is relatively rare for jobs to be low quality in terms of Security and Autonomy (7%), Security and Skills and Variety (3%), or Demands and Skills and Variety (2%). Having three or four low-quality characteristics is also very rare, respectively applying to only 6% and 1% of workers. Additional analyses (not presented) show that the most frequent combination of three low-quality characteristics is for the Demands, Autonomy and

Figure 4.11: Workers with low job quality—Employed persons aged 15 and over, 2005 to 2016 (pooled)



Security dimensions (39%), followed by Demands, Autonomy and Skills and Variety (33%), and then Security, Autonomy and Skills and Variety (25%). In contrast, it is very rare for jobs to be low quality in terms of all three of Demands, Security and Skills and Variety (3%).

Table 4.7 (page 78) takes on a longitudinal perspective and investigates workers' chances of transitioning from a low-quality job to a high-quality job from one year to the next and from one year to five years later. It should be noted that the focus is on the type of job, not on the exact job itself, so the analysis does not capture whether the change from a low-quality job to a high-quality job involves an actual change of job or employer, or if only the nature of the current job changes. Similarly, a worker might stay in a low-quality job from one year to the next despite a job change, if the new job is of low quality as well. The table also includes labour market states other than employment, to examine

whether workers in low-quality jobs are more likely than others to change into unemployment or exit the labour force.

With respect to the Demands dimension, the table shows relatively large persistence in high-demands jobs: two-thirds (65.7%) of workers in a high-demands job are still in this type of job one year later. Further, workers in high-demands jobs have a relatively low likelihood of transitioning out of employment, with 1.8% of these workers being unemployed in the following year and 4.2% having left the labour force. Five years later, the majority of workers initially in high-demands jobs (55.2%) are still in high-demands jobs.

Jobs scoring low on the Autonomy dimension are also very persistent, with 67.4% of workers in low-autonomy jobs still being in that state the following year and 54.4% five years later. Workers in low-autonomy jobs are more at risk than workers in high-autonomy jobs of





becoming unemployed and exiting the labour force.

A similar pattern can be seen for workers in jobs offering less than medium scores on the Skills and Variety dimension, albeit these jobs are not as persistent as high-demands and low-autonomy jobs: 55.7% of workers in jobs that are low-quality in terms of Skills and Variety are still in this type of job one year later, and 45.6% are still there five years later. These workers are, however, also more likely to become unemployed or to exit the labour force: while 3% of workers

in low-skills and variety jobs have become unemployed and 8.3% have left the labour force one year later, this applies to 1.8% and 4.9%, respectively, of workers in jobs scoring medium or high on the Skills and Variety dimension.

In contrast, workers in jobs scoring low on the Security dimension have a comparatively high chance of changing into jobs with at least medium security. Only 38.5% of workers in low-security jobs are still in that state one year later, while 51.1% have moved into a medium- or high-security job (or their current

job has increased to be at least medium security). Five years later, only one-quarter (24.7%) of workers are still in a low-security job, while 56.5% have moved to a medium- or high-security job. However, the chances of exiting employment are higher among workers in low-security jobs than those in medium- or high-security jobs. Among workers in low-security jobs, 3.4% will have become unemployed and 7.1% will have left the labour force in the next year, whereas this applies to 1.7% and 5.1%, respectively, of workers in medium- or high-security jobs.

Table 4.7: One- and five-year transition rates from low-quality jobs according to four dimensions of job quality—Employed persons aged 15 and over, 2005 to 2016 (pooled) (%)

Current job quality/ labour market state	Future job quality/labour market state									
	One year later					Five years later				
Demands										
	<i>Low or medium</i>	<i>High</i>	<i>UE</i>	<i>NILF</i>	<i>Total</i>	<i>Low or medium</i>	<i>High</i>	<i>UE</i>	<i>NILF</i>	<i>Total</i>
Low or medium	71.1	20.7	2.1	6.2	100.0	59.4	23.9	2.4	14.4	100.0
High	28.3	65.7	1.8	4.2	100.0	31.2	55.2	2.4	11.1	100.0
UE	24.5	9.9	32.8	32.8	100.0	32.9	19.7	16.2	31.1	100.0
NILF	5.0	2.1	4.0	88.9	100.0	11.3	6.1	3.0	79.5	100.0
Total	30.9	21.4	4.1	43.6	100.0	30.4	21.9	3.3	44.4	100.0
Autonomy										
	<i>Low</i>	<i>Medium or high</i>	<i>UE</i>	<i>NILF</i>	<i>Total</i>	<i>Low</i>	<i>Medium or high</i>	<i>UE</i>	<i>NILF</i>	<i>Total</i>
Low	67.4	24.3	2.4	6.0	100.0	54.4	29.1	2.9	13.6	100.0
Medium or high	16.9	76.6	1.6	4.9	100.0	18.4	66.9	2.0	12.7	100.0
UE	19.8	14.6	32.8	32.8	100.0	29.3	23.3	16.3	31.2	100.0
NILF	3.7	3.5	4.0	88.9	100.0	8.5	9.0	3.0	79.5	100.0
Total	22.2	30.1	4.1	43.6	100.0	21.8	30.4	3.3	44.4	100.0
Skills and Variety										
	<i>Low</i>	<i>Medium or high</i>	<i>UE</i>	<i>NILF</i>	<i>Total</i>	<i>Low</i>	<i>Medium or high</i>	<i>UE</i>	<i>NILF</i>	<i>Total</i>
Low	55.7	33.0	3.0	8.3	100.0	45.6	34.9	3.7	15.9	100.0
Medium or high	35.3	58.0	1.8	4.9	100.0	31.4	53.9	2.2	12.6	100.0
UE	19.8	14.6	32.8	32.8	100.0	29.3	23.3	16.3	31.2	100.0
NILF	3.7	3.5	4.0	88.9	100.0	8.5	9.0	3.0	79.5	100.0
Total	22.2	30.1	4.1	43.6	100.0	21.8	30.4	3.3	44.4	100.0
Security										
	<i>Low</i>	<i>Medium or high</i>	<i>UE</i>	<i>NILF</i>	<i>Total</i>	<i>Low</i>	<i>Medium or high</i>	<i>UE</i>	<i>NILF</i>	<i>Total</i>
Low	38.5	51.1	3.4	7.1	100.0	24.7	56.5	3.7	15.1	100.0
Medium or high	7.9	85.2	1.7	5.1	100.0	9.6	75.3	2.3	12.8	100.0
UE	6.8	27.5	32.9	32.8	100.0	9.2	43.2	16.3	31.3	100.0
NILF	1.1	6.0	4.0	88.9	100.0	2.4	14.9	3.0	79.6	100.0
Total	6.9	45.2	4.1	43.9	100.0	7.1	44.9	3.3	44.7	100.0

Notes: 'Low' is a rating of less than 4 on the summary measure, 'medium' is a rating of 4 and 'high' is a rating of more than 4. *UE*—Unemployed; *NILF*—Not in the labour force. Cells may not add up to row totals due to rounding.



5

The division of paid and unpaid work among couples

Inga Lass



With women's rising employment participation, the division of labour between men and women has become a topic of high and persistent public and policy interest. The disproportionate involvement of women in unpaid work arguably limits their labour market availability and career options, and contributes to a persistent gender pay gap.

This chapter looks at two aspects of the gender division of labour in Australia, namely gender role attitudes and actual time spent on paid and unpaid work. What are men's and women's gender role attitudes with respect to parenting and paid work, and have they changed over time? How much time do men and women spend on paid and unpaid labour? Are couples satisfied with their division of labour, and do they think the division is fair?

As the focus is on how the genders divide unpaid as well as paid work, the analysis is restricted to persons of working age, that is, aged 15 to 64. For most parts, the analysis is furthermore confined to heterosexual couples who live together in the same household. Some analyses, which are specifically focused on the division of child care, are additionally restricted to couples with children below the age of 15.

Gender role attitudes regarding parenting and paid work

Information on people's attitudes towards women's and men's roles in parenting and paid work has been collected in the HILDA Survey in Waves 1, 5, 8, 11 and 15 in the self-completion questionnaire (SCQ) via a battery of statements. For the analysis presented in this report, we combine people's responses to 14 different statements into a single summary measure of the degree of traditionalism concerning gender roles in parenting and paid work (see Box 2.6, page 19).¹ The score of the summary measure ranges from 1 to 7, with higher values indicating more traditional gender role attitudes. While most items contributing to the summary measure were first administered in Wave 1, some were only added in Wave 5, which is why

this section focuses on the period 2005 to 2015.

Table 5.1 presents mean scores of the index measuring traditional attitudes towards parenting and paid work for men and women, separately for persons with and without dependent children (where dependent children are as defined in Box 2.1, page 6) and for every year in which the statement battery was administered.

The table shows that all groups in all years have mean traditionalism scores of less than 4, suggesting that agreement with traditional attitudes towards parenting and paid work is relatively low. Further, the differences in the extent of traditionalism between the groups appear to be relatively small, with men tending to have slightly more traditional attitudes than women. In 2015, men (both with and without children) had a mean traditionalism score of 3.3, while childless women

¹ See the previous HILDA Statistical Report (Wilkins, 2017: chapter 8) for a detailed examination of the extent of agreement in the Australian population with each of the 14 individual statements.



Table 5.1: Mean extent to which traditional attitudes are held towards parenting and paid work, by gender and presence of dependent children—Persons aged 15 to 64, 2005 to 2015 (1–7 scale)

	2005	2008	2011	2015	Change 2005–2015
<i>Men</i>					
Without dependent children	3.5	3.5	3.5	3.3	–0.3
With dependent children	3.5	3.5	3.5	3.3	–0.2
<i>Women</i>					
Without dependent children	3.3	3.2	3.2	3.0	–0.3
With dependent children	3.4	3.3	3.3	3.1	–0.3

had a score of 3.0 and mothers had a score of 3.1.

When looking across the 2005 to 2015 period, we see that attitudes towards parenting and paid work have become slightly less traditional for all groups, with the decline being most marked between 2011 and 2015. Further, the decline has been on a similar scale across groups, with all groups experiencing a decline of 0.2 to 0.3 points.

Attitudes towards men’s and women’s roles in parenting and paid work are also linked to relationship status. Table 5.2 presents mean scores of the traditionalism index for men and women in different relationship situations, again separated according to whether there are children or not. Three

different relationship statuses are compared: persons who do not live with a partner in the household (but who might have a partner outside the household), persons in de facto relationships (also called cohabiting unions) and legally married persons.

First, the table confirms the previous result that men have more traditional gender role attitudes than women, and this is true for every relationship situation, including whether there are children or not.

Second, we see that married persons have more traditional attitudes than persons in cohabiting unions, and that single persons are often somewhat in between persons in de facto relationships and marriages. Thus, married men show the strongest agreement

with traditional attitudes. In 2015, married men without children have an average traditionalism score of 3.4, and married men with children have an average traditionalism score of 3.3. In contrast, women in de facto unions are the least traditional: those without children have an average score of 2.8 in 2015, and those with children have an average score of 2.9.

On average, men and women in all relationship situations have become less traditional over the 2005–2015 period. Single women and men (with or without children), men and women in de facto unions with children and married women with children exhibited the largest decline (0.3 points each), and men in de facto unions with children the smallest (0.1 points).

Table 5.2: Mean extent to which traditional attitudes are held towards parenting and paid work, by gender, relationship status and presence of children—Persons aged 15 to 64, 2005 to 2015 (1–7 scale)

	Men					Women				
	2005	2008	2011	2015	Change 2005–2015	2005	2008	2011	2015	Change 2005–2015
<i>No partner in household</i>										
Without dependent children	3.5	3.5	3.5	3.3	–0.3	3.2	3.2	3.1	2.9	–0.3
With dependent children	3.4	3.5	3.6	3.1	–0.3	3.3	3.2	3.2	3.0	–0.3
<i>De facto</i>										
Without dependent children	3.4	3.3	3.3	3.1	–0.3	3.0	3.0	3.0	2.8	–0.2
With dependent children	3.4	3.4	3.3	3.3	–0.1	3.2	3.1	3.1	2.9	–0.3
<i>Married</i>										
Without dependent children	3.6	3.5	3.5	3.4	–0.2	3.4	3.4	3.3	3.2	–0.2
With dependent children	3.5	3.5	3.5	3.3	–0.2	3.4	3.4	3.3	3.1	–0.3

This section has highlighted that Australians aged 15 to 64 have become increasingly open towards non-traditional gender arrangements of parenting and paid work. Despite varying levels, overall this applies to both women and men, childless persons and parents, and persons without a partner, in de facto relationships and in marriages. However, attitudes do not necessarily correspond to actual behaviour in daily life, which is why the next section investigates the factual division of labour of Australian couples.

Time spent on paid and unpaid work

Through the SCQ, the HILDA Survey collects data on the number of hours and minutes spent in a typical week on a variety of activities. Besides paid employment and travelling to and from work, this includes a range of unpaid activities, among them household errands, housework, outdoor tasks, looking after one's children, and caring for a spouse or relative.

This information allows a comprehensive assessment of the time allocated to both paid and unpaid work by each respondent. In order to reduce complexity, for the analysis in this section the different types of paid and unpaid work are combined into three broad



activity groups: (i) employment (paid employment as well as travelling to and from work); (ii) housework (household errands, housework and outdoor tasks); and (iii) care work (playing with one's own children and caring for disabled or elderly family members). (For details, see Box 5.1, at right.) The analysis focuses on the 2002 to 2016 period as the reported time use in 2001 is not entirely comparable to that in later waves.

Figure 5.1 illustrates how time spent on employment, housework and care by Australian women and men aged 15 to 64 has evolved over the 2002 to 2016 period. With respect to men, the figure shows that mean weekly time spent on employment initially increased, from 35.9 hours in 2002 to 38.7 hours in 2008, and then decreased to 35.9 hours in 2016. In contrast, men's engagement in housework has increased over time, from 12.4 hours per week in 2002 to 13.3 hours in 2016. Also, working-age men now spend more time caring for children and disabled or elderly relatives, up from an average of 4.8 hours per week in 2002 to an average of 5.4 hours in 2016. Overall, among those who provided information on all three activities (employment, housework and care), the total time spent on these tasks has increased for men, from 52.7 hours per week in 2002 to 53.3 hours per week, or 7.6 hours per day, in 2016.

Compared to men, women spend less time on paid employment and more time on housework and care. However, there have been some notable changes in women's time use. While in 2002, women, on average, spent more time on housework than on employment (22.8 hours versus 21.5 hours), this pattern has reversed in the first half of the 2000s. This is due to a simultaneous increase in time spent on employment and a decrease in time spent on housework. In 2016, working-age women averaged 24.9 hours on employment and 20.4 hours on housework. Women's time

Box 5.1: Classification of paid and unpaid work

In the Self-Completion Questionnaire of the HILDA Survey, respondents are asked annually how much time they spend on each of a range of different activities in a typical week. For the analysis in this chapter, seven different activities are condensed into three broader groups of activities: employment; housework; and care. While employment represents all activities related to paid work, housework and care summarise the most important activities of unpaid work in the household and family.

Employment is the sum of time spent on two different activities:

- i) Paid employment
- ii) Travelling to and from the place of paid employment

Housework is the sum of time spent on three different activities:

- i) Household errands, such as shopping, banking, paying bills and keeping financial records (but not driving children to school and other activities)
- ii) Housework, such as preparing meals, washing dishes, cleaning house, washing clothes, ironing and sewing
- iii) Outdoor tasks, including home maintenance (repairs, improvements, painting, etc.), car maintenance or repairs, and gardening

Care is the sum of time spent on two different activities:

- i) Playing with one's children, helping them with personal care, teaching, coaching or actively supervising them, or getting them to child care, school or other activities
- ii) Caring for a disabled spouse or a disabled adult relative, or caring for elderly parents or parents-in-law

Most of these activities have been included in the HILDA Survey since 2001; however, time spent on paid employment was only added in 2002. Furthermore, the question design was slightly modified from 2001 to 2002: while in 2001, respondents could only give their time use in hours, the possibility to report time use in minutes was added in 2002 and all later waves. As a result, 2001 measures of time use are not entirely comparable with measures in subsequent waves. Therefore, all analyses in this chapter are based on the 2002 to 2016 period.



Figure 5.1: Mean time spent on employment, housework and care, by gender—Persons aged 15 to 64

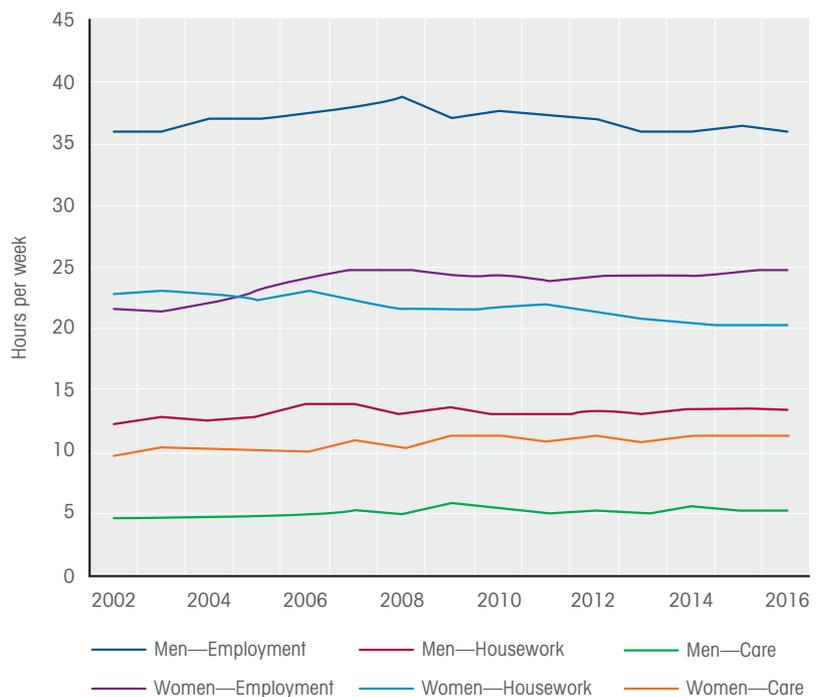


Table 5.3: Mean hours per week spent on employment, housework and care, by gender, relationship status and presence of children—Persons aged 15 to 64, 2002 to 2016 (pooled)

	Men				Women			
	Employment	Housework	Care	Total	Employment	Housework	Care	Total
<i>No partner in household</i>								
Without dependent children	28.1	9.6	1.9	38.3	23.5	11.1	1.9	35.4
With dependent children	33.6	21.1	14.7	68.3	21.6	27.1	22.2	69.5
<i>De facto</i>								
Without dependent children	41.7	13.2	1.6	55.7	34.8	16.2	1.2	51.5
With dependent children	42.2	16.9	13.6	72.0	20.7	27.7	28.6	76.0
<i>Married</i>								
Without dependent children	37.0	15.9	2.4	54.2	24.0	25.3	3.3	51.0
With dependent children	46.7	15.5	11.0	72.5	22.2	29.6	23.3	74.0

spent on care has also increased, from 9.7 hours per week in 2002 to 11.3 hours in 2016. Total time spent on all tasks is thus higher for women than for men, amounting, for example, to 53.3 hours in 2002 (compared to 52.7 hours for men). Total time has also increased for women over the period under study, to 55.8 hours per week, or 8 hours per day in 2016.

As the previous section has shown, gender role attitudes differ between persons in different relationship situations, with persons in cohabiting unions having less traditional attitudes towards parenting and paid work than married persons, and persons without a partner in the household lying between these two couple types. Therefore, the next step investigates how the pattern of time use varies for men and women depending on their relationship situation.

Table 5.3 compares time spent on employment, housework and care for men and women who do not live with a partner in the household, who are in de facto relationships and who are legally married. Additionally, the table presents separate estimates by whether the person has dependent children (as defined in Box 2.1, page 6). The results are pooled across the 2002 to 2016 period.

A first interesting result is that even without a partner or child in the household (as displayed in the first

row of data), men’s and women’s time-use patterns vary notably. While men spend just over 28 hours on employment, women spend less than 24 hours. However, women do about 1.5 hours more housework than men. Moving towards childless cohabiting unions, these differences become more pronounced as men spend considerably more time on employment than women, while women spend more time on housework. And among childless marriages we see a similarly gendered division of labour.

For both men and women, total time spent on employment, housework and care is much larger if they have dependent children than if they are childless. For example, among men without a partner in the household, those without children spend an average of 38.3 hours on these activities, while those with children average 68.3 hours per week on these activities. Similarly, women without a partner or children in the household spend an average of 35.4 hours on employment, housework and care, while their counterparts with children spend an average of 69.5 hours on these activities. Total time for employment, housework and care is larger for men compared to women in childless living arrangements, while women spend more time on these activities than men if they have dependent children.

Total hours spent on paid and unpaid work are much higher for



parents than for childless persons, but the type of additional working hours that come with children differs for men and women: while men with children spend more time, on average, on all three activities than their counterparts without children (except for housework among married men), women spend less time on employment and considerably more time on housework and care if they have children.

Among men with children, time spent on both housework and care decreases from having no partner to being in a de facto relationship and from being de facto to being married. In contrast, women (both with and without children) do more housework if they have a partner in the household compared to living without partner and if they are married compared to being in a de facto relationship. However, women in de facto unions spend more time on care than married women.

Additional analyses (not reported) suggest that the difference in care time is at least in part due to the fact that children in de facto unions are younger, on average, than they are in marriages (and younger children require more care time): on average, the youngest child of parents in de facto unions is aged 5.8 years, while that of married parents is aged 8.3 years and that of single parents is aged 9.4 years.

The age gap between children in different partnership contexts is due to the fact that many relationships start out as de facto unions and are later converted to marriages (sometimes after the children were born), and a certain share of de facto unions and marriages later dissolve, leaving the parent without a partner in the household.

The HILDA Survey usually interviews all adult members of a household, so it is not only possible to look at women's and men's time use separately, but also to link the reported time use of the two members of each couple to examine intra-couple time-use patterns. To this end, for each co-resident couple, we examine the total time spent by the couple on each activity, and each partner's share of the couple's total time spent on each activity.² The analysis in the remaining part of this section is restricted to heterosexual couples living in the same household.

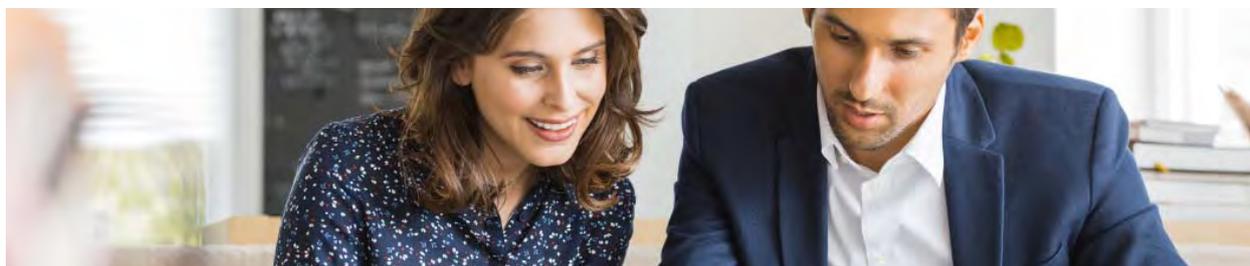
Figure 5.2 (page 85) depicts the total time spent per couple on employment, housework and care, and the sum of the time spent on all activities (equal to the total height of the stacked bars). Further, it illustrates the intra-couple division of paid and unpaid work by providing the male and the female partners' individual times spent on each activity (indicated by the blue and red parts of the stacked bars)

as well as the female partner's share of the total time spent by the couple (reported above each stacked bar).³ The results are differentiated by the type of relationship (de facto or marriage) and by whether the couple has dependent children.

Again, the result is confirmed that total time spent on paid and unpaid labour is higher when children are present. While cohabiting unions without children have an average total time of paid and unpaid labour of 106 hours per week, their counterparts with children average almost 148 hours per week on these activities. Similarly, childless marriages average 101 hours on paid and unpaid labour, while marriages with children average 147 hours.

