

The Household, Income and Labour Dynamics in Australia Survey: Selected Findings from Waves 1 to 17



2019



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 14th Annual Statistical Report of the HILDA Survey

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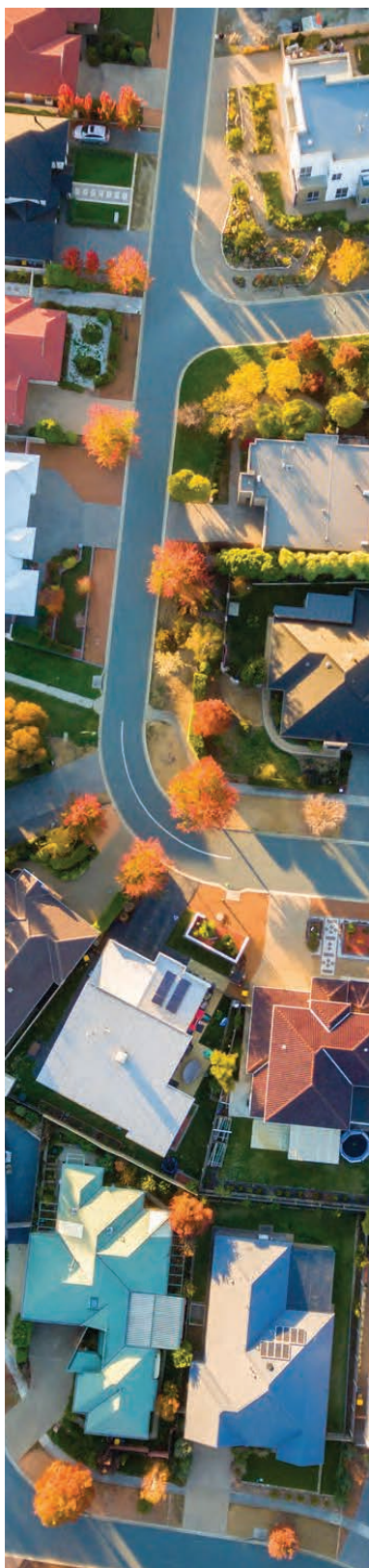
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1

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 prior 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, motivation and optimism, that confound estimates of causal effects in cross-sectional settings.

This report

This report presents brief statistical analyses of the first 17 waves of the study, which were conducted between 2001 and 2017. The report should of course be viewed as containing only ‘selected findings’, providing only a cursory indication of the rich potential of the HILDA Survey data. Indeed, a large number of studies on a diverse range of topics have been undertaken by researchers in Australia and internationally over the years since data from the first wave of the HILDA Survey was released in January 2003. Further details on the publications resulting from these studies are available on the HILDA Survey web site at <<http://melbourneinstitute.unimelb.edu.au/hilda/publications/>> and at <<http://flosse.dss.gov.au/>>.

Most of the analysis presented in this report consists of graphs and tables of descriptive statistics that are reasonably easy to interpret. However, several tables in this report contain estimates from regression models. These are less easily interpreted than tables of descriptive statistics but are included because they are valuable for better understanding the various topics examined in the report. In particular, a regression model provides a clear description of the statistical relationship between two factors, *holding other factors constant*. For example, a regression model of the determinants of earnings can show the average difference in earnings between male and female employees, holding constant other factors such as age, education, hours of work, and so on (that is, the average difference in earnings when men and women 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. In this chapter analyses are presented for the 2001 to 2017 period on three different aspects of family life: the changing living arrangements of Australians, as described by the household types in which they live; child-care use for children not yet at school as well as for school children; and the characteristics and living conditions of ‘interethnic’ couples—that is, couples where partners were born in different countries. In addition, further family-related topics are examined in Chapter 6, which examines the conflict between work demands and family life, and in Chapter 7, which examines the transition to independence of young adults.

Household types 2001 to 2017

Table 2.1 considers the evolution of household types (as described in Box 2.3, page 8) over the 2001 to 2017 period, with every second year being displayed. 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 8).

In broad terms, the distribution of household types has been relatively stable across the 17-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. Households containing a couple (and no children) have remained the second-most common household type, accounting for approximately 20% to 21% of individuals.

Some notable trends are nonetheless evident. The proportion of people living in multiple-family households has risen by 1.2 percentage points to be the household type for 3.7% of people in 2017. Couple households with dependent

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 2017 (%)

	2001	2003	2005	2007	2009	2011	2013	2015	2017	Change 2001-2017
Couple with dependent children	41.7	41.8	41.8	41.6	41.0	41.4	40.7	41.3	41.3	-0.4
Couple with dependent children and others ^a	2.4	1.8	1.9	2.0	2.7	2.6	2.3	1.8	2.2	-0.2
Couple with non-dependent children, with or without others ^a	8.4	8.7	9.3	10.0	9.2	7.7	8.0	7.8	8.7	0.3
Single parent with dependent children	7.1	7.5	7.0	6.9	6.7	6.3	6.7	6.8	6.6	-0.5
Single parent with dependent children and others ^a	1.5	1.2	1.3	0.9	1.3	1.3	1.5	1.5	1.2	-0.3
Single parent with non-dependent children, with or without others ^a	2.9	3.4	3.9	4.2	3.7	3.5	3.4	4.3	4.7	1.7
Couple, with or without others ^a	20.3	20.6	20.9	20.1	20.3	20.9	21.2	20.3	19.7	-0.6
Single person	9.4	9.4	9.2	9.2	9.3	9.4	9.4	9.4	9.5	0.0
Other family household	1.1	1.3	1.0	0.9	1.2	1.5	1.4	1.5	1.2	0.1
Multiple-family household	2.6	3.0	2.6	3.0	3.1	3.7	4.2	4.2	3.7	1.2
Group household	2.5	1.4	1.2	1.2	1.6	1.9	1.2	0.9	1.3	-1.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	

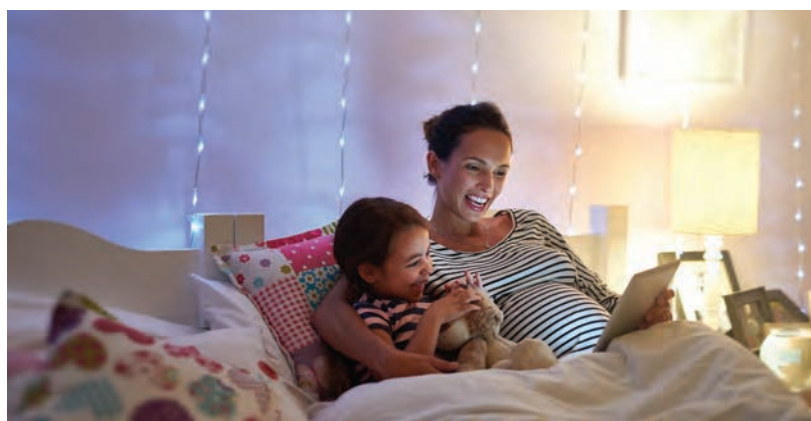
Notes: ^a 'Others' comprises related persons as well as unrelated persons. If dependent children are present, the household could (and often will) include non-dependent children. Cells may not add up to column totals due to rounding.

Table 2.2: Proportion of individuals in each household type, by age group, 2017 (%)

	0-14	15-24	25-34	35-44	45-54	55-64	65 and over	Total
Couple with dependent children	76.5	45.8	30.9	61.3	45.4	13.8	*0.8	41.3
Couple with dependent children and others ^a	3.8	2.7	2.2	2.2	1.6	*0.9	1.3	2.2
Couple with non-dependent children, with or without others ^a	0.0	11.7	10.2	5.0	11.0	18.3	9.6	8.7
Single parent with dependent children	13.5	13.3	3.1	6.0	6.1	1.7	0.0	6.6
Single parent with dependent children and others ^a	2.1	1.6	*0.9	*0.9	*0.7	*0.9	*0.9	1.2
Single parent with non-dependent children, with or without others ^a	0.0	6.1	5.3	3.1	6.0	7.8	6.6	4.7
Couple, with or without others ^a	0.0	6.6	25.3	9.1	14.8	36.3	53.1	19.7
Single person	0.0	4.6	11.6	8.3	9.6	12.9	22.6	9.5
Other family household	0.0	1.6	1.6	1.1	*0.9	1.8	1.9	1.2
Multiple-family household	4.2	4.1	5.3	1.9	3.0	5.0	2.5	3.7
Group household	0.0	2.0	3.7	1.1	*0.9	*0.7	*0.7	1.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes: ^a 'Others' comprises 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. * Estimate not reliable.

children, with or without other household members, have collectively declined by 0.6 percentage points. Single parents with dependent children (with or without others) have also declined, by 0.8 percentage points, but single parents with non-dependent children (and no dependent children) have increased by 1.7 percentage points. In contrast, the proportion of people living in group



households has shrunk by 1.3 percentage points, although most of the decrease occurred between 2001 and 2003.

The household types individuals live in change considerably over the life-course. Table 2.2 compares the living arrangements of individuals of different age groups in 2017. Children aged under 15 are most likely to live with their couple parents and no others (76.5%), followed by living with a single parent and no others (13.5%), and living in a multiple-family household (4.2%). Among those aged 15 to 24, the majority also live in couple-parent or single-parent households, but a small share also lives in couple households without children (6.6%) or in single-person households (4.6%).

Those aged 25 to 34 exhibit the most diverse living arrangements. Approximately half of this age group (52.6%) is found in households with (dependent and/or non-dependent) children, but comparatively large proportions live in couple households without children (25.3%), single-person households (11.6%), multiple-family households (5.3%) and group households (3.7%).¹

In sharp contrast, the 35 to 44 age group is the most highly concentrated of all adult age groups in couple families with dependent children, with below-average shares in almost all other household types.

Box 2.3: Classification of household types

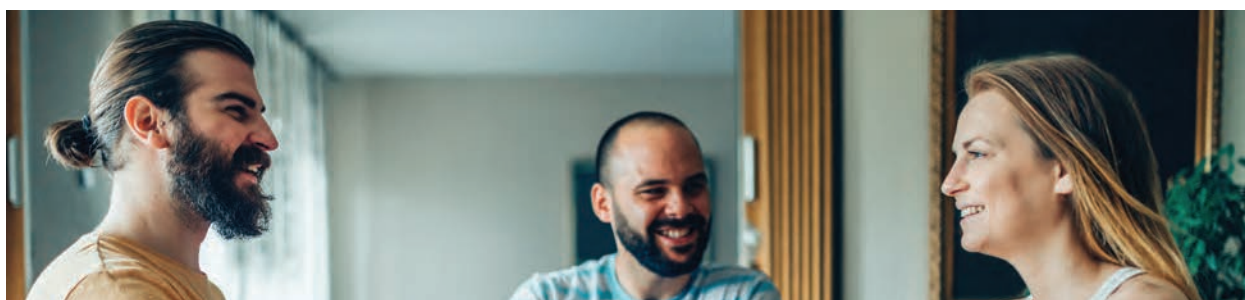
The comprehensive information in the HILDA Survey data on the composition of each household and the relationships between all household members allows for complete flexibility in defining household types. In this chapter, the following 11 household types are distinguished:

- (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’ comprises 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 from 15 years upwards, 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 two or more of the family types itemised (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 some of the analyses presented in this report, individuals are classified according to family type (see Box 3.4, page 32) 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.



¹ See Chapter 7 for more information on the living arrangements of young adults.



People in the two oldest groups are the most likely to live alone or in a couple without children: more than one-third (36.3%) of people aged 55 to 64, and 53.1% of people aged 65 and older, live in couple households without children, and 12.9% and 22.6% respectively live in single-person households.

Paid child care

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 child-care usage is only available from Wave 2 onwards.²

This section analyses child care for children both not yet at school and children attending school. The focus is on paid types of child care, namely care provided by paid sitters or nannies as well as 'formal care', which 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. For school children, the analysis is confined to the use of care during term time—that is, care during school holidays is not examined. The analysis includes child-care usage for both work-related and non-work-related purposes. Both couple parent and single parent families are considered.³

The section looks at patterns and trends in the usage of paid child care, the determinants of formal child-care usage, difficulties connected to child-care usage and, finally, at expenditure on child care. Note that the impact of the new Child Care Subsidy, which was introduced in July 2018, cannot be considered in this section because the most recent year of data in the HILDA Survey is 2017.

² 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'.

³ Multiple-family households are excluded from the analysis in the first two subsections of this section if it is not possible to attribute child-care arrangements to a specific family. For the analysis of child care for children not yet at school, this occurs when more than one family has children aged under 5, while for the analysis of child care for school children it occurs when more than one family has children aged 5 to 14. Only a small number of households are excluded on this basis.

Use of paid child care

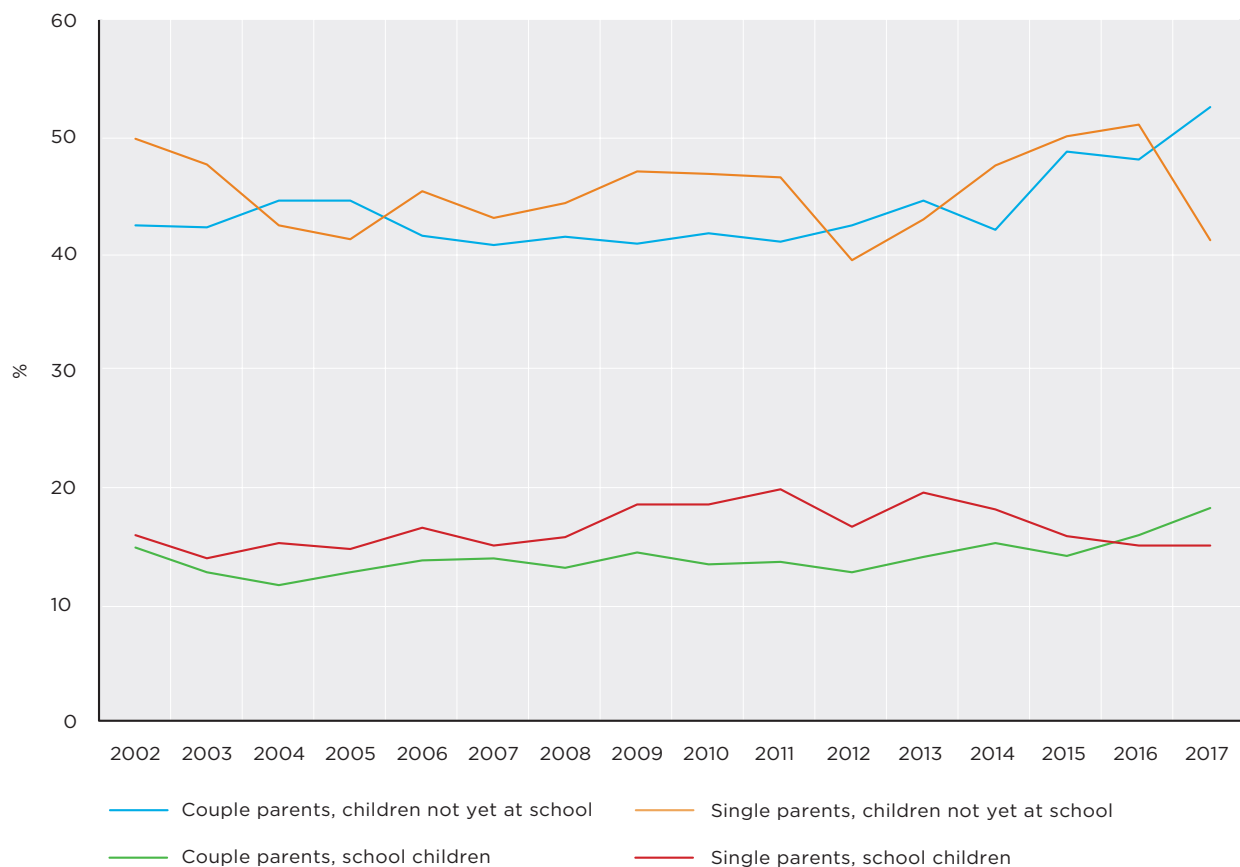
Figure 2.1 presents the share of parents using paid child care over the 2002 to 2017 period, differentiated by whether they are using paid care for children not yet at school or for school children. It is not known for all

children, however, whether they are in school, and it is therefore assumed that children aged under 5 as of 30 June of the survey year are not yet in school, while children aged 5 and older at that date are assumed to be in school. This will not in fact be the

case for all children. The share of families using child care for children not yet at school thus relates to parents with a child aged 0 to 4, whereas the share of parents using child care for school children relates to parents with a child aged 5 to 14.