Childless cohabiting unions are very focused on gainful employment, while time spent on unpaid labour (as the sum of housework and care) is relatively low. In marriages and cohabiting unions with children, time spent on unpaid labour exceeds time spent on employment. De facto couples with children spend the most time on unpaid labour, which can be explained by the lower age of the children in this relationship type compared to married couples (see above).⁴

With respect to the intra-couple division of labour, it can be seen that de facto relationships without children have the most balanced

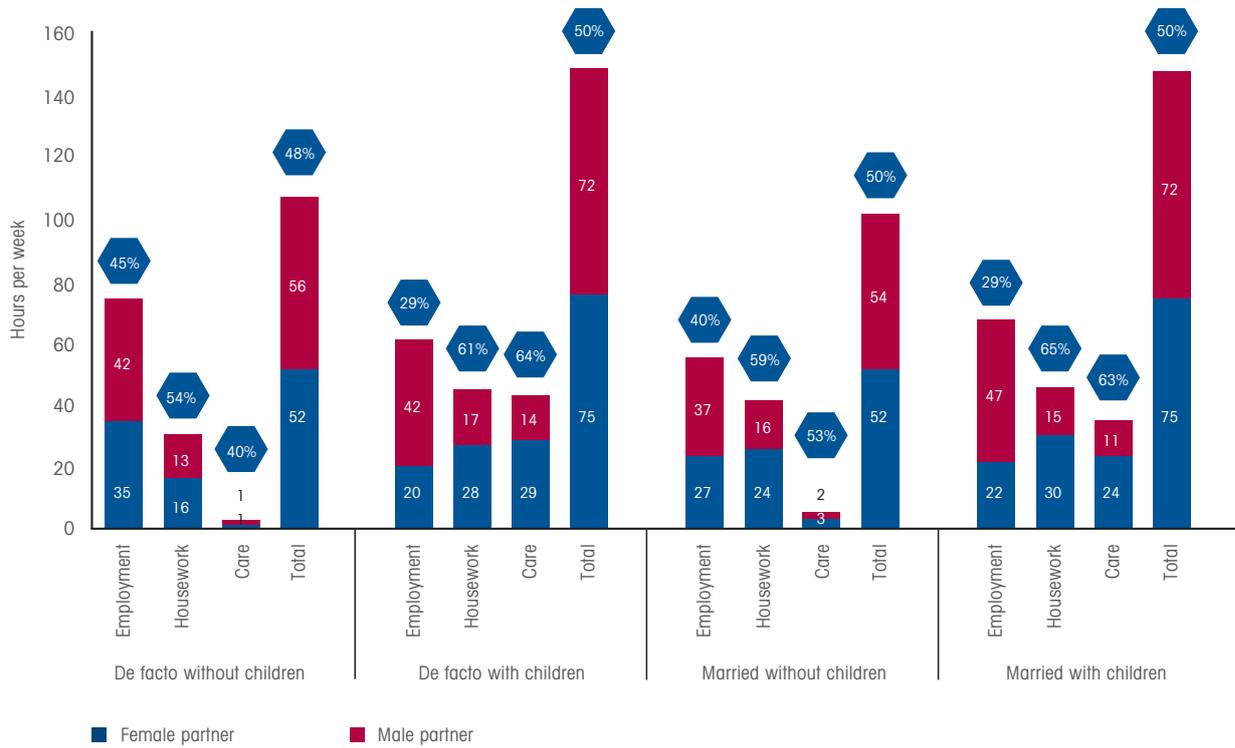


² The total time spent per couple on each of the three activities constitutes the sum of the partners' individually reported time spent on this activity. For example, the total couple time spent on care reflects the hours of care reported by the female partner plus the hours of care reported by the male partner. It is likely, however, that some of the individually reported time spent on housework and care is provided by both partners simultaneously, such as when the partners look after the child together.

³ The female partner's share of employment, housework and care is calculated by dividing the hours spent on the activity by the female partner by the total hours spent on the activity by the couple, multiplied by 100.

⁴ Results from an additional regression analysis (not shown) confirm this explanation: the gap in unpaid labour between cohabiting and married couples with dependent children diminishes and becomes statistically insignificant when controlling for the age of the youngest child.

Figure 5.2: Mean time spent on employment, housework and care, by gender, relationship type and presence of dependent children—Heterosexual couples aged 15 to 64, 2002 to 2016 (pooled)



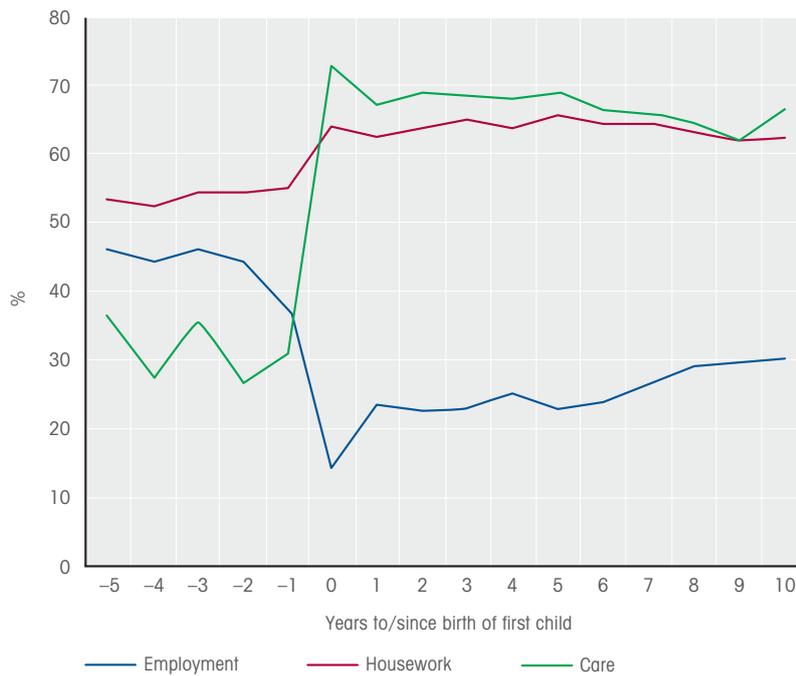
Notes: The percentages reported above each bar in the chart are the (mean) female shares of the total time spent by the couple on each of the activities (calculated only over couples in which the total time spent on the activity is greater than zero). For each family type, the means for employment, housework and care do not necessarily sum to the mean of total time. This is because the total is calculated only from persons who provided valid information for all three activities, whereas the mean for each activity is calculated for all persons providing valid information for that activity, irrespective of whether valid information was provided for the other two activities.

division. Here, women account for 45% of the total time the couple spends on employment and 54% of the time the couple spends on housework (and both partners hardly invest any time in care). In contrast, marriages in general and de facto relationships with children have a more gendered division of labour, with that of marriages with children being the most gendered. Among this latter group, women’s share of time spent on gainful employment is only 29%, while they account for 65% of housework time and 63% of care time. In all family types, the gender differences in time use across the different activities level out when looking at the total time spent on paid and unpaid work: in all groups, both partners contribute around 50% of the total time spent on all activities.

The findings from Table 5.3 and Figure 5.2 suggest that it is primarily the presence of children that leads



Figure 5.3: Partnered women's mean share of the couple's time spent on paid and unpaid work, by time to and from first birth



Notes: Estimates are calculated only for women in heterosexual couples, and only where the total time spent on the activity by the couple is greater than zero. On the horizontal axis, negative numbers denote years prior to the first birth, 0 denotes the wave immediately after the first birth, and positive numbers indicate the number of years since the first birth.

couples to have a specialised division of labour, with fathers focusing on gainful employment and mothers on housework and care. Owing to the longitudinal nature of the HILDA Survey, it is possible to follow individuals and couples over time to see whether the birth of a child indeed triggers a more traditional division of labour.

Figure 5.3 illustrates the female partner's share of time spent on paid and unpaid work in relation to the timing of the birth of the first child. Negative values on the horizontal axis represent years prior to first childbirth, with -1 denoting the last interview point before childbirth. Year 0 denotes the first interview after childbirth, and the

positive values denote years since the first childbirth. This analysis is confined to women who have their first child during the observation period. However, their male partner might already have children from previous relationships.

The figure shows that prior to the birth of the first child, each partner's share of time spent on paid and unpaid work is comparatively equal, with men spending slightly more time on employment (about 53%) and women more time on housework (54%) five years before the birth of the first child. The (relatively short) time spent on care is done primarily by men. Most likely, this is time spent on care for children from previous relationships.

Around the time of the first birth, women's share in gainful employment decreases markedly, from 47% three years prior and 37% one year prior,⁵ to 14% in year 0, that is, right after the birth. Meanwhile, women's share of care increases strongly, to 72% in the year after the birth, and their share in housework, which was already higher than that of men's, increases further, to 64% in the year after the birth. This pattern reflects the fact that in Australia, most new mothers take at least several months off from work to focus on full-time caring.

However, this gender-specialised division of labour is not renegotiated as the first child grows older. Women's share of gainful employment increases only very slowly over time. One year, three years and also five years after the birth of the first child, it still amounts to only 23%, and even 10 years after the first birth it only reaches 30%. This increase is matched by a small decrease in women's share of care time, but women still contribute an average of 66% of the couple's care time 10 years later.

Moreover, women's share of housework persistently remains on a high level, still amounting to 62% 10 years after the first birth. The birth of the first child is thus indeed a turning point in couples' division of labour towards a highly gendered, long-term pattern. However, in part, the persistence of this gendered division is due to the arrival of additional children, which stabilise the established pattern.⁶

Figure 5.2 has highlighted that both partners contribute a roughly equal share of the total time the couple spends on paid and unpaid work

⁵ The fact that women's share of employment already decreases prior to the birth of the first child is a finding that merits further consideration. Additional analyses show that the decrease in women's share in employment prior to the first birth is entirely due to a reduction in women's average time spent on employment, and not an increase in men's time in employment. This might be due to several factors. First, the last interview prior to childbirth might be very close to the due date, when some women are already on maternity leave. Second, some pregnant women need to interrupt employment or reduce their working hours even before maternity leave due to the nature of the job or as a result of health problems. Third, and more generally, some women might also reduce their engagement in employment prior to childbirth in anticipation of taking up the role of mother.

⁶ Additional analyses following women from the birth of their second child (which will be the last child for most of these women) confirm the high persistence of the gendered division of labour. Even 10 years after the second child is born, women's employment share still amounts to only 34% of the couple's employment time, while women take on 65% of housework time and 62% of care time.

Table 5.4: Mean share of housework and care, by employment arrangement and presence of dependent children—Partnered women aged 15 to 64, 2002 to 2016 (pooled) (%)

	Housework		Care	
	Without children	With children	Without children	With children
Both employed full-time (Egalitarian model)	54.6	57.8	43.8	58.8
Female employed part-time, male employed full-time (Modified male breadwinner model)	63.2	66.0	54.9	64.2
Female not employed, male employed full-time (Male breadwinner model)	69.3	72.8	49.0	70.0
Female employed, male not employed (Anti-traditional model)	49.0	46.9	61.5	49.7
Other arrangements	56.8	60.3	52.1	58.8

Note: Estimates are calculated only for women in heterosexual couples, and only where the total time spent on the activity by the couple is greater than zero.



together, suggesting that couples negotiate the division of paid and unpaid labour simultaneously. Therefore, the final part of this section looks at how the division of unpaid labour varies in different employment arrangements.

Table 5.4 reports on women's share of housework and care in different employment arrangements, separately for persons with and without dependent children. The table differentiates between five different employment arrangements: (i) an 'egalitarian model', in which both partners are employed full-time; (ii) the 'modified male breadwinner model', in which the female partner is employed part-time and the male partner is employed full-time; (iii) the traditional 'male breadwinner model', in which the female partner

is not employed and the male partner is employed full-time; (iv) the 'anti-traditional model', in which the female partner is employed and the male partner is not; and (v) other arrangements (for example, no partner is employed, both work part-time or the female partner is not employed and the male partner is employed part-time).

Looking at women's share of housework across the different employment arrangements, the table shows that women do the least housework in the 'anti-traditional' model, where they are the only ones employed. Still, even in this model, women do almost half of the housework, namely 48.9% if there are no children and 46.9% if there are children. Additionally, in this model, women also contribute

a considerable share of the care work—61.5% if there are no children and 49.7% if there are children.

In any employment arrangement other than the anti-traditional model, women do more housework than men, even if both partners are employed full-time. Women's share in housework ranges from 54.6% in childless couples where both partners are employed full-time to 72.8% in traditional male breadwinner couples with children. Women additionally spend more time on care than men in almost every employment constellation other than the anti-traditional model. One exception is dual full-time working couples without children, where men take on most of the care work. (However, among childless persons in this employment arrangement,

absolute time spent on care amounts to less than one hour per week, on average, for either partner).

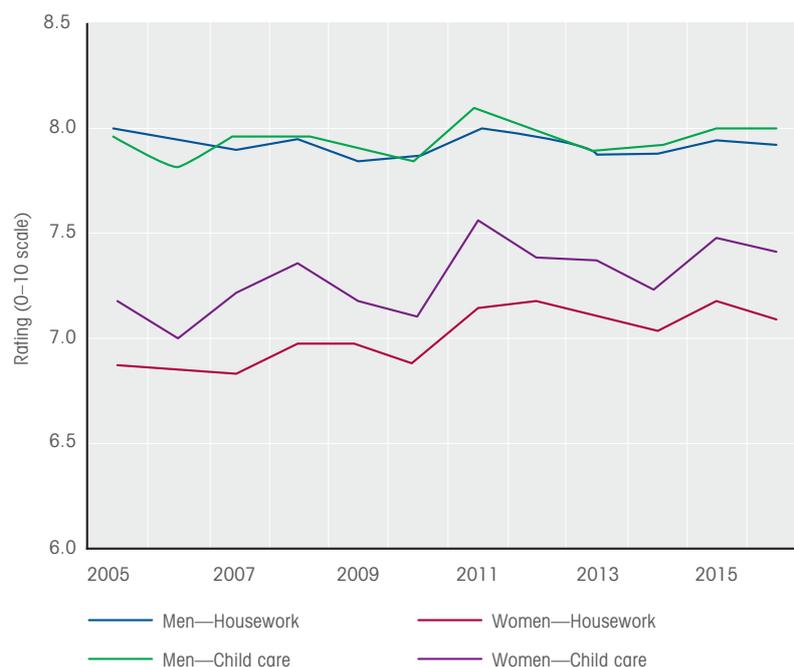
Satisfaction with and perceived fairness of the division of labour

As the previous section has shown, partnered women and men, on average, spend roughly the same amount of time on the sum of paid and unpaid work. However, there are considerable differences in the time spent on the individual activities of employment, housework and care, particularly if there are children present. The question that follows is how couples perceive this division of labour. How satisfied are partnered men and women with their division of labour, and how fair do they think this division is?

Since 2005, the HILDA Survey asks respondents on an annual basis in the SCQ how satisfied they are with the way household and child-care tasks are divided between them and their partners, with the scale ranging from 0 (completely dissatisfied) to 10 (completely satisfied). Figure 5.4 shows how satisfaction with the division of labour regarding housework and child care has evolved over time. As in most of the previous section, the results are restricted to persons aged under 65 living with a partner in the household. Additionally, the ratings of the satisfaction with child care are restricted to couples with children below the age of 15.

The figure shows that men are more satisfied than women with the division of unpaid labour. In 2005, men rated their satisfaction with both housework and child-care tasks at an average of 8.0 points, compared to women who rated their satisfaction with the division of housework at an average of 6.9 points and their satisfaction

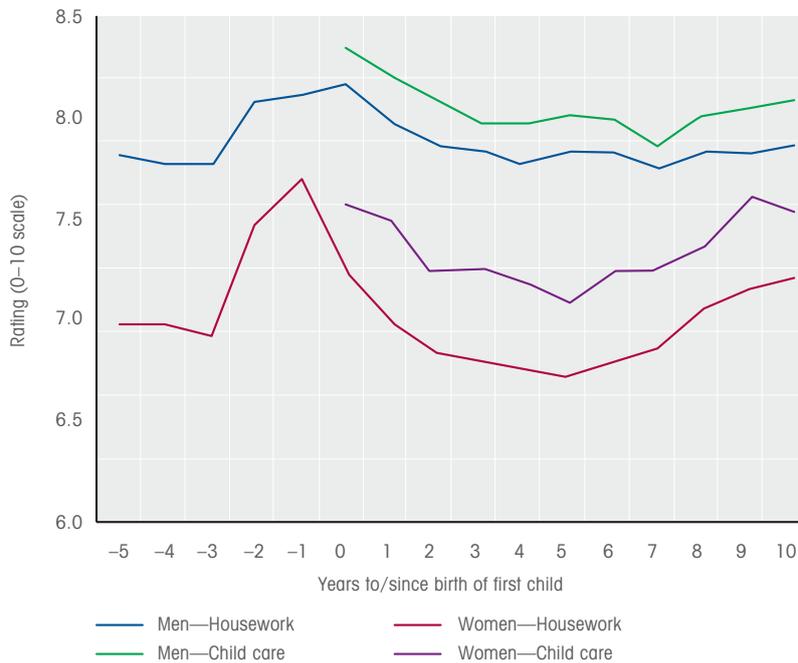
Figure 5.4: Mean satisfaction with the division of household and child-care tasks—Partnered persons aged 15 to 64



Notes: Estimates are for heterosexual couples. Satisfaction with division of child care applies only to persons with children below the age of 15.



Figure 5.5: Mean satisfaction with the division of housework and child-care tasks, by time to and from first birth—Women aged 15 to 50 at time of first birth and their partners, 2005 to 2016 (pooled)



Note: Estimates are for heterosexual couples.



with the division of child care at an average of 7.2 points. Men's high level of satisfaction has remained on a fairly stable level throughout the 2005 to 2016 period. Women, in contrast, have become slightly more satisfied with the division of labour in the home, rating the division of housework at 7.1 points and that of child care at 7.4 points in 2016. Women's rising satisfaction with the division of unpaid work may be due to their decreasing time spent on housework over the HILDA Survey period (Figure 5.1).

Figure 5.3 in the previous section has highlighted that the birth of the first child has a profound and long-lasting impact on the division of labour. In a next step, Figure 5.5 investigates how satisfaction with the division of labour changes around the birth of the first child. Again, only women who have their first child during the observation period are included in this analysis. The figure confirms the result from Figure 5.4, namely that men are generally more satisfied with the division of unpaid work than women, and this holds true at any point in time around the birth of the first child. Men's satisfaction with both housework and child care is highest in the year right after the birth (year 0), when, on average, they rate it at 8.2 and 8.3, respectively.

Women's satisfaction with the division of labour varies more strongly around the time of the first birth. In the years immediately prior to the birth, women are the most satisfied with the division of housework, rating it, for example, at 7.7 points in the year right before the birth. Satisfaction with the division of housework then drops considerably immediately after the first birth and continues to decline until the child is five years old, when it is only at 6.7 points. Similarly, women's satisfaction with the division of child-care tasks is high in the year of the birth (at 7.6 points) but then declines

continuously until the first child is five years old (when it is only 7.1 points).⁷

Since the division of unpaid work in the home is strongly linked to the division of paid work between the partners, we might also expect the satisfaction with the division of labour to depend on the couple's employment arrangements. Table 5.5 reports on women's and men's satisfaction with the division of housework and child care by employment arrangement and by whether there are dependent children present in the household. As in the previous section, the table differentiates between five different employment arrangements.

Focusing on men's satisfaction with housework first, there are hardly any differences across employment arrangements for those men who do not have dependent children. All men are comparatively satisfied with the division of housework, averaging between 8.0 and 8.2 points. For men who have children, those who live an 'anti-traditional' model, in which only the female partner is employed, are the least satisfied with the division of housework. In contrast, full-time employed men with a part-time

employed or not-employed partner are the most satisfied.

Women are the most satisfied with the division of housework if the couple has a traditional division of labour, that is, the female partner is not employed, while the male partner is employed full-time. In this arrangement, childless women rate their satisfaction at 7.6 points, and women with children at 7.1 points. Employed women with children—be it part-time or full-time with a full-time working partner, or employed in general with a non-working partner—are less satisfied with the division of housework. With respect to the satisfaction with child care, it is again men in the anti-traditional model who are the least satisfied with the division. For women, satisfaction with the division of child care does not differ markedly by employment arrangement.

Closely linked to satisfaction with the division of unpaid labour is the perception of the fairness of this arrangement. Since 2001, respondents are asked every wave in the SCQ whether they think they do their fair share around the house and whether they think they do their fair share of looking after the children. Table 5.6 presents partnered women's and men's



Table 5.5: Mean satisfaction with the division of housework and child care, by gender, presence of dependent children and employment arrangement—Partnered persons aged 15 to 64, 2005 to 2016 (pooled) (0–10 scale)

	Housework				Child care	
	Men		Women		Men	Women
	Without dependent children	With dependent children	Without dependent children	With dependent children	With children below the age of 15	
Both employed full-time (Egalitarian model)	8.0	7.8	7.3	6.8	7.9	7.4
Female employed part-time, male employed full-time (Modified male breadwinner model)	8.0	7.9	7.1	6.8	8.0	7.3
Female not employed, male employed full-time (Male breadwinner model)	8.2	7.9	7.6	7.1	8.0	7.4
Female employed, male not employed (Anti-traditional model)	8.1	7.6	7.0	6.8	7.5	7.3
Other arrangements	8.1	7.7	7.4	7.0	7.9	7.3

Note: Estimates are for heterosexual couples.

⁷ Additional analyses following women from the birth of their second child show that the gender gap in satisfaction with the division of unpaid work extends beyond the period focused on in Figure 5.4. Ten years after the birth of the second child, men's average satisfaction with the division of housework is 8.0 points, while women's average satisfaction is 7.1 points. Further, men rate their satisfaction with the division of child-care tasks at 8.2 points, while women rate it at 7.6 points.

Table 5.6: Perceived fairness of the division of housework and child care by gender and presence of dependent children—Partnered persons aged 15 to 64, 2001 to 2016 (pooled) (%)

	Housework				Child care	
	Men		Women		Men	Women
	Without dependent children	With dependent children	Without dependent children	With dependent children	With children below the age of 15	
Much more than my fair share	5.8	6.2	26.5	35.6	3.9	33.1
A bit more than my fair share	10.3	10.3	25.5	29.0	6.4	32.0
My fair share	58.1	55.6	40.8	32.1	65.0	33.9
A bit less than my fair share	22.0	23.2	5.2	2.8	21.0	0.9
Much less than my fair share	3.9	4.7	2.0	0.5	3.7	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

Notes: Estimates are for heterosexual couples. Cells may not add up to column totals due to rounding.

perceptions of the fairness of their contribution to housework and child care. With respect to work around the house, the results are disaggregated by whether the couple has dependent children or not, while the evaluation of the fairness of child care only relates to couples with children below the age of 15.

Looking at men’s perceived fairness of their contribution to housework, the table shows that the majority of men, both with and without children, say that they do their fair share around the house. This applies to 58.1% of childless men and 55.6% of those with dependent children. The second biggest group are men who think they do a bit less than their fair share, and again the group size is relatively similar among men with and without children, with 22% of childless men and 23.2% of men with dependent children falling into this category. Only very few men (approximately 16%) think they do a bit more or much more than their fair share.

Women’s perception of the fairness of the division of housework is very different to that of men. The majority of women, both with and without dependent children, think that they do a bit or much more than their fair share. The perceived imbalance is particularly large among women with dependent children: while among childless women there is still a substantial minority of 40.8% who think they do



exactly their fair share, this group only constitutes 32.1% of women with children. Instead, among the mothers, those who think they do much more than their fair share is the biggest group, with more than one third, or close to 36%, in this category.

Table 5.6 further shows that the divergence of men’s and women’s perceptions is even wider when focusing on child care for children aged under 15. Close to two-

thirds (65.0%) of men think they do their fair share of looking after the children, but only one-third (33.9%) of women thinks that they do (exactly) their fair share, with two-thirds (65.1%) reporting they do a bit or much more than their fair share. Men who feel overly involved in child care are very rare, with roughly 10% of men saying they do a bit or much more than their fair share looking after children. This is matched by an even lower share of

Table 5.7: Perception of the fairness of the division of housework and child care—Partnered persons aged 15 to 64, 2001 to 2016 (pooled) (%)

Female partner	Male partner					Total
	Much less than my fair share	A bit less than my fair share	My fair share	A bit more than my fair share	Much more than my fair share	
<i>Housework</i>						
Much more than my fair share	3.0	10.3	13.6	1.9	1.4	30.2
A bit more than my fair share	0.8	7.8	16.2	2.5	0.9	28.1
My fair share	0.4	4.5	24.8	4.4	2.2	36.3
A bit less than my fair share	0.0	0.4	1.8	1.2	0.8	4.2
Much less than my fair share	0.0	0.1	0.3	0.3	0.5	1.2
Total	4.3	23.0	56.7	10.2	5.8	100.0
<i>Child care</i>						
Much more than my fair share	3.4	11.4	14.8	2.0	1.6	33.1
A bit more than my fair share	1.0	8.2	17.5	2.9	0.8	30.4
My fair share	0.4	4.0	22.1	4.3	2.4	33.1
A bit less than my fair share	0.0	0.2	1.2	0.9	0.6	3.0
Much less than my fair share	0.0	0.0	0.1	0.1	0.2	0.5
Total	4.7	23.9	55.7	10.2	5.5	100.0

Notes: Estimates are for heterosexual couples. Perceived fairness of division of child care applies only to persons with children below the age of 15. Cells may not add up to column or row totals due to rounding.

1% of mothers who say they do a bit less or much less than their fair share looking after the children.

In sum, most women feel they do more than their fair share of housework and child care, while most men think they do exactly their fair share. This gender gap in perceived fairness can be better grasped by linking the assessments of the fairness of housework and child care of the two partners of a couple, as shown in Table 5.7. The results are restricted to heterosexual couples living in joint households and where both partners are below the age of 65, and additionally, in the case of child care, to those couples who have at least one child below the age of 15.

The grey highlighted values on the diagonal describe situations where the partners have congruent perceptions of each partner’s contribution to housework and child care. For example, a female partner reporting doing much more than her fair share in the household should be matched by a male partner saying he does much less than his fair share. However, it can be seen that correspondence of male and female perceptions of their contributions is relatively low. Most importantly, only in a minority of couples do both partners feel they do exactly their fair share. With regard to housework, this share is close to 25%, while with respect to child care, this share is just over 22%.

More frequent are situations in which the male partner reports doing his fair share of these tasks, while the female partner thinks she does more than her fair share. For example, in 13.6% of couples, the female partner says she does much more than her fair share in housework, while the male partner says he does his fair share. In another 16.2% of couples, the female partner reports doing a bit more than her fair share, while the male partner says he contributes his fair share. The same applies to child care, with 14.8% of mothers saying they do much more and 17.5% saying they do a bit more than their fair share, while the fathers think they do exactly their fair share.



Table 5.8: Mean satisfaction with the division of housework and child care, by gender and perceived fairness of the division—Partnered persons aged 15 to 64, 2005 to 2016 (pooled) (0–10 scale)

	Housework		Child care	
	Men	Women	Men	Women
Much more than my fair share	6.5	5.1	7.0	6.0
A bit more than my fair share	7.3	7.0	7.5	7.3
My fair share	8.4	8.5	8.2	8.5
A bit less than my fair share	7.6	8.0	7.6	7.8
Much less than my fair share	6.8	6.9	6.9	7.2

Notes: Estimates are for heterosexual couples. Estimates by level of perceived fairness of division of child care apply only to persons with children below the age of 15.