Figure 2.1: Use of paid child care, by family type and age of child





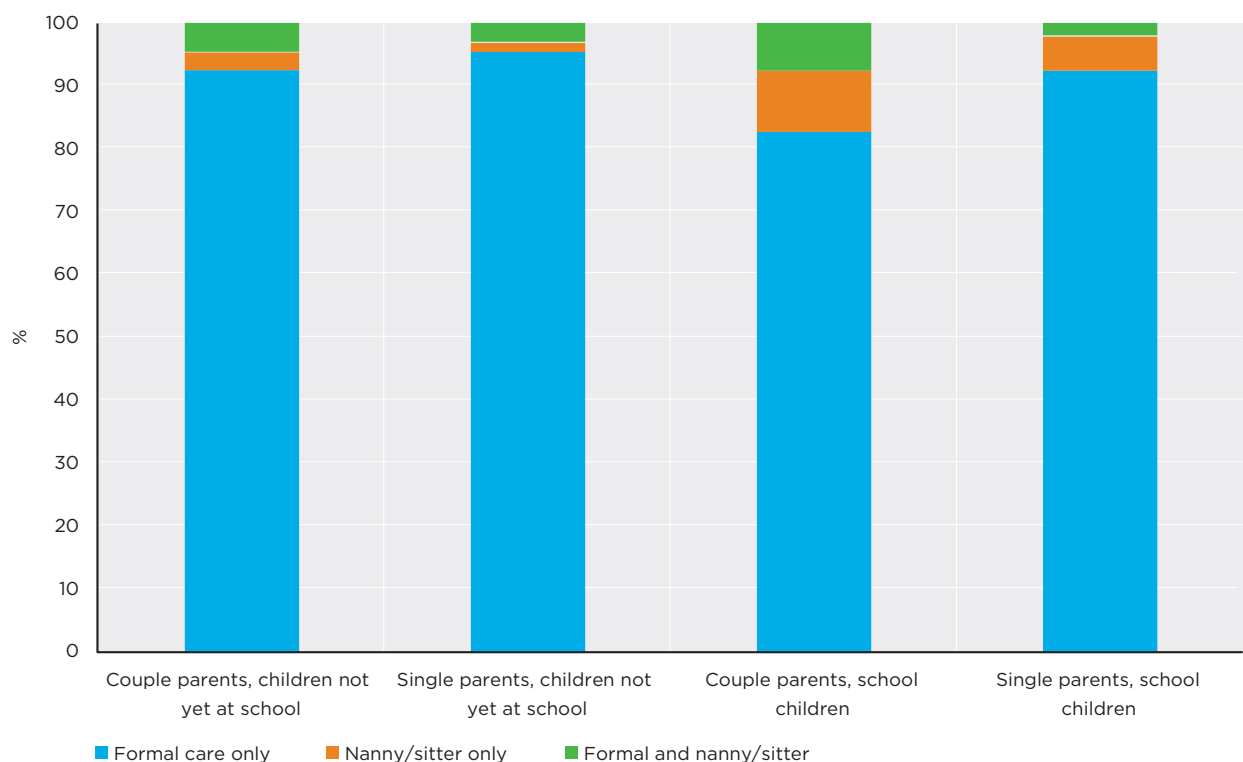
With respect to overall levels of child-care usage, the figure reveals two key insights. First, parents are much more likely to use paid care for their children not yet at school than for their school children. For example, in 2017, approximately 53% of couple parents and 41% of single parents were using child care for their children not yet at school, compared to approximately 18% of couple parents and 15% of single parents using child care for their school children. Second, it

shows that for most of the period, single parents were slightly more likely to use paid care than couple parents, for both groups of children. In 2002, for example, roughly 42% of couple parents used paid care for their children not yet at school, compared to 50% of single parents.

Moving on to the trend over the 2002 to 2017 period, Figure 2.1 shows that use of paid care for children not yet at school has increased by 10.1 percentage

points for couple parents, reaching approximately 53% in 2017. This increase has been particularly marked in recent years. The share of single parents using paid child care for children not yet at school has, however, fluctuated more strongly over the period, with 2015 and 2016 seeing similarly high shares as in 2001, but with the share dropping in the most recent year to approximately 41%. In part, these fluctuations may be due to a relatively low sample size of

Figure 2.2: Type of paid care used, by family type and whether child at school, 2017



single parents with children aged 0 to 4 years (with fewer than 200 observations per year).

With respect to paid care for school children, there is also an upward trend in usage among couple parents. In 2002, approximately 15% of couples were using paid care for their school children. This share has increased by 3.4 percentage points, to reach approximately 18% in 2017. The share of single parents using this type of care has, however, decreased by 0.9 percentage points, from approximately 16% in 2002 to 15% in 2017.

Figure 2.2 disaggregates paid child-care use in 2017 by the specific type of care, distinguishing between formal care and nanny/paid sitter care. The figure shows that, for children not yet at school as well as for school children, most families who use paid care use only formal care. A small proportion use a combination of formal care and nanny care, and an even smaller proportion use only nanny care. Couple parents are more likely to use a nanny or a paid sitter than single parents. Comparing the type of care used for younger and older children, we see that nanny care is more frequently used to cover care for school children than for younger children.

Determinants of use of formal child care

This section investigates the characteristics of parents who use formal child care. To this end, logistic regression analysis has been conducted that predicts usage of formal child care as a function of a range of parental and household characteristics. The focus is on formal child care only given the previous section has demonstrated that most parents using any type of paid care use (exclusively or in part)

Box 2.4: 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 (MES) countries, which comprise the United Kingdom, the United States, Canada, Ireland, New Zealand and South Africa; and those born in other countries (referred to as non-MES countries).

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

Box 2.5: Summary measure of extent to which one has traditional views on parenting and paid work

In this report, a measure of the extent to which one has 'traditional' views on parenting and paid work is derived from the extent of agreement, 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 $[a + (8 - b) + c + d + (8 - e) + f + (8 - g) + (8 - h) + (8 - i) + j + k + l + (8 - m) + n]/14$. The score potentially ranges from 1 to 7.

Items a to i were first administered (in the self-completion questionnaire) 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 summary measure in Waves 5, 8, 11 and 15.



formal child care. Four different models are presented. The first looks at use of formal child care for children not yet at school by couple parents, and the second at use of the same type of child care by single mothers.⁴ This analysis is restricted to families who have at least one child aged 0 to 4 years. The third and fourth models investigate use of formal care for school children during term, again separately for couple families and single mothers. This analysis is restricted to families who have at least one child aged 5 to 14 years.

The regression models include a range of characteristics of the resident parents: age; Indigenous

status and country of birth (see Box 2.4, page 12); employment status; educational attainment; attitudes towards parenting and paid work⁵ (see Box 2.5, page 12); and health satisfaction. Further, the models contain several family and household characteristics: age of the youngest child in the family; number of children aged 0 to 14 in the family; region of residence; state of residence; equivalised household disposable income (see Box 3.1, page 29, and Box 3.2, page 30); and whether people other than the parent(s) and children are living in the household. All models also control for the year of observation.

Table 2.3 presents the results from the regression analyses in the form of mean marginal effects. In the case of indicator variables (such as part-time work, having a bachelor's degree or higher qualification or living in a specific state), these estimates are interpreted as the change in the probability of using formal child care if the characteristic is present compared to the reference category. In case of metric variables (such as age, number of children, income or calendar year), the estimates designate the change in the probability as a result of increasing the value of the variable by 1.



⁴ Single fathers are relatively rare in the sample and so could not be analysed separately.

⁵ As attitudes towards parenting and paid work are only available in Waves 5, 8, 11 and 15, the gap waves were filled with interpolated values. The first observed value was also carried backwards across earlier waves and the last observed value was carried forwards to subsequent waves. Persons who never responded to the parenting and paid work questions were assigned the wave-specific mean values. Further, the regression contains indicators for originally missing values regarding attitudes towards parenting and work.

Table 2.3: Factors associated with use of formal child care for children not yet at school and for school children, 2002 to 2017

	Children not yet at school		School children	
	Couple parents	Single mothers	Couple parents	Single mothers
Parental characteristics				
Age of mother (years)	0.003	ns	ns	0.002
Age of father (years)	ns	-	ns	-
<i>Country of birth and Indigenous status of mother (Reference category: Non-Indigenous Australian-born)</i>				
Indigenous Australian-born	ns	-0.081	-0.037	ns
Overseas-born, MES country	0.043	ns	0.014	ns
Overseas-born, non-MES country	-0.041	-0.073	ns	ns
<i>Country of birth and Indigenous status of father (Reference category: Non-Indigenous Australian-born)</i>				
Indigenous Australian-born	ns	-	ns	-
Overseas-born, MES country	ns	-	ns	-
Overseas-born, non-MES country	ns	-	-0.026	-
<i>Employment status of mother (Reference category: Employed full-time)</i>				
Employed part-time	ns	ns	-0.060	-0.040
Not employed	-0.252	-0.284	-0.164	-0.193
<i>Employment status of father (Reference category: Employed full-time)</i>				
Employed part-time	-0.059	-	-0.016	-
Not employed	-0.070	-	-0.047	-
Bachelor's degree or higher held by mother	0.040	ns	0.029	ns
Bachelor's degree or higher held by father	ns		0.018	
Extent to which mother has traditional views on parenting and work	-0.074	-0.073	-0.022	-0.027
Extent to which father has traditional views on parenting and work	-0.041	-	-0.033	-
Satisfaction with health—mother	-0.017	-0.010	-0.008	ns
Satisfaction with health—father	-0.009	-	-0.002	-
Family and household characteristics				
Age of youngest child in family (years)	0.048	0.056	-0.021	-0.031
Number of children in family aged 0–14	0.019	ns	-0.037	-0.045
<i>Region of residence (Reference category: Major urban)</i>				
Other urban	ns	-0.063	-0.050	-0.057
Other region	-0.032	-0.100	-0.094	-0.085
<i>State of residence (Reference category: New South Wales)</i>				
Victoria	-0.067	ns	0.016	ns
Queensland	0.033	0.093	0.054	0.041
South Australia	-0.070	-0.070	0.095	0.116
Western Australia	-0.119	ns	ns	ns
Tasmania	-0.050	ns	0.085	ns
Northern Territory	ns	ns	0.103	0.118
Australian Capital Territory	-0.073	ns	0.028	ns
Equivalised income (\$'000, December 2017 prices)	ns	0.002	0.000	0.001
Other people living in household	-0.040	-0.115	ns	-0.039
Year	0.002	ns	ns	ns
Number of observations (households)	13,590	2,578	18,342	5,219

Notes: The table reports mean marginal effects estimates obtained from logistic regression models of the probability of using formal child care. See the Technical Appendix for explanation of these models. Missing values for traditional attitudes towards parenting and work were imputed with the wave-specific mean and the models additionally include indicators for missingness on this variable. ns indicates the estimate is not significantly different from 0 at the 10% level.



Considering families with children not yet at school, most parental characteristics in the models are significantly related to the probability of using formal care. For example, in couple families, a higher age of the mother is associated with an increase in the probability of using formal care, with an additional year of age raising the probability by 0.3 percentage points. The mother's origin is also associated with child-care usage: couple families with mothers from the main English-speaking countries have a 4.3 percentage point higher probability of using formal care compared to families of non-Indigenous Australian-born mothers. Further, both couple

and single-parent families with mothers born in non-MES countries have a reduced probability of formal care usage. Single mothers of Indigenous Australian origin also have a significantly reduced probability.

There is also a significant association between employment and use of child care within families. The mother's employment status is particularly important, both among couple-parent and single-parent families: if the mother is not working, the probability of using formal care is decreased by 25.2 percentage points among couple families and 28.4 percentage points among single mothers. However, within couple families, the father's

employment status also matters, albeit the association is weaker: if the father works part-time the probability of using formal care is reduced by 5.9 percentage points, and if he is not working it is reduced by 7.0 percentage points. The direction of causality with respect to the link between employment participation and formal child-care usage is not clear, however. On the one hand, having a full-time job may require the use of formal child care, and on the other hand, having access to formal child care may be a precondition to take up a (full-time) job.

Having a bachelor's degree or higher qualification is positively associated with formal care usage for coupled mothers. In contrast, more traditional attitudes and a higher satisfaction with health decrease the probability of using care for both sexes and in both family types.

With respect to family and household-level characteristics, the probability of using formal care for children not yet at school increases with the age of the youngest child in the family, by 4.8 percentage points per year among couple families and 5.6 percentage points per year among single mothers. The number of children in the family only has a significant effect in couple families, as each child increases the probability of using formal care by 1.9 percentage points. Living in relatively remote areas of Australia and/or living with other people in the household decreases the probability of using formal care. Among single mothers, there is also a positive association between income and formal-care usage.

The results for use of formal care for school children often trend in the same direction as those for children not yet at school, with a few exceptions: contrary to the previous models, the age of the

youngest child and the number of children in the family are both negatively related to use of formal child care for school children. The negative link to the age of the youngest child is in part explained by the fact that older school children more often look after themselves.

Difficulties connected to child-care usage

Finding the right child-care arrangement can be a challenge for parents. Every year, the HILDA Survey asks parents who have used, or were thinking of using, certain types of child care at any time in the last 12 months whether they have experienced difficulties with a range of aspects around child care. They are asked to rate

each of these aspects on a scale from 0 (not a problem at all) to 10 (very much a problem). Table 2.4 presents the share of parents experiencing a high level of difficulty with each of these items in 2017, understood as values between 6 and 10 on the scale, separated by whether the youngest child is aged under 5, and therefore most likely not in school, or aged 5 to 14, and therefore assumed to be in school.

The bottom row of Table 2.4 shows that the majority of parents have experienced some sort of difficulty over the last 12 months when using or thinking about using child care. This accounts for approximately two thirds (66.8%) of parents with a youngest child aged below 5 and

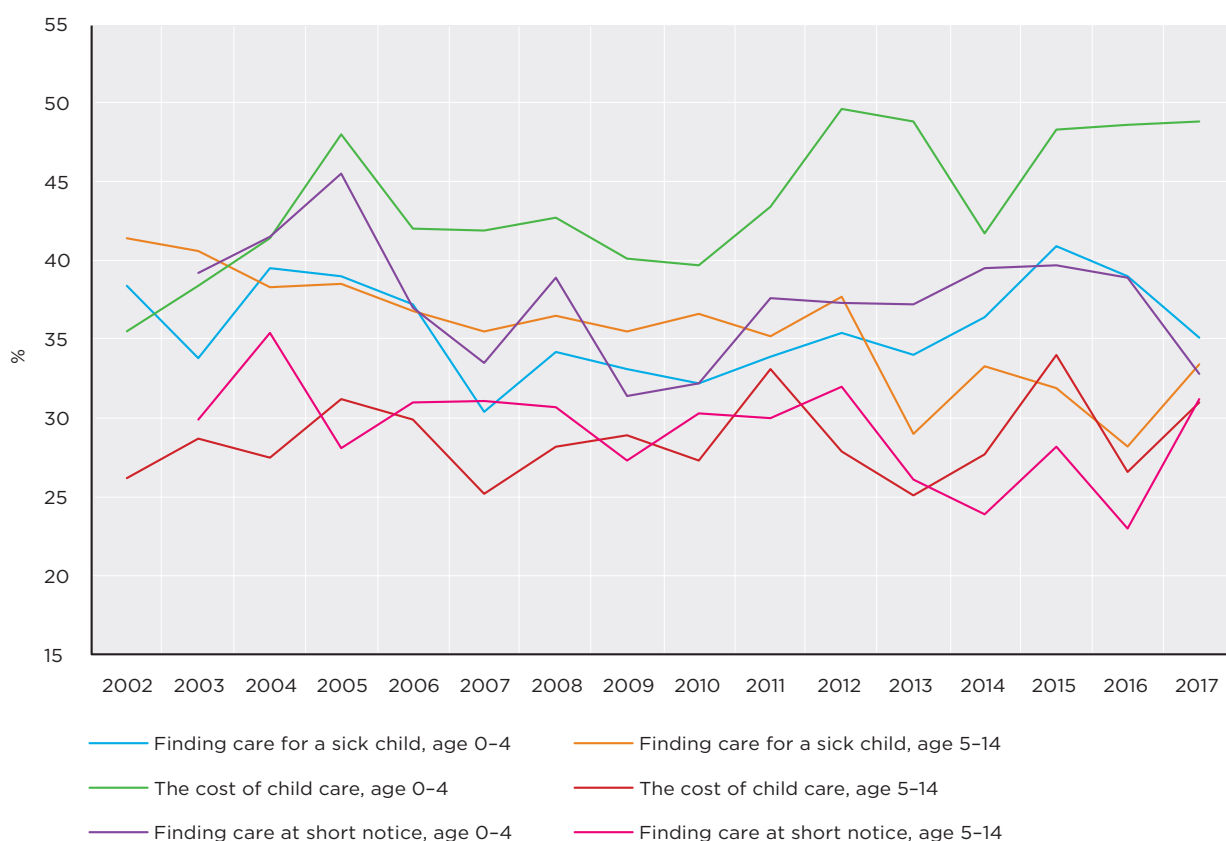
more than half (55.2%) of parents whose youngest child is aged between 5 and 14 years. For both groups, the top three problems are the same, albeit not in the same order: difficulties with the cost of child care are most frequent among parents with very young children, experienced by almost half of them (48.8%), and by 31.0% of parents with only older children. Finding care for a sick child has been a problem for 35.1% of parents whose youngest child is below 5 years and for 33.4% of parents whose youngest child is 5 years and older. Similarly, finding care at short notice is a problem experienced by almost a third of both groups of parents (32.8% of parents with young children and 31.2% of parents with only older children).

Table 2.4: Difficulties experienced within last 12 months by age of youngest child—Families who have used or thought about using child care, 2017 (%)

	<i>Youngest child aged 0–4 years</i>	<i>Youngest child aged 5–14 years</i>
Finding good quality child care	23.2	17.6
Finding the right person	28.2	17.5
Getting care for the hours you need	21.7	18.6
Finding care for a sick child	35.1	33.4
Finding care during school holidays	19.8	19.6
The cost of child care	48.8	31.0
Juggling multiple child-care arrangements	26.9	17.3
Finding care for a difficult or special needs child	15.8	17.0
Finding a place at the child-care centre of your choice	28.6	9.6
Finding a child-care centre in the right location	23.3	8.0
Finding care your children are happy with	18.5	15.3
Finding care at short notice	32.8	31.2
Any of the above	66.8	55.2



Figure 2.3: Difficulties experienced within last 12 months by families who have used or thought about using child care, by age of youngest child



The question that follows is how the prevalence of these difficulties has developed over time. Figure 2.3 presents the share of parents experiencing the three most frequently cited problems over the 2002 to 2017 period. Notice that difficulties with finding care at short notice have only been collected since 2003 and are therefore not reported for 2002.