Table 5.8 investigates how perceived fairness and satisfaction with the division of housework and child care are related. For each fairness category, the table displays average satisfaction scores, separately for men and women and for housework and child care.

The table shows that both men and women are most satisfied with the division of housework and child care if they feel they do exactly their fair share of these tasks. For example, men have an average satisfaction of 8.4 points with the way household tasks are divided among them and their partner if they think they do exactly their fair share, and women have an average satisfaction of 8.5 points.

In contrast, a divergence from the fair share in either direction causes a decrease in satisfaction. For example, men who feel they do much more than their fair share of housework only have an average satisfaction rating of 6.5 points, and men who do much less than their fair share also have a reduced average satisfaction of 6.8 points. A similar pattern is found for women, who are, on average, very dissatisfied if they do much more than their fair share of housework with an average satisfaction of 5.1 points, but also relatively dissatisfied if they do much less than their fair share, with an average satisfaction of 6.9 points. A similar non-linear relationship between fairness and satisfaction can also be found for child-care tasks.

Table 5.9 examines the extent to which the perception of fairness of the division of labour matches the actual time spent on certain tasks. It presents the mean contribution of the male and female partner to unpaid and paid work, as a share of total time spent by both partners on the activity. This is differentiated by the perceived fairness of one's own contribution. The table not only looks at the single activity, that is, housework and child care, but also investigates the person's total share of unpaid and paid work together. Again, the table is confined to persons in couple relationships in a joint household, and child care is only analysed for persons with children younger than 15 years.

The table shows that, for both genders, perceived fairness of one's contribution to housework and child care increases with the actual share of housework and child care undertaken. However, this does not mean that a fair share is necessarily around 50% of the total time spent on this activity by the couple. For example, men who say they do much less than their fair share of housework spend, on average, 21.8% of the total time on housework, while men who think they do their fair share spend 39.4% and those who think they do much more than their fair share spend 51.8%.

What seems to matter more for the perception of fairness than the actual level of housework or child care is the total time investment for all types of paid and unpaid



Table 5.9: Mean share of time spent on housework and all work, by gender and perception of the fairness of the division of labour—Partnered persons aged 15 to 64, 2001 to 2016 (pooled) (%)

	Men		Women	
	Share of housework	Share of all paid and unpaid labour	Share of housework	Share of all paid and unpaid labour
<i>Housework</i>				
Much more than my fair share	51.8	54.4	69.0	52.8
A bit more than my fair share	46.6	52.0	63.3	51.0
My fair share	39.4	50.6	57.5	49.3
A bit less than my fair share	31.3	48.6	45.8	46.2
Much less than my fair share	21.8	42.6	32.0	32.8
	Share of child care	Share of all paid and unpaid labour	Share of child care	Share of all paid and unpaid labour
<i>Child care</i>				
Much more than my fair share	49.2	50.4	68.4	51.1
A bit more than my fair share	43.4	50.8	66.6	51.3
My fair share	37.2	49.8	59.8	49.7
A bit less than my fair share	28.6	48.6	47.5	47.6
Much less than my fair share	24.2	48.0	42.9	45.1

Notes: Estimates are calculated only for couples in which the total time spent on the activity by the couple is greater than zero. Estimates by level of perceived fairness of division of child care apply only to persons with children below the age of 15.

labour. This can be seen from the fact that men and women who think they do exactly their fair share of housework or child care are very close to contributing 50% of total couple time spent on the sum of paid and unpaid work. For example, men who think they do exactly their fair share of housework only do, as mentioned, 39.4% of the

housework done by the couple, but they account for 50.6% of the total time spent on paid and unpaid labour by the couple. Similarly, women who say they do exactly their fair share of housework do 57.5% of the housework done by the couple, but contribute 49.3% of total couple time spent on paid and unpaid labour.

These results suggest that when couples determine the fairness of the division of housework and care, they take into account all types of labour, including the time demands stemming from employment. To what extent each of these tasks is paid or unpaid seems to matter less for couples' perceptions of fairness.



6

Self-employment and independent workers

Michael Leith Cowling and Mark Wooden



Self-employment has long been thought of as the most basic form of entrepreneurial activity and thus an important source of innovation and economic growth (Parker, 2009). It is, for example, widely believed that fostering new start-up businesses will help promote future employment growth given at least some of these new start-ups will survive and grow. Governments in many countries thus provide subsidies to individuals to help them set-up and remain in business, which they justify in part on job creation grounds. In Australia, the most prominent example of such an approach is the New Enterprise Incentive Scheme, which commenced in 1985 and provides accredited training, business mentoring and income support to help individuals start their own business.

At the same time, others are concerned about growth in new forms of unregulated contract-based employment. Most often mentioned are the ‘gig’ jobs associated with the emergence of new digital platform businesses (for example, Harris and Krueger, 2015; Productivity Commission, 2016). Gig workers are ‘independent workers’ who move from one job, or ‘gig’, to the next utilising digital technology, created and provided by an intermediary business, to connect with purchasers of their services (Stanford, 2017). Given the absence of a traditional employment relationship, they are not employees, but unlike other self-employed people they do not have the freedom to negotiate their compensation or terms of service (Harris and Krueger, 2016). The prospects of ‘gig’ workers growing their businesses thus seem remote given the nature of their

dependence on the intermediary for access to end users.

What then can the HILDA Survey tell us about recent trends in, and the nature of, self-employment in Australia? Unfortunately, identifying and therefore measuring the incidence of independent workers is far from straightforward, and hence no recent national surveys, including the HILDA Survey, have attempted it. What the HILDA Survey can do is distinguish between self-employed people who employ other workers (employers) and those in businesses without any employees (the solo self-employed).

In this respect, the HILDA Survey is just like the monthly Labour Force Survey (LFS) conducted by the Australian Bureau of Statistics (ABS). Indeed, the questions that are used to identify the labour force and employment status of individual respondents to the HILDA Survey are drawn directly from the LFS.

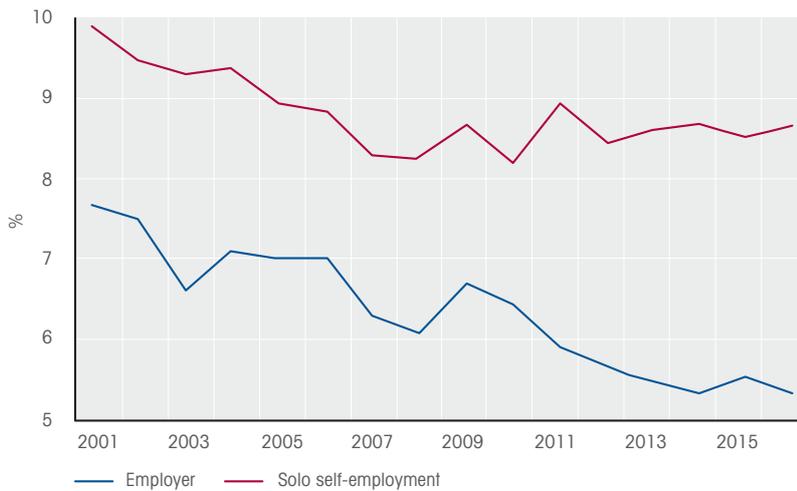
Box 6.1: Defining self-employment

For this analysis, a *self-employed* person is anyone who operates his or her own enterprise or engages independently in a profession or trade. These are also sometimes known as owner-managers.

Among the self-employed, we distinguish between persons who hire one or more employees in addition to themselves and/or other owners of that business—*employers*—and persons who do not employ other workers in their business—the *solo self-employed*.

Following ABS practice, the HILDA Survey also distinguishes between owners of incorporated businesses and owners of unincorporated businesses. That distinction, however, is not used here.

Figure 6.1: Proportion of employed persons who are self-employed



However, and in contrast to the LFS, the longitudinal nature of the HILDA Survey data permits tracking of movements in and out of different employment states. This enables us to address questions such as how many employees enter self-employment each year, how many of the latter exit, and how many of the solo self-employed grow their businesses sufficiently to be able to eventually hire their own employees.

Trends over time

Figure 6.1 documents trends over time in the annual self-employment rate (self-employed persons as a percentage of all employed persons) after distinguishing between employers and the solo self-employed, and where employment status is based on the main job.

As should be apparent, rates of self-employment have been in marked decline over the life of the HILDA Survey. This downward trend is most marked for employers; among the solo self-employed the share has levelled out at around 8.5%. The solo self-employed share has thus held up better than the employer share. Nevertheless, there is no evidence here of any growth in the use of independent workers in Australia.

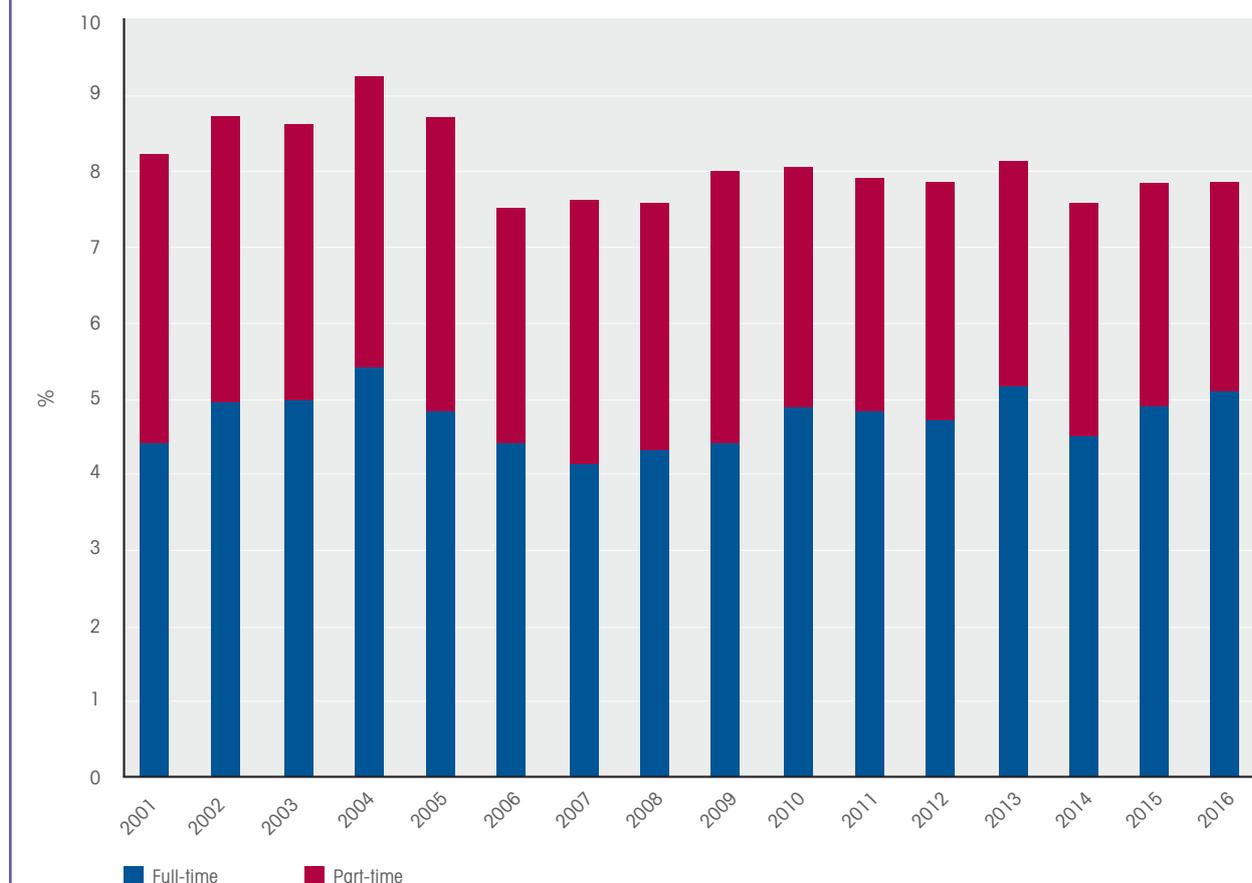
We also need to be cautious in not making too much of this widening gap between the employer and solo self-employed shares. Data from the monthly LFS, which should generate population estimates that are more accurate than HILDA Survey estimates (given the former's higher response rates and the absence of any effects from sample members gradually dropping out of the study), also reveal marked declines in self-employment rates over this period.¹ However, unlike the HILDA Survey, the decline in the solo self-employed share in these data is no less prominent than the decline in the employer share.

Atalay et al. (2014), who also analysed HILDA Survey data, conclude that the decline in self-employment rates in Australia is largely due to rising rates of participation in the labour force among older workers (over 55 years of age), and especially older women, who have a relatively low propensity to choose self-employment. And indeed, once we restrict attention to prime-age workers—persons aged 25 to 54—the declining trend in solo self-employment is greatly reduced. However, among employers the marked downward trend remains—among prime-age workers the share who are employers has declined



¹ ABS data on self-employment that distinguish between employers with and without any employees are reported in *Labour Force, Australia, Detailed – Electronic Delivery* (ABS cat. no. 6291.0.55.001), Table 08.

Figure 6.2: Multiple job-holders by hours worked in main job (% of all employed persons), 2001–2016



from around 8.6% in 2001 to just 5.5% in 2016.

Overall, this brief discussion of trends suggests two main conclusions:

1. There is no evidence of any rise over time in the use of independent workers.
2. The share of workers who are employers is shrinking, and at quite a rapid rate.

On the surface, conclusion 1 appears at odds with the widespread commentary about the emergence of

the ‘gig economy’. The HILDA Survey evidence indicates that, if the gig economy is growing as rapidly as is commonly believed, then either it involves the substitution of one type of self-employed worker for another (as might be happening in the taxi industry) or it is largely consigned to second jobs.

Conclusion 2 also does not fit comfortably with conventional wisdom. The decline in the employer share is occurring at the same time as the employment rate

(the employment-to-population ratio) among working-age people is reaching record highs. This coincidence of declining employer numbers with high employment rates suggests that self-employment is not the engine of employment growth that it is so often claimed to be. Less clear is the source of this decline. The most likely explanations, however, lie in factors such as globalisation and technological change that have worked in favour of larger firms.



Multiple job-holding

As noted above, one reason we may not be observing any evidence of a reversal in the declining trend in self-employment is that the data being used (both from the LFS and the HILDA Survey) focus on activity in the main job. As such, they will overlook those forms of self-employment that are undertaken to supplement the primary source of income. In the US, for example, one study has found that while 4% of adults received at least some income from online jobs over a three-year period, for the vast majority this was not their major source of income (Farrell and Greig, 2016).

However, there is little evidence of any trend growth in the incidence of multiple job-holding in Australia. As shown in Figure 6.2 (page 97), the proportion of the employed who report at the time of the HILDA Survey interview that they have more than one job has changed very little

over time. Indeed, if anything, the share has declined. Over the last five survey waves—2012 to 2016—the proportion of employed persons with more than one job has averaged 7.9%. In contrast, over the first five waves of the survey—2001 to 2005—it averaged 8.8%.

Secondary forms of employment involving ‘gig work’ may be on the rise, but if so they have, to date, been offset by declines in other forms of secondary work.

Somewhat as an aside, Figure 6.2 also shows, as might be expected, that a relatively large fraction of multiple job-holders work part-time hours (fewer than 35 hours per week) in their main job. Further, the share of multiple job-holders who work part-time in their main job has been increasing over time—from around 54% in 2001 to 65% in the latest figures. This trend has been driven in large part by structural changes favouring industries where part-time employment is more common. Yet despite this increase

in the relative importance of part-time work, the overall share of multiple job-holding in the workforce has not increased.

Characteristics of the self-employed

We next look at the characteristics of persons in self-employment and compare the solo-self-employed with employers, and both types of self-employed workers with the larger employee workforce. A statistical summary, drawing on data from Wave 16 of the HILDA Survey, is presented in Table 6.1.

It is very clear from the statistics presented here that the self-employed are quite different from employees in two fundamental respects—they are much more likely to be men (63.8% of the solo self-employed and 70.9% of employers are male, which compares with just 51.2% of the employee workforce), and they are, on average, much older (over 47



Table 6.1: Characteristics of employees and self-employed workers compared, 2016

	<i>Employees</i>	<i>Solo self-employed</i>	<i>Employer</i>
Age (mean years)	38.5	47.3	47.5
Male (%)	51.2	63.8	70.9
Has a long-term health condition (%)	14.2	20.2	13.3
Has dependent children (%)	38.0	42.7	49.8
Partnered (%)	61.2	73.2	85.9
Time in paid work (mean years)	18.0	26.5	27.6
Time in current job (mean years)	6.5	10.7	13.5
Hours per week usually worked (mean)	35.4	34.7	46.3
Gross annual personal income (mean \$)	69,766	65,969	144,760
Equivalised annual disposable household income (mean \$)	61,470	58,223	81,646
<i>Highest level of education (%)</i>			
Degree or higher	33.6	29.4	33.1
Diploma	10.3	11.6	7.9
Certificate	22.5	30.9	30.5
Year 12	17.7	12.6	12.3
Year 11 or lower	15.9	15.5	16.2
<i>Home ownership (%)</i>			
Owner without mortgage	20.6	34.3	33.5
Owner with mortgage	47.1	42.1	42.7
Renting	30.4	20.9	21.7
<i>Geographic location (%)</i>			
Major urban	85.6	76.8	78.7
Other	14.4	23.2	21.3
<i>Country of birth (%)</i>			
Australia	72.2	71.8	67.6
Main English-speaking country	9.4	11.3	13.2
Other	18.3	16.9	19.2
<i>Industry (%)</i>			
Agriculture, forestry and fishing	1.1	9.5	8.0
Mining	2.2	0.1*	0.1*
Manufacturing	7.7	6.8	10.4
Electricity, gas, water and waste services	1.0	0.7	0.3*
Construction	6.6	19.4	21.9
Wholesale trade	3.0	2.0	3.8
Retail trade	10.0	5.6	5.5
Accommodation and food services	7.2	1.2*	7.3
Transport, postal and warehousing	4.6	5.3	4.2
Information media and telecommunications	1.8	1.6*	0.4*
Financial and insurance services	4.1	2.6	1.7*
Rental, hiring and real estate services	1.6	1.4*	1.2*
Professional, scientific and technical services	6.5	14.1	11.5
Administrative and support services	2.6	7.3	5.4
Public administration and safety	6.3	0.3*	0.4*
Education and training	11.5	4.9	1.3*
Health care and social assistance	16.9	6.4	7.8
Arts and recreation services	1.9	2.7	1.6*
Other services	3.4	8.2	7.2
Job satisfaction (mean on a 0–10 scale)	7.62	7.80	7.93
Number of individuals	9,419	1,017	571

Note: * Estimate unreliable.

years, compared with 38.5 years). These marked age differences, in turn, help explain some of the other notable differences, such as the self-employed being much more likely to be partnered with children, own their own home outright and have greater work experience. We can also see a difference between cities and regions, with the self-employed being relatively more numerous in towns and regions outside the major urban centres—more than 20% of self-employed persons live in regional Australia compared with 14.4% of employees.

There are also some obvious differences in the industrial composition of employment. Relative to employees, the self-employed are over-represented in just four sectors—Agriculture, forestry and fishing; Construction; Professional, scientific and technical services; and Other services. Together these four sectors account for around half of all self-employment. By contrast, these same sectors account for less than 18% of wage and salary earner employment.

Differences between employers and the solo self-employed are arguably less striking, but nevertheless just as important. The average solo self-employed worker, despite being the same age as the average employer, is much less likely to be married and have children, and more likely to have a long-term health condition or disability. And despite similar levels of overall work experience, the solo self-employed have shorter average tenure in their current job (that is, business)—10.7 years compared with 13.5 years for employers. Most striking of all, the solo self-employed work much fewer hours per week, on average, than employers. The typical solo self-employed worker reports working 35 hours in a usual week, almost the same as the average employee. In contrast, the average employer reports usual weekly work hours of more than 46. One obvious consequence of this is that the solo self-employed report much lower incomes than employers (less than half). Indeed, reported incomes of the solo self-employed are slightly lower than that of the average employee.

Overall, these differences are suggestive of both weaker labour market attachments among the solo self-employed than among employers (reflected most obviously in the shorter average working hours), and that many solo self-employed are struggling financially and thus are unlikely to ever be in a position to hire workers. Indeed, the evidence on person and job characteristics presented here is consistent with the argument that, for many, self-employment is only a response to the inability to find more desirable alternative opportunities as an employee.

That said, if solo self-employment is a second-best alternative to a traditional wage-earner job it would be expected that such workers would also express relatively high levels of dissatisfaction with their jobs. The simple descriptive evidence, however, suggests this is not so. Average job satisfaction levels are relatively high for all three groups, but highest for employers (7.9 on a 0 to 10 scale), followed by the solo self-employed (7.8) and then employees (7.6).²



² The difference in mean job satisfaction between the two self-employed groups is not statistically significant. In contrast, the lower level of satisfaction among employees is always statistically significant at the conventional 95% confidence level.

Table 6.2: Labour market transition rates, 2001 to 2016 (average %)

	State at time t			
	Non-employment	Employees	Solo self-employed	Employers
<i>State at time t-1</i>				
Non-employment	36.5	59.9	3.2	0.4
Employee	2.3	95.2	1.8	0.8
Solo self-employed	1.3	14.7	73.3	10.7
Employer	0.5	8.3	13.7	77.6
<i>State at time t-2</i>				
Non-employment	28.9	65.9	4.1	1.1
Employee	2.5	93.9	2.4	1.1
Solo self-employed	1.7	19.1	66.8	12.4
Employer	0.6	11.5	15.0	72.8
<i>State at time t-3</i>				
Non-employment	24.5	70.4	4.1	0.9
Employee	2.6	93.0	3.1	1.4
Solo self-employed	1.6	22.7	62.5	13.4
Employer	0.7	13.8	15.7	69.8

Transitions between labour market states

If solo self-employment is viewed as a second-best alternative to securing more stable employment as a wage and salary earner, we might also expect solo self-employment to be a transitory state. To get at this issue we use the longitudinal feature of the HILDA Survey to examine changes in labour market states over the period 2001 to 2016. More specifically we present, in Table 6.2, annual, biennial and triennial rates of transition between different employment states.

Focusing first on annual rates of transition, we can see that employment as a wage and salary earner (that is, an employee) is a highly stable state—95.2% of all employees will still be employees one year later. Among the self-

employed the degree of persistence is less, but nevertheless still quite strong—91.3% among employers (13.7+77.6) and 84% among the solo self-employed (73.3+10.7).

As hypothesised, the solo self-employed do have a relatively high probability of reverting to employee status—14.7% of all solo self-employed workers will be employees one year later. On the other hand, 10.7% of this group will, a year later, be hiring their own workers. Thus, there is movement in both directions.

We also see evidence of ‘reversion’ among a minority of employers. Almost 14% will still be self-employed but no longer employing other workers, and a further 8.8% will no longer be working in their own business (8.3+0.5).

Looking two and three years ahead we would expect the degree of state persistence to be less. The evidence supports this expectation,

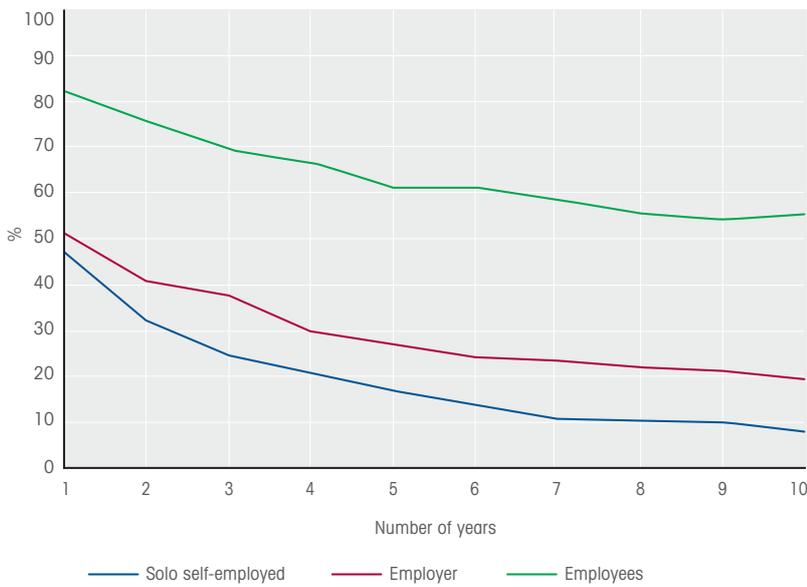
but nevertheless the degree of state persistence, especially among employees, is still high. For example, 93% of employees will still be employees three years later.

Self-employment, on the other hand, is a less stable state. Among the solo self-employed we find 13% will be employing workers three years later. On the other hand, almost 24% will no longer be in self-employment. By contrast, among employers only 14% will have exited self-employment. Nevertheless, we again find that a sizeable minority (16%), while continuing to own and operate their own businesses, will have ceased hiring any workers.

An alternative approach to measuring persistence is to look at the length of time workers spend in each state. In Figure 6.3, therefore, we present estimates summarising the length of time workers spend, on average, in each of our three employment states.



Figure 6.3: Duration of employment state spells (survival functions)



Notes: The figure presents, for those who entered the employment state (solo self-employed, employer or employee) between Waves 1 and 6, the proportion still in that employment state at each spell duration.

The sample used for this analysis is persons observed commencing a new employment state between Waves 1 and 6 (that is, roughly over the 2001 to 2006 period). This is quite a different sample to that used in Table 6.1, which covered a much larger slice of the working-age population, including many who have been in their current jobs for very long periods of time.

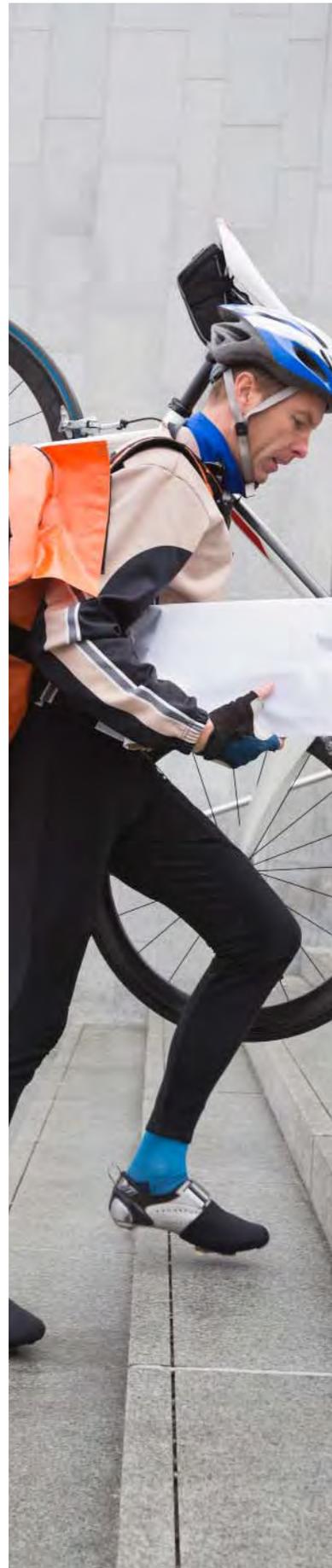
The figure documents the proportion of a particular group of workers that will remain in that job for at least one year, for at least two years, for at least three years, for at least four years, and so on, up to the maximum of 10 years reported here. Thus, among persons commencing a job as an employee during the reference period, over 80% will still be an employee one year later, about 75% will still be an employee two years later, 70% will still be an employee three years later and 55% will still be an employee 10 years on.

Note that we are not measuring duration of a job. We are measuring duration of time spent in a specific employment status, which is very different to the length of a tenure with a particular employer or business.

Average duration of status is clearly much shorter among the self-employed, with only around 50% lasting even a single year. Duration is shortest of all among the solo self-employed. Among the solo self-employed, only 25% will still be in that state three years on, and just 8% will still be solo self-employed 10 years on.

Overall, the evidence on transitions and duration presented here suggests that entry into self-employment is more likely to be associated with ‘failure’ than ‘success’, when success is judged by the likelihood of hiring employees in the future and failure by the likelihood of ceasing business operation entirely. Less obvious is the extent to which these so-called failures are a function of the inherent risks associated with starting up and operating new businesses or because many workers enter self-employment because of the lack of availability of other options.

It also needs to be recognised that even though new owner-operator business ventures are more likely to fail than succeed, this does not mean that the number of new jobs associated with the success stories is not significant.



7

Education and labour market outcomes

Roger Wilkins



While the educational attainment of respondents has been collected by the HILDA Survey every wave since its inception, in Waves 12 and 16 additional information was collected on the *highest* qualification. People with post-school qualifications were asked about the type of educational institution they attended, their main field of study and, for those with university qualifications, the name of the institution they attended.

This chapter provides a brief statistical overview of the information on educational qualifications collected by the HILDA Survey, followed by an exploration of the relationship between the educational qualifications of individuals and their labour market outcomes. For all of the analysis presented in this chapter, adults aged 25 to 64 are examined on the basis that most people have completed formal education by the age of 25 (although it should be acknowledged that many people undertake further education after the age of 25), and most people under the age of 65 are active participants in the labour market.

Educational qualifications of Australians

Table 7.1 shows the educational attainment of the population aged 25 to 64 in 2001 and 2016, disaggregated by sex and age group. (See Box 7.1 below for an explanation of the classification of level of educational attainment.) The differences between 2001 and 2016 are striking, particularly for women. Between 2001 and 2016, the total proportion of those aged 25 to 64 with a university degree

(bachelor's degree or higher in Table 7.1) rose from 22.6% to 31.1% for men and from 22.6% to 35.7% for women.

Growth was particularly strong for the master's degree or doctorate category. In 2001, 4.2% of men and 2.4% of women aged 25 to 64 had attained this qualification level; by 2016, these proportions had risen to 8.5% of men and 7.4% of women. Consequently, among those holding a university degree, the proportion holding a master's degree or doctorate rose considerably, from 18.5% (4.2 of 22.6) to 27.3% (8.5 of 31.1) for

Box 7.1: Classification of educational attainment and field of study

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

The level of highest educational attainment is derived from information on highest year of school completed and level of highest non-school qualification. In this report (for example, Table 7.1), up to seven levels of attainment are distinguished, ranging from 'Master's degree or doctorate' down to 'Year 11 and below'. Note in particular that, as explained in ABS (2014b), Year 12 is defined to be a higher qualification than a Certificate Level 1 or 2, so that the category 'Year 11 and below' includes people who hold a Certificate Level 1 or 2.

ASCED classifies field of study into 12 broad groups that form the basis for the HILDA Survey classification of *main* field of study. The HILDA Survey classification of field of study nonetheless deviates from the ASCED broad groupings in three ways: (1) medicine and nursing are each distinguished from other 'health-related' fields; (2) law is distinguished from other 'society and culture' fields; and (3) the 'mixed fields' category is removed (that is, respondents are required to identify a single main field).

Table 7.1: Educational attainment of persons aged 25 to 64, by sex and age group, 2001 and 2016 (%)

	2001				2016			
	25-34	35-44	45-64	All aged 25-64	25-34	35-44	45-64	All aged 25-64
<i>Men</i>								
Master's degree or doctorate	2.9	5.1	4.5	4.2	7.5	12.2	7.0	8.5
Graduate diploma or certificate	3.9	5.0	5.2	4.8	4.5	5.5	5.8	5.4
Bachelor's degree	18.9	13.9	10.1	13.6	19.2	18.0	15.5	17.2
Diploma or advanced diploma	7.9	9.2	9.7	9.1	7.0	10.2	9.9	9.2
Certificate Level 3 or 4	25.9	30.1	28.2	28.1	25.8	31.8	33.3	30.8
Year 12	17.7	9.8	9.7	11.9	21.4	11.6	8.6	13.0
Year 11 and below	22.8	27.0	32.6	28.3	14.7	10.6	19.9	16.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Women</i>								
Master's degree or doctorate	2.1	3.2	2.0	2.4	8.8	10.3	5.1	7.4
Graduate diploma or certificate	5.1	6.3	5.3	5.5	6.3	7.8	8.7	7.8
Bachelor's degree	21.0	14.8	10.6	14.7	29.1	23.7	13.8	20.5
Diploma or advanced diploma	11.5	9.8	8.5	9.7	10.7	15.4	11.9	12.4
Certificate Level 3 or 4	10.5	10.3	9.8	10.2	19.0	19.3	21.1	20.1
Year 12	22.5	15.0	10.1	15.0	16.0	10.2	12.5	12.9
Year 11 and below	27.3	40.6	53.7	42.6	10.2	13.3	27.0	18.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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

men, and from 10.6% (2.4 of 22.6) to 20.7% (7.4 of 35.7) for women.

More broadly, the proportion of the population aged 25 to 64 holding post-school qualifications (Certificate Level 3 or above) has risen from 59.8% to 71.1% for men and from 42.5% to 68.2% for women. The change in the proportion that has completed high school but not obtained higher post-school qualifications is relatively small, with a slight increase for men and a slight decrease for women. As a result, the proportion that has not completed high

school (and has not obtained a Certificate Level 3 or higher post-school qualification) has fallen substantially, from 28.3% to 16% for men, and from 42.6% to 18.9% for women.

The seismic shift in educational attainment over just 16 years has occurred for all three age groups examined in Table 7.1, and for both men and women. As noted, the changes are greater for women, with growth in university-level qualifications and Certificate Level 3 and 4 qualifications considerably greater than is evident for men.

Nonetheless, in both 2001 and 2016, men were considerably more likely than women to have a Certificate Level 3 or 4 as their highest qualification.

Table 7.2 examines 2016 data on individuals who have obtained a post-school qualification of Certificate Level 3 or higher, restricting to people who obtained their highest qualification in Australia.¹ The upper panel shows the type of institution from which the highest educational qualification was obtained, while the lower panel considers



¹ The HILDA data for 2016 show that, among those with a university qualification, 24% obtained their highest qualification outside Australia. Among those with a non-university post-school qualification (Certificate Level 3 or higher), 11% obtained their highest qualification outside Australia. Overall, 16% of people with a post-school qualification obtained their highest qualification outside Australia. Persons who obtained their highest qualification overseas are excluded from Table 7.2 because the types of educational institutions vary considerably across countries, and because the university groupings examined in the lower panel of the table do not apply to individuals who obtained their highest qualification overseas.

Table 7.2: Institution of highest educational qualification, by sex and age—Persons with a Certificate Level 3 or higher qualification who obtained their highest qualification in Australia, 2016 (%)

	Men				Women			
	25–34	35–44	45–64	All aged 25–64	25–34	35–44	45–64	All aged 25–64
<i>Type of educational institution—Persons with post-school qualifications</i>								
University	47.1	43.0	37.3	41.6	55.1	53.8	42.6	49.4
TAFE	37.2	40.7	42.6	40.6	29.6	29.0	27.2	28.4
Other institution	15.7	16.3	20.1	17.8	15.3	17.2	30.2	22.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>University group—Persons with a university qualification</i>								
Group of Eight	32.4	28.8	36.9	33.0	29.3	31.2	28.4	29.5
Australian Technology Network	19.4	22.2	17.8	19.6	14.5	19.8	13.3	15.7
Innovative Research Universities	9.9	14.1	11.9	11.8	21.7	12.6	18.1	17.7
Regional Universities Network	10.0	10.1	7.2	9.0	5.0	6.9	8.6	6.8
Other Australian university	28.4	24.9	26.3	26.6	29.6	29.5	31.7	30.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes: See Box 7.2 (below) for an explanation of the university groups. TAFE—Technical and Further Education. Cells may not add up to column totals due to rounding.

the university grouping (see Box 7.2, at right) of those with university qualifications.

Comparing across age groups, a shift towards university-provided education is evident. For example, 47.1% of men aged 25 to 34 with post-school qualifications obtained their highest qualification from a university, whereas 37.3% of men aged 45 to 64 with post-school qualifications obtained their highest qualification from a university. Similarly, 55.1% of women aged 25 to 34 with a post-school qualification obtained their highest qualification from a university, compared with 42.6% of women aged 45 to 64 with a post-school qualification. For men, this shift is the result of declines in both TAFE (Technical and Further Education) and other institutions, whereas for women it has only arisen from a decline in non-TAFE institutions.

For individuals with a university qualification, the differences by age group in the lower panel of Table 7.2 indicate there has been some shift away from the 'Group of Eight' (Go8) universities for men, but not for women. In 2016, 36.9% of men aged 45 to 64 who obtained their highest qualification in Australia



Box 7.2: University groupings

In total, there are 41 Australian universities. There are several ways in which these universities could be classified into groups, but in this report we classify universities according to the four main formal groupings:

The **Group of Eight (Go8)** markets itself as 'Australia's Leading Universities' and comprises The University of Adelaide, The Australian National University, The University of Melbourne, Monash University, The University of New South Wales, The University of Queensland, The University of Sydney and The University of Western Australia.

The **Australian Technology Network (ATN)** is a coalition of five Australian universities (Curtin University of Technology, University of South Australia, RMIT University, University of Technology Sydney and Queensland University of Technology) that share a common focus on the practical application of tertiary studies and research.

Innovative Research Universities (IRU) is a group of seven universities (Flinders University, Griffith University, La Trobe University, Murdoch University, University of Western Sydney, James Cook University and Charles Darwin University) that 'share a common mode of operation ... and a common background, having been founded in the 1960s and 1970s as research universities'. Membership of IRU has changed several times since its formation in 2003; only those universities that were members as of 2018 are treated as part of IRU for the analysis presented in this report. Note in particular that the University of Newcastle was a member of IRU until 2014, while the University of Western Sydney did not join IRU until 2017.

The **Regional Universities Network (RUN)** comprises six universities (Central Queensland University, Southern Cross University, University of Ballarat, University of New England, University of Southern Queensland and University of the Sunshine Coast) formed in 2011 to take advantage of the regional focus of the Gillard Labor Government.

There are 15 unaligned universities that are classified as 'other Australian' universities. (A further three foreign universities have, or have had, campuses in Australia taking Australian students. However, none of the HILDA Survey respondents reported obtaining their highest qualification from one of these universities.)

Table 7.3: Main field of study of highest qualification of persons with post-school qualifications, 2016 (%)

	Men			Women		
	25-44	45-64	All aged 25-64	25-44	45-64	All aged 25-64
<i>Persons with a university qualification</i>						
Natural and physical sciences	6.4	4.5	5.6	3.8	4.3	4.0
Information technology	9.8	5.8	8.1	4.4	*1.8	3.5
Engineering and related technologies	15.0	17.3	16.0	2.4	*2.2	2.3
Architecture and building	1.9	5.2	3.3	1.3	*1.3	1.3
Agriculture, environment and related	2.0	4.4	3.0	1.6	*1.5	1.5
Medicine	3.7	2.9	3.4	2.7	2.6	2.7
Nursing	*1.2	2.0	1.5	9.0	14.9	11.1
Other health-related	3.6	3.7	3.6	9.3	6.2	8.2
Education	5.9	11.2	8.1	17.7	27.4	21.2
Management and commerce	31.4	25.1	28.8	22.4	12.7	18.8
Law	5.4	3.8	4.7	3.4	2.6	3.1
Society and culture	6.1	10.6	8.0	14.5	17.9	15.7
Creative arts	4.3	2.2	3.4	4.6	2.9	4.0
Food, hospitality and personal services	*1.7	*0.5	*1.2	*0.6	*1.3	*0.8
Other	1.7	*0.8	1.3	2.5	*0.6	1.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
<i>Persons without a university qualification</i>						
Natural and physical sciences	*1.7	*1.4	1.6	*1.0	*0.3	*0.7
Information technology	5.2	4.4	4.8	3.2	2.2	2.8
Engineering and related technologies	28.7	41.2	34.9	*0.7	*0.9	*0.8
Architecture and building	16.2	13.5	14.9	*0.5	*0.2	*0.4
Agriculture, environment and related	4.2	5.5	4.9	1.9	*0.5	1.2
Medicine	*0.2	*0.2	*0.2	*0.0	*0.4	*0.2
Nursing	*1.2	*1.2	1.2	8.1	16.2	11.9
Other health-related	3.4	2.1	2.7	8.0	10.3	9.1
Education	1.4	3.4	2.4	9.6	16.0	12.6
Management and commerce	15.4	13.1	14.2	28.2	24.4	26.4
Law	*1.3	*1.2	1.3	*0.8	*0.5	w*0.6
Society and culture	3.0	3.1	3.0	7.0	10.6	8.7
Creative arts	6.0	1.5	3.7	6.9	4.0	5.6
Food, hospitality and personal services	7.5	6.3	6.9	18.5	10.7	14.9
Other	4.7	2.1	3.4	5.7	2.8	4.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

Notes: Only individuals with a Certificate Level 3 or higher are included in the table. Cells may not add up to column totals due to rounding. * Estimate not reliable.

obtained it from a Go8 university, compared with 32.4% for men aged 25 to 34. Among women who obtained their highest qualification from an Australian university, for all three age groups examined in the table, approximately 30% obtained the qualification from a Go8 university.

Overall, among those who obtained their highest qualification from an

Australian university, men are more likely than women to have obtained their highest qualification from a Go8, Australian Technology Network (ATN) or Regional University Network (RUN) university, while women are more likely than men to have obtained their highest qualification from an Innovative Research University (IRU) or 'other' university.

The field of study of the highest qualification is examined in Table 7.3 for individuals aged 25 to 64 with post-school qualifications (Certificate Level 3 or above). The upper panel, examining people with university qualifications, shows that the most common field for men is Management and commerce, followed by Engineering and related technologies.

Information technology, Education, and Society and culture are also relatively common fields of study for university-educated men. For university-educated women, the most common field is Education, followed by Management and commerce, Society and culture, and Nursing.

The fields of study differ substantially across the two age groups examined in the table, with the younger age group more likely to have studied Management and commerce, and less likely to have studied Education or Society and culture. Information technology also appears to be growing in popularity. Among those with university qualifications, it is the main field of study for 9.8% of men and 4.4% of women aged 25 to 44, compared with 5.8% of men and 1.8% of women aged 45 to 64.

The patterns of field of study by sex and age group are in many respects similar for individuals with non-university post-school qualifications, but there are important differences. For men, Engineering and related technologies, and Architecture and building are much more likely to be the main field of study for those with only non-university post-school qualifications. For both men and women, Food, hospitality and personal services is much more common among those with only non-university qualifications, and is particularly common among women with only non-university qualifications.

Management and commerce is much less likely to be the main field of study for men with non-university qualifications, but this is not the case for women, for whom Management and commerce is more likely if the qualification was not from a university. For women, it is the education field that is much less likely to be the main field of study if the highest qualification is



not from a university. For both men and women, Society and culture is also considerably less likely to be the main field of study if the qualification was not obtained from a university.

Education and labour market outcomes

Economists have long been interested in the labour market benefits of education, and there has correspondingly been a great deal of research attempting to quantify these benefits (see, for example, Ashenfelter et al., 1999 and Card, 1999). Irrefutable evidence on the benefits of education has, however, proved somewhat elusive, reflecting the fundamental ‘identification’ problem that we do not observe what an educated person would have experienced had they not obtained their education.² In this report we do not attempt to estimate the ‘returns’ to education, but rather simply describe the empirical association between education and labour market outcomes.

Table 7.4 (page 109) presents regression results from models of the effects on labour market outcomes associated with level of educational attainment, field

of study and university grouping. Four outcomes are examined: the probability of employment; the probability of full-time employment; weekly earnings of full-time employees; and hourly earnings of all employees. The models of employment probabilities include controls for age (not reported), while the models of earnings include variables for years of work experience (reported). The sample is restricted to persons aged 25 to 64 and all models are estimated separately for men and women. Only data from Waves 12 and 16, when field of study and institution of highest qualification were measured, are included.

For both total employment and full-time employment, there appears to be a quite strong relationship with educational attainment. For both men and women, the probability of employment is, all else being equal, lowest for those who have not completed high school (and have not obtained a post-school qualification of Certificate Level 3 or higher) and highest for those who hold a master’s degree or doctorate.

Comparisons across fields of study indicate that, for men, the Health field is associated with a relatively high employment probability, while the Education and Society and culture fields are associated with relatively low employment

² As with many economic and social phenomena, the problem of identification of the causal effects of education is not easily overcome. For example, ‘double-blind’ randomised controlled trials, the gold standard for evaluation of treatment effects in medical research, are not viable for a ‘treatment’ such as education.

probabilities. However, the Health field is not associated with a higher probability of full-time employment for men. In addition, 'Other' fields, primarily comprising Food, hospitality and personal services, while not associated with a lower employment probability for men, are associated with a lower probability of full-time employment.

For women, there are no significant differences in likelihood of employment across the fields of study, although the Health and Agriculture, environment and related fields are associated with significantly lower probabilities of full-time employment.

Comparing university groupings, male employment probabilities are highest for ATN, IRU and 'other' Australian universities. For women, employment probabilities are similar across the Australian university groupings, but considerably higher than for women who obtained their highest qualification outside Australia. However, while women from Go8, ATN, RUN and 'other' Australian universities appear to have similar probabilities of full-time employment, women who graduated from IRU universities have a relatively low probability of full-time employment and are similar in this regard to women who graduated from an overseas university.

The models of the associations between education and earnings

show a clear ordering of employee earnings by educational attainment for both men and women, with the important exception that women in the 'Year 12' category have significantly higher earnings than those with Certificate Level 3 or 4 qualifications, and indeed have slightly higher earnings than those with a diploma or advanced diploma. Moreover, female Certificate Level 3 or 4 holders do not have significantly different earnings from those in the 'Year 11 and below' category.

To illustrate the educational attainment–earnings relationship, consider weekly earnings of full-time employees. The table shows that, compared with attainment of Year 11 and below, a master's degree or doctorate increases earnings by 67.1% for men and 48.4% for women, a graduate diploma or certificate increases earnings by 64.1% for men and 38.4% for women, a bachelor's degree increases earnings by 55.7% for men and 38.3% for women, and a diploma or advanced diploma increases earnings by 39.2% for men and 13.7% for women. A Certificate Level 3 or 4 is associated with a 24.6% increase in earnings for men, but no significant increase in earnings for women, while completion of high school is associated with a 17.2% increase in earnings for men and a 19.4% increase in earnings

for women.³

Field of study is also associated with impacts on earnings. All else being equal, male earnings tend to be highest for those who studied Engineering and related technologies, Natural and physical sciences, Information technology, and Architecture and building, and lowest for those who studied Agriculture, environment and related fields, Education, and 'Other' fields. For women, there are few significant differences evident in earnings by field of study. Both weekly earnings of full-time employees and hourly earnings of all employees are relatively high for women who studied Management and commerce, while hourly earnings of all employees are also relatively high for women who studied Health. There are otherwise no significant differences in female earnings by field of study.

For men, Go8 and ATN universities are associated with similar earnings premiums. This also applies to hourly earnings of female employees, but not to weekly earnings of female full-time employees, where only Go8 graduates earn a premium compared with all other degree holders. Also evident for both sexes is that graduates from RUN and IRU universities tend to have lower earnings than graduates from other universities.



³ Estimates of the effects of educational attainment are affected by the 'reference categories' selected for field and institution of study because these two sets of variables apply only to the subset with post-school qualifications (and only to those with university qualifications in the case of institution of study). Earnings models estimated excluding the field and institution of study variables show a less steep earnings–education 'gradient' for men and a steeper gradient for women, although the finding that the earnings differentials across educational attainment levels are greater for men still holds.

Table 7.4: Effects of education on employment and earnings, 2012 and 2016

	Probability of employment		Probability of full-time employment		Log weekly earnings of full-time employees		Log hourly earnings of all employees	
	Men	Women	Men	Women	Men	Women	Men	Women
<i>Educational attainment (Reference category: Year 11 and below)</i>								
Master's degree or doctorate	0.269	0.321	0.324	0.380	0.671	0.484	0.680	0.429
Graduate diploma or certificate	0.217	0.305	0.272	0.329	0.641	0.384	0.605	0.385
Bachelor's degree	0.232	0.310	0.275	0.316	0.557	0.383	0.558	0.355
Diploma or advanced diploma	0.141	0.178	0.186	0.234	0.392	0.137	0.406	0.128
Certificate Level 3 or 4	0.127	0.143	0.164	0.142	0.246	ns	0.264	ns
Year 12	0.074	0.070	0.084	0.073	0.172	0.194	0.199	0.135
<i>Main field of study of those with post-school qualifications (Reference category: Engineering and related technologies)</i>								
Natural and physical sciences	ns	ns	ns	ns	ns	ns	ns	ns
Information technology	ns	ns	ns	ns	ns	ns	ns	ns
Architecture and building	ns	ns	ns	ns	ns	ns	ns	ns
Agriculture, environment and related	ns	ns	ns	-0.144	-0.225	ns	-0.174	ns
Health	0.059	ns	ns	-0.117	-0.115	ns	-0.074	0.105
Education	-0.049	ns	-0.058	ns	-0.224	ns	-0.237	ns
Management and commerce	ns	ns	ns	ns	-0.092	0.105	-0.082	0.098
Society and culture (including law)	-0.054	ns	-0.086	ns	-0.130	ns	-0.115	ns
Other fields ^a	ns	ns	-0.109	ns	-0.230	ns	-0.228	ns
<i>Type of university of those with university qualifications (Reference category: Other Australian university)</i>								
Group of Eight	-0.053	ns	-0.059	ns	0.087	0.096	0.089	0.081
Australian Technology Network	ns	ns	ns	ns	0.081	ns	0.069	0.075
Innovative Research Universities	ns	ns	ns	-0.054	ns	-0.061	ns	-0.073
Regional Universities Network	-0.083	ns	-0.115	ns	-0.164	ns	-0.111	-0.068
Overseas university	-0.108	-0.178	-0.124	-0.077	-0.103	ns	ns	ns
<i>Years of work experience (Reference category: Less than 5)</i>								
5-<10					0.354	0.119	0.253	0.086
10-<15					0.512	0.248	0.394	0.170
15-<20					0.600	0.314	0.465	0.233
20-<25					0.592	0.334	0.473	0.257
25-<30					0.580	0.391	0.471	0.295
30-<35					0.626	0.354	0.516	0.292
35 or more					0.599	0.366	0.479	0.294
Year = 2016	-0.026	ns	-0.025	ns	ns	ns	ns	ns
Constant					6.532	6.580	2.842	2.959
Number of observations	10,435	11,438	10,435	11,438	6,342	4,035	6,963	7,038

Notes: The employment models are estimated by Probit regressions and reported estimates are mean marginal effects. The earnings models are estimated by ordinary least squares regression and the estimates are the regression coefficients. Earnings are expressed at December 2016 prices. The sample is restricted to persons aged 25 to 64. The sample is further restricted to employees for the model of hourly earnings and to full-time employees for the model of weekly earnings of full-time employees. The employment models include controls for age, which are not reported. Individuals for whom field of study, university of study or years of experience is unknown are retained in the estimation samples; variables indicating this information is unknown are included in the regression models (but not reported). ^a 'Other fields' comprise Creative arts; Food, hospitality and personal services; and Other. ns indicates the estimate is not significantly different from 0 at the 10% level. Models were additionally estimated controlling for measures of cognitive ability. Estimates were qualitatively identical, with minor attenuation of estimates of the effects of educational attainment.