The figure shows that some difficulties have become less frequent compared to the beginning of the millennium, while the importance of others has increased. The share of parents with difficulties finding care for a sick child has decreased by 3 percentage points for parents with children below the age of 5, and by 8 percentage points for parents with older children. In contrast, difficulties with the cost of child care have become more



prevalent, particularly for parents with young children. While in 2002, 36% of parents with children aged below 5 experienced these difficulties, the share had risen to 49% by 2017. For parents with older children, difficulties with the cost of child care have also increased, from 26% in 2002 to 31% in 2017. Problems with finding care at short notice have decreased for parents with young children, from 39% in 2003 to 33% in 2017. The share of parents with older children experiencing problems finding care at short notice has also declined over most of the period; however, there was again an increase in this share between 2016 and 2017.

Expenditure on child care

The previous section has highlighted an increase in the share of parents experiencing difficulties with the cost of child care. This section investigates actual expenditure on child care and can thus answer the question of to what extent the growing difficulties reflect a rise in real child-care costs. In every wave of



Table 2.5: Expenditure on child care for children not yet at school and school children, by type of care—Families with expenditure on formal and/or nanny care, 2002 to 2017

	2002 and 2003	2004 and 2005	2006 and 2007	2008 and 2009	2010 and 2011	2012 and 2013	2014 and 2015	2016 and 2017	Percentage change 2002-03 to 2016-17
Median weekly expenditure (\$, December 2017 prices)									
<i>Children not yet at school</i>									
Formal care	62.2	82.2	99.6	109.0	114.7	128.9	146.9	152.6	145
Nanny care	64.7	63.1	96.7	112.3	91.8	131.5	136.5	152.6	136
<i>School children</i>									
Formal care	31.6	35.6	40.0	48.4	56.8	62.8	57.7	51.8	64
Nanny care	37.0	57.6	39.8	60.5	52.0	54.8	63.0	100.7	172
Median expenditure per hour of child care (\$, December 2017 prices)									
<i>Children not yet at school</i>									
Formal care	4.1	5.0	5.5	5.9	5.9	6.0	5.9	6.2	51
Nanny care	7.4	8.6	8.0	12.1	13.1	16.8	10.7	15.5	110
<i>School children</i>									
Formal care	4.4	5.5	6.4	6.9	7.1	7.7	7.2	6.8	53
Nanny care	7.4	7.6	8.1	9.1	11.5	11.2	12.5	11.7	58

Note: The table presents expenditure on child care after deduction of regular child-care benefits.

the HILDA Survey, households using child care are asked to report their usual weekly expenditure on child care for each child 'after any regular child-care benefit you may receive has been deducted'. Table 2.5 shows the median usual weekly child-care expenditure (at December 2017 prices) for families using formal and/or nanny care, again differentiated by whether they are using care for children not yet at school or for school children. Estimates are presented for pooled two-year intervals over the 2002 to 2017 period.

The top panel presents overall expenditure on child care and shows that across the period, families have much higher expenditure on care for children not yet at school than for school children. For example, in 2016 and 2017, both families using formal care and those using nanny care for their children not yet at school spent approximately \$153 per week on these types of care, whereas families using formal care for school children only spent \$52 per week and those using nanny care for school children spent \$101 per week.

The trend over time shows sustained and substantial rises in median expenditure for child care

for children not yet at school over the 2002 to 2017 period, for both formal care and nanny care. In 2002 and 2003, median weekly expenditure on child care was approximately \$62 among those using formal care and \$65 among those using nanny care. In 2016 and 2017, the corresponding medians were, as mentioned, \$153 for both types of care, which translate to large real increases in child-care costs of approximately 145% for formal care and 136% for nanny care. Costs for care of school children have also increased, but more so for those using nanny care than for those using formal care.

The bottom panel of Table 2.5 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 and 2003, the median expenditure per hour of formal child care for children not yet at school was \$4.10, and for nanny care it was \$7.40. Median hourly rates have increased across the period, but slower than overall child-care expenditure. The hourly costs of formal care for children not yet at school have

increased by 51% to \$6.20 per hour in 2016 and 2017, while hourly costs of nanny care for this group of children increased by 110% to \$15.50 in 2016 and 2017.

Hourly costs of child care for school children have also increased over the period, and on a similar level for formal care and nanny care. The fact that hourly costs have increased at a slower pace than overall costs can be traced back to the fact that parents have increased the hours of paid child care used over the period. This increase in use of child care is, in turn, partly due to the rise in maternal employment over the period. (For information on average hours of child care and the link between child-care usage and parental employment status, see also Chapter 2 in Wilkins and Lass, 2018.)

Looking at the hourly rate, rather than overall costs, the difference between the costs for school children and children not yet at school diminishes. This suggests that the higher expenditure on care for children not yet at school is mainly due to parents using a higher number of hours of care for these children than for school children.





Interethnic couples

Overseas migration is an important contributor to Australian population growth. According to data from the 2016 Census, more than one in four Australian residents (approximately 26%) were born overseas, and countries of birth have become more diverse over the last decades (Simon-Davies, 2018). In this context, couple relationships between native-born and immigrant people are often regarded as a sign of the successful integration of different ethnic groups (Walker and Heard, 2015; Khoo et al., 2009).

This section investigates the prevalence and characteristics of ‘interethnic couples’, which we define as couples with partners from different origin countries. In line with previous literature (for example, Walker and Heard, 2015; Khoo et al., 2009; Sinning and Worner, 2010), we use the individual’s own birthplace as a proxy measure

for ethnicity. However, it must be acknowledged that country of birth is not a perfect measure of ethnicity, since people born in the same country can be of different ethnicities, and people born in different countries can be of the same ethnicity.

People who were born overseas and migrated to Australia are generally referred to as ‘first-generation migrants’, whereas people who were born in Australia but have at least one parent born overseas are known as ‘second-generation migrants’. People who are born in Australia and whose parents were also both born in Australia will, in this report, be referred to as having no migration background. The analysis in this section includes both de facto relationships and legal marriages.

It should be noted that due to the longitudinal sampling design of the HILDA Survey, people who migrated to Australia after 2011 have a very small chance of being included in the survey. Therefore, the survey results can only be

considered representative of people migrating to Australia prior to 2011. Further, it is not possible to distinguish between Australian-born people of Indigenous and non-Indigenous origin in this section, given the low number of people of Aboriginal and Torres Strait Islander descent in the HILDA Survey sample.

Prevalence of interethnic couples

Table 2.6 provides information on the likelihood of having a partner born in a different country in 2017. The table differentiates between Australian-born and overseas-born people, and among the Australian-born by whether the individual has a migrant background (that is, with at least one of their parents born overseas).

The table shows that, of Australian-born individuals, both with and without a migrant background, the large majority were partnered with someone who was also born in Australia.

Table 2.6: Partner's country of birth, by sex and migration background, 2017 (%)

	Partner country of birth			Total
	Australia	Overseas— same country	Overseas— different country	
Men				
Australian-born, both parents Australian-born	87.9	–	12.2	100.0
Australian-born, at least one parent overseas-born	84.7	–	15.3	100.0
Overseas-born	28.9	53.6	17.5	100.0
Women				
Australian-born, both parents Australian-born	86.4	–	13.6	100.0
Australian-born, at least one parent overseas-born	79.2	–	20.8	100.0
Overseas-born	25.4	56.4	18.3	100.0

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

However, second-generation migrants were more likely than people without a migrant background to have a partner from a different country. Of people without a migrant background, approximately 12% of men and 14% of women had a partner born in a different country. Of people who had at least one parent born overseas, these shares rise to approximately 15% of men and 21% of women.

Among individuals born overseas, most (54% of men and 56% of women) were partnered with someone born in the same country. However, interethnic relationships were still much more prevalent in the overseas-born group than among the two Australian-born groups. Among overseas-born men, approximately 29% had a partner born in Australia, and nearly 18% had a partner who was also born overseas, but in a different country. Among overseas-born women, these shares were approximately 25% and 18%, respectively.

In a next step, a typology of couples is created based on: a) whether the partners are born in the same or different countries; and b) whether the countries of birth are Australia, one of the main English-speaking (MES) countries or one of the non-MES

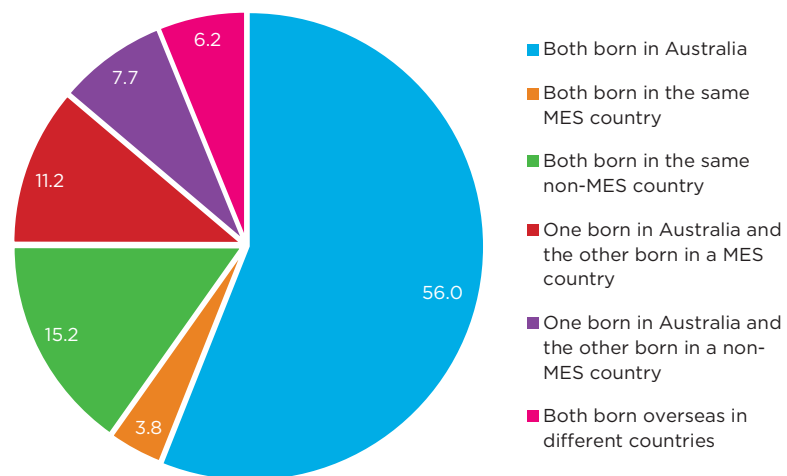


countries (see Box 2.4, page 12, for a definition of MES countries). This generates six categories of couples. Of these, three are homogamous with respect to country of birth, namely those where: i) both partners are Australian-born; ii) both partners are born in the same MES country; and iii) both partners are born in the same non-MES country. The three other types of couples are interethnic, namely couples where: iv) one partner is born in Australia and the other partner is born in one of the MES countries; v) one partner is born in Australia and the other partner is born in one of the non-MES countries; and vi) both partners are born overseas but in different countries.

Figure 2.4 presents the distribution of couples according to this typology in 2017. Overall, approximately 75% of couples were, in 2017, homogamous with respect to country of birth—that is, both partners were born in the same country. Of these, 56.0% had both partners born in Australia, 3.8% had both partners born in the same MES country, and 15.2% had both partners born in the same non-MES country. Among the interethnic couples, the largest share was accounted for by couples where one partner was born in Australia and one was born in a MES country (11.2% of all couples), followed by couples where one was Australian-born and the other was born in a non-MES country (7.7%).

Couples where both partners were born overseas but in different countries accounted for 6.2% of couples in 2017. Of these, the majority (about 51%) constituted couples where the partners were born in two different non-MES countries, followed by couples with one partner from a MES country and one from a non-MES

Figure 2.4: Prevalence of different country-of-birth combinations of couples, 2017 (%)



Note: Individual shares may not add up 100% due to rounding.



country (approximately 29%) and finally by two partners from different MES countries (approximately 20%).

Who is most likely to live in an interethnic relationship?

This subsection deals with the question of what characteristics make it more or less likely for an individual to partner with someone born in a different country. This question is investigated in two different regression models. One model focuses on Australian-born individuals who are in a couple relationship and investigates the likelihood of having a partner born overseas. The other model focuses on overseas-born individuals who are in a couple and estimates the likelihood of having a partner born in Australia or in a different overseas country.

In order to obtain a sufficiently large sample, we include all couples observed in the HILDA Survey between 2001 and 2017. However, overseas-born respondents who found their partner before moving to Australia are excluded. The characteristics considered in the model are sex, age at the start of the relationship (that is, the start of cohabitation), educational attainment, region of residence (see Box 3.5, page 34), birth cohort, importance of religion, attitudes towards marriage and children (see Box 2.6, opposite), and the personality trait 'openness to experience' (see Box 2.7, page 23).⁶

The model for Australian-born individuals additionally includes an indicator for Indigenous origin and for people where at least one parent was born

Box 2.6: Summary measure of the extent to which one has traditional views on marriage and children

A measure of the extent to which one has 'traditional' views on marriage and children can be derived from 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:

- It is alright for an unmarried couple to live together even if they have no intention of marrying*
- Marriage is a lifetime relationship and should never be ended*
- Marriage is an outdated institution*
- It is alright for a couple with an unhappy marriage to get a divorce even if they have children*
- Children will usually grow up happier if they have a home with both a father and a mother*
- 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*
- When children turn about 18–20 years old they should start to live independently*
- 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.

All items were first introduced (into the self-completion questionnaire) in 2005 and have subsequently been administered in Waves 8, 11 and 15. It is therefore possible to construct the summary measure in Waves 5, 8, 11 and 15.

Box 2.7: Personality measures in the HILDA Survey

Waves 5, 9, 13 and 17 of the HILDA Survey included a short version of Saucier's (1994) 'Big 5' personality test, from which personality scores are derived for extroversion, agreeableness, conscientiousness, emotional stability and openness to experience. Administered in the self-completion questionnaire, the personality test involved respondents indicating the extent to which each of 36 words described them. The scores were derived using a process called principal components analysis. See Summerfield et al. (2018) for more information on the derivation of the scores.



⁶ As information on the importance of religion, traditionalism of attitudes towards marriage and children, and openness to experience is only collected in certain waves, the gap waves are filled with interpolated values. Further, the first observed value for each person was carried backwards across earlier waves and the last observed value was carried forwards to subsequent waves. Observations with no information regarding one of these characteristics were assigned the wave-specific mean value, and the regression models additionally include indicator variables for missing values.



Table 2.7: Predictors of living in an interethnic relationship, pooled 2001 to 2017 sample

	Australian-born	Overseas-born
Female	0.023	<i>ns</i>
Age at start of relationship	0.003	0.006
<i>Educational attainment (Reference category: Bachelor degree or higher)</i>		
Year 12, Certificate 3 or 4, or Diploma	<i>ns</i>	<i>ns</i>
Year 11 and below	-0.020	-0.086
<i>Region of residence (Reference category: Sydney)</i>		
Rest of New South Wales	-0.093	0.057
Melbourne	<i>ns</i>	0.037
Rest of Victoria	-0.098	0.214
Brisbane	-0.030	0.049
Rest of Queensland	-0.061	0.125
Adelaide	-0.027	<i>ns</i>
Rest of South Australia	-0.072	0.205
Perth	0.039	0.058
Rest of Western Australia	-0.034	<i>ns</i>
Tasmania	-0.090	0.149
Northern Territory	0.100	0.206
Australian Capital Territory	<i>ns</i>	0.162
<i>Birth cohort (Reference category: Before 1950)</i>		
1950-1964	<i>ns</i>	0.082
1965-1979	-0.023	0.133
1980 and later	-0.059	0.110
Importance of religion in one's life (0-10 scale)	<i>ns</i>	-0.010
Extent to which one has traditional views on marriage and children (1-7 scale)	-0.012	-0.023
Openness to experience	0.017	0.014
Indigenous origin	-0.031	-
Parent(s) born overseas	0.027	-
<i>Country of birth (Reference category: Main English-speaking country)</i>		
Europe	-	-0.089
Asia	-	-0.267
Middle East	-	-0.240
Oceania	-	-0.104
Americas	-	<i>ns</i>
Africa	-	<i>ns</i>
Age at migration	-	-0.006
Number of observations (couples)	15,107	3,727

Notes: The table presents mean marginal effects from logistic regression models of the determinants of living in an interethnic relationship. Missing values for importance of religion, traditional attitudes and openness to experience were imputed with the wave-specific mean and the models additionally include indicators for missingness on these variables. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

overseas. The model for overseas-born individuals additionally includes the region of birth and the age at migration to Australia. Each person contributes one observation per couple relationship to the analysis, and the time-varying characteristics (such as education and region of residence) are measured in the first wave in which the couple is observed in the survey data.

Table 2.7 presents the results of the logistic regression analysis in the form of mean marginal effects. In the case of indicator variables (such as sex, educational attainment, birth cohort and region), these estimates are interpreted as the change in the probability of living in an interethnic relationship if the characteristic is present compared to the reference category. In the case of metric variables (such as age at the start of the relationship, the importance of religion or openness to experience), the estimates designate the effect of a one-unit increase in this variable on the probability of living in an interethnic relationship.

Most of the factors in the models are significantly associated with the probability of living in an interethnic relationship. Interestingly, however, some factors have opposite effects on Australian-born compared to overseas-born people. Australian-born people outside the capital cities are less likely to live in an interethnic relationship than those in the capital cities, whereas overseas-born people outside the capital cities are more likely to do so. For example, for Australian-born people living outside Sydney (Rest of New South Wales (NSW)), the probability of living in an interethnic relationship is 9.3 percentage points lower than for those in Sydney, while for overseas-born people living

outside Sydney (Rest of NSW) it is 5.7 percentage points higher than for those in Sydney. This can be traced back to the fact that, on average, the share of overseas-born people is lower outside the capital cities, making it more likely for both Australian-born and overseas-born people to partner with an Australian-born person.

Among the Australian-born, all else equal, younger cohorts are less likely to live in an interethnic relationship than people born before 1950. In contrast, among the overseas-born, younger cohorts are more likely to live in an interethnic relationship than those born before 1950. Further, the importance of religion in one's life is negatively related to the probability of an interethnic relationship for overseas-born people, while this is not the case for Australian-born people. Also

evident is that, all else equal, Australian-born women are significantly more likely to live in an interethnic relationship than their male counterparts. However, there is no significant difference between overseas-born women and men.

There are also some commonalities between Australian- and overseas-born people. The likelihood of living in an interethnic relationship increases with age at the start of the relationship but is significantly lower for those whose highest educational attainment is Year 11 or less compared to those with a bachelor's degree or higher qualification. More traditional attitudes towards marriage and children reduce the likelihood of living in an interethnic relationship for both groups, while openness to experience increases it.