8

Individual changes in measures of cognitive ability

Roger Wilkins



Skills and abilities are key drivers of individuals' economic and social wellbeing, and it is important to understand their determinants and the mechanisms by which they impact on economic and social outcomes. The HILDA Survey has had a strong focus on skills since its inception, each year collecting detailed information on educational attainment, work experience and—since Wave 5—on-the-job training. In Waves 12 and 16, there has additionally been a special focus on skills and abilities, the most important element of which is the administration of three 'cognitive ability tasks'.

Included in the interview component of the HILDA Survey, the tasks comprise: Backward Digits Span (BDS), a test of working memory span; Symbol Digits Modalities (SDM), a test of divided attention, visual scanning and motor speed; and a shortened (25-item) version of the National Adult Reading Test (NART–25), which provides a measure of pre-morbid intelligence. The BDS and SDM tests can be characterised as providing measures of 'fluid' general intelligence—the ability to think logically and solve problems in novel situations, independent of acquired knowledge—while the NART provides a measure of 'crystallised' general intelligence—the ability to use skills, knowledge and experience.¹

This chapter provides a brief summary of findings from the cognitive ability tasks with emphasis on how the measures changed at the individual level between

2012 and 2016. In general, the expectation is that SDM and BDS scores tend to decline from early adulthood, while NART scores tend to increase until much later in life (Cattell, 1971). The analysis presented here sheds some light on the extent to which this pattern is observed, the particular ages at which four-year individual-level changes are most pronounced, and the role of other factors in affecting cognitive decline. Clearly, this is potentially valuable for public health policy, particularly if the non-age factors can be influenced by policy.

Changes in scores on cognitive ability tasks over four years

Table 8.1 presents the mean scores on each of the tasks in 2012 and 2016 for males

Box 8.1: What is cognitive ability?

Cognitive ability, or cognitive function, refers to the ability to process thoughts—in simple terms, the 'ability to think'. Cognitive ability is generally regarded as multidimensional, comprising a number of distinct abilities. More concretely, it is the set of all mental abilities, including attention, memory, judgement and evaluation, reasoning, problem solving, and comprehension. Cognitive ability tests will typically not attempt to measure all dimensions of cognitive ability, although these dimensions are generally found to be positively correlated: people who are highly able in one cognitive skill tend to be more able in other cognitive skills.

¹ See Wooden (2013) for an explanation of the cognitive ability tasks administered in the HILDA Survey and for an examination of the quality of the measures of cognitive ability produced by the tasks.

and females separately. In the population as a whole, we should expect minimal change in the mean scores over a four-year period. The mean scores are indeed quite similar, although all of the mean scores increased slightly between 2012 and 2016.

This is most likely due to a ‘learning’ effect, since most of the 2016 respondents were also respondents in 2012. Consistent with this hypothesis, the greatest proportionate increase is found for the NART-25, which would seem most susceptible to a learning effect because the same 25 words were used in both years. Moreover, if we restrict attention to those who completed the task in both 2012 and 2016 (lower panel of Table 8.1), we see that the increase in the mean score on the NART-25 is even greater—although the expectation is that individuals will tend to improve their score on this task as they get older, at least until they are quite elderly.

More broadly, notwithstanding the ‘learning effect’, the lower panel of Table 8.1 indicates that, on average, scores on the BDS tend not to change, scores on the SDM task tend to decline and scores on the NART-25 tend to increase.

Figures 8.1 to 8.3 examine mean individual-level changes in each score between 2012 and 2016 by sex and age group. The figures reveal stark differences in changes by age group for all three tasks. In general, the changes tend to be less positive, and then more negative, as we move into older age groups.

For the BDS task, the mean change is positive up to the 35 to 44 age group for males and up to the 65 to 69 age group for females, but is mostly negative at older ages. For the SDM task, only for the 15 to 24 age group is the mean change positive. For all other age groups, the mean change is negative, and tends to be more negative the older the age group. For the NART-25,

Box 8.2: Cognitive ability tasks in the HILDA Survey

Backward Digits Span (BDS): The interviewer reads out successively longer strings of single-digit numbers which the respondent is asked to repeat back in reverse order. The string length starts at 2, and with each correct answer it increases by 1, up to a maximum of 8. Respondents are given two chances at each string length, with the task ending if both responses at the same string length are incorrect. The BDS score ranges from 0 (no correct responses) to 7 (a correct response at all seven string lengths).

Symbol Digits Modalities (SDM): Respondents are given a sheet of paper with a printed key matching symbols to single-digit numbers, below which is a grid of symbols. Each symbol has a blank space next to it, and the respondent is given 90 seconds to enter the corresponding number for as many of the symbols as possible, starting with the symbol in the upper left corner and completing each row in sequence. The SDM score is equal to the number of correct entries.

Twenty-five item National Adult Reading Test (NART-25): Respondents are asked to pronounce 25 irregularly spelled words printed on a show card. The NART-25 score ranges from 0 (no correct responses) to 25 (all 25 words correctly pronounced).

Table 8.1: Mean scores on the cognitive ability tasks, 2012 and 2016

	Males		Females	
	2012	2016	2012	2016
<i>All persons</i>				
Backward Digits Span	3.9	4.0	3.9	4.0
Symbol Digits Modalities	47.3	48.2	49.8	50.8
NART-25	13.0	13.6	13.1	13.6
<i>Persons who completed the task in both years</i>				
Backward Digits Span	3.9	4.0	4.0	4.0
Symbol Digits Modalities	47.9	47.8	50.6	50.4
NART-25	13.5	14.3	13.5	14.1



Figure 8.1: Mean individual-level change in score on the Backward Digits Span task between 2012 and 2016, by sex and 2012 age group

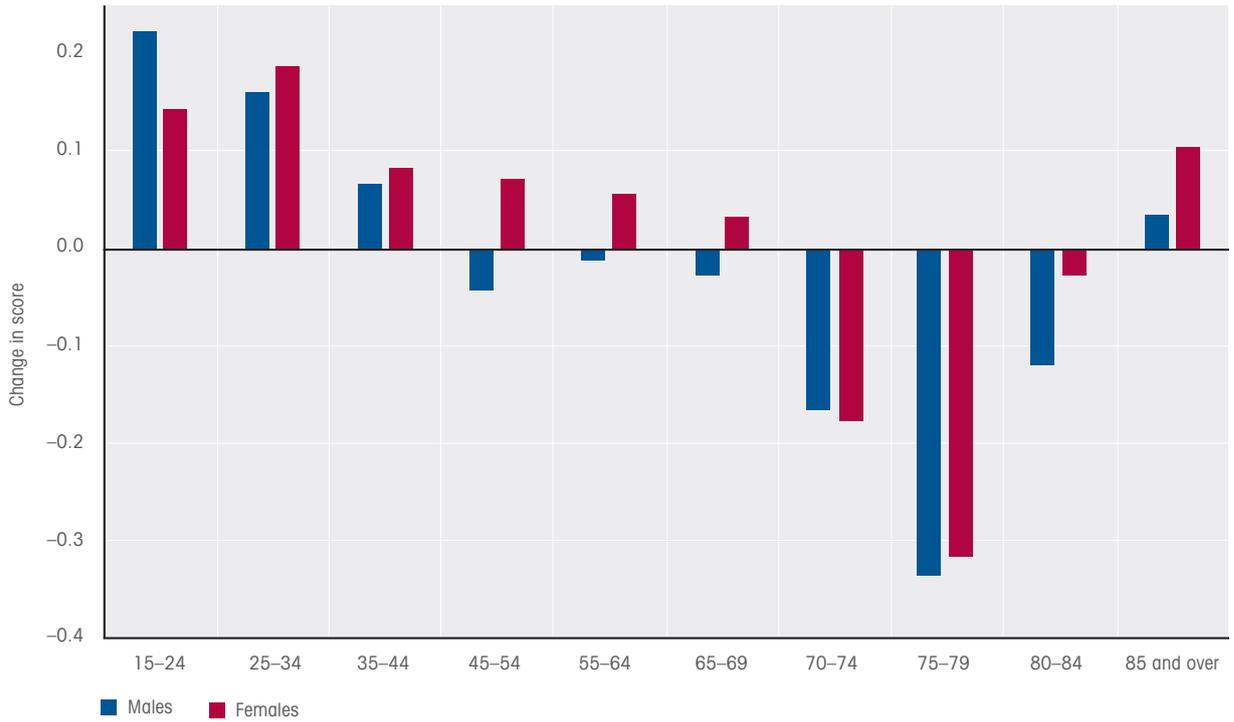


Figure 8.2: Mean individual-level change in score on the Symbol Digits Modalities task between 2012 and 2016, by sex and 2012 age group

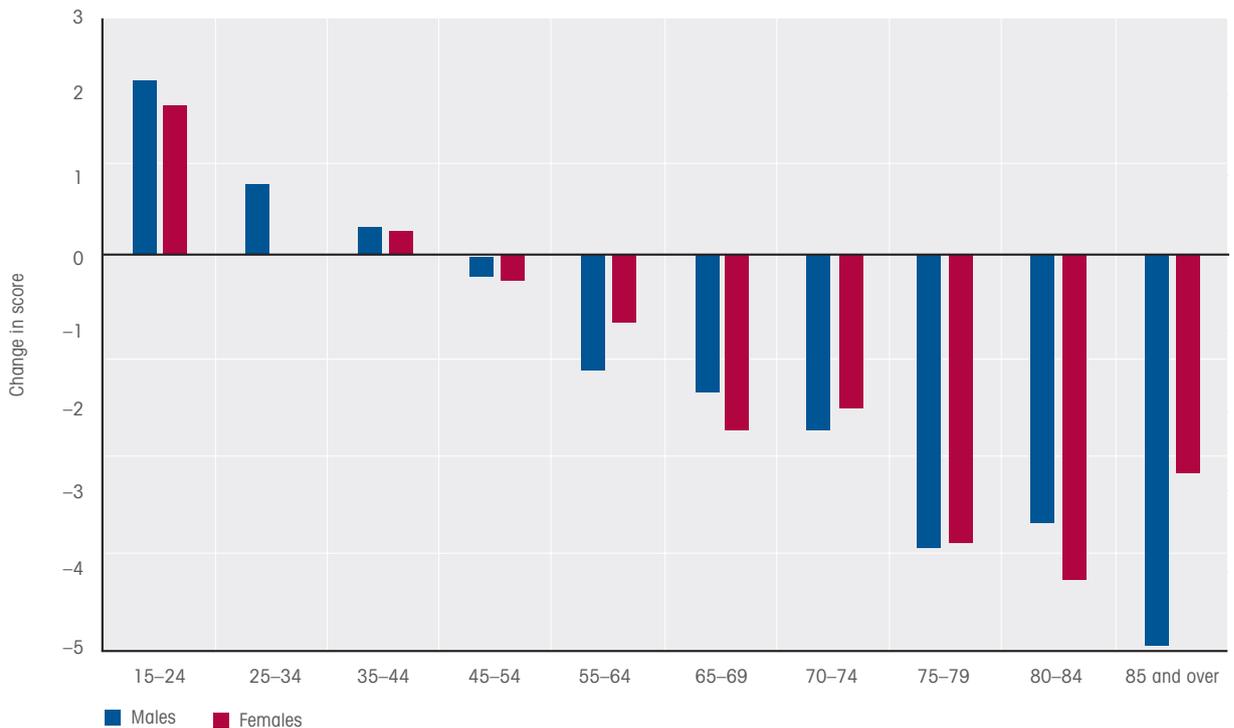
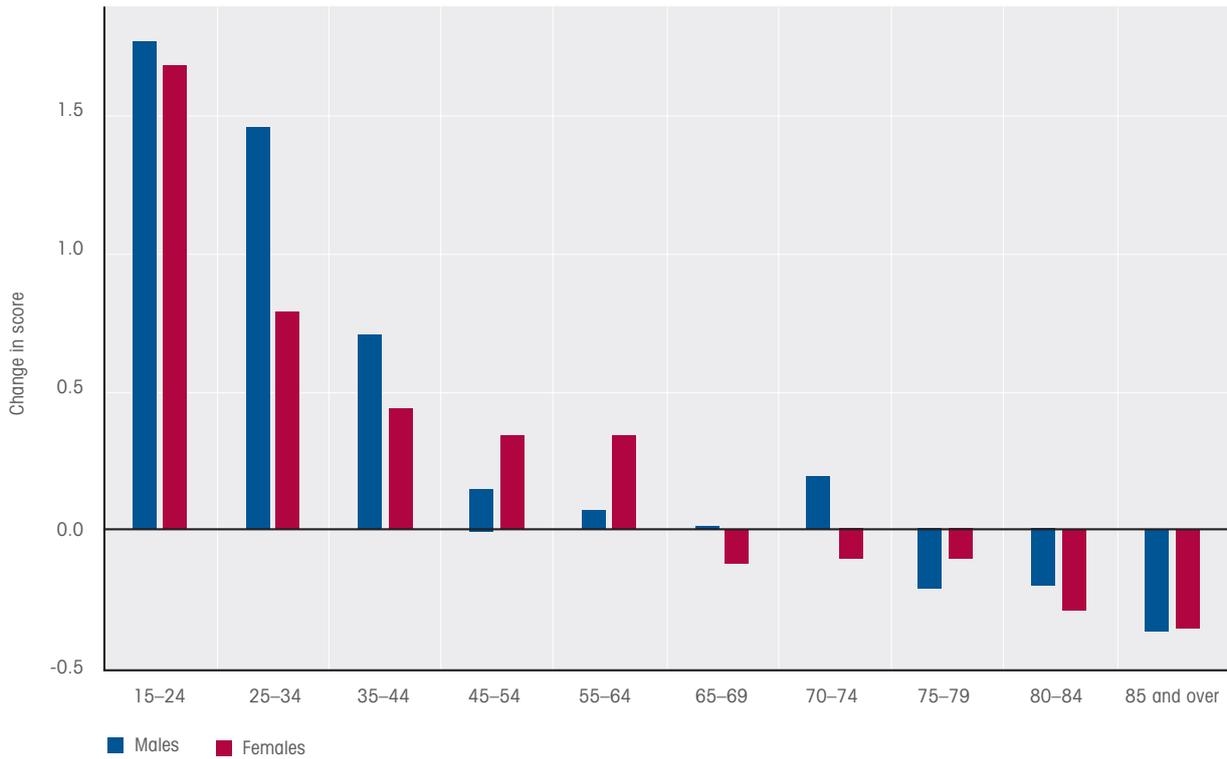


Figure 8.3: Mean individual-level change in score on the NART-25 task between 2012 and 2016, by sex and 2012 age group



changes tend to be positive up to the 55 to 64 age group, but at older ages they tend to be negative. Again, the changes tend to be more negative the older the age group.

Males aged 15 to 24, on average, increase their score on the BDS task by more than females aged 15 to 24, but from the 25 to 34 age group onwards males tend to fall behind females. However, for the SDM task there is no clear difference in changes between males and females. For the NART-25, males tend to improve more than females in the younger age groups, but improve less in the

45 to 64 age range. Thereafter, at older ages, there are no clear differences between males and females in changes in scores on the NART-25 task.

One, apparently anomalous, finding in Figure 8.1 is that the mean score on the BDS task increased over four years for those initially aged 85 and over. In interpreting this result, it should be noted that the rate of task completion is lower for the elderly, which may influence observed changes at older age groups. In particular, those with the biggest declines in cognitive function are almost certainly the

most likely to have not completed the tasks in 2016. Table 8.2 shows that, indeed, among those who completed the tasks in 2012 and responded to the survey in 2016, non-completion in 2016 is more prevalent among older people. Figures 8.1 to 8.3 would therefore seem likely to understate the extent of cognitive decline among the elderly. Moreover, Table 8.2 does not take into account people whose cognitive decline is so great as to render them incapable of responding to the survey at all. This would lead to further underestimation of cognitive decline.



Table 8.2: Proportion of individuals who did not complete each cognitive activity task in 2016, by age group in 2012 (%)

	<i>Backward Digits Span</i>	<i>Symbol Digits Modalities</i>	<i>NART-25</i>
15–24	1.1	0.2	1.4
25–34	1.2	0.1	1.1
35–44	1.3	0.3	1.3
45–54	1.8	0.8	1.6
55–64	2.3	1.8	2.2
65–69	1.9	2.6	5.3
70–74	2.1	1.3	1.0
75–79	5.9	5.8	3.4
80–84	7.3	6.4	8.0
85 and over	8.3	9.7	8.2

Note: The table shows only individuals who completed the relevant task in Wave 12 and were respondents in Wave 16.

Predictors of cognitive decline

As the preceding analysis shows, cognitive decline is very much associated with the later years of life. There is, of course, considerable variation across individuals in the timing and degree of cognitive decline, raising the question of whether there are observed traits and events in the HILDA Survey data that are predictive of cognitive decline.

This is considered in Table 8.3, which reports coefficient estimates from regression models of the determinants of the change in score on each of the cognitive ability tasks between 2012 and 2016. The population examined is restricted to individuals aged 60 and over in 2012, which is the age range over which cognitive decline for the most part occurs.

Factors considered include age, partner status, educational attainment, income, wealth (see Box 8.3, page 116), disability (Box 3.11, page 47), health (Box 3.10, page 47), social capital (Box 8.4, page 116), employment, volunteering and other forms of social participation, health behaviours, and cognitive activities. All of these factors are as measured in 2012 and were

included on the basis that cognitive decline may be reduced by good health and health behaviours, economic resources and activities likely to be cognitively stimulating.

The striking finding from Table 8.3 is that relatively few of these factors, as measured by the HILDA Survey, are predictive of changes in the three measures of cognitive functioning. This may, at least in part, reflect the fact that substantial cognitive decline is not well captured by the HILDA Survey. As noted earlier, such declines are likely to lead to non-completion of the tasks.

That said, there is evidence of some factors playing a role in change in cognitive functioning. Age is a strong (negative) predictor of change in score on the SDM task, although it is mostly not a predictor of change in score on the other two tasks.

For reasons that are not clear, holding post-school qualifications is associated with a larger decline in score on the BDS task. Disability and health in 2012 are largely not predictive of changes in scores, the exception being that severe disability in 2012 is associated with a positive effect on the change in score on the NART-25 test. Similarly at odds with expectations is that being employed in 2012 is associated



with a negative effect on the change in the NART-25 score.

Perhaps more consistent with expectations is that being active socially (defined as getting together with friends or relatives every day or several times a week) is associated with a positive effect on the change in score on the BDS task, and regular consumption of alcohol (drinking on five or more days per week) is associated with a negative impact on the change in score on the SDM task.

In Wave 12, respondents were asked whether they use a computer to assist in day-to-day activities, and about the frequency with which they engaged in a range of 'cognitive activities', including reading books, writing (for example, reports, letters, stories or journal entries), and doing puzzles (like crosswords or Sudoku) or playing word games (such as Scrabble). These activities similarly appear to have little predictive power, with only two of the 12 estimates for these activities exerting statistically significant effects. Doing puzzles or playing word games regularly (every day or most days) is positively associated with the change in score on the SDM task. However, writing regularly (at least several times a week) is associated with a substantial decline in score on the SDM task.

As noted, all the factors examined in Table 8.3 relate to factors as measured in 2012, so that the effects of changes in these factors between 2012 and 2016 will not be captured. However, models were additionally estimated including variables capturing events occurring between 2012 and 2016, such as death of one's spouse, and changes in health and disability. There was very little evidence of these events being predictive of changes in cognitive ability scores.

Models were also estimated of the probability of experiencing a 'substantial' decline in a cognitive ability measure. These models

Table 8.3: Predictors of change in cognitive ability task scores over four years—Persons aged 60 and over in 2012

	Backward Digits Span	Symbol Digits Modalities	NART-25
<i>Age group in 2012</i> (Reference category: 60–64)			
65–69	ns	–0.992	ns
70–74	ns	–0.829	ns
75–79	–0.314	–1.992	ns
80–84	ns	–3.066	–0.547
85 and over	ns	–1.966	ns
Partnered	ns	0.82	ns
Hold post-school qualifications (Certificate Level 3 or higher)	–0.146	ns	ns
Home owner	ns	ns	ns
Household equivalised income (\$, December 2016 prices)	ns	ns	ns
Household net wealth (\$, December 2016 prices)	ns	ns	ns
<i>Disability (Reference category: No disability that restricts work)</i>			
Moderate disability	ns	ns	ns
Severe disability	ns	ns	0.590
General health (SF-36)	ns	ns	ns
Mental health (SF-36)	ns	ns	ns
Employed	ns	ns	–0.306
Mind children	ns	ns	ns
Volunteer	ns	ns	ns
Active socially	0.211	ns	ns
Low social capital	ns	ns	ns
Exercise three or more times per week	ns	ns	ns
Drink alcohol on five or more days per week	ns	–0.695	ns
Smoker	ns	ns	ns
Use a computer	ns	ns	ns
Regularly read books	ns	ns	ns
Regularly write	ns	–1.094	ns
Regularly do puzzles	ns	0.862	ns
Constant	ns	ns	ns
Number of observations	1,612	1,613	1,739
Sample mean change in score	–0.09	–2.2	–0.07

Notes: The table presents coefficient estimates from regression models of the determinants of scores on each cognitive ability task. ns indicates the estimate is not significantly different from 0 at the 10% level.





allowed inclusion of individuals who did not complete the cognitive ability tasks in 2016, despite having completed them in 2012 and responding to the Wave 16 survey. These individuals were treated as having experienced a ‘substantial decline’ in the cognitive measure. However, again, almost no explanatory factors

exerted statistically significant effects in these models.

In short, there appears to be little that is measured by the HILDA Survey that is predictive of cognitive decline, although more sophisticated analyses may uncover relationships that this simple analysis has not been able to uncover.

Box 8.3: 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 were 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.

Box 8.4: HILDA Survey measure of social capital

Most measures of social capital are essentially measures of social networks, although measures of neighbourhood quality and safety are sometimes also included. One’s social networks range from intimate attachments to spouse and family, through friendship and social support networks, to acquaintances (including neighbours) whom one may be able to rely on for relatively minor assistance like borrowing household items and keeping an eye on the house while one is away on holiday (Henderson et al., 1981).

A measure of social capital is available in the HILDA Survey based on responses to the following 10-item question administered in the self-completion questionnaire in each wave:

The following statements have been used by many people to describe how much support they get from other people. How much do you agree or disagree with each? The more you agree, the higher the number of the box you should cross. The more you disagree, the lower the number of the box you should cross.

- a. People don’t come to visit me as often as I would like
- b. I often need help from other people but can’t get it
- c. I seem to have a lot of friends
- d. I don’t have anyone that I can confide in
- e. I have no one to lean on in times of trouble
- f. There is someone who can always cheer me up
- g. I often feel very lonely
- h. I enjoy the time I spend with the people who are important to me
- i. When something’s on my mind, just talking with the people I know can make me feel better
- j. When I need someone to help me out, I can usually find someone

Response options range from 1 (strongly disagree) to 7 (strongly agree). An overall measure of social capital can be constructed as $[(8 - a) + (8 - b) + c + (8 - d) + (8 - e) + f + (8 - g) + h + i + j]/10$, which can range from a low of 1 to a high of 7. In this report, an individual is classified as having low social capital if this measure is less than 4.

9

Financial literacy and attitudes to finances

Roger Wilkins



Despite rising levels of income and wealth in the Australian community, the issue of financial literacy remains highly relevant, with many policy-makers in the wake of the 2008 Global Financial Crisis bemoaning the widespread lack of financial knowledge. US research, for example, has consistently shown that levels of basic financial skills are very poor among sizeable fractions of the population, and that this has ramifications for a wide range of economic decisions (Lusardi and Mitchell, 2014).

Financial literacy is defined by the OECD International Network on Financial Education (2011) as:

A combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve financial wellbeing.

In Wave 16, the HILDA Survey included measures of basic financial literacy using an approach pioneered by Lusardi and Mitchell (2014). Five questions, respectively covering numeracy, inflation, portfolio diversification, risk versus return, and money illusion, were administered in the interview component (see Box 9.1, below).

Financial literacy of the Australian population

Table 9.1 summarises responses to the financial literacy questions administered in Wave 16 disaggregated by sex and age

group. The upper panel presents the proportion providing correct responses to each of the five questions. For example, the upper left cell indicates that 85.5% of people provided a correct response to the 'numeracy' question (implying 14.5% provided an incorrect response or indicated

Box 9.1: HILDA Survey measure of financial literacy

The following five questions, respectively covering numeracy, inflation, portfolio diversification, risk versus returns, and money illusion, were administered in the interview component in Wave 16:

1. [Numeracy] Suppose you put \$100 into a no-fee savings account with a guaranteed interest rate of 2% per year. You don't make any further payments into this account and you don't withdraw any money. How much would be in the account at the end of the first year, once the interest payment is made? [Correct answer: \$102]
2. [Inflation] Imagine now that the interest rate on your savings account was 1% per year and inflation was 2% per year. After one year, would you be able to buy more than today, exactly the same as today, or less than today with the money in this account? [Correct answer: Less]
3. [Diversification] Do you think that the following statement is true or false? "Buying shares in a single company usually provides a safer return than buying shares in a number of different companies." (True or false?) [Correct answer: False]
4. [Risk-return] Again, please tell me whether you think the following statement is true or false: "An investment with a high return is likely to be high risk." (True or false?) [Correct answer: True]
5. [Money Illusion] Suppose that by the year 2020 your income has doubled, but the prices of all of the things you buy have also doubled. In 2020, will you be able to buy more than today, exactly the same as today, or less than today with your income? [Correct answer: Exactly the same]

An overall measure of financial literacy can be calculated as simply the sum of correct answers to these five questions.