Box 2.8: Classification of educational attainment

The classification of educational qualifications adopted by the HILDA Survey is based on the Australian Standard Classification of Education (ASCED) (ABS, 2001), which classifies formal educational qualifications by level and 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, up to five levels of attainment are distinguished: Postgraduate degree (Masters or PhD); Graduate Diploma, Graduate Certificate or Bachelor degree; Diploma or Certificate Level 3 or 4; Year 12 (high school completion); and Year 11 and below, although often fewer categories are examined by combining these categories (for example, combining the first two categories into one 'bachelor degree or higher' category). Note that, as explained in ABS (2014), Year 12 is defined to be a higher qualification than a Certificate Level 1 or 2, so that the category 'Year 11 and below' includes people who hold a Certificate Level 1 or 2.



The results for Australian-born people further show that, other factors held constant, Indigenous people have a lower likelihood of being in a relationship with an overseas-born partner than other Australian-born people, while people who have at least one parent who was born overseas have an increased probability compared with other Australian-born people.

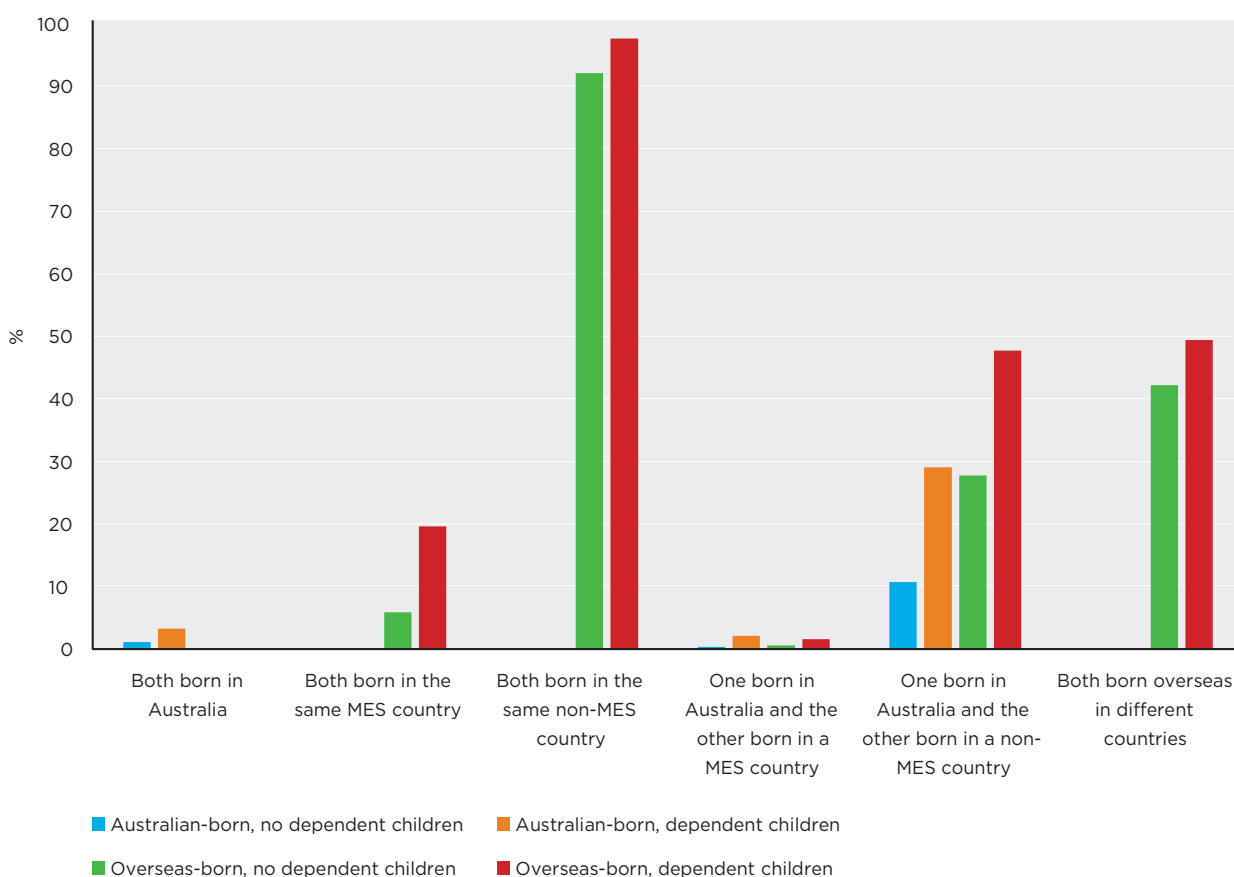
For overseas-born people, the probability of living in an interethnic relationship is significantly lower among those born in Europe, Asia, the Middle East and Oceania compared to the main English-speaking countries. The probability of being in an interethnic relationship also decreases with age at migration to Australia. This is unsurprising since, for example, one would expect immigrants arriving as young children to be more likely to partner with Australian-born people than immigrants arriving as adults.

Life of interethnic couples

Living with someone from another country may affect different areas of life. It may, for example, influence the language the family use to communicate with each other. While the HILDA Survey does not provide detailed information on the specific language(s) spoken, every year it does collect information as to whether the respondent speaks a language other than English in the home. Figure 2.5 shows, for the year 2017, the share of people in each couple type that speak a language other than English at home, separated by whether they were Australian-born or overseas-born and by whether they had dependent children living with them.

Comparing Australian-born people across the different couple types, the results show that, not surprisingly, the share of

Figure 2.5: Proportion of persons speaking a language other than English in the home, by couple type and country of birth, 2017



those speaking another language at home is extremely low if they are partnered with another Australian-born person or someone from a MES country. Partnering with someone from a non-MES country offers Australian-born people the option to speak another language at home. This option is mainly used if there are dependent children, applying to 29.1% of Australian-born people with children living

with someone from a non-MES country. By contrast, only 10.7% of Australian-born people without children living with someone from a non-MES country spoke another language at home.

A similar pattern can be found among people born in MES countries, who also have a very low probability of speaking another language at home if partnered with an Australian-born

person or someone who is from the same MES country. An interesting exception is couples from the same MES country who have children, among which 19.6% of people spoke another language at home. In this context it should be noted that approximately 7% of people from the main English-speaking countries in the sample did not have English as their first language.

Table 2.8: Mean satisfaction with different aspects of the relationship, by couple type and country of birth, 2017

	<i>Relationship with partner</i>	<i>Division of housework</i>	<i>Division of child care</i>
All persons in couples	8.3	7.6	7.7
<i>Ethnically homogamous couples</i>			
Both Australia	8.3	7.5	7.6
Same MES country	8.5	8.1	7.9
Same non-MES country	8.5	8.0	7.9
All persons in ethnically homogamous couples	8.4	7.6	7.7
<i>Interethnic couples</i>			
<i>Australia and MES country</i>			
Born in Australia	8.1	7.3	7.5
Born in MES country	8.3	7.7	7.8
<i>Australia and non-MES country</i>			
Born in Australia	8.0	7.5	7.5
Born in non-MES country	8.3	7.7	7.7
Both born overseas in different countries	8.2	7.5	7.6
All persons in interethnic couples	8.2	7.6	7.6

Moving to people who are from a non-MES country, Figure 2.5 shows that the origin of the partner has a strong influence on whether these people speak another language at home or not. The vast majority of people living with a partner from the same non-MES country speak a language other than English at home—92.1% if there are no dependent children and 97.6% otherwise. If living with an Australian-born person, however, the share speaking another language at home is much lower, especially among childless couples, with only 27.7% speaking another language at home. The share rises to close to half (47.7%) if there are children.

The share of people speaking another language at home among couples where both partners are overseas-born but in different countries lies between

that of the other groups, which is in part due to the fact that this category includes both people from MES countries and non-MES countries. However, as mentioned, approximately 80% of these couples involves at least one partner from a non-English speaking country.

One might suspect that interethnic couples face specific challenges in their relationships to the extent that being born in different countries may come with different cultural backgrounds. Therefore, Table 2.8 presents subjective evaluations of different aspects of the relationship for the year 2017, namely the satisfaction with the relationship with the partner as well as with the division of housework and the division of child-care tasks between the partners. These aspects are all measured on a scale from

0 (completely dissatisfied) to 10 (completely satisfied).

Comparing the total rows for ethnically homogamous and interethnic couples first, ethnically homogamous couples were more satisfied with their relationship to their partner, while there was little difference with respect to the division of housework or child-care tasks. However, within the group of ethnically homogamous couples, those born overseas—both in MES countries and non-MES countries—were more satisfied with all three aspects than couples where both partners were born in Australia. Among the interethnic couples consisting of one Australian-born and one overseas-born person, the interesting finding is that the Australian-born people had lower average scores on all measures than the overseas-born people.



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 five sections that focus on the income data, respectively examining the distribution of household income, mobility of individuals in the income distribution, intergenerational correlations in income, the incidence and persistence of income poverty, and the extent of welfare reliance in the Australian community.

Income levels and income inequality

Annual income

Cross-sectional estimates of mean and median household annual disposable income (as defined in Box 3.1, page 29) 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

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 (ABS) Consumer Price Index, so that income in all waves is expressed at December 2017 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 2017

	<i>Mean (\$, December 2017 prices)</i>	<i>Median (\$, December 2017 prices)</i>	<i>Number of households</i>	<i>Number of persons</i>
2001	70,805	61,215	7,285,327	18,824,376
2002	71,634	62,304	7,361,493	19,039,091
2003	72,098	62,759	7,438,638	19,258,412
2004	74,125	63,974	7,510,765	19,468,325
2005	77,704	68,011	7,595,453	19,714,426
2006	81,602	70,470	7,698,118	20,013,530
2007	85,494	74,116	7,847,310	20,382,461
2008	87,929	76,126	8,019,262	20,809,743
2009	90,578	80,637	8,183,776	21,216,949
2010	90,870	78,205	8,305,706	21,521,079
2011	90,959	76,352	8,409,893	21,835,926
2012	92,377	80,573	8,557,379	22,225,798
2013	93,469	80,208	8,698,367	22,601,039
2014	93,547	79,653	8,824,947	22,938,719
2015	92,446	78,901	8,951,564	23,277,070
2016	92,959	80,592	9,092,259	23,654,628
2017	93,734	80,095	9,245,271	24,051,809

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 consumption (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.

strongly over the eight-year period from 2001 to 2009. Expressed at December 2017 prices, the mean increased by \$19,773, or \$2,472 per year; the median increased by \$19,422 over the same period. Most of this growth in fact 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 eight-year period from 2009 to 2017, the mean household income grew by only \$3,156, or 3.5%, while the median in 2017 was \$542 lower than 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, page 30, for an explanation of how equivalised income is calculated and Box 3.3, page 31, for an explanation of the





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.

statistics presented in the table). The individual is the unit of observation, meaning the statistics presented are for the distribution of household equivalised incomes across all individuals in the population, including children.

Growth in the average level of incomes between 2003 and 2009, and the subsequent levelling-off of average incomes, is robust to the move to equivalised incomes and the individual as the unit of analysis. This is unsurprising given that changes in household composition of the population between 2001 and 2017 have been relatively modest (see Table 2.1, page 7, in Chapter 2). The

HILDA Survey indicates that there has been little net change in income inequality between 2001 and 2017. For example, the Gini coefficient, a common measure of overall inequality, has remained between 0.29 and 0.31 over the entire 17 years of the HILDA Survey.

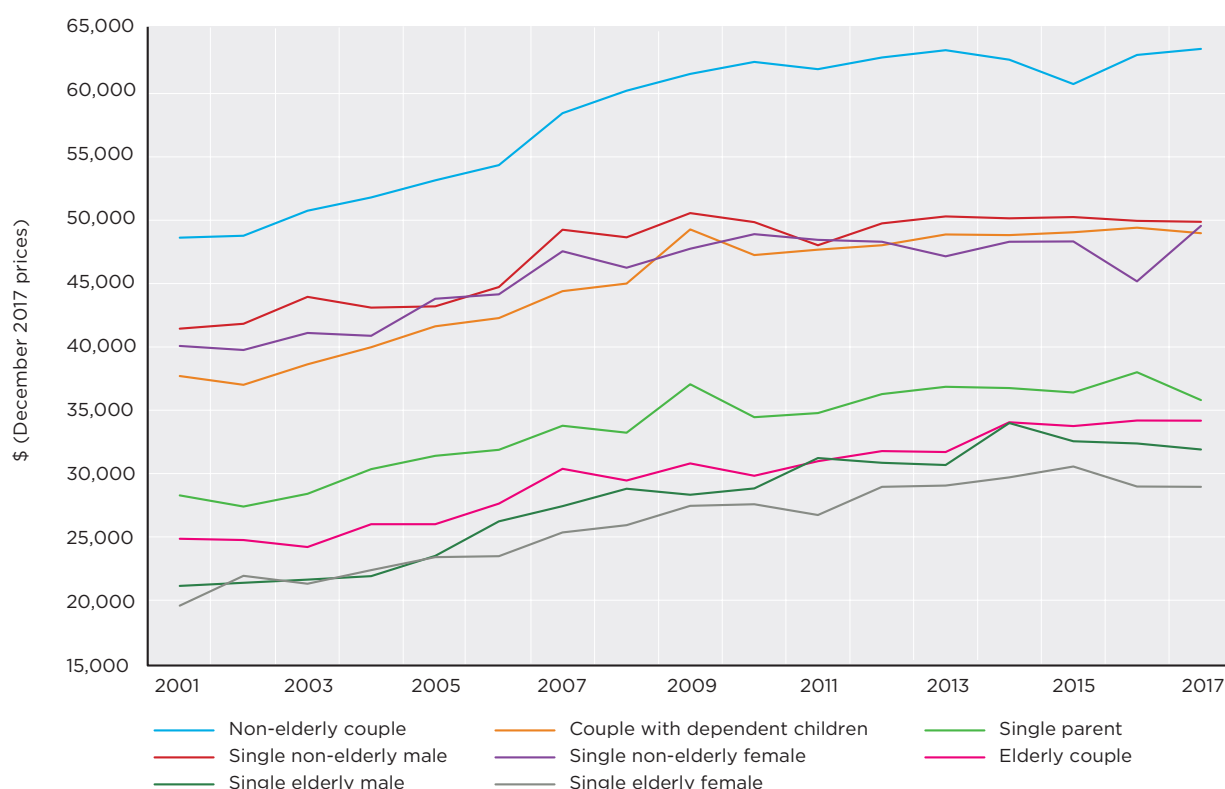
Income differences by family type

Figure 3.1 compares median equivalised incomes across family types (defined in Box 3.4, page 32). A reasonably consistent ordering by type of family is evident across the 17 waves of the survey, ranging from elderly persons at the bottom to non-elderly couples without

Table 3.2: Distribution of individuals' equivalised household disposable income, 2001 to 2017

	Mean (\$, December 2017 prices)	Median (\$, December 2017 prices)	Ratio of 90th percentile to the median	Ratio of median to the 10th percentile	Gini coefficient
2001	41,945	37,191	1.92	2.12	0.303
2002	42,432	37,255	1.91	2.07	0.302
2003	42,859	38,405	1.85	2.11	0.298
2004	43,814	39,334	1.85	2.09	0.292
2005	45,865	40,952	1.86	2.08	0.294
2006	48,128	42,189	1.93	2.04	0.297
2007	50,758	44,512	1.92	2.13	0.307
2008	51,826	45,103	1.92	2.11	0.304
2009	53,555	48,451	1.82	2.16	0.292
2010	53,561	47,069	1.88	2.11	0.301
2011	53,694	46,564	1.97	2.11	0.310
2012	54,374	47,489	1.92	2.01	0.299
2013	54,969	47,785	1.92	2.04	0.304
2014	54,919	47,854	1.92	1.99	0.301
2015	54,506	47,882	1.91	1.98	0.294
2016	54,689	47,922	1.89	1.98	0.295
2017	55,216	47,875	1.91	2.02	0.302

Figure 3.1: Median equivalised income, by family type



Box 3.4: Family types

The following eight family types are distinguished in this chapter: (1) non-elderly couples, defined to be couples (married or de facto) without dependent children with at least one member of the couple under 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.



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 2017, 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 2017

period across 13 regions of Australia (see Box 3.5, page 34). To reduce volatility due to sampling variability, results are presented for two-year periods (for example, 2016 and 2017 combined), with the exception that the first period examined covers three years (2001, 2002 and 2003).