Table 9.1: Financial literacy scores by sex and age group, 2016

Proportion answering each question correctly (%)

	Numeracy	Inflation	Diversification	Risk–return	Money illusion
All persons	85.5	69.8	74.9	83.5	77.0
Sex					
Males	91.9	76.6	77.2	88.1	79.2
Females	79.4	63.3	72.7	79.0	74.9
Age group					
15–24	76.0	45.4	61.3	71.3	81.5
25–34	87.0	61.2	74.7	80.4	82.4
35–44	90.6	74.2	79.6	85.8	81.1
45–54	90.5	81.2	80.4	89.0	78.9
55–64	90.0	83.6	81.8	89.7	75.2
65 and over	79.9	76.1	72.5	85.7	63.1

Distribution of number of correct responses

	Number of correct responses (%)				Mean score (out of 5)
	None	1 or 2	3 or 4	All 5	
All persons	2.3	11.1	44.0	42.5	3.9
Sex					
Males	1.5	7.1	41.5	49.9	4.1
Females	3.2	15.0	46.5	35.4	3.7
Age group					
15–24	3.0	22.3	50.6	24.2	3.4
25–34	1.3	11.8	48.6	38.3	3.9
35–44	1.5	7.4	42.0	49.2	4.1
45–54	1.8	5.5	40.9	51.7	4.2
55–64	1.6	7.3	36.2	54.9	4.2
65 and over	4.8	11.6	44.0	39.6	3.8

they did not know the answer). The lower panel of the table describes the distribution of the number of correct responses. For example, the upper left cell of the panel shows that 2.3% of people did not provide correct responses to any of the five questions.

The upper panel of the table shows that, for each of the five questions, a large majority of people provided correct responses. The Numeracy and Risk–return questions had the highest rates of correct responses, while the Inflation question had the lowest proportion of correct responses.

There is a clear gender divide in financial literacy as measured by the HILDA Survey. For all five questions, a higher proportion of males than females provided correct responses. The difference was largest for the Inflation and Numeracy questions, and smallest for the Money illusion and Diversification questions. The lower panel of the table correspondingly shows that males averaged 4.1 correct responses, compared with 3.7 for females. Perhaps most striking is that 49.9% of males answered all five questions correctly, whereas only

35.4% of females answered all the questions correctly.¹

Substantial differences across age groups are also evident in Table 9.1. Financial literacy is lowest among individuals aged 15 to 24 and, on average, increases with age up to the 45 to 54 age group.² The 55 to 64 age group has a similar level of financial literacy to the 45 to 54 age group, while the 65 and over group, on average, has a level of measured financial literacy slightly lower than the 25 to 34 age group.

The proportion correctly answering all five questions ranges from

¹ In interpreting this gender difference, it should be noted that most of the difference derives from a higher proportion of females responding 'don't know'. The proportions providing incorrect answers were similar for males and females. It may be that females are, on average, less inclined than males to provide an answer when they are not completely sure of the correct answer.

² Further disaggregation by age group shows that financial literacy is particularly low among those aged 15 to 17. Nonetheless, those aged 18 to 24 still have lower average levels of financial literacy than those aged 25 to 34.

24.2% for the 15 to 24 age group to 54.9% for the 55 to 64 age group. Particularly striking are the differences for the Inflation question: only 45.4% of those aged 15 to 24 correctly answered this question, compared with 83.6% of the 55 to 64 age group.

Differences in financial literacy across demographic groups are explored further in Table 9.2. The table presents estimates from regression models of the number of correct responses to the five financial literacy questions. Estimates from two models are presented. In Model (A), the characteristics examined comprise sex, age, place of birth and Indigenous status, relationship in the household (see Box 9.2, at right), educational attainment, region of residence and labour force status. In Model (B), associations with economic outcomes—namely, income, wealth and government income support receipt—are additionally considered.

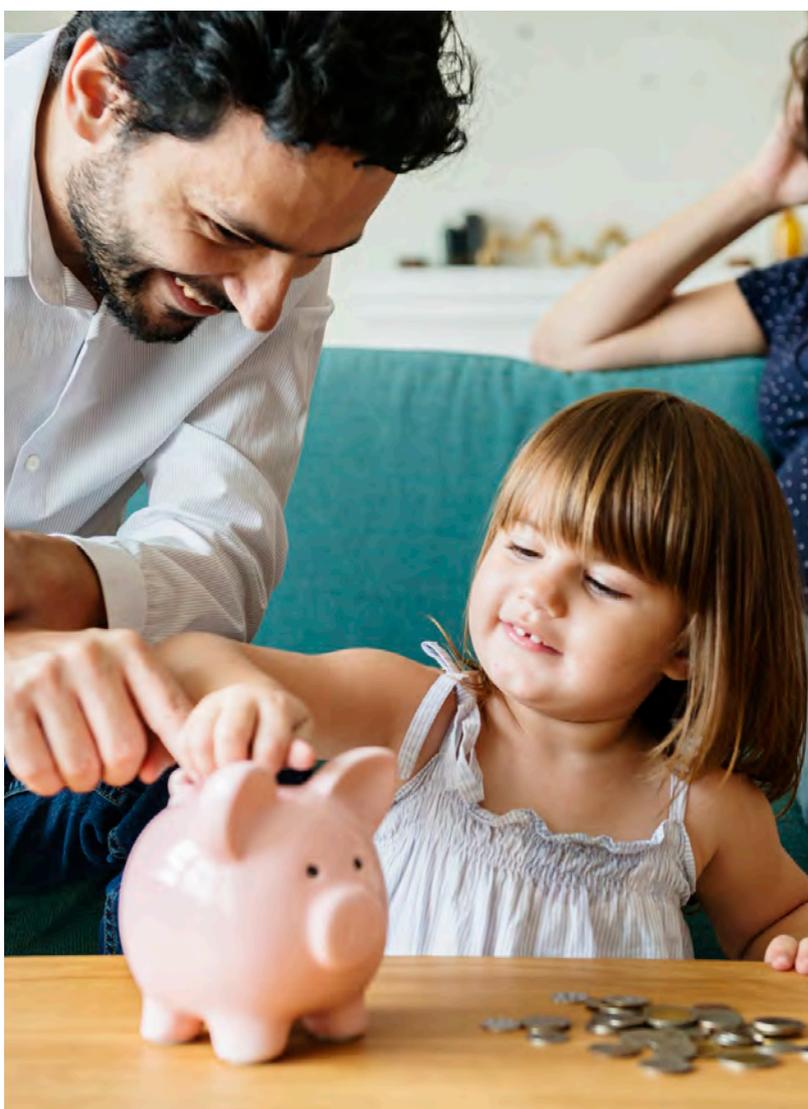
The table shows there are large differences across demographic groups. The differences by sex and age group found in Table 9.1 are broadly robust to controlling for other demographic factors, and indeed to controlling for income, wealth and government income support receipt. Immigrants from countries other than the main English-speaking countries (see Box 2.5, page 17) and Indigenous Australians have considerably lower scores on the financial literacy questions, other factors held constant, although language and cultural factors may partly explain this.

Partnered people have higher measured financial literacy, all else being equal, while children aged 15 and over living with their parents have relatively low financial literacy. Single parents also have low financial literacy, although once economic outcomes are controlled for, they do not differ significantly from single people.

Box 9.2: Relationship in household

The HILDA Survey classifies each household member according to their 'relationship in the household'. There are 13 categories distinguished, which are closely related to household types (as described in Box 2.1, page 6). In this report, the following five categories are distinguished:

1. Partnered with no dependent or non-dependent children
2. Partnered with dependent or non-dependent children
3. Single parent with dependent or non-dependent children
4. Dependent or non-dependent child
5. Other, comprising lone person, unrelated person or other family member



University education is strongly associated with financial literacy, while those who have not completed high school have the lowest levels of financial literacy, other factors held constant. People with non-university post-school qualifications have similar levels of financial literacy to those who have completed high school.

There is little evidence of an association between region of residence and financial literacy, but there are large differences by labour force status, particularly absent the controls for economic outcomes (which tend to be most favourable for the full-time employed and least favourable for the unemployed). Financial literacy is highest for the full-time employed and lowest for

Table 9.2: Association between financial literacy and demographic characteristics, 2016

	(A)	(B)
Male	0.393	0.411
<i>Age group (Reference category: 35–44)</i>		
15–24	–0.365	–0.368
25–34	–0.225	–0.170
45–54	0.146	0.070
55–64	0.219	0.086
65 and over	0.083	<i>ns</i>
<i>Place of birth and Indigenous status (Reference category: Non-Indigenous native-born)</i>		
Immigrant from main English-speaking countries	<i>ns</i>	0.064
Immigrants from other countries	–0.523	–0.442
Indigenous	–0.412	–0.292
<i>Relationship in the household (Reference category: Other)</i>		
Partnered with no children	0.185	0.071
Partnered with dependent or non-dependent children	0.118	<i>ns</i>
Single parent with dependent or non-dependent children	–0.078	<i>ns</i>
Child (dependent or non-dependent)	–0.092	–0.285
<i>Educational attainment (Reference category: Less than high-school completion)</i>		
Bachelor's degree or higher	0.946	0.824
Other post-school qualification	0.450	0.407
Completed high school	0.522	0.466
<i>Region of residence (Reference category: Major urban area)</i>		
Non-major urban area	<i>ns</i>	0.055
Non-urban area	<i>ns</i>	<i>ns</i>
<i>Labour force status (Reference category: Not in the labour force)</i>		
Employed full-time	0.219	0.055
Employed part-time	0.139	<i>ns</i>
Unemployed	–0.183	–0.172
<i>Equivalised income quintile (Reference category: Bottom quintile)</i>		
2nd quintile	—	0.087
Middle quintile	—	0.117
4th quintile	—	0.194
Top quintile	—	0.206
<i>Net wealth quintile in 2014 (Reference category: Bottom quintile)</i>		
2nd quintile	—	0.186
Middle quintile	—	0.270
4th quintile	—	0.388
Top quintile	—	0.448
Currently receive government income support payment	—	–0.146
Constant	3.209	3.108
Number of observations	16,761	16,761

Notes: The table presents coefficient estimates from regression models of the number of correct responses to the five financial literacy questions. *ns* indicates the estimate is not significantly different from 0 at the 10% level.



the unemployed. Indeed, even controlling for income, wealth and income support receipt, financial literacy is considerably lower among the unemployed.

Addition of economic outcomes shows these to be highly predictive of financial literacy. Both higher income and higher wealth are associated with greater financial literacy, while government income support receipt is also associated with lower financial literacy. Note that this finding does not necessarily mean poor economic outcomes are causing low financial literacy. Low financial literacy could in fact be a cause of poor economic outcomes, although most of the association between financial literacy and economic outcomes is likely to be caused by other factors (not included in the models estimated in Table 9.2) that determine them both. For example, growing up in a disadvantaged community could lead to both low financial literacy and poor economic outcomes.

Attitudes to finances

A small number of questions about attitudes and behaviours relevant to financial decision-making are regularly included in the self-completion questionnaire (SCQ). These questions cover preparedness to take financial risks, savings habits, saving and spending time horizons, money management strategies in response to insufficient funds and who in the household is responsible for financial decision-making. In addition, a question is included in the interview component each year on paying off credit cards.

In Wave 16, two additional questions were included in the SCQ that were relevant to financial decision-making. The first is a nine-item question on attitudes about money management and personal finances, from which it is possible to construct a measure of capability with personal financial management (see Box 9.3, below). The second is a nine-item question

on 'motivation traits' taken directly from the World Bank Survey of Financial Capability (Kempson et al., 2013; see Box 9.4, page 122). This question can be used to produce three measures: future orientation (the extent to which one thinks about the future versus the present); impulsivity (the extent to which one thinks before acting); and achievement motivation (the extent to which one is motivated by the desire to 'do well' or achieve things).

Table 9.3 summarises responses to the question on personal financial management capability administered in Wave 16. Overall, there is a tendency to agree with the statements, indicating people tend to think they pay considerable attention to their finances and are good at managing their financial affairs. However, it is also clear that the degree of attention to finances and self-perceived competence in

managing affairs are strongly related to age: the older the age group, the higher the mean score.

Differences between males and females are, on average, quite small, although females are slightly more likely to perceive themselves as organised when it comes to managing day-to-day financial affairs, and men are slightly more comfortable dealing with banks and other financial institutions.

Table 9.4 presents the mean score on each of the three measures of motivation traits. All three measures are, on average, quite similar for males and females. Differences by age group are larger. Both the young (aged 15 to 24) and the elderly (aged 65 and over) are, on average, less future-oriented than those aged 25 to 64. For the impulsivity and achievement motivation measures, mean scores tend to decline with age, although

Box 9.3: HILDA Survey measure of personal financial management capability

In Wave 16, a nine-item question was included on attitudes about money management and personal finances. Respondents were asked to indicate the extent to which they agreed (on a 1–7 scale, where 1 is 'strongly disagree' and 7 is 'strongly agree') with each of the following statements:

- a. I feel confident about the financial decisions I make
- b. I keep a close personal watch on my financial affairs
- c. I make certain I understand the commitments I agree to in financial contracts
- d. I set long-term financial goals and strive to achieve them
- e. I am very organised when it comes to managing my money day to day
- f. I always make sure I have money saved up for emergencies or unexpected expenses
- g. I do a good job of balancing my spending and savings
- h. I feel very comfortable dealing with banks and other financial institutions
- i. I am good at dealing with day-to-day financial matters

An overall measure of an individual's general capability with personal finance management is produced by taking the average over the responses (where the average ranges from 1, for those who strongly disagree with all statements, to 7, for those who strongly agree with all statements).



the patterns for the two measures are somewhat different. Impulsivity is relatively high for the two youngest age groups, and similar (at a lower level) across the remaining four age groups. By contrast, achievement motivation is, on average, the same across the three youngest age groups, and then declines with age thereafter; achievement motivation appears to be especially low among the post-retirement (65 and over) age group.

Financial literacy and financial attitudes, behaviours and outcomes

How does financial literacy correlate with financial attitudes, behaviours and, most importantly, outcomes? Tables 9.5, 9.6 and 9.7 respectively compare various attitudes, behaviours and outcomes across people classified into three levels of financial literacy: low (two or fewer correct answers); medium (three or four correct answers); and high (all five questions answered correctly). As Table 9.1 shows, 13.4% of people are in the bottom category, 44% are in the middle category and 42.5% are in the top category.

Table 9.5 compares willingness to take financial risks, saving and spending horizon, financial management capability and motivation traits across the three financial literacy groups. In all cases, there are clear and strong patterns as we move from lower to higher financial literacy.

Willingness to take financial risks (see Box 9.5, page 124) is lowest for the least financially literate group and highest for the most literate group: 72.5% of those in the bottom group report not being prepared to take any risks, compared with 56.3% of the middle group and only 36.1% of the top group.

Box 9.4: World Bank measure of motivation traits

The World Bank Survey of Financial Capability (see Kempson et al., 2013) includes a nine-item question aimed at measuring three 'motivation traits': future orientation; impulsivity; and achievement motivation. The question asks respondents the extent to which they agree (on a 1–7 scale, where 1 is 'strongly disagree' and 7 is 'strongly agree') with each of the following statements:

- a. I only focus on the short term
- b. I do things without giving them much thought
- c. I always look out for opportunities for improving my situation
- d. I tend to live for today and let tomorrow take care of itself
- e. I am impulsive
- f. I have many aspirations
- g. The future will take care of itself
- h. I say things before I have thought them through
- i. I always work hard to be among the best at what I do

Items a, d and g measure future orientation, items b, e and h measure impulsivity, and items c, f and i measure achievement motivation. The measure of future orientation is calculated as $[(8 - a) + (8 - d) + (8 - g)]/3$, the measure of impulsivity is calculated as $[b + e + h]/3$, and the measure of achievement motivation is calculated as $[c + f + i]/3$. Each measure has a potential range from 1 to 7.



Saving and spending horizons tend to increase as financial literacy increases, although the differences are more pronounced between the middle and top groups than between the bottom and middle groups. For example, 54.6% of the bottom group report a horizon of the next week or the next month, compared with

48.9% of those in the middle group and 34% of the top group.

The shorter saving and spending horizon associated with low financial literacy does not necessarily mean individuals are less predisposed to thinking about the long term. The economic situation of people with low financial literacy may dictate

Table 9.3: Mean extent of agreement with statements about personal financial management capability, 2016 (1–7 scale)

	Sex		Age group					
	Males	Females	15–24	25–34	35–44	45–54	55–64	65 and over
<i>I feel confident about the financial decisions I make</i>	5.1	5.0	4.7	4.9	5.0	5.0	5.2	5.6
<i>I keep a close personal watch on my financial affairs</i>	5.1	5.1	5.1	4.9	5.0	5.1	5.3	5.7
<i>I make certain I understand the commitments I agree to in financial contracts</i>	5.5	5.5	4.4	5.4	5.5	5.6	5.8	6.0
<i>I set long-term financial goals and strive to achieve them</i>	4.6	4.6	4.3	4.6	4.4	4.6	4.7	4.9
<i>I am very organised when it comes to managing my money day to day</i>	4.7	4.9	4.4	4.5	4.6	4.8	5.1	5.5
<i>I always make sure I have money saved up for emergencies or unexpected expenses</i>	4.9	5.0	4.4	4.8	4.7	4.8	5.2	5.8
<i>I do a good job of balancing my spending and savings</i>	4.8	4.9	4.1	4.6	4.6	4.8	5.1	5.6
<i>I feel very comfortable dealing with banks and other financial institutions</i>	4.9	4.7	4.5	4.7	4.8	4.9	5.1	5.4
<i>I am good at dealing with day-to-day financial matters</i>	5.0	5.1	4.5	4.9	5.0	5.1	5.2	5.6
Mean for all nine statements	5.0	5.0	4.5	4.8	4.9	5.0	5.2	5.6

Notes: The table reports the mean extent of agreement with each statement, where 'strongly disagree' equals 1, 'neither agree or disagree' equals 4 and 'strongly agree' equals 7. Thus, means greater than 4 correspond to greater agreement than disagreement, while means less than 4 correspond to greater disagreement than agreement.

Table 9.4: Mean scores on measures of motivation traits, by sex and by age group, 2016 (1–7 scale)

	Sex		Age group					
	Males	Females	15–24	25–34	35–44	45–54	55–64	65 and over
Future orientation	4.7	4.8	4.5	4.8	4.8	4.8	4.8	4.6
Impulsivity	3.2	3.1	3.4	3.3	3.0	3.0	3.0	2.9
Achievement motivation	5.1	5.1	5.2	5.2	5.2	5.1	5.0	4.8

a focus on the short term. For example, low and uncertain income may require individuals to only think about how to pay the next week's grocery bill or the next month's rent.

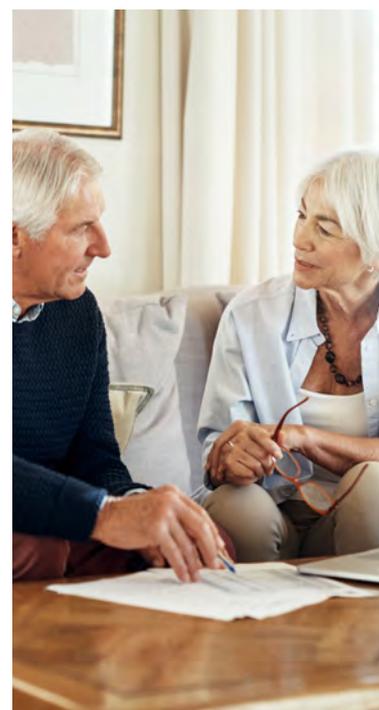
That said, mean scores for the 'future-orientation' motivation trait are strongly ordered by level of financial literacy, rising from 4.3 for the bottom group to 4.6 for the middle group to 4.9 for the top group. It therefore seems that lower financial literacy is indeed associated with a predisposition to be more 'present-oriented'. Lower financial literacy is also associated with greater impulsiveness, and slightly lower achievement motivation.

Self-assessed financial management capability is, on average, ordered by level of financial literacy, indicating

at least some tendency for people with low financial literacy to be aware of this fact. The mean score on the 1 to 7 scale is 4.6 for the bottom group, 4.9 for the middle group and 5.2 for the top group.

Various financial behaviours are considered in Table 9.6. Differences in savings habits by level of financial literacy are evident, but appear to be quite small. The proportion saving regularly is slightly higher for those with higher financial literacy, rising from 29.2% among those in the bottom group to 31.9% among those in the top group. Conversely, 23.4% of those in the bottom group report not saving at all, compared with 20.1% of those in the middle group and 17.1% in the top group.

The middle panel of Table 9.6 considers whether there is a



relationship between financial literacy and making decisions about household financial matters (see Box 9.6, page 126). For each of three types of financial matters—managing day-to-day spending and paying bills, making large household purchases, and savings, investment and borrowing—it presents the proportion of people in each financial literacy group who report being involved in making household decisions about those matters.

Again, an ordering by level of financial literacy is evident. Those who correctly answered two or fewer of the financial literacy questions are considerably less likely to be involved in household financial decision-making than those who

Box 9.5: 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?

The response options for this question are the same as a to d for the first question.

In this report, individuals are classified into three groups based on willingness to take financial risks: (1) Substantial or above average (response options a and b); (2) Average (response option c); and (3) None (response option d), where responses to the follow-up question are used if option e is selected in the first question.



Table 9.5: Financial attitudes by level of financial literacy, 2016

	Financial literacy level—Number of correct responses		
	2 or fewer	3 or 4	All 5
<i>Financial risk willing to take (%)</i>			
Above-average or substantial	5.4	8.0	12.3
Average	22.2	35.8	51.6
None	72.5	56.3	36.1
Total	100.0	100.0	100.0
<i>Saving and spending horizon (%)</i>			
Next week or next month	54.6	48.9	34.0
Next year to next 2 to 4 years	29.7	33.4	39.5
Next 5 years or more	15.7	17.6	26.6
Total	100.0	100.0	100.0
<i>Mean scores for measures of motivation traits (1–7 scale)</i>			
Future-orientation	4.3	4.6	4.9
Impulsiveness	3.4	3.2	2.9
Achievement motivation	4.9	5.1	5.1
Mean financial management capability (1–7 scale)	4.6	4.9	5.2

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



correctly answered three or four questions, who in turn are somewhat less likely to be involved than those who correctly answered all five questions. This may be a rational response to the knowledge that one has low financial literacy, or it could reflect a lack of interest in (or perhaps even exclusion from) financial matters, which leads to both low participation in household decisions and low financial literacy.

The final domain of financial behaviour examined in Table 9.6 is credit card use. The decision to hold a credit card is a very large point of difference between financial literacy groups. Only 25% of those in the least financially literate group hold a credit card, compared with 69.4% of those in the most literate group. Among those who have a credit card, the least literate group also has the lowest propensity to pay off the full credit card balance each month. Among people with a credit card in the lowest group, 22.7% pay off the full balance ‘not very often’ or ‘rarely or never’; among those in the top financial literacy group with a credit card, the corresponding proportion is 17.2%.

Consistent with the evidence presented in Table 9.2, Table 9.7 shows that economic outcomes are strongly related to financial literacy. Perhaps most striking is that the poverty rate among the least financially literate group is over twice the poverty rate among the most literate group (see Box 3.6, page 35, for the definition of poverty employed in this report). The least literate group is, furthermore, highly likely to report being unable to raise \$3,000 for an emergency: 43.6% fall into this category, compared with 12.4% of the most literate group. Experience of financial stress (see Box 3.9, page 44) is, moreover, considerably more prevalent among the least financially literate.

The less financially literate also perceive their economic circumstances to be worse than more financially literate people. The proportion of people in the

Australian community who perceive themselves to be ‘poor’ or ‘very poor’ is quite low, but nonetheless those with low financial literacy are considerably more likely to perceive themselves as poor. Likewise, mean satisfaction with one’s financial situation (assessed on a scale from 0—completely dissatisfied—to 10—completely satisfied—is lowest in the least financially literate group and highest in the most literate group.

Box 9.6: HILDA Survey questions on household financial decision-making

A multi-part question included in the self-completion questionnaire every two years asks respondents who make decisions in their household about various issues, including the following three financial matters:

- a. Managing day-to-day spending and paying bills
- b. Making large household purchases (e.g., cars and major appliances)
- c. Savings, investment and borrowing

The response options are (1) Always me; (2) Usually me; (3) Shared equally between my partner and me; (4) Usually my partner; (5) Always my partner; (6) Always/usually other person(s) in house; (7) Shared equally among household members; (8) Always/usually someone else not living in house; and (9) Does not apply.

In this report, an individual is classified as ‘involved in making decisions’ if response options (1), (2), (3) or (7) are selected.



Table 9.6: Financial behaviours by level of financial literacy, 2016 (%)

	Financial literacy level—Number of correct responses		
	2 or fewer	3 or 4	All 5
<i>Savings habits</i>			
Do not save	23.4	20.1	17.1
No regular plan or save only non-regular income	47.4	49.6	51.0
Regularly save each month	29.2	30.3	31.9
Total	100.0	100.0	100.0
<i>Involved in making household decisions about...^a</i>			
...managing day-to-day spending and paying bills	67.2	74.9	78.5
...making large household purchases	70.6	82.6	90.1
...savings, investment and borrowing	79.0	86.2	90.2
<i>Credit cards</i>			
Have a credit card for personal use	25.0	49.1	69.4
Persons with a credit card: Pay off full balance not very often, rarely or never	22.7	21.9	17.2

Notes: ^a Only those who did not select the ‘does not apply’ response are included in this panel. Most individuals who selected this option were dependent students (42%), nondependent children (27%) or people in single-person households (17%). Cells may not add up to column totals due to rounding.