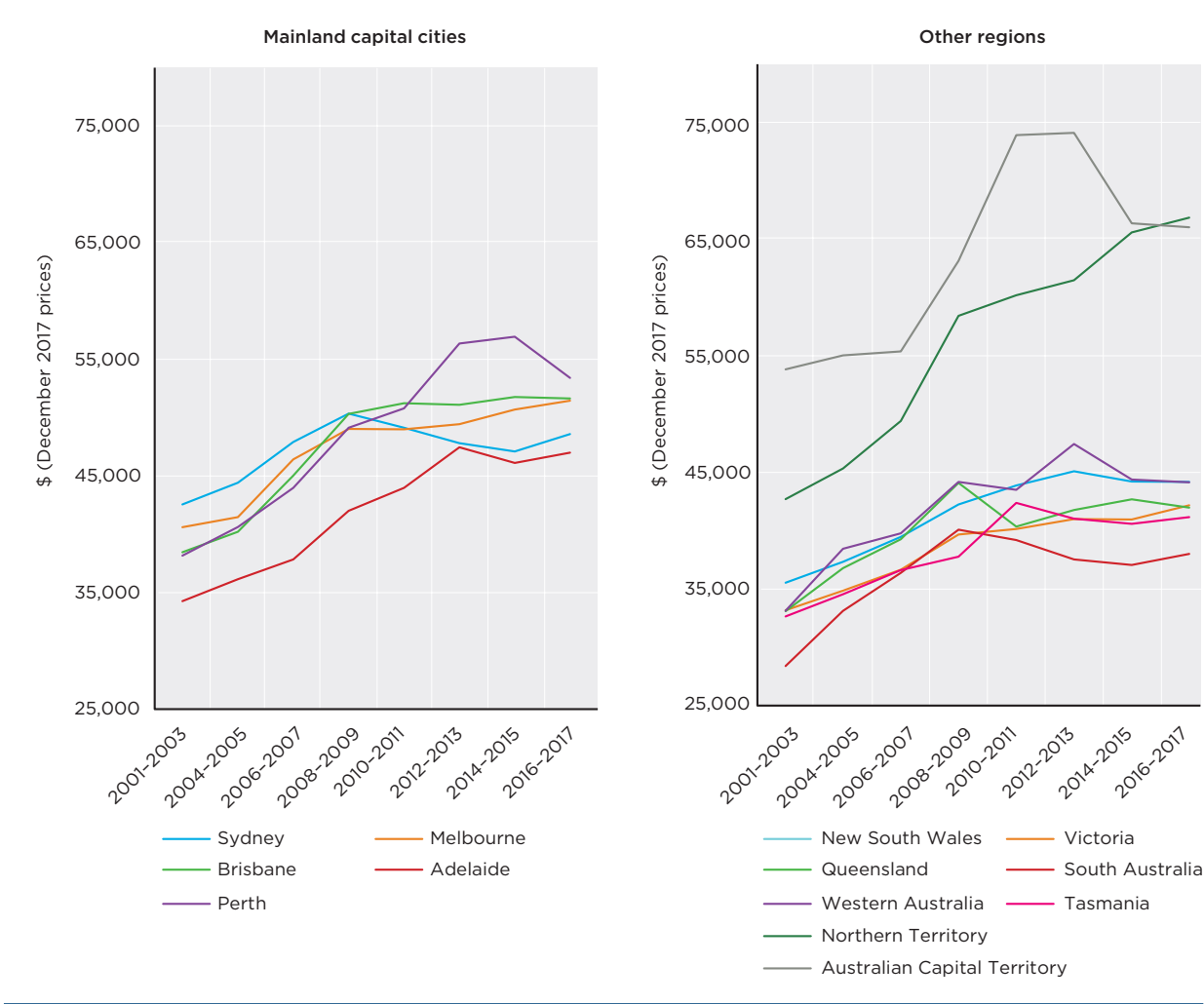
Median incomes are considerably higher in the mainland capital cities than in the other regions of each state. Tasmania also has a relatively low median income. The median incomes in the Australian Capital Territory and Northern Territory are highest of all the regions examined in Figure 3.2. However, after rapid growth between 2006 and 2011, the median income in the Australian

Capital Territory fell considerably between 2012 and 2015, and has not since recovered, although it remained around equal-highest with the Northern Territory at the end of the 2001 to 2017 period. Figure 3.2 also indicates that, among the mainland capital cities, Adelaide consistently has the lowest median income, while in recent years Perth has had the highest median income (despite experiencing a substantial decline towards the end of the period).

Table 3.3 focuses on recent changes in the median incomes of the 13 regions, examining the period since 2012–2013. It shows considerable variation in median income changes across the regions, ranging from an 11% decline in the Australian Capital



Figure 3.2: Median household equivalised income, by region



Notes: Mainland capital cities are 'greater capital cities'. States are 'rest of state' (that is, excluding greater capital city).

Table 3.3: Change in median household equivalised income, by region, 2012–2013 to 2016–2017

	Median in 2012–2013 (\$, December 2017 prices)	Median in 2016–2017 (\$, December 2017 prices)	Percentage change
Sydney	47,809	48,569	1.6
Melbourne	49,428	51,448	4.1
Brisbane	51,078	51,652	1.1
Adelaide	47,451	46,993	–1.0
Perth	56,345	53,392	–5.2
Rest of New South Wales	45,126	44,215	–2.0
Rest of Victoria	41,004	42,185	2.9
Rest of Queensland	41,779	41,971	0.5
Rest of South Australia	37,515	37,970	1.2
Rest of Western Australia	47,484	44,173	–7.0
Tasmania	41,016	41,172	0.4
Northern Territory	61,645	67,061	8.8
Australian Capital Territory	74,394	66,230	–11.0
Australia	47,603	47,889	0.6



Territory to an 8.8% increase in the Northern Territory. Aside from the Australian Capital Territory, Western Australia—both Perth and the rest of the state—has fared worst since 2012–2013. Non-Sydney New South Wales and Adelaide have also experienced declines in median incomes since 2012 to 2013.

Income mobility

Table 3.4 takes advantage of the longitudinal information in HILDA to examine income mobility over the short- to medium-term. For each quintile (20%) of the equivalised income distribution, it shows the proportions of people moving to a lower quintile, staying in the same quintile and moving to a higher quintile. The more people who move up or down, the greater is income mobility. The table examines mobility over three time-frames: one year, five years and 10 years. The analysis is also presented separately for three subperiods of the 2001 to 2017 period based on the initial year in which the income quintile is measured: 2001 to 2005, 2006 to 2011 and 2012 to 2016.

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 and whether resident of the state's capital city is combined to create 13 distinct regions, each of which has a sufficient sample size to support the statistical analyses presented. The regions comprise: (1) Sydney; (2) Rest of New South Wales; (3) Melbourne; (4) Rest of Victoria; (5) Brisbane; (6) Rest of Queensland; (7) Adelaide; (8) Rest of South Australia; (9) Perth; (10) Rest of Western Australia; (11) Tasmania; (12) Australian Capital Territory; and (13) Northern Territory.



As an example to aid interpretation, the upper right cell of the table shows that, of those in the bottom quintile in any given year between 2012 and 2016, on average 30.7% were in a higher quintile in the next year. The remaining 69.3% remained in the bottom quintile. (Note that it is not possible to move down from the bottom quintile or move up from the top quintile, so the corresponding cells are always zero.)

The table shows that ‘stickiness’ is greatest for the bottom and top quintiles. The proportion remaining in the same quintile is always highest for these two quintiles, regardless of the time-frame over which mobility is measured. For example, over a one-year time-frame, the proportion of the bottom quintile remaining in the bottom quintile is always just under 70%, while the proportion of the top quintile remaining in the top quintile is always just over 70%. For other quintiles, the proportion remaining in the same quintile from one year to the next is approximately 50%.

The greater stickiness of the top and bottom quintiles is unsurprising, since it is only

possible for people in these quintiles to move in one direction—down for the top quintile, and up for the bottom quintile. Perhaps also reflecting the greater scope for movement up the lower the initial quintile, and the greater scope for moving down the higher the initial quintile, is that the likelihood of moving to a higher quintile tends to be higher the lower the initial quintile, while the likelihood of moving to a lower quintile tends to be higher the higher the initial quintile. For example, in the 2012 to 2016 period, the proportion moving down from one year to the next was 21.6% for the second quintile, 25.1% for the middle quintile, 28.7% for the fourth quintile and 27.3% for the top quintile. In the same period, the proportion moving up from one year to the next was 30.7% for the bottom quintile, 27.0% for the second quintile, 25.9% for the middle quintile and 20.0% for the fourth quintile.

The table also shows that income mobility is greater the longer the time-frame. Over a 10-year time-frame, the proportion of the top and bottom quintiles remaining in the same quintile is approximately 50% (compared with approximately 70% over a

one-year time-frame), while for other quintiles, the proportion in the same quintile 10 years later is always under 30% (compared with 50% over a one-year time-frame).

There is some evidence that short- to medium-term income mobility has reduced slightly this century, as indicated by changes across the three subperiods examined in Table 3.4. The proportion of the bottom quintile still in that quintile one year later rose from 68.3% in the 2001 to 2005 period to 69.3% in the 2012 to 2016 period, and the proportion of the top quintile still in that quintile one year later rose from 70.7% to 72.7% between these two subperiods.

A similar pattern is evident for other quintiles. The pattern is also evident for the top and bottom quintiles when examining mobility over five years, with the proportion remaining in the same quintile rising from 60.0% to 61.5% for the bottom quintile and from 55.3% to 58.5% for the top quintile. There is little evidence of change in five-year mobility for the middle three quintiles, but over 10 years, the proportion remaining in the same quintile increased for all five quintiles.

Table 3.4: Movements in the income distribution, by initial income quintile (%)

	<i>Initial years:</i> 2001 to 2005			2006 to 2011 ^a			2012 to 2016 ^b		
	<i>Moved down</i>	<i>No change</i>	<i>Moved up</i>	<i>Moved down</i>	<i>No change</i>	<i>Moved up</i>	<i>Moved down</i>	<i>No change</i>	<i>Moved up</i>
One-year changes									
Bottom quintile	0.0	68.3	31.7	0.0	68.8	31.2	0.0	69.3	30.7
Second quintile	21.3	48.6	30.1	20.3	49.9	29.8	21.6	51.4	27.0
Middle quintile	26.9	46.2	26.9	27.0	46.1	26.8	25.1	49.0	25.9
Fourth quintile	30.8	50.1	19.1	29.6	50.4	20.1	28.7	51.3	20.0
Top quintile	29.3	70.7	0.0	27.6	72.4	0.0	27.3	72.7	0.0
Five-year changes									
Bottom quintile	0.0	60.0	40.0	0.0	58.9	41.1	0.0	61.5	38.5
Second quintile	26.6	35.4	38.0	23.3	35.6	41.2	26.2	35.0	38.9
Middle quintile	34.1	30.9	35.0	31.3	32.4	36.2	34.3	30.8	34.9
Fourth quintile	41.4	35.1	23.5	36.9	36.2	26.9	38.5	35.3	26.1
Top quintile	44.7	55.3	0.0	42.0	58.0	0.0	41.5	58.5	0.0
10-year changes									
Bottom quintile	0.0	53.4	46.6	0.0	54.4	45.6	–	–	–
Second quintile	26.3	29.0	44.7	24.6	29.3	46.1	–	–	–
Middle quintile	35.0	25.5	39.4	35.7	26.0	38.2	–	–	–
Fourth quintile	45.2	27.6	27.2	45.5	28.2	26.4	–	–	–
Top quintile	52.1	47.9	0.0	50.9	49.1	0.0	–	–	–

Notes: ^a 10-year changes are for initial years 2006 and 2007 only. ^b Five-year changes are for initial year 2012 only.

Longer-term incomes

Figure 3.3 examines inequality of income measured over five years. Five-year income is calculated for each individual as the sum of inflation-adjusted annual equivalised income over the five years—that is, equivalised income is obtained for each of the years and these values are then added together. To the extent that income fluctuates from year to year, distributional statistics for five-year income can provide a clearer sense of longer-term inequality.

The figure shows that, consistent with fluctuations in income from year to year, inequality in five-year income, as measured by the Gini coefficient, 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. Moreover, the Gini coefficient for five-year income has steadily increased



over the 2001 to 2017 period, rising from 0.267 for 2001–2005 income to 0.277 for 2013–2017 income, a 3.7% increase.

The rise in inequality in five-year income is seemingly at odds with the finding of little change in inequality of one-year income. However, it is consistent with the evidence in Table 3.4 that income mobility has declined over the HILDA Survey period. This is because lower income mobility over the short- to medium-term means that poor people tend to remain poor from one year to the next and rich people tend to remain rich from one year to the next, so that the decrease in inequality in moving from one-year to five-year income will be smaller—in the extreme, if everyone has the same income every year, then inequality of five-year income will be the same as inequality of one-year income.

While this increase in income stability from year to year is a positive development for people with good incomes, this is not a good development for people with low incomes, since they are more likely to have *persistently* low incomes.

Figure 3.4 shows more generally how inequality changes as we increase the length of the period over which income is measured. For each time-frame, it presents the average value of the Gini coefficient over the 2001 to 2017 period. For example, the estimate for one-year income is the average value of the Gini coefficient over all 17 years, while

Figure 3.3: Inequality of five-year income (Gini coefficient)

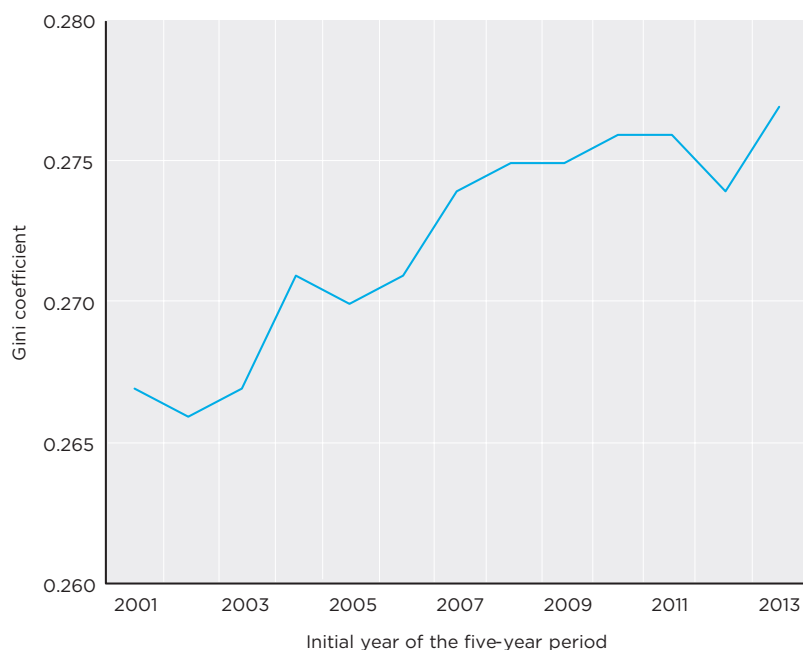
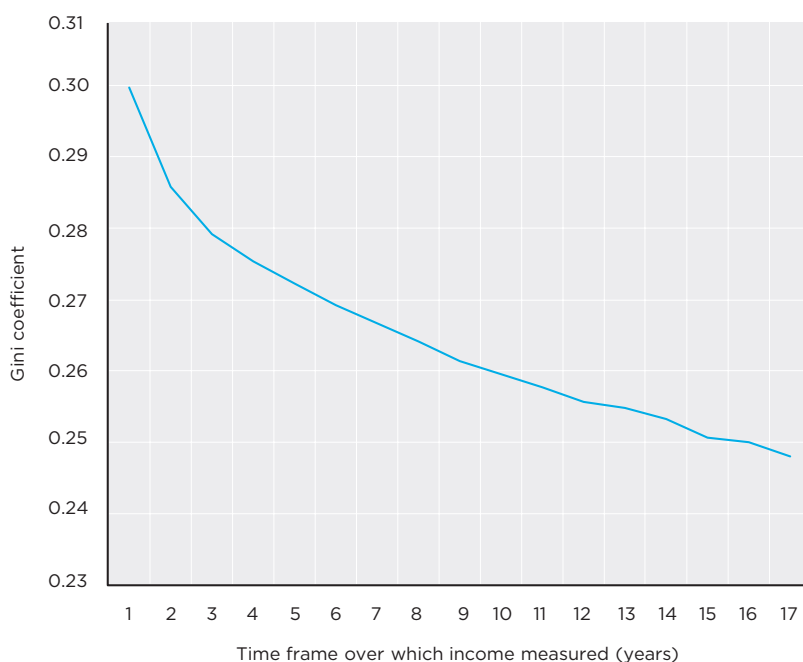


Figure 3.4: Gini coefficient, by length of time frame over which income is measured



the estimate for two-year income is the average over the 16 two-year time-frames available in the 2001 to 2017 period (2001 and 2002, 2002 and 2003, and so on). The estimate for 17-year income is simply the Gini coefficient for the one 17-year period we have over the 2001 to 2017 period.

The figure shows that the Gini coefficient falls from approximately 0.30 for one-year income to approximately 0.25 for 17-year income. This illustrates that one-year income can be quite misleading as to the extent of inequality in society, since lifetime income (which a 17-year income measure is closer to than a one-year measure) is more equally distributed than one-year income. That said, *when* income is received also matters: an individual who has very low income for several successive years may experience considerable hardship during those years, even if that individual's lifetime income is not especially low.

Intergenerational income mobility

At its essence, examination of intergenerational mobility concerns the extent to which an individual's economic fortunes as an adult depend on the economic fortunes of his or her parents. It examines the extent to which children who grew up in poor households are themselves poor in adulthood and, likewise, the extent to which children who grew up in rich households are themselves rich in adulthood. Key among the reasons for interest in intergenerational mobility is the argument (for example, Becker and Tomes, 1986) that equality of opportunity is lower the more strongly correlated are incomes of children and parents.

Various approaches have been adopted by researchers to study intergenerational income mobility, but so-called 'direct measures' are generally regarded as most accurate. Direct measures involve measuring the incomes of parents and children at similar

ages—generally when aged between approximately 30 and 50 years. This means that incomes of children must be measured many years after the incomes of parents are measured. Hence, long-running longitudinal household survey data is ideally suited to investigating this issue. And with 17 years of longitudinal data now available, the HILDA Survey is itself becoming more suitable for producing direct measures of intergenerational income mobility.

The approach taken in this report is to examine individuals aged 15 to 17 years in 2001, and compare their parental equivalised income in 2001 with their own household equivalised income in 2017, when they were aged 32 to 34.¹

Variations are also considered, including measuring income over three years (2001 to 2003 and 2015 to 2017) rather than one year, and examining labour market earnings rather than total equivalised incomes. The use of 'three-year income' reduces the period between measurement of



¹ The approach taken here is similar to that by Murray et al. (2018), who examined Waves 1 to 15 of the HILDA Survey, and who in turn follow Chetty et al. (2014), who examine intergenerational income mobility in the US using tax records data.

Table 3.5: Income quintile when an adult, by parental income quintile when a child (%)

One-year income (Sample size: 468)

	Equivalised income when an adult (in 2017)					
	Bottom quintile	Second quintile	Middle quintile	Fourth quintile	Top quintile	Total
Parental equivalised income when a child (in 2001)						
Bottom quintile	34.4	20.3	21.5	13.8	10.0	100.0
Second quintile	17.4	24.5	17.9	23.8	16.4	100.0
Middle quintile	21.0	21.7	18.0	20.6	18.7	100.0
Fourth quintile	19.7	14.2	22.7	23.7	19.8	100.0
Top quintile	9.7	18.1	19.2	20.5	32.6	100.0

Three-year income (Sample size: 490)

	Equivalised income when an adult (in 2015–2017)					
	Bottom quintile	Second quintile	Middle quintile	Fourth quintile	Top quintile	Total
Parental equivalised income when a child (in 2001–2003)						
Bottom quintile	37.6	21.1	19.4	12.0	9.9	100.0
Second quintile	25.0	24.7	20.5	16.5	13.3	100.0
Middle quintile	24.5	17.4	21.4	19.2	17.5	100.0
Fourth quintile	8.8	19.3	20.3	26.1	25.6	100.0
Top quintile	5.5	19.6	18.6	25.5	30.8	100.0

parent and child income or earnings, but reduces ‘attenuation bias’ compared with one-year income (Bowles, 1972). In all analysis, the focus is on rank in the income distribution rather than the dollar value of income, where the parental income rank and child income rank are measured only among the individuals being examined—that is, those aged 15 to 17 in 2001.²

Table 3.5 examines the associations between the quintile of parental equivalised income (when the child was aged 15 to 17) and the quintile of the child’s equivalised income (when the child was aged 32 to 34). The upper panel examines one-year income, while the lower panel examines three-year income.³

The top row of the table examines those who were in the bottom quintile (20%) of the one-year parental income distribution



² For child income/earnings, rank is ascertained separately for each single-year age group (32, 33 and 34) because of the strong positive association between age and income/earnings in the 32 to 34 age range.

³ Three-year income is calculated by taking the average of equivalised income over the three years. If income was missing in one or two of the three years, the average was taken over the years in which income was not missing. Hence, the sample size is slightly larger for three-year income (490) than for one-year income (468).

as children (in 2001). It shows that in 2017, when these individuals were aged 32 to 34 years, 34.4% were in the bottom quintile of the income distribution for their age, 20.3% were in the second-bottom quintile, 21.5% were in the middle quintile, 13.8% were in the fourth (second-top) quintile and 10.0% were in the top quintile. By contrast, the bottom row of the upper panel of Table 3.5 shows that, for those in the top quintile of the one-year income distribution as children (in 2001), only 9.7% were in the bottom quintile when aged 32 to 34, while 32.6% were in the top quintile. The lower panel of the table shows a similar pattern for three-year income. There are consequently clear indications of a positive correlation between parental income and the income of children in later life.

Table 3.6 focuses on simple correlations in percentile ranks between parental and child incomes, but considers differences between males and

females, from both the parental and child perspective. Male and female children are examined separately, and the distinct roles of fathers' and mothers' labour market earnings in influencing child labour market earnings are considered.

Two interesting patterns emerge. The first is that the intergenerational correlation appears to be stronger for female children than male children. For example, the correlation for one-year equivalised income is 0.206 for males and 0.263 for females. The second pattern evident is that the correlation between parent and child labour market earnings is higher for mothers than fathers. For example, the correlation coefficient between father one-year earnings and child one-year earnings is 0.14, whereas it is 0.244 for mother earnings.

Studies typically attempt to control for parent age, and potentially other confounding



Table 3.6: Correlation between parental and child rankings in the earnings or income distribution

	<i>Parental equivalised income</i>	<i>Father's earnings</i>	<i>Mother's earnings</i>
Correlation coefficients			
<i>One-year income</i>			
All children	0.233	0.140	0.244
Male children	0.206	0.170	0.196
Female children	0.263	0.090	0.286
<i>Three-year income</i>			
All children	0.333	0.140	0.255
Male children	0.299	0.138	0.197
Female children	0.372	0.127	0.320
Sample sizes			
<i>One-year income</i>			
All children	468	320	421
Male children	217	148	196
Female children	251	172	225
<i>Three-year income</i>			
All children	490	340	446
Male children	234	161	212
Female children	256	179	234

Notes: The upper panel of the table reports rank correlation coefficients. The lower panel of the table reports the sample sizes used to produce each estimated correlation coefficient.

Table 3.7: Rank correlations between parent and child income, controlling for parental age

	<i>Parental equivalised income</i>	<i>Father's earnings</i>	<i>Mother's earnings</i>
One-year income			
All children	0.183	0.108	0.213
Male children	0.198	<i>ns</i>	0.201
Female children	0.157	<i>ns</i>	0.227
Three-year income			
All children	0.299	0.100	0.228
Male children	0.334	<i>ns</i>	0.199
Female children	0.256	<i>ns</i>	0.254

Notes: The table reports estimated rank correlation coefficients obtained from an Ordinary Least Squares regression model of child income or earnings rank (in 2017 or 2015–2017) as a function of parent rank, parent age and parent age squared (in 2001 or 2001–2003). *ns* indicates the estimate is not significantly different from 0 at the 10% level.

factors, by estimating regression models of child rank as a function of parent rank and parent age (and potentially other factors). Table 3.7 presents estimates from such regressions. A number of the estimates are somewhat attenuated compared with the simple descriptive correlation coefficients presented in Table 3.6, especially for females. Indeed, the finding in Table 3.6 that the intergenerational correlation is stronger for female children than for male children is not robust to controlling for parental age: overall, male and female children have quite similar estimated rank correlation coefficients. However, the finding that the intergenerational correlation in earnings is stronger for mothers' earnings than fathers' earnings remains.

Income poverty

A wide variety of definitions or measures of poverty, or material deprivation, have been employed by economic and social researchers. While recognising this diversity of potential measures, in this chapter we focus on the most commonly employed definition applied to the study of poverty in developed countries, which conceives of poverty as *relative* deprivation or socio-economic disadvantage,



and which measures deprivation in terms of inadequacy of *income*. Consistent with the approach of the Organisation for Economic Co-operation and Development (OECD) and other international bodies, we define relative income poverty as having a household income below 50% of median income. While based on a degree of public and 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

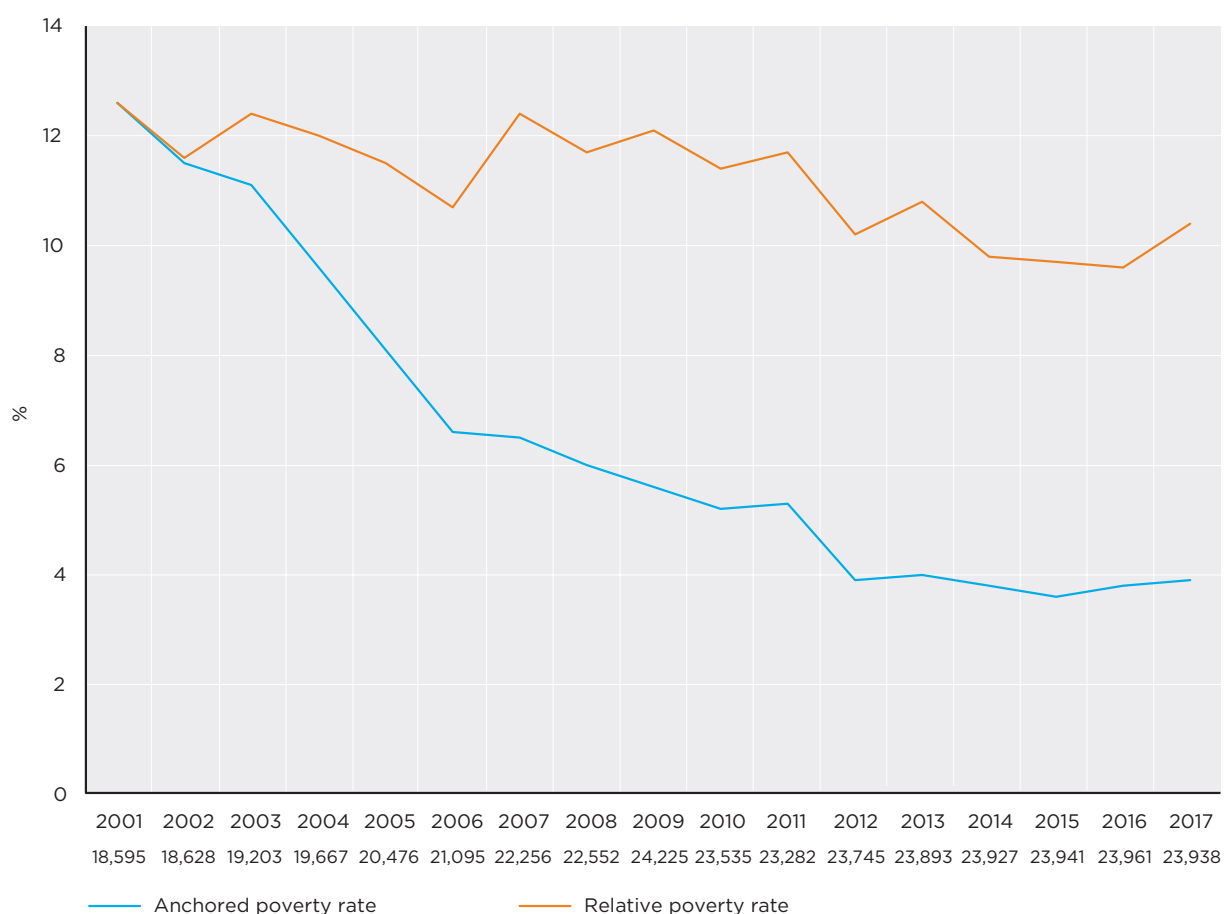
Box 3.6: Relative and anchored income poverty

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: Values at the base of the figure are the dollar values of the relative poverty lines in each of the financial years, expressed at December 2017 prices.

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 42). Our income measure is equivalised income; thus, the poverty lines presented at the bottom of Figure 3.5 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 \$18,595 in 2001 to \$24,225 in 2009 (expressed at December 2017 prices). Median income has fallen slightly since 2009, and as a result the relative poverty line was slightly lower in 2017 than it was in 2009.

The proportion of the population below the relative poverty line has fluctuated over time, but the broad trend has been downwards. This is especially

true since 2007, when 12.4% of the population was in relative poverty. By 2016, the proportion in poverty had fallen to 9.6%. However, in 2017, relative poverty increased to 10.4%.

Despite the increase in relative poverty in 2017, it nonetheless appears that there has been some progress in reducing income poverty this century. Moreover, the poverty rate obtained when the real value of the poverty line is maintained at its 2001 level of \$18,595 (at December 2017 prices) has fallen dramatically, from 12.6% in 2001 to 3.9% in 2017. Thus, even among those in relative income poverty, average living standards (as measured by equivalised income) have increased over the full 17-year period. That said, the anchored poverty rate rose slightly in each of the last two years, from 3.6% to 3.8% between 2015 and 2016, and from 3.8% to 3.9% between 2016 and 2017. Thus, the pattern of improved living standards among the poor has not been maintained in the two most recent years of the HILDA Survey.

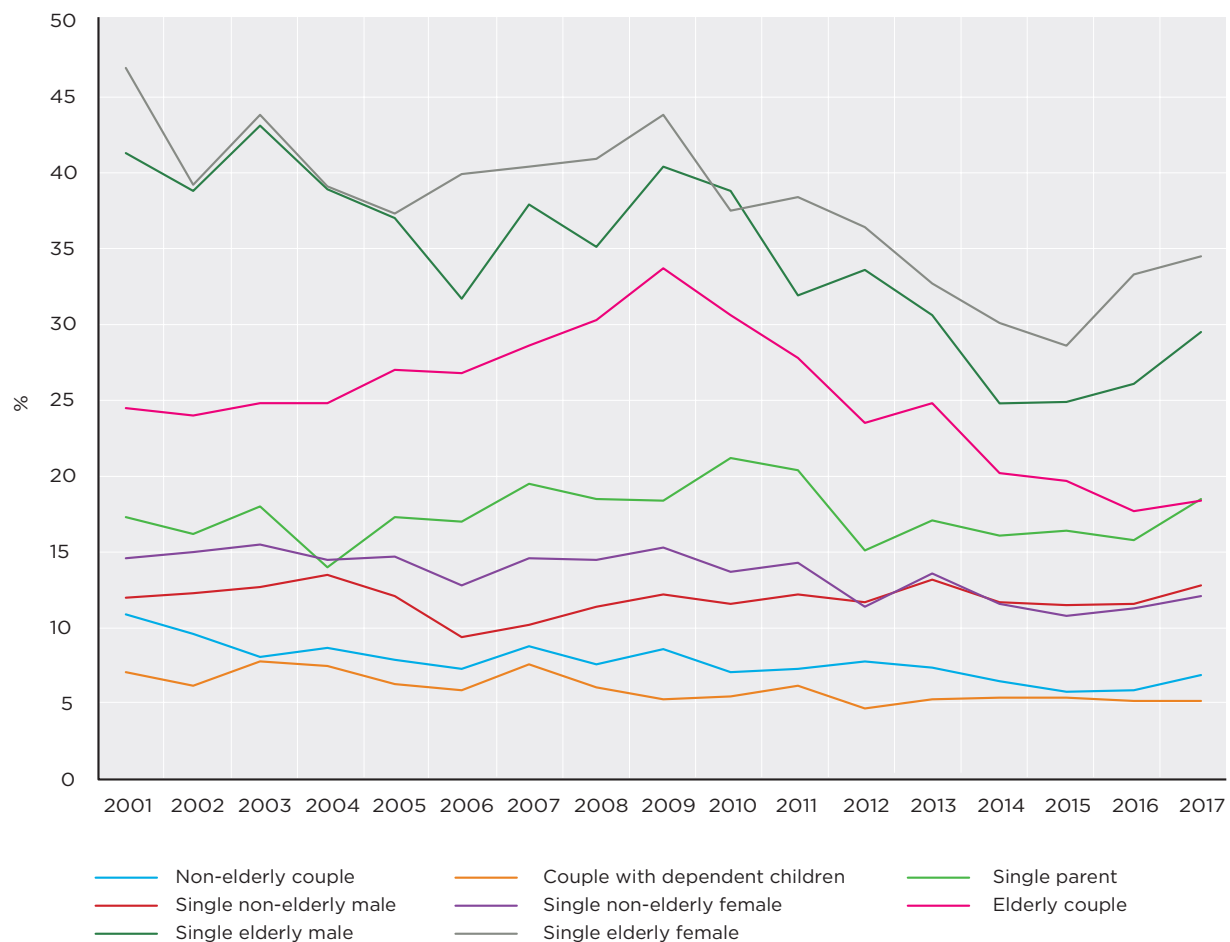
Poverty by family type

Figure 3.6 shows that relative poverty rates vary substantially by family type. Rates are consistently high among the elderly, particularly elderly single persons, although they declined substantially between 2009 and 2015 for all three groups of elderly persons distinguished in the figure. 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



Figure 3.6: Poverty rates, by family type



elderly than is implied by the relative income poverty measure.⁴

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 relative 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 2017 equal to 8.2%. 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



⁴ 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 equivalised income net of housing costs—that is, the equivalised 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.

is over twice the poverty rate for children in couple-parent families. Indeed, in 2017, the poverty rate for children in single-parent families was 19.2%, compared with only 5.3% for children living 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 3.8 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 2008 to 2017. The first of these panels examines 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 73% of men and 69% of women aged 18 to 55 in 2001 did not experience income poverty in that year or any of the subsequent nine years, necessarily implying that 27% of men and 31% of women did experience poverty in at least one year. For approximately 17% of men and 19% of women, poverty was experienced in only one or two years, and a further 6% of men and women experienced poverty in three or four of the 10 years.