Table 9.7: Economic outcomes by level of financial literacy, 2016

	Financial literacy level—Number of correct responses		
	2 or fewer	3 or 4	All 5
Median equivalised income (\$, December 2016 prices)	37,784	45,902	54,666
Median net wealth in 2014 (\$, December 2016 prices)	266,479	423,474	689,953
In relative poverty (%)	17.5	9.7	7.4
In financial stress (%)	14.7	12.7	8.3
Unable to raise \$3,000 for an emergency (%)	43.6	26.4	12.4
Perceive self to be poor or very poor (%)	4.4	3.5	2.5
Mean satisfaction with financial situation (0–10 scale)	6.3	6.5	6.8

10

Renters

Roger Wilkins



The analysis presented in Chapter 3 shows that renters are particularly prone to both financial stress and housing stress. Moreover, the corollary of declining home ownership in the Australian community (documented in previous volumes of this report) is that renters are a growing demographic group. This chapter examines the characteristics, outcomes and housing behaviour of renters.

Prevalence and characteristics of renters

Figure 10.1 indicates that the proportion of people living in rental accommodation has increased since 2001.¹ There has also been some shift away from social housing (comprising public housing as well as 'community or co-operative housing'; see Box 10.1, below) towards the private rental market. In 2016, 28% of the population lived in private rental accommodation, up from 23% in 2001, and 3.3% lived in social housing, down from 5% in 2001. Thus, overall, the proportion

of people in rental accommodation rose from 28% to 31.3%.

Differences in the prevalence of renting by age group are examined in Figure 10.2. People aged 25 to 34 are the most likely to rent, while people aged 55 and over are the least likely to rent.

All age groups other than the 15 to 24 age group have experienced a rise in renting, but the increases have been largest for the 25 to 34 and 35 to 44 age groups, with the 45 to 54 age group also experiencing a sizeable increase. The slight decline for the 15 to 24 age group, from 36.6% to 34.5%, is undoubtedly driven by the trend

Box 10.1: Classification of housing tenure types

While there are many different housing tenure types, in this report households are classified into no more than four categories: owner outright (without mortgage); owner with mortgage; renter of social housing; and renter of private housing.

Social housing comprises public (government-owned) housing and 'community or co-operative housing'. Renters of private housing include people paying rent to a private landlord, real estate agent, caravan park owner, employer or other private person. The private rental category also includes the relatively small number of people living rent free or involved in a rent-buy scheme. Depending on the analysis, some of these categories may be combined. For example, there may be a single category for home owners (with or without a mortgage), and all renters may be combined into a single category.

The classification of housing tenure types is at the level of the household, so that all members of the household have the same tenure type. For example, a non-dependent student paying board to his or her parents will be classified as a home owner rather than a renter if the parents own the home.

¹ The timing of the increase in private rental accommodation is somewhat uncertain. The sample top-up in 2011 (see Appendix C) led to a sizeable increase in the estimated proportion of people living in private rental accommodation, likely reflecting higher attrition rates for those more likely to rent as well as the higher rates of private rental among recent immigrants. Excluding the top-up sample, the proportion of the population residing in private rental accommodation rises to 26.5% in 2016, rather than the 28% obtained when the top-up sample is included. The estimate including the top-up sample is likely to be more accurate given that the top-up sample improved the national representativeness of the HILDA Survey sample.

Figure 10.1: Percentage of the population living in rental accommodation

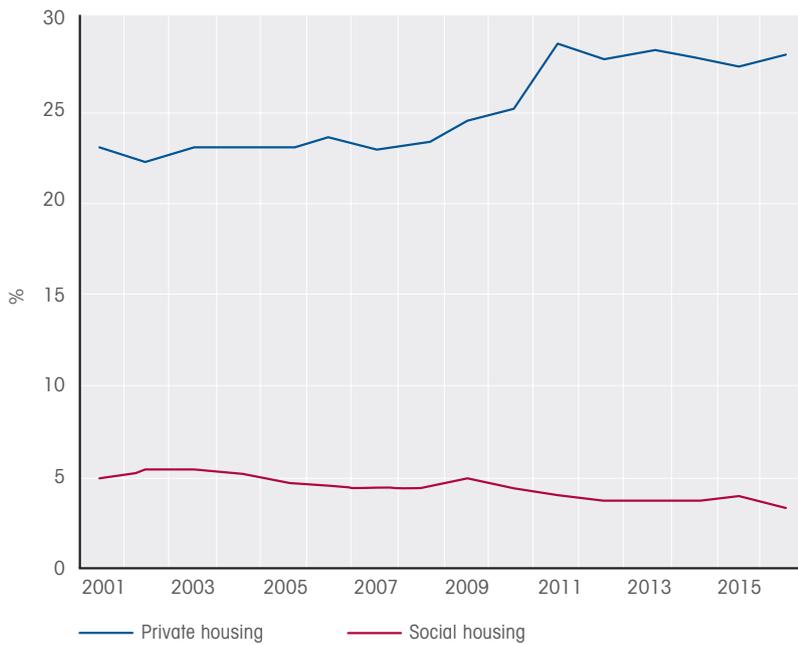
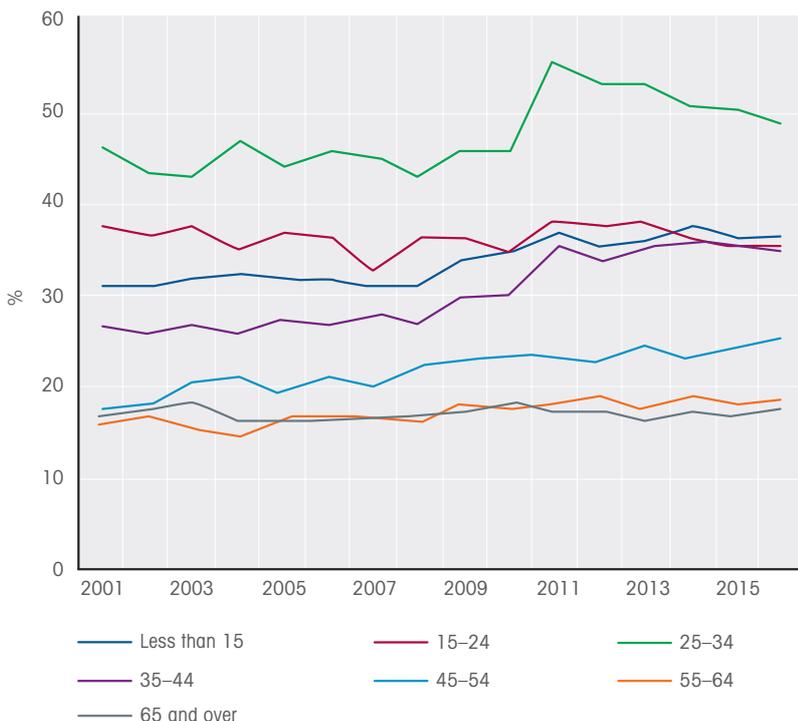


Figure 10.2: Percentage of the population living in rental accommodation, by age group



towards remaining in the parental home until older ages.

Consistent with the aggregate trend, for most age groups, the increase in renting largely took place between 2007 and 2011. Indeed, renting has declined somewhat since 2011 for the 25 to 34 age group. This is not because they are more likely to be home owners, however. Rather, as with the trend for the 15 to 24 age group, it reflects the trend towards remaining in the parental home, which is often owner-occupied, until older ages.

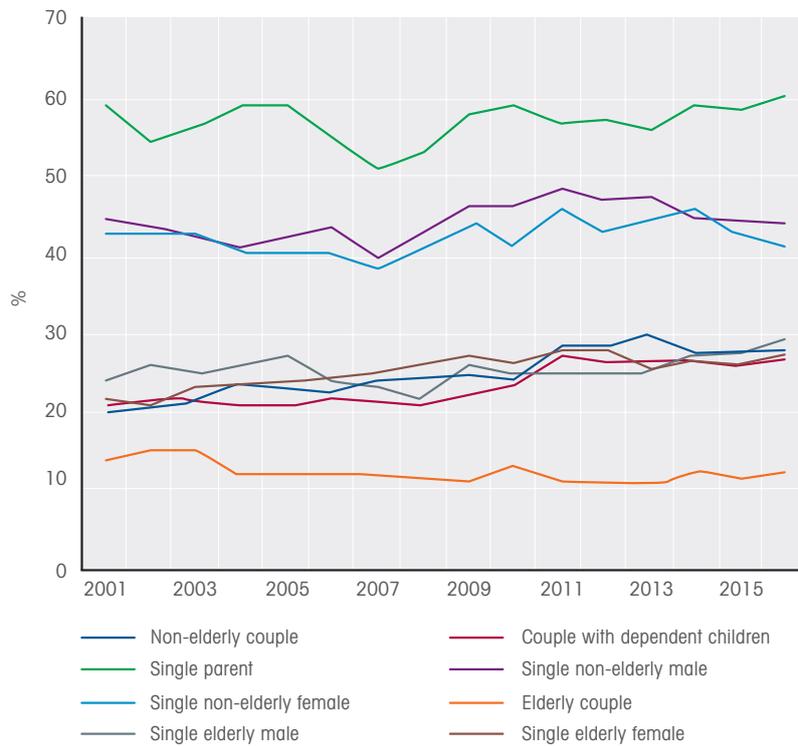
Figure 10.3 compares across family types (see Box 3.4, page 30), showing that renting is most common among single-parent families, and is also quite highly prevalent among non-elderly singles. Renting is least likely among elderly couples, while single elderly people, non-elderly couples without children and couples with dependent children also have relatively low rates of renting. However, it is these family types that have exhibited growth in the prevalence of renting between 2001 and 2016, in all cases rising approximately six percentage points. Relatively little net change is evident for the other family types over the 16-year period.

In Table 10.1, the characteristics of rental residences are compared with other (mostly owner-occupied) residences, in both 2001 and 2016. Social housing is the least likely to be a separate house and the most likely to be a semi-detached house. In 2001, a private rental property was the most likely to be a flat, but by 2016, flats had become more prevalent among social housing. Non-rental residences are dominated by separate houses, which accounted for 91.8% of non-rental residences in 2001 and 89.6% in 2016.

Between 2001 and 2016, the differences in residence type between private rental and non-rental residences declined



Figure 10.3: Percentage of the population living in rental accommodation, by family type



slightly. Among private rentals, the proportion that were flats and semi-detached houses declined slightly and the proportion that were separate houses increased slightly; while among non-rental residences, the proportion that were flats and semi-detached houses increased slightly and the proportion that were separate houses declined slightly.

Comparing across major urban, other urban and non-urban regions (see Box 3.5, page 32), the three tenure types have a similar regional distribution, with the notable exception that very little social housing is in non-urban regions.

The personal characteristics of renters of private housing, renters of social housing and non-renters are compared in Table 10.2.

Renters of private housing tend to be younger than renters of social housing and non-renters, and the gap has increased since 2001.

Table 10.1: Characteristics of rental residences compared with other residences, 2001 and 2016 (%)

	2001			2016		
	Private rental	Social housing	Non-rental	Private rental	Social housing	Non-rental
Dwelling type						
Separate house	62.5	56.9	91.8	65.8	57.8	89.6
Semi-detached house	13.7	22.2	3.9	10.7	16.6	5.1
Flat	22.5	20.5	3.6	20.8	25.6	4.8
Other dwelling type	1.3	0.4	0.6	2.7	0.1*	0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
Region of residence						
Major urban	69.8	67.7	65.8	65.0	66.4	64.3
Other urban	19.9	29.7	20.0	21.5	31.0	18.8
Non-urban	10.3	2.6	14.2	13.5	2.7	16.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

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

Table 10.2: Characteristics of renters compared with non-renters, 2001 and 2016

	2001			2016		
	Renting privately	Renting social housing	Non-renter	Renting privately	Renting social housing	Non-renter
Mean age (years)	29.0	35.8	37.9	30.7	41.6	40.2
University degree (%)	15.1	7.3	13.8	19.7	5.8	22.5
<i>Household type (%)</i>						
Couple	17.4	11.8	21.9	17.4	15.4	21.6
Couple with dependent children	35.6	33.6	59.2	41.1	24.3	58.0
Single parent	20.1	30.7	7.4	18.1	34.4	8.7
Single person	14.2	17.0	7.4	15.3	17.6	6.6
Other	12.8	7.0	4.1	8.1	8.2	5.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
<i>Labour force status—Persons aged 18 to 64 (%)</i>						
Employed full-time	53.7	23.4	53.2	53.0	18.1	53.7
Employed part-time	18.1	13.9	20.9	22.2	15.6	23.3
Unemployed	7.3	10.4	3.4	4.7	8.4	3.5
Not in the labour force	21.0	52.3	22.5	20.0	57.7	19.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

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

It is thus clear that the ageing of the population of social housing tenants and non-renters is greater than the ageing of the population as a whole.

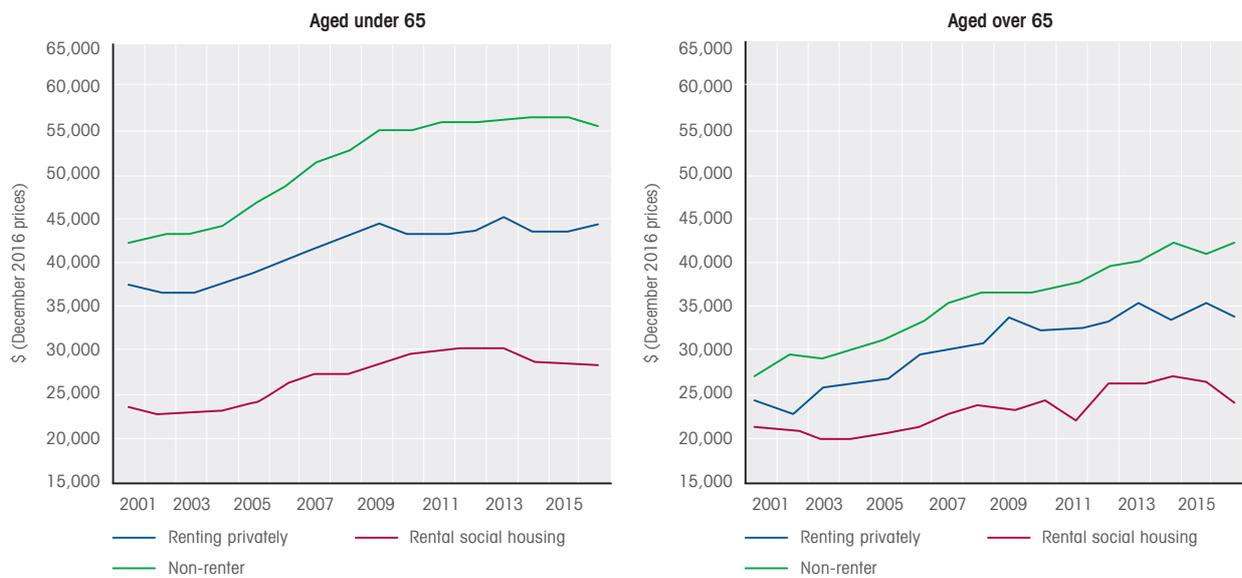
Attainment of university qualifications has increased in Australia between 2001 and 2016 (see Chapter 7), but the HILDA Survey data indicate that the rate of such educational attainment has actually decreased among social housing tenants. Moreover, the prevalence of university qualifications among non-renters has increased much more than among private renters.

Couples with children are a much higher share of non-renters than they are of renters, although between 2001 and 2016, they became a larger share of private renters, and a slightly smaller share of non-renters. Single parents are a much larger share of social housing tenants than they are of private renters and non-renters, and this pattern became more pronounced between 2001 and 2016.

Restricting to persons aged 18 to 64, renters of social housing



Figure 10.4: Mean household equivalised income by renter status



Note: See Box 3.2, page 29, for an explanation of equivalised income.

have low rates of employment participation and high rates of unemployment compared with both private renters and non-renters. However, the distribution of private renters and non-renters across labour force states is quite similar, a pattern holding in both 2001 and 2016.

Figure 10.4 compares mean equivalised incomes across tenure types, separately examining individuals aged under 65 and individuals aged over 65. Renters of social housing, whether aged

under 65 or over 65, clearly have the lowest average incomes, while non-renters, again whether aged under 65 or over 65, clearly have the highest average incomes. It is also apparent that the gap between the average incomes of non-renters and the average incomes of renters (whether of private or social housing) increased between 2001 and 2016, more so for the under-65 age group than for the over-65 age group. Put another way, the income divide between renters and non-renters grew over the period.

Longitudinal analysis of renters

Drawing on the longitudinal structure of the HILDA Survey data, Table 10.3 examines the frequency with which people move house. Over all of the time-frames examined in the table, private renters are much more likely to move house than people in other tenure types. On average, over a single year, 25.6% of private renters will move house, while



Table 10.3: Percentage of people moving house, by renter status

	Renting privately	Renting social housing	Non-renter
Percentage moving over a...			
...one-year time-frame	25.6	9.0	6.2
...three-year time-frame	48.4	20.6	16.8
...five-year time-frame	59.0	28.5	25.4
...seven-year time-frame	65.8	34.8	33.1
...10-year time-frame	73.7	43.9	43.3
Mean number of moves over 10 years	2.1	1.1	1.0

48.4% will move over a three-year period and 73.7% will move over a 10-year period. By contrast, only 9% of social housing tenants and 6.2% of non-renters will move over a one-year period. Over three years, 20.6% of social housing tenants and 16.8% of non-renters will move, while over 10 years 43.9% of social housing tenants and 43.3% of non-renters will move. Over a 10-year period, private renters move an average of 2.1 times, compared with 1.1 times for renters of social housing and 1.0 times for non-renters.

Movements from renting into home ownership over the period from 2001 to 2016 are considered in Table 10.4. On average, in any given year of the 2001 to 2004 period, 13.6% of renters moved into home ownership. This rate of movement steadily declined over the HILDA Survey period, so that in the 2013 to 2016 period, an average of only 10% of renters moved into home ownership in any given year.

In the 2001 to 2004 period, people in the 35 to 44 age group were the most likely to move from renting to home ownership, with 15% doing so each year. However, this age group experienced the second-largest decline in the rate of movement into home ownership between the 2001 to 2004 period and the 2013 to 2016 period, when only 9.8% moved into home ownership from one year to the next. Only renters in the 18 to 24 age group experienced a bigger decline in the rate of movement into home ownership, falling from 13.5% in 2001 to 2004 to 7.6% in 2013 to 2016.

In sum, the transition from renting to home ownership has become less common, particularly among younger age groups. While there may be a number of factors behind this trend, increases in residential property prices (see Australian Bureau of Statistics, 2018b) are likely to be an important part of the explanation.



Table 10.4: Percentage of renters moving into home ownership from one year to the next, by age group, 2001 to 2016

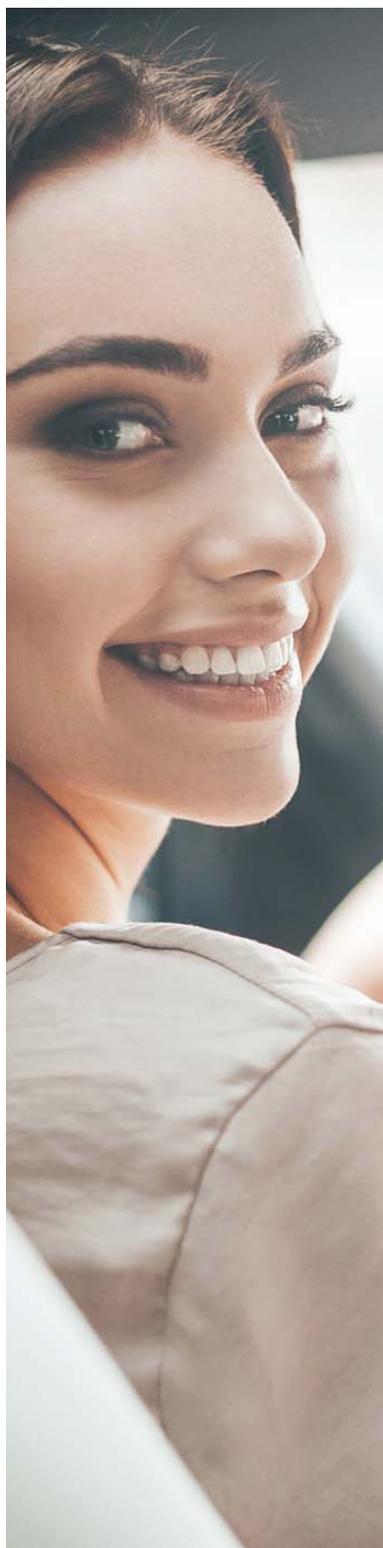
	2001-2004	2005-2008	2009-2012	2013-2016	Change ^a
18-24	13.5	12.6	9.4	7.6	-5.9
25-34	14.6	14.3	12.9	11.4	-3.2
35-44	15.0	12.8	11.3	9.8	-5.2
45-54	12.1	10.6	10.3	9.4	-2.7
55-64	12.2	7.7	12.5	11.6	-0.6
65 and over	10.8	7.7	9.5	8.6	-2.2
All aged 18 and over	13.6	12.0	11.2	10.0	-3.7

Note: ^a Change between 2001-2004 and 2013-2016.

11

Who holds a driver's licence?

Roger Wilkins



For many people, holding a driver's licence is important to their economic and social participation. Of course, not all people hold a driver's licence, and at least some of these people do not feel the need for the permit. Nonetheless, not holding a licence can constrain employment opportunities and inhibit many day-to-day activities. Indeed, in some communities, it can be very isolating to not have access to (self-driven) car transportation.

In 2012 and 2016, HILDA Survey respondents were asked if they hold a current motor vehicle driver's licence (including a motorcycle licence, but not licences for transport and machinery that do not operate on public roads). This information allows us to examine not only who holds a licence, but also who obtains a licence, and who ceases to hold a licence, over a four-year period.

Table 11.1 presents the proportion of men and women holding a driver's licence in 2012 and 2016 disaggregated by age group. The rate of licence-holding rises up until the 35 to 44 age group, peaking at around 93% for women and 96% for men in this age range. As we move into older age groups, the rate of licence-holding declines.

It is not entirely clear from Table 11.1 the extent to which the differences in licence-holding by age group reflect the effects of ageing versus differences across birth cohorts. For example, it is possible that people in their 30s, 40s and 50s in 2012 and 2016 have always had high rates of licence-holding, and that people aged in their 60s and 70s in 2012 and 2016 have always had lower rates of licence-holding. That said, it seems likely that most of the differences by age group reflect the effects of ageing, where these effects are positive up until around age 40, and then negative from around age 60.

Overall, men are more likely than women to hold a licence, although the gap narrowed between 2012 and 2016. In 2012, 84.2% of adult women and 91.4% of adult men held a licence, whereas in 2016, 86.4% of adult women and 91.1% of adult men held a licence. The gap between women and men in the proportion holding a driver's licence is larger in older age groups. Indeed, in 2016, the gap between women and men in the younger age groups is negligible. In part, the narrowing of the gap between men and women at younger ages has arisen from a decline in licence-holding by men. Between 2012 and 2016, the proportion of men holding a licence declined from 71% to 64.8% for those aged 18 or 19, and from 90% to 86.1% for those aged 25 to 29.

Figure 11.1 compares licence-holding across major urban, other urban and non-urban regions in 2016. Perhaps unsurprising is that the rate of licence-holding is highest in non-urban areas and lowest in major urban areas, where there is likely to be better access to other transport options.

Considerable differences in licence-holding by labour force status are also evident (Figure 11.2). Over 96% of full-time employed people have a driver's licence, compared with 91% of part-time employed people, 79% of people not in the labour force and 72% of unemployed people. These differences raise the question

Table 11.1: Proportion holding a driver's licence, by age group, 2012 and 2016 (%)

	Women		Men	
	2012	2016	2012	2016
18–19	60.2	63.6	71.0	64.8
20–24	79.8	82.4	79.9	83.0
25–29	81.8	88.0	90.0	86.1
30–34	88.6	91.6	93.5	92.7
35–44	93.8	93.0	95.9	95.9
45–54	91.1	93.6	96.4	96.4
55–64	90.0	90.4	95.0	94.6
65–69	78.7	85.1	91.2	94.9
70–74	78.8	78.1	91.4	88.7
75–79	69.3	75.6	87.9	92.6
80–84	61.7	61.0	82.0	81.7
85 and over	31.8	42.7	79.4	73.8
All aged 18 and over	84.2	86.4	91.4	91.1



of whether the ability to obtain employment is, for at least some of the unemployed, inhibited by the lack of a driver's licence.

Table 11.2 (page 136) takes a 'birth cohort' perspective, showing changes in licence-holding between 2012 and 2016 for each of 13 birth cohorts. As expected based on the evidence in Table 11.1, the most recent birth cohort experienced the greatest increase in the rate of licence-holding, with the change then tending to decrease as we move to older cohorts. The change in the rate of licence-holding is mostly negative for the cohort born before 1960, and the decline is at least 4% for men born before 1935 and women born before 1940.

It seems that men tend to hold on to their licence to an older age than women, with the percentage-point decline in licence-holding greater for women than men for those born between 1935 and 1949 (aged 63 to 77 in 2012). The percentage-point decline is similar for men and women born between 1930 and 1934 (aged 78 to 82 in 2012), while men born in the 1920s (aged 83 to 92 in 2012) experienced an 8.2 percentage-point decline, compared with a 4.2 percentage-point decline for women. Despite the large decline for men born in the 1920s, 74.6% of these men still held a licence in 2016, compared with 39.7% of women born in the 1920s.