Highly persistent or recurrent poverty was confined to the 4.4% of men and 6.1% 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 2008 to 2017 saw slightly lower proportions of working-age people

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

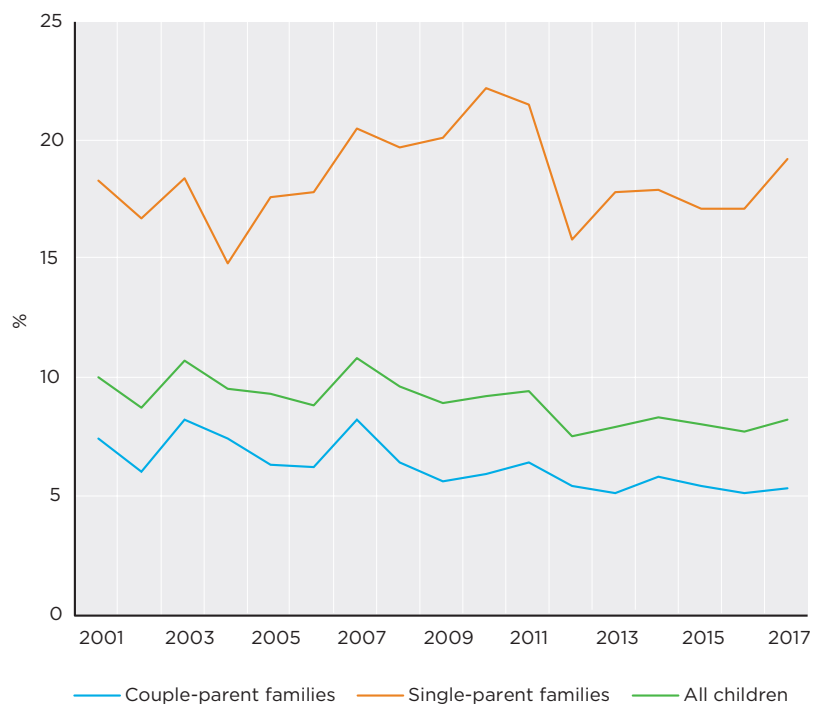


Table 3.8: Experience of poverty over a 10-year period (%)

	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	72.9	16.7	6.0	1.9	2.5	100.0
Women	68.9	19.0	5.9	3.1	3.0	100.0
<i>2008–2017</i>						
Men	75.5	14.5	5.1	2.5	2.3	100.0
Women	73.3	16.2	5.1	3.1	2.2	100.0
Persons aged 65 and over at the start of the 10-year period						
<i>2001–2010</i>						
Men	29.5	25.0	11.6	11.3	22.5	100.0
Women	23.0	24.3	15.7	9.2	27.8	100.0
<i>2008–2017</i>						
Men	34.5	25.7	12.6	8.5	18.7	100.0
Women	25.2	27.3	14.9	10.3	22.3	100.0
First 10 years of life for children born 1 July 2000 to 30 June 2008						
All	71.3	18.2	5.8	2.6	2.1	100.0
Major urban regions	74.2	15.7	5.9	2.9	1.4	100.0
Other regions	65.8	22.8	5.7	2.2	3.4	100.0

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



experience each level of poverty duration, and correspondingly a higher proportion not experiencing poverty at all over the 10-year period.

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—27.8% were in poverty in seven or more years, whereas only 23.0% 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 to 2010 period and the 2008 to 2017 period evident for ‘working-age’ people 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 22.5% to 18.7% for men, and from 27.8% to 22.3% for women.

Long-term poverty experiences of children are considered in the bottom panel of Table 3.8 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 2008.

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 18.2% were in poverty in one or two years, while 4.7% were in poverty for at least half of their first 10 years.

Poverty experience in the first 10 years of life is also examined separately for major urban regions (towns and cities of at least 100,000 people; see Box

3.5, page 34) and other regions. Experience of poverty is considerably more common for children growing up outside the major urban areas, with 65.8% never experiencing poverty, compared with 74.2% for children growing up in major urban areas. Most of this difference derives from a higher proportion experiencing poverty in one or two of the 10 years—22.8% versus 15.7%—although children growing up outside major urban areas are also much more likely to be in long-term poverty, with 3.4% in poverty for seven or more of the 10 years, compared with 1.4% of other children.⁵

Welfare reliance

Reliance on welfare remains a significant concern for policy-makers in Australia (see Box 3.7, page 47, 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

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.^a 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.

^a ‘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.



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’ people, defined here as people aged 18 to 64. In 2017, 30.6% of individuals aged 18 to 64 were living in a household that received income support at some stage of the financial year ending 30 June 2017. This is substantially lower than at the beginning of the HILDA Survey in 2001, when the corresponding figure was 38.5%. However, almost all of the decline in household welfare receipt was in the period to 2009.

⁵ Note, however, that housing costs tend to be higher in major urban areas. An analysis that took into account housing costs, for example by examining income net of housing costs, may produce different findings on differences between major urban and other areas in levels and persistence of child poverty.

Figure 3.9 presents estimates of welfare reliance for two definitions of welfare reliance (as explained in Box 3.8, page 48): 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 stable until 2012. Since 2012, there has been a small increase in the proportion of people deriving more than 90% of household income from welfare, but no net change in the proportion deriving more than 50% of income from welfare.

Figure 3.10, examining family types (see Box 3.4, page 32), shows that welfare reliance among working-age people is very much associated with living in single-parent families. For each year from 2001 to 2017, 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 45.3% to 29.7%. Since 2014, however, welfare reliance among single parents has again risen, to be 33.5% in 2017.

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 8.7% in 2002 to 4.2% in 2017 for couples with dependent children, and from 11.1% in 2002 to 5.5% in

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.



Figure 3.8: Receipt of income support payments by persons aged 18 to 64

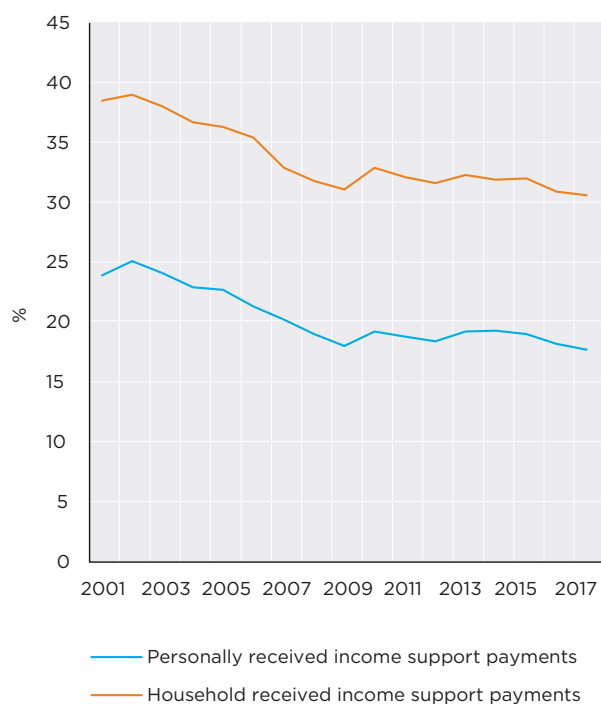
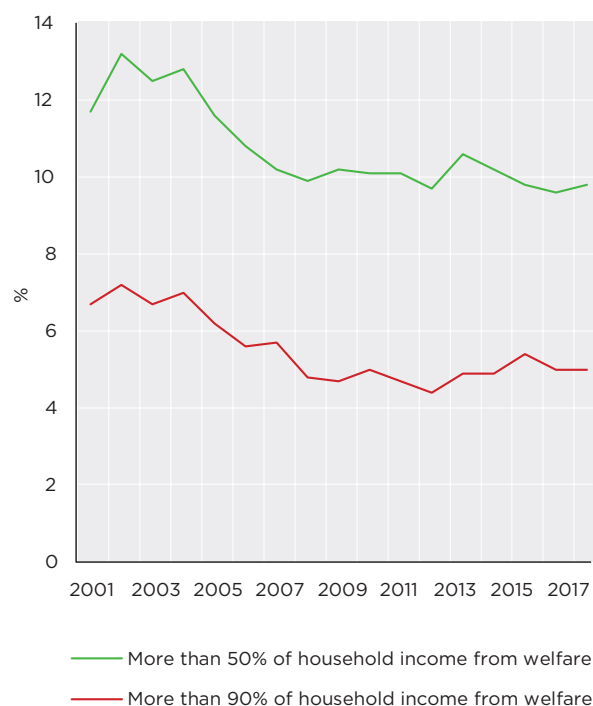


Figure 3.9: Reliance on welfare among persons aged 18 to 64



2017 for couples without dependent children.

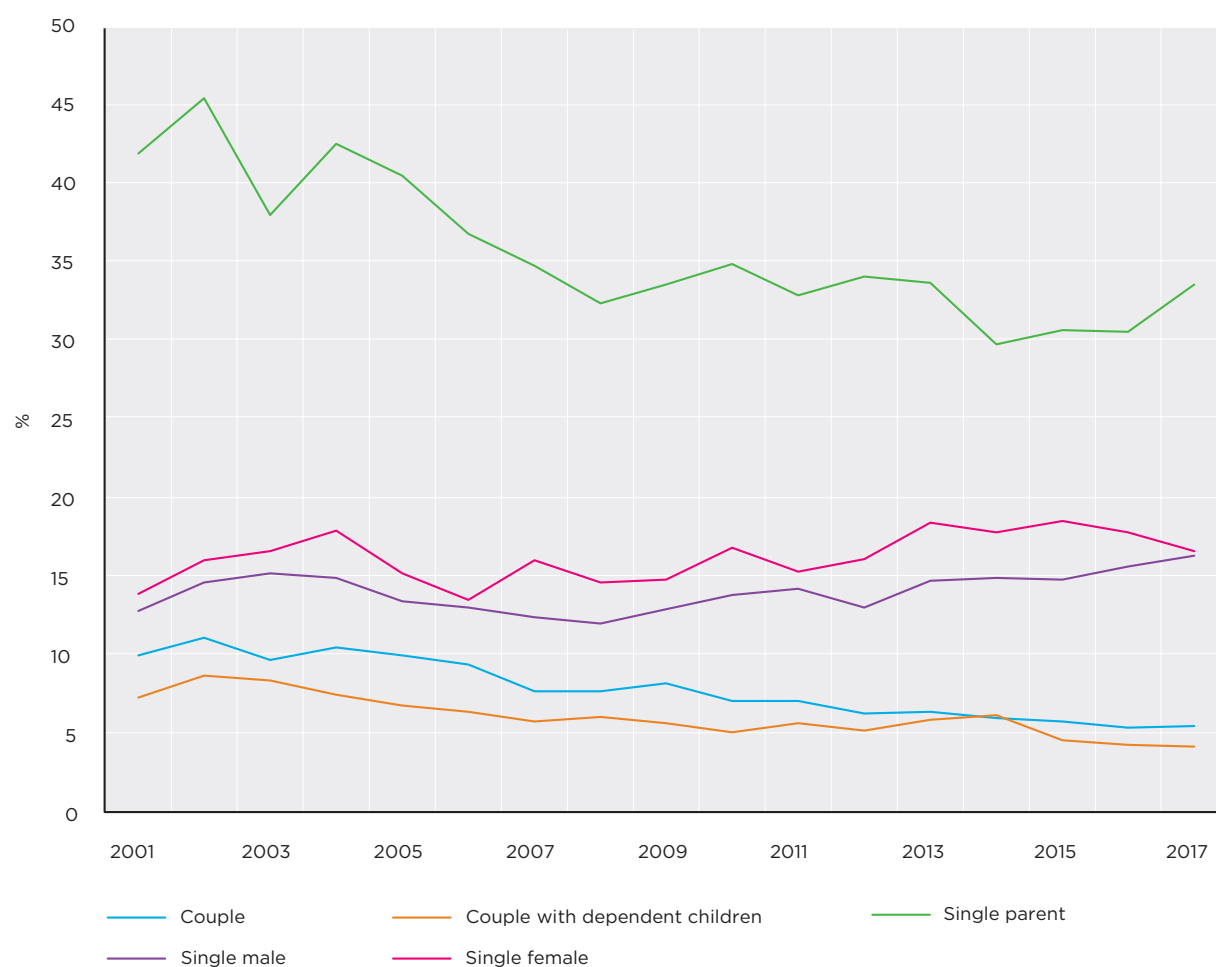
Single men and women have welfare-reliance rates somewhat higher than couples, and have experienced no trend decline in welfare reliance. Indeed, since 2008, there has been a significant rise in welfare reliance among single people, rising from 14.6% to 16.6% for women and from 12.0% to 16.3% for men. 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

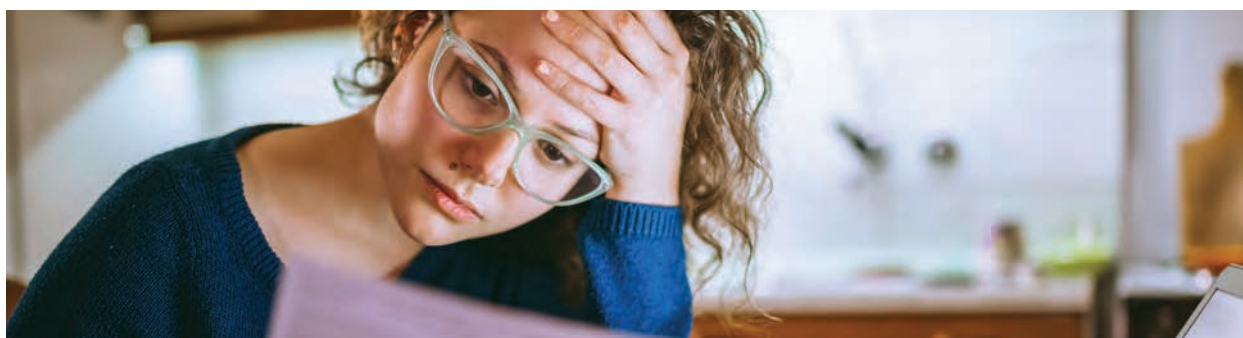
Drawing on the longitudinal nature of the HILDA Survey data provides significant insights into long-term contact with the income support system. Table 3.9 examines contact with the system over a 10-year period, presenting the proportion of people who at some stage in the 10-year period personally received an income



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



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



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 3.8, two 10-year periods are examined: 2001 to 2010; and 2008 to 2017.

The bottom-right cell of the top panel of the table shows that 64.2% of the working-age

population had direct or indirect contact with the income support payments system at some stage between 2001 and 2010. Moreover, 41.0% 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

Table 3.9: 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					
Men					
Personal receipt	47.7	26.7	30.3	35.9	33.5
Household receipt	79.4	57.8	60.4	60.6	62.6
Women					
Personal receipt	61.2	51.0	46.6	41.8	48.3
Household receipt	75.7	60.8	64.2	67.4	65.8
Persons					
Personal receipt	54.2	38.7	38.6	39.0	41.0
Household receipt	77.6	59.3	62.4	64.1	64.2
2008-2017					
Men					
Personal receipt	45.2	25.3	26.0	26.4	29.4
Household receipt	72.1	49.6	51.7	57.8	56.6
Women					
Personal receipt	52.9	42.9	35.7	34.2	40.0
Household receipt	69.7	53.3	57.2	62.6	59.9
Persons					
Personal receipt	48.9	34.1	31.0	30.4	34.7
Household receipt	71.0	51.4	54.5	60.3	58.2



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 2008 to 2017 (lower panel of Table 3.9), but still substantial, with 58.2% having household contact and 34.7% 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 2008 to 2017 periods, household contact with the income support system is approximately 50% or higher.

Personal contact with the income support system varies more by sex, age group and indeed time period than does household

contact. For men, over the 2001 to 2010 period, personal contact was lowest among those aged 25 to 34 in 2001, and thereafter increased as we move up the age distribution, rising from 26.7% of the 25 to 34 age group to 35.9% of the 45 to 55 age group. However, in the 2008 to 2017 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 34 and 35 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 2008 to 2017 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 3.10. The upper 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 either no or only temporary contact with the system. Over the 2001 to 2010 period, 69.9% of men and 63.2% of women had contact with the system in three or fewer of the 10 years.

The bottom panel of Table 3.10 examines the average extent of welfare reliance over a 10-year period, presenting the mean proportion of household income deriving from welfare over the 10 years. On average, working-age men derived 11.5% of household income from welfare payments between 2001 and 2010, while working-age women on average derived 15.2% of household income from welfare. These dropped to 10.8% and 13.7% in the 2008 to 2017 period.

Table 3.10: Welfare reliance over 10 years—Persons aged 18 to 55 at the beginning of the 10-year period

	2001–2010		2008–2017	
	Men	Women	Men	Women
<i>Number of years of household income support receipt (%)</i>				
0	37.4	34.1	43.4	40.1
1–3	32.5	29.1	26.5	25.7
4–6	12.3	14.1	12.2	13.2
7–9	8.5	11.2	9.3	10.3
10	9.3	11.5	8.6	10.7
Total	100.0	100.0	100.0	100.0
Mean proportion of household income from welfare (%)	11.5	15.2	10.8	13.7

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



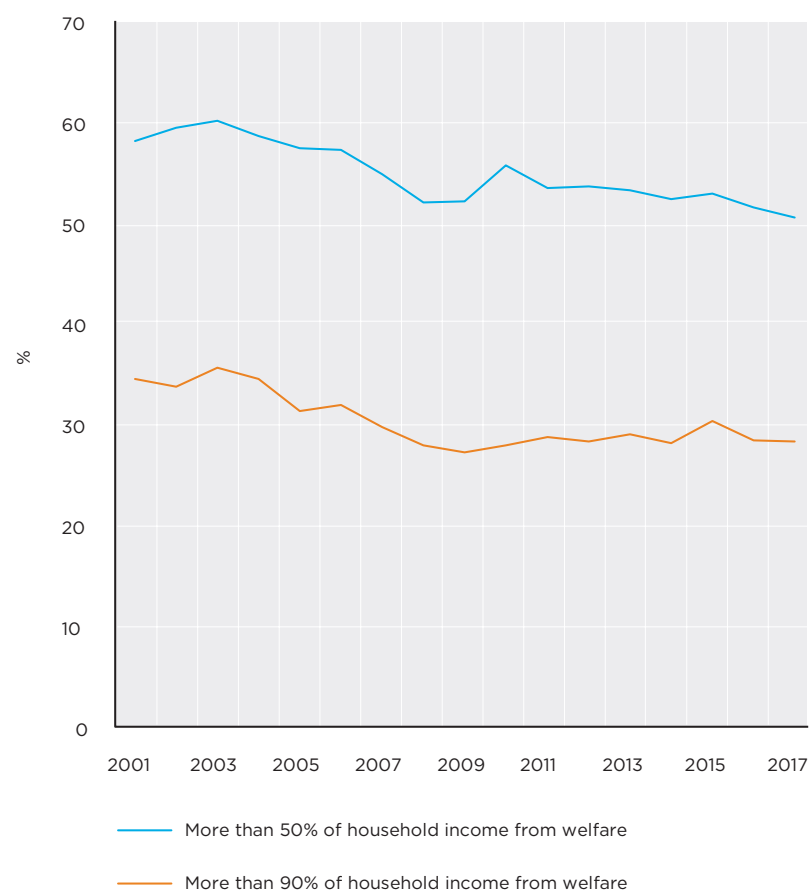
Income support receipt among older people

While many people continue to work in paid employment beyond 65 years of age, most people aged 65 and over are retired (see, for example, Wilkins and Lass, 2018). We would correspondingly expect welfare reliance to be relatively high among this age group. Indeed, income support for people aged 65 and over primarily comprises the Age Pension, the payment designed to support people in retirement.⁶

Figure 3.11 shows that welfare reliance is, as expected, considerably higher among people aged 65 and over than among people aged 18 to 64. For example, the proportion of people aged 65 and over obtaining more than half of household income from welfare is over 50% across the entire 2001 to 2017 period, compared with approximately 10% of people aged 18 to 64. There has, however, been a decline in welfare reliance among people aged 65 and over since 2003. In 2003, 60% of the elderly relied on welfare for more than 50% of their income, and 36% relied on welfare for more than 90% of their income; by 2017, these figures had respectively fallen to 51% and 28%.