The last two columns of Table 11.2 consider individual-level changes in licence-holding, showing the proportion of those with a licence in 2012 that no longer had a licence in 2016, and the proportion of those without a licence in 2012 who had gained a licence by 2016. Among all persons born between 1920 and 1994 who did not hold a licence in 2012, 31.6% had acquired one by 2016; while among those who did hold a licence in 2012, 2.3% no longer had a licence in 2016.

Mostly, the gains are by the younger cohorts and the losses are by the older cohorts. However, loss of

Figure 11.1: Proportion holding a driver's licence, by region—Persons aged 18 and over, 2016

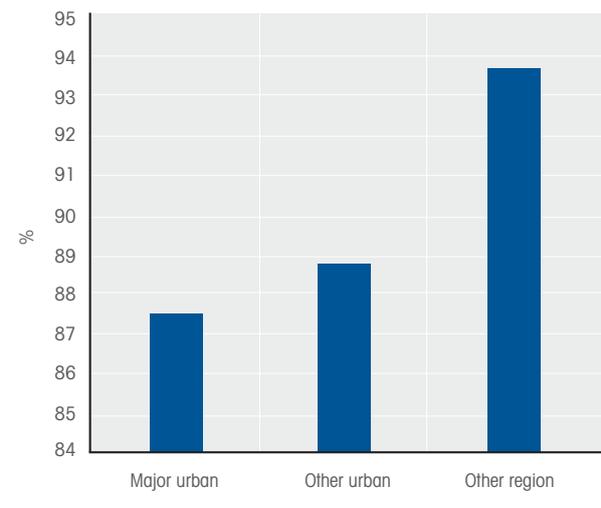
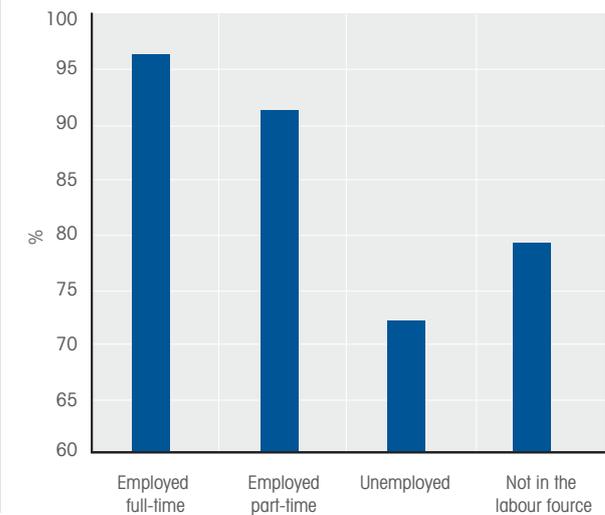


Figure 11.2: Proportion holding a driver's licence, by labour force status—Persons aged 18 to 64, 2016



licence between 2012 and 2016 is found for significant numbers of people in the younger cohorts. For example, for the cohort born between 1975 and 1979, 2.8% of those who held a licence in 2012 no longer held a licence in 2016. This may be partly due to declines in health, but licence cancellations and suspensions for traffic violations may also be an important contributor.

In Table 11.3, we examine the roles of various factors in precipitating changes in licence-holding status. Panel A examines individuals who did not have a driver's licence in 2012 and considers the impacts of age and various life events on the probability of acquiring a driver's licence by 2016. Panel B examines individuals who had a driver's licence in 2012 and considers the impacts of age, health and retirement on the probability of no longer holding a driver's licence in 2016.

Unsurprisingly given the evidence in Tables 11.1 and 11.2, age is an important determinant of both acquisition and loss of licence. Unlicensed people in the 15 to 16 and 17 to 18 age groups in 2012 had the highest probabilities

of licence acquisition, and unlicensed people aged 40 and over had the lowest probability of licence acquisition.

Somewhat surprising, however, is that the age groups over the 19 to 39 age range are associated with similar probabilities of gaining a driver's licence. Indeed, the estimate for the 35 to 39 age group implies that, other things being equal, people without a licence in this age group have a higher probability of acquiring a licence than those aged 19 to 34. To elaborate, an unlicensed person aged 19 to 22 in 2012 was no more likely (and possibly less likely) to obtain a driver's licence by 2016 than an unlicensed person aged 35 to 39 in 2012.

Most of the life events considered in Panel A are associated with significant effects on the likelihood of acquiring a driver's licence. Leaving full-time education is associated with a 9.2 percentage-point increase in the probability of gaining a licence, taking employment is associated with a 19.8 percentage-point increase, having children is associated with

an 11.4 percentage-point increase, and moving out of the parental home is associated with an 11 percentage-point increase. However, no significant effects associated with moving in with a partner are found.

In Panel B, we see that, beyond age 69, the older the age group, the higher the probability of losing one's licence between 2012 and 2016. Deterioration in general health (see Box 3.10, page 47) is not found to significantly impact on the likelihood of losing one's licence, but a deterioration in mental health (such that it becomes 'poor') is associated with a 1.2 percentage-point increase in the probability of loss of licence.

Acquisition of a disability, and particularly a severe disability (see Box 3.11, page 47) is, unsurprisingly, associated with an increased probability of loss of licence. Experience of a serious injury or illness is not associated with significant effects, perhaps because such events are typically temporary. The act of retirement from the work force is also not associated with an increased likelihood of loss of licence.

Table 11.2: Changes in driver's licence-holding by birth cohort, 2012 to 2016 (%)

Birth year	Men			Women			Persons without a licence in 2012: Proportion that had a licence in 2016	Persons with a licence in 2012: Proportion that no longer had a licence
	2012	2016	Change	2012	2016	Change		
1990–1994	75.1	85.5	10.4	70.0	84.5	14.5	59.6	2.3
1985–1989	86.7	89.1	2.4	79.6	88.9	9.3	50.3	1.4
1980–1984	92.4	94.1	1.6	88.2	93.7	5.6	59.8	1.2
1975–1979	94.9	95.2	0.3	89.8	91.3	1.5	43.2	2.8
1970–1974	94.9	96.1	1.2	95.2	93.9	-1.3	26.4	1.6
1965–1969	96.9	96.5	-0.4	94.1	93.7	-0.4	33.6	1.6
1960–1964	96.2	97.0	0.8	90.2	93.8	3.6	33.3	0.4
1955–1959	94.9	93.6	-1.3	90.1	89.8	-0.3	3.9	0.7
1950–1954	96.5	95.9	-0.6	89.8	90.1	0.3	5.2	0.8
1945–1949	94.7	93.9	-0.8	82.5	81.3	-1.2	*0.6	1.6
1940–1944	87.5	87.1	-0.4	80.4	76.8	-3.6	2.8	2.2
1935–1939	89.7	89.8	0.1	77.3	72.5	-4.7	1.4	6.8
1930–1934	83.9	79.5	-4.5	61.1	56.7	-4.4	2.3	13.6
1920–1929	82.8	74.6	-8.2	43.9	39.7	-4.2	*0.0	27.8
All born 1920–1994	91.4	92.5	1.1	84.3	87.5	3.2	31.6	2.3

Note: * Estimate not reliable.

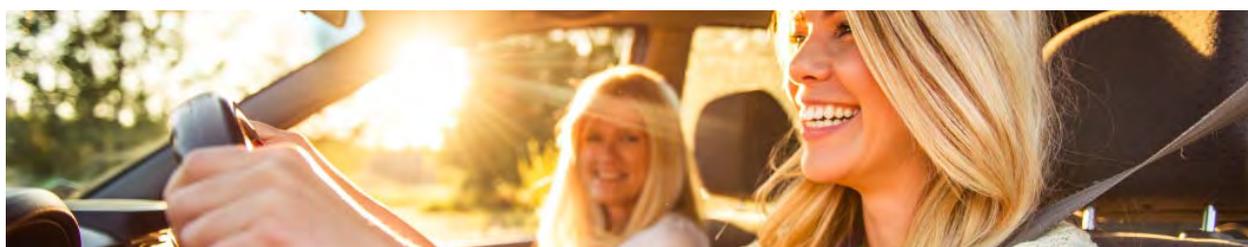


Table 11.3: Factors associated with gaining and losing one's driver's licence, 2012 to 2016

A. Probability of gaining licence		B. Probability of losing/relinquishing licence	
Age in 2012 (Reference category: 15–16)		Age in 2012 (Reference category: Less than 65)	
17–18	<i>ns</i>	65–69	<i>ns</i>
19–21	-0.110	70–74	0.019
22–24	-0.087	75–79	0.035
25–29	-0.116	80–84	0.049
30–34	-0.083	85 and over	0.061
35–39	-0.061	Life events between 2012 and 2016	
40 and over	-0.349	General health became poor (SF-36 measure)	<i>ns</i>
Life events between 2012 and 2016		Mental health became poor (SF-36 measure)	0.012
Left full-time education	0.092	Acquired a moderate disability	0.011
Became employed	0.198	Acquired a severe disability	0.028
Got partnered	<i>ns</i>	Experienced a serious injury or illness	<i>ns</i>
Had children	0.114	Retired from the work force	<i>ns</i>
Moved out of parental home	0.110		
Number of observations	2,499	Number of observations	10,250

Notes: The table presents mean marginal effects estimates from Probit models of the probability of gaining/losing a licence between 2012 and 2016. See the Technical Appendix for an explanation of Probit models. The sample for Model A (probability of gaining a licence) is persons who did not hold a licence in 2012. The sample for Model B (losing/relinquishing one's licence) is persons who did hold a licence in 2012. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

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Technical Appendix

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

Adjustments for inflation

All dollar figures presented in this report are expressed at December 2016 prices to remove the effects of inflation (the general rise in prices of goods and services) and thereby make estimates for different years more comparable. This is achieved using the Australian Bureau of Statistics (ABS) Consumer Price Index (CPI), which is produced on a quarterly basis (ABS Catalogue Number 6401.0). To convert a dollar value to December 2016 prices, the value is multiplied by the ratio of the CPI for the December quarter of 2016 (110.0) to the value of the CPI in the quarter to which the value relates. For example, to convert a wage measured in the third quarter of 2001 (when the CPI was 74.7) to December 2016 prices, the wage is multiplied by 1.47 (110/74.7). The interpretation of this adjustment is that prices on average rose by 47% between the September quarter of 2001 and the December quarter of 2016, so we need to increase the wage measured in September 2001 by 47% to make it comparable with a wage measured in December 2016. Note that for dollar values measured over an annual time-frame, as is the case for income, the average value of the CPI over the relevant year is used for the denominator.

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.

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.

Factor analysis

Factor analysis is a statistical method used to reduce a number of correlated variables into a lower number of variables that measure latent (unobserved) factors of interest. To undertake factor analysis, the observed variables are modelled as linear combinations of the potential factors. For more information on factor analysis, see, for example, Kim (1978).

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% will lie 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 100 dollars.

Percentiles, deciles and quintiles

Percentiles, deciles and quintiles all identify 'locations' in the distribution of a variable, such as income, when it is ordered from lowest to highest. There are 100 percentiles, 10 deciles and five quintiles for any given distribution. For example, the first (or bottom) percentile of the income distribution identifies the income below which are the lowest 1% of incomes (and above which are the highest 99% of incomes), the first decile identifies the income below which are the lowest 10% of incomes, and the first quintile identifies the income below which are the lowest 20% of incomes. It is also common to refer to the percentile, decile or quintile to which an observation 'belongs'. For example, people with an income greater than the income at the 19th percentile but less than the income at the 20th percentile are said to belong to (or be located in) the 20th percentile. (Such individuals would also belong to the second decile and the first quintile.)

Regression models

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

- **Ordinary Least Squares** models estimate linear associations between a dependent variable (such as earnings) and one or more independent (or explanatory) variables (such as age and educational attainment). The method finds the linear combination of the explanatory variables that minimises the sum of the squared distances between the observed values of the dependent variable and the values predicted by the regression model.
- **Probit** models are used to estimate the effects of factors, such as age and educational attainment, on a 'qualitative' or categorical dependent variable, such as labour force status. (The variable 'labour force status' is qualitative because it is not naturally 'quantitative' or numerical, such as is the case with income.) The standard models examine 'binary' dependent variables, which are variables with only two distinct values, and estimates obtained from these models are interpreted as the effects on the probability the variable takes one of those values. For example, a model might be estimated on the probability an individual is employed (as opposed to not employed).
- **Fixed-effects** models are often applied to panel data such as the HILDA Survey data. They involve accounting for the effects of all characteristics of sample members that do not change over time. For example, if we are interested in how life events impact on life satisfaction, a fixed-effects model is useful because we can control for (remove the effects of) fixed individual traits such as optimism and pessimism. This is achieved by examining how the outcome of interest changes at the individual level in response to changes in explanatory variables (such as income). For example, a fixed-effects model will find a positive effect of income on life satisfaction if individuals who experience increases in income from one year to the next tend to exhibit increases in life satisfaction over the same period, and individuals who experience decreases in income from one year to the next tend to exhibit decreases in life satisfaction over that period.
- **Random effects** models are also often applied to panel data. They differ from fixed-effects models by allowing estimation of the effects of characteristics that typically do not change over time (such as sex). This is made possible by assumptions about the distribution and nature of unobserved fixed individual traits, such as intrinsic motivation. The models are relatively complicated. For more information on random effects models, see, for example, Hsiao (2003).

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 that 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 nationwide 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, which is 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 to participate or our inability to locate them) is a further particular issue in all panel surveys. Because of attrition, and despite sample additions owing to changes in household composition, panels may slowly become less representative of the populations from which they are drawn, although as a result of 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 cause 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 it was 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 as a whole.

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 16, the household population weights sum to 9.08 million and the 'person' population weights sum to 23.67 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

¹ Further details on how the weights are derived are provided in Watson and Fry (2002), Watson (2004b) and Summerfield et al. (2017).

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

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 from 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 are 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 (2009).

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

C. Fieldwork process and outcomes

Sample

The HILDA Survey commenced, in 2001, with a nationally representative sample of Australian households (residing in private dwellings). Of the 11,693 households selected for inclusion in the sample in 2001, 7,682 households agreed to participate, resulting in a household response rate of 66%. The 19,914 residents of those households form the basis of the 'main sample' that is interviewed in each subsequent year (or survey wave), but with interviews only conducted with persons aged 15 years or older. 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 are retained). We also do not pursue interviews with persons who have moved overseas, persons who have requested to no longer be contacted, or persons 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 180 interviewers in Wave 16, 151 of whom undertook interviews in person, with the remaining 29 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 is prohibitive or because the sample member prefers a telephone interview. In Wave 16, 1,518 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 16).³ Table A1 presents the number of households, respondents and children under 15 years of age in each wave. In Wave 16, interviews were obtained with a total of 17,694 persons, of which 13,834 were from the original sample and 3,860 were from the top-up sample. Of the original 13,969 respondents in 2001, 7,773, or 64.6%, of those still in scope (that is, alive and in Australia), were still participating at Wave 16.

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),

³ More detailed data on the sample make-up, and in particular response rates, can be found in Summerfield et al. (2017).

the entire new household joins the panel. Inclusion of 'split-offs' is the main way in which panel surveys, including the HILDA Survey, maintain sample representativeness over the years.

Figure A1 reports re-interview rates (percentage of previous-wave respondents still in scope who were interviewed in the current wave) and response rates among new entrants to the sample for both the original sample and the top-up sample. As can be seen, re-interview rates for the original sample are high, exceeding 95% for the first time in Wave 8, and remaining above that level ever since. In Wave 16, 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 16, the rate was 82.0%.

Within the top-up sample, the re-interview rate in Wave 16 was 96.0%. The comparable rate within the original sample is the rate recorded in Wave 6, which was 94.9%. The interview rate for new entrants to the top-up sample in Wave 16 was, at 83.6%, 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 16, 16,253 (91.9%) 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 16 waves and the proportion responding in Wave 16, disaggregated by characteristics in Wave 1 (that is, in 2001). Table A3 presents analogous information for the Wave 11 top-up sample.



	<i>Households</i>	<i>Persons interviewed</i>	<i>Children under 15</i>
Wave 1	7,682	13,969	4,787
Wave 2	7,245	13,041	4,276
Wave 3	7,096	12,728	4,089
Wave 4	6,987	12,408	3,888
Wave 5	7,125	12,759	3,896
Wave 6	7,139	12,905	3,756
Wave 7	7,063	12,789	3,691
Wave 8	7,066	12,785	3,574
Wave 9	7,234	13,301	3,625
Wave 10	7,317	13,526	3,600
Wave 11 (original sample)	7,390	13,603	3,601
Wave 12 (original sample)	7,420	13,536	3,608
Wave 13 (original sample)	7,463	13,609	3,680
Wave 14 (original sample)	7,441	13,633	3,624
Wave 15 (original sample)	7,546	13,753	3,648
Wave 16 (original sample)	7,635	13,834	3,758
Wave 11 (top-up sample)	2,153	4,009	1,180
Wave 12 (top-up sample)	2,117	3,939	1,090
Wave 13 (top-up sample)	2,092	3,892	1,055
Wave 14 (top-up sample)	2,097	3,879	1,044
Wave 15 (top-up sample)	2,085	3,853	1,037
Wave 16 (top-up sample)	2,115	3,860	1,054

Figure A1: HILDA Survey response rates, Waves 2 to 16 (2002 to 2016)

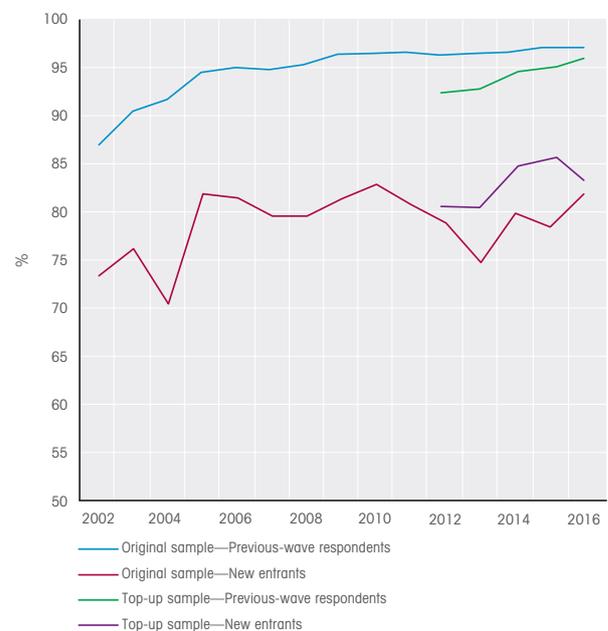


Table A2: Percentage of Wave 1 respondents re-interviewed by selected Wave 1 characteristics (%)

<i>Wave 1 characteristics</i>	<i>Interviewed in all waves</i>	<i>Interviewed in Wave 16</i>	<i>Wave 1 characteristics</i>	<i>Interviewed in all waves</i>	<i>Interviewed in Wave 16</i>
<i>Area</i>			<i>Indigenous status</i>		
Sydney	50.1	61.9	Indigenous	38.8	64.6
Rest of New South Wales	54.5	65.2	Non-Indigenous	53.4	64.6
<i>Melbourne</i>			<i>Education attainment</i>		
Rest of Victoria	52.0	63.2	Year 11 or below	48.1	60.3
Brisbane	57.4	66.7	Year 12	51.6	63.0
Rest of Queensland	54.4	64.9	Certificate	52.1	64.3
Adelaide	56.5	66.9	Diploma	60.3	70.1
Rest of South Australia	52.4	67.8	Degree or higher	63.5	73.3
<i>Perth</i>			<i>Dwelling type</i>		
Rest of Western Australia	48.5	63.9	House	53.6	65.1
Tasmania	56.1	68.3	Semi-detached	53.1	65.0
Northern Territory	67.7	82.8	Flat, unit, apartment	48.5	59.0
Australian Capital Territory	57.7	70.2	Other	51.0	64.0
<i>Sex</i>			<i>Labour force status</i>		
Male	51.4	63.3	Employed full-time	53.8	0.0
Female	54.6	65.7	Employed part-time	56.5	0.0
<i>Age group (years)</i>			<i>Unemployed</i>		
15–19	37.9	56.6	Unemployed	41.9	55.7
20–24	40.7	56.9	<i>Not in the labour force</i>		
25–34	49.2	62.6	51.4 62.9		
35–44	56.0	66.5	<i>Employment status in main job^a</i>		
45–54	59.7	69.3	Employee	54.7	66.2
55–64	62.7	71.4	Employer	52.2	63.5
65–74	58.7	66.1	Own account worker	55.1	65.0
75 and over	30.2	37.6	Contributing family worker	52.5	71.9
<i>Marital status</i>			<i>Occupation^a</i>		
Married	56.3	66.0	Managers/administrators	55.1	67.7
De facto	51.9	64.1	Professionals	63.6	74.1
Separated	54.2	66.7	Associate professionals	54.7	64.3
Divorced	60.5	71.6	Tradespersons	48.0	61.6
Widowed	58.1	63.6	Advanced clerical/service	53.3	63.4
Single	43.5	59.9	Intermediate clerical/sales/service	55.6	67.2
<i>Country of birth</i>			<i>Intermediate production/transport</i>		
Australia	54.8	66.3	Intermediate production/transport	50.3	58.9
Overseas			Elementary clerical/sales/service	52.4	65.1
Main English-speaking	55.8	65.1	Labourers	46.7	58.8
Other	41.9	55.0	<i>All Wave 1 respondents</i>		
			53.1 64.6		
			<i>Total number responding</i>		
			6,179 7,773		

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



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

<i>Wave 1 characteristics</i>	<i>Interviewed in all waves</i>	<i>Interviewed in Wave 16</i>	<i>Wave 1 characteristics</i>	<i>Interviewed in all waves</i>	<i>Interviewed in Wave 16</i>
<i>Area</i>			<i>Indigenous status</i>		
Sydney	71.7	75.7	Indigenous	74.7	82.1
Rest of New South Wales	80.2	83.7	Non-Indigenous	76.1	81.0
<i>Melbourne</i>			<i>Education attainment</i>		
Rest of Victoria	79.7	86.8	Year 11 or below	73.2	78.9
Brisbane	76.5	83.7	Year 12	76.4	81.4
Rest of Queensland	76.0	83.9	Certificate	77.4	82.8
Adelaide	77.9	79.0	Diploma	77.7	83.5
Rest of South Australia	80.4	83.9	Degree or higher	77.4	80.9
<i>Perth</i>			<i>Dwelling type</i>		
Rest of Western Australia	64.5	75.7	House	76.5	81.6
Tasmania	84.9	88.1	Semi-detached	71.7	77.4
Northern Territory	76.9	92.3	Flat, unit, apartment	77.2	80.4
Australian Capital Territory	77.8	79.6	Other	100.0	100.0
<i>Sex</i>			<i>Labour force status</i>		
Male	75.6	80.7	Employed full-time	74.8	80.8
Female	76.5	81.3	Employed part-time	76.1	80.5
<i>Age group (years)</i>			<i>Unemployed</i>		
15–19	71.0	77.1	Unemployed	17.3	85.0
20–24	73.4	80.7	Not in the labour force	77.0	81.2
25–34	77.4	83.5	<i>Employment status in main job^a</i>		
35–44	76.8	81.9	Employee	75.3	80.7
45–54	75.5	78.9	Employer	65.3	76.0
55–64	77.9	83.2	Own account worker	77.3	81.6
65–74	81.8	84.9	Contributing family worker	70.0	80.0
75 and over	68.3	71.4	<i>Occupation^a</i>		
<i>Marital status</i>			<i>Managers/administrators</i>		
Married	78.3	82.0	Managers/administrators	73.8	79.8
De facto	72.0	80.1	Professionals	78.0	82.4
Separated	83.2	85.3	Associate professionals	71.6	77.4
Divorced	76.7	82.9	Tradespersons	76.5	80.0
Widowed	71.6	74.8	Advanced clerical/service	74.1	81.6
Single	73.2	79.4	Intermediate clerical/sales/service	74.1	79.2
<i>Country of birth</i>			<i>Intermediate production/transport</i>		
Australia	77.1	82.1	Intermediate production/transport	77.2	81.4
Overseas			Elementary clerical/sales/service	76.0	83.3
Main English-speaking	75.5	81.9	<i>Labourers</i>		
Other	72.8	76.6	Labourers		
			All Wave 1 respondents	76.1	81.0
			Total number responding	2,854	3,073

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



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Alice Mckenzie
Catherine McMahon
Beverley Mead
Kaleil Merren
Colleen Moore
Robyn Moylan-Garrick
Peter Mulholland
Virginia Murphy
Rob Neal
Gwen Nickolls
Marija Nikolic-Paterson
Vicky Nowak
Sally O'Neal
Jasmin Osborne
Chirayu Parekh



George Patriotis
Oriel Patterson
Marilyn Paul
Faye Payne
Shelley Pearce
Gabriella Pendergast
Cheryl Perrett
Tara Perrett
Zoe Perrett
Jan Pianta
Sandra Potter
Beverley Price
Yvette Pryor
Ananda Ranasinghe
Glen Randall
David Reed
Lydia Reid
Margaret Reid
Marg Reynolds
Lynndal Richards

Lynn Richardson
Aaron Rinder
Gillian Rivers
Sandra Robertson
Pat Roy
Rodney Scherer
Karen Schipanski
Stephen Schubert
Robyn Schulz
George Shaw
Bev Short
Roma Sirc
Barbara Slattery
Marilyn Smiley
Muriel Smith
Karen Steele
Lisbeth Stewart
Elizabeth Stock
Phillip Stock
Margaret Stubbs

Helen Szuty
Bridgitte Tadrosse
Lynda Taylor
Jeanette Thomas
Fay Tomholt
Suzie Torok
Kerrie Townley-Jones
Robin Trotter
Sunita Waghmode
Julia Ward
Elizabeth Waymark
Ella Wellwood
Sue Whitely
Dennis Williams
Marlene Wills
Bev Worrall
Pamela Wright
Jayne Wymer
Jeffrey Yap





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.