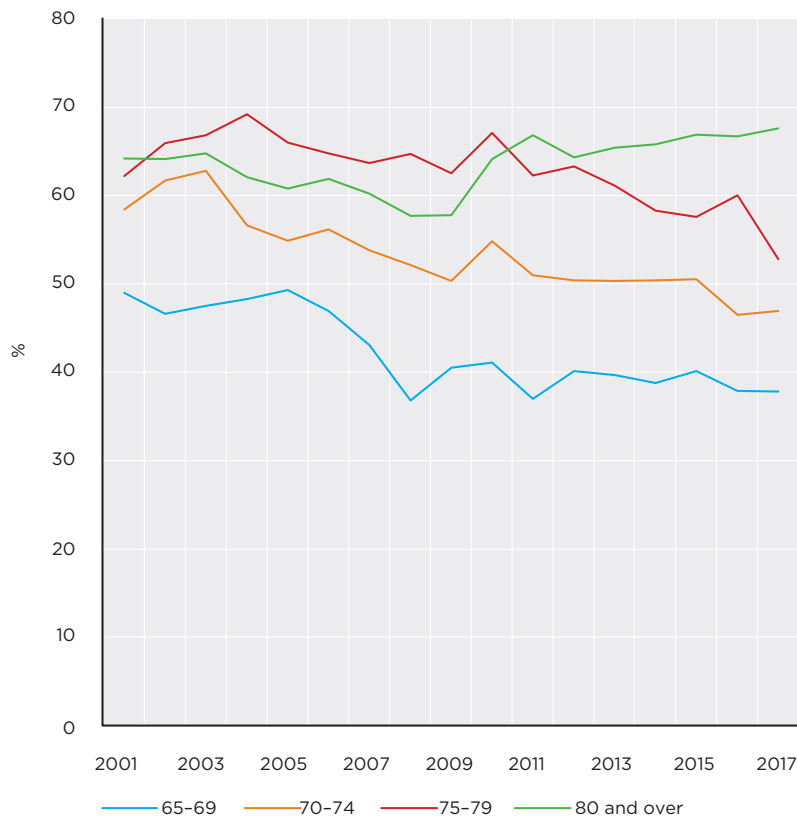
Increased reliance on superannuation is likely to be an important contributor to this decline. However, as with the working-age population, most of the decline in reliance happened between 2003 and 2009. The continued maturation of the superannuation system since 2009 might have been expected to further reduce reliance on income support, but there has been relatively little net change since 2009. That said, following a sharp rise in the proportion obtaining more than half of

Figure 3.11: Reliance on welfare among persons aged 65 and over



⁶ Interpreting ages 65 and over as 'non-working age' is problematic, however, particularly in light of the gradual increase in the minimum age of eligibility for the Age Pension from 65 to 67 over the period from 1 July 2017 to 1 July 2023.

Figure 3.12: Reliance on welfare among persons aged 65 and over, by age group



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

household income from welfare in 2010, this measure of welfare reliance has since trended slightly downwards, declining from approximately 56% in 2010 to 51% in 2017.

Figure 3.12 examines welfare reliance for the elderly disaggregated into four age groups. Welfare reliance tends to be more prevalent in older age groups, although between 2002 and 2010 it was higher for the 75 to 79 age group than for the 80 and over age group. Reliance decreased for the 65 to 69, 70 to 74 and 75 to 79 age groups between 2001 and 2017, but increased for the 80 and over age group.

While the Age Pension is designed to support people in retirement, the two do not necessarily go hand-in-hand. The pension means test allows pensioners to engage in part-time work, and an individual may of course be retired without receiving the Age Pension.





Table 3.11 considers associations between retirement and Age Pension receipt over the HILDA Survey period. The first two rows of each panel respectively show the proportion of retirees receiving the Age Pension and the proportion of Age Pension recipients who are retired. In the early years of this century, approximately 85% of retirees aged 65 and over received the Age Pension. This proportion has steadily fallen, so that in 2016 and 2017 (combined) 76.5% of retired men and 78.7% of retired women were receiving the pension. Pension receipt is, by contrast,

a consistently strong predictor of retirement throughout the 2001 to 2017 period, with approximately 93% of men and 95% of women receiving the Age Pension reporting that they are retired.

The third row of each panel in Table 3.11 focuses on new pensioners—those who were currently receiving the pension (at the time of interview) but were not receiving the pension in the previous year—while the last row of each panel focuses on new retirees—those who were currently retired but were not

retired in the previous wave. New pensioners are less likely to be retired than pensioners as a whole, but are still mostly retired.

Among new retirees, the proportion receiving the Age Pension has declined considerably for both men and women. In the 2001 to 2003 period, 75.7% of newly retired men aged 65 and over and 73.8% of newly retired women aged 65 and over were receiving the Age Pension. In 2016 and 2017, only 60% of newly retired men and 54.9% of newly retired women were receiving the Age Pension.

Table 3.11: Retirement and Age Pension receipt of persons aged 65 and over (%)

	2001–2003	2004–2005	2006–2007	2008–2009	2010–2011	2012–2013	2014–2015	2016–2017	Change
Men									
Retired: On Age Pension	85.1	85.8	81.6	83.0	82.6	81.7	79.7	76.5	–8.6
Pensioner: Retired	93.3	92.2	93.7	92.3	91.5	91.1	91.4	93.0	–0.3
New pensioner: Retired	86.4	84.1	80.3	80.3	79.6	77.7	76.8	83.1	–3.2
New retiree: On Age Pension	75.7	62.2	55.0	68.6	65.0	64.9	64.2	60.0	–15.7
Women									
Retired: On Age Pension	85.5	86.5	83.8	85.4	85.6	83.1	82.5	78.7	–6.8
Pensioner: Retired	95.7	92.6	97.2	95.4	94.3	94.6	94.3	94.7	–1.0
New pensioner: Retired	90.0	89.0	92.1	86.8	77.6	87.0	79.8	88.0	–2.0
New retiree: On Age Pension	73.8	79.3	61.4	73.2	62.7	79.9	71.2	54.9	–18.8

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 58). 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

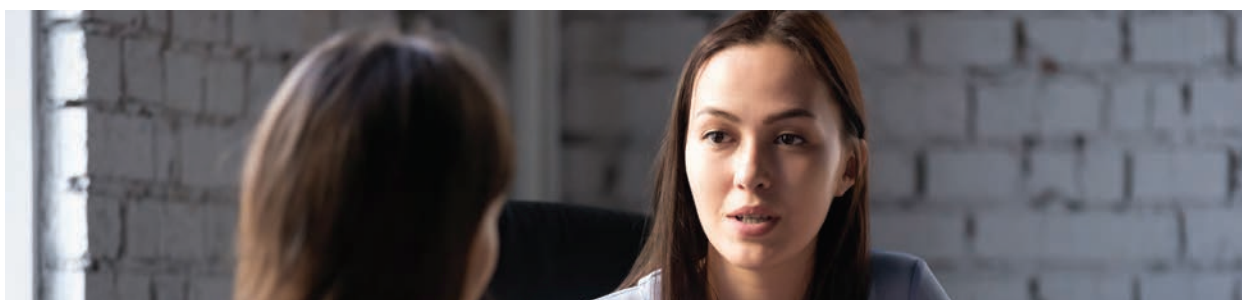
population aged 18 to 64 for each year over the 2001 to 2017 period. They show, consistent with ABS labour force survey data, that the Global Financial Crisis (GFC) marked something of a turning point for the Australian labour market. From 2001 until 2008, employment participation had been rising and unemployment had been falling. The labour market has subsequently been somewhat mixed, with the proportions of men and women employed remaining at or below their 2008 peaks and the proportions unemployed remaining above the 2008 trough. That said, employment picked up in 2017, particularly for women, who saw their employment rate rise from 69.5% in 2016 to 71.4% in 2017, a level higher than the previous peak of 70.3% in 2008.

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

Table 4.1: Labour force status of the population aged 18 to 64, 2001 to 2017 (%)

	<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	14.2	100.0	71.4	10.8
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	70.1	11.5
2010	83.1	3.8	13.2	100.0	71.6	11.4
2011	83.1	3.6	13.3	100.0	69.8	13.2
2012	82.6	4.2	13.1	100.0	68.9	13.7
2013	81.4	4.3	14.3	100.0	67.6	13.8
2014	81.7	4.9	13.5	100.0	67.1	14.6
2015	82.1	4.8	13.2	100.0	67.4	14.7
2016	81.1	4.4	14.5	100.0	67.1	14.0
2017	81.9	4.2	13.9	100.0	68.1	13.7
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	65.4	3.5	31.1	100.0	34.9	30.6
2005	66.7	3.1	30.1	100.0	35.5	31.2
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	37.7	32.0
2010	69.7	3.1	27.3	100.0	38.4	31.2
2011	68.7	3.7	27.6	100.0	37.0	31.6
2012	68.6	3.2	28.3	100.0	36.5	32.0
2013	68.7	3.8	27.5	100.0	37.0	31.6
2014	68.6	3.8	27.6	100.0	36.6	31.9
2015	70.0	3.9	26.1	100.0	37.5	32.5
2016	69.5	3.7	26.8	100.0	38.4	31.1
2017	71.4	3.5	25.1	100.0	39.2	32.1

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





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.

2008. Full-time employment of men showed a continued trend decline between 2008 and 2016, falling from a peak of 73.3% in 2008 to 67.1% in 2016. There was, however, some recovery in full-time employment of men in 2017, with the proportion employed on this basis increasing to 68.1%. For women aged 18 to 64, the proportion employed full-time likewise declined in the wake of the GFC but has since largely recovered to be 39.2% in 2017, 0.4 percentage points below its 2008 peak of 39.6%.

What is not clear from Table 4.1 is how this overall softening and then partial recovery of the labour market has translated into the rates at which various transitions in labour force status occur. For example, a lift in employment could arise from an increase in transitions into employment, or decreased 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 2017 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.

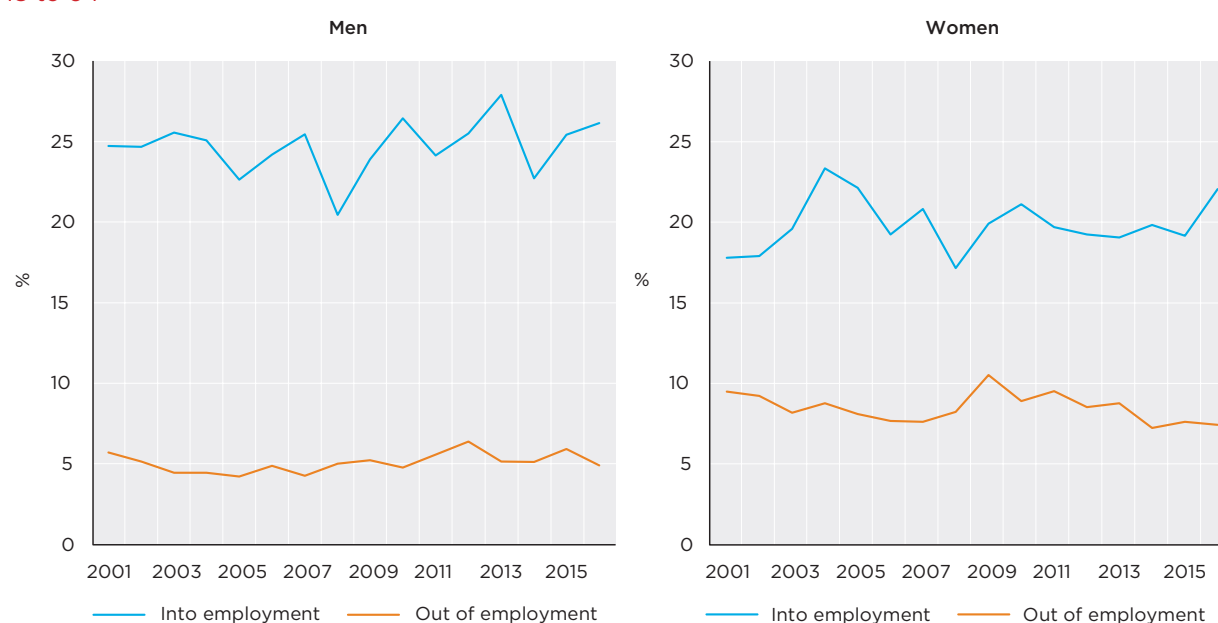
Compared with women, men have lower transition rates out of employment, and higher transition rates into employment, in large part because of the effects of childbirth on women's employment participation. In any given year, approximately 25% of non-employed men aged 18 to 64 transition into employment, 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 men, there was a steady increase in the rate of transition out of employment between 2007 and 2012 from 4.3% to 6.4%; since 2012, the transition rate has changed relatively little. For women, there was a sharp rise in transitions out of employment between 2007 and 2009, since when there has been a weak downward trend in the rate of transitions out of employment.

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 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

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



Notes: 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.



and 2013, there was a large increase in the rate of transition from non-employment to part-time employment. Over the 2001 to 2014 period, there was also a slight trend decline in the proportion of non-employed males moving into full-time employment from one year to the next, although the rate of movement into full-time employment has increased in each of the last two years of the HILDA Survey period.

The second panel of Figure 4.2 examines transitions from part-time employment. Men are much more likely than women to move from part-time employment to full-time employment, while men and women have similar rates of movement from part-time employment to non-employment. The rate of movement from part-

time employment to full-time employment tended to decline for men up until 2012, since when there has been no clear trend. For women, there was 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 approximately 10–12% for women, compared with approximately 4% for

men, while the rate of transition to non-employment is approximately 5% for women and 4% for men.

Between 2007 and 2012 there was a slight but steady rise in the proportion of full-time employed men transitioning to both part-time employment and non-employment. Since 2012, the broad trend has been for declines in the proportions of full-time employed men moving into part-time employment or non-employment. For women, the rate of transition from full-time employment to non-employment has trended downwards 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

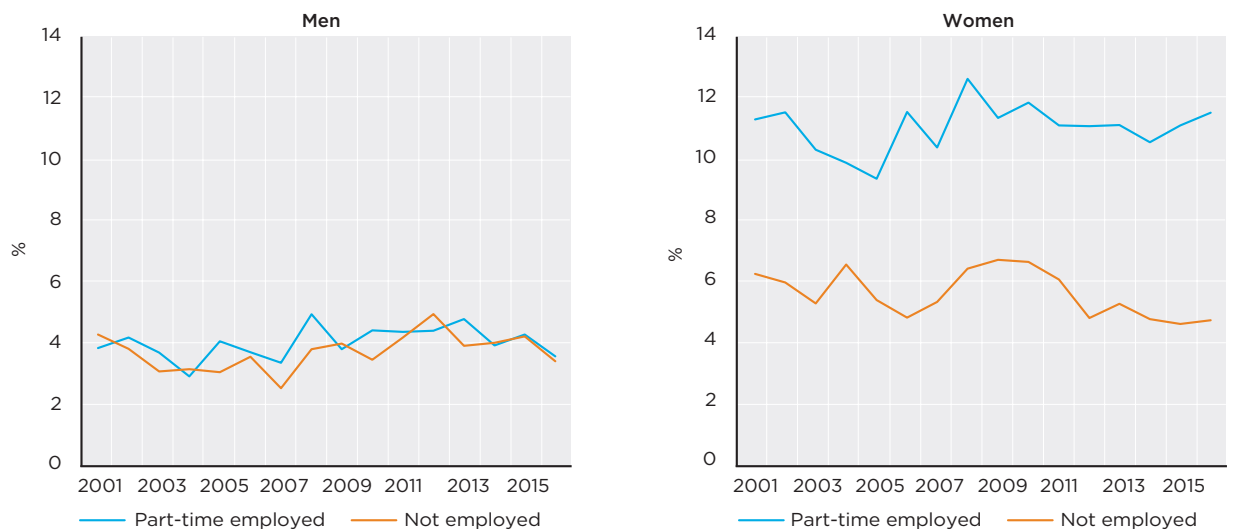
A. From non-employment



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, 2016 refers to transitions between 2016 and 2017.

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 real earnings distributions over the 2001 to 2017 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 2017 period, the graphs show that mean weekly earnings of full-time employees increased by 20.9% for men and 24.0% for women, and the Gini coefficient (see Box 3.3, page 31) increased by 6.1% for men and 10.9% for women, indicating that there has been a rise in earnings inequality since 2001.

While there is considerable growth in mean and median weekly earnings of full-time

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.



employee men over the period as a whole, since 2012 there has been very little growth, and indeed mean and median weekly earnings have fallen since 2014. Mean and median earnings of full-time employee women, by contrast, have, broadly speaking, continued to grow since 2012.

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 0.229 to 0.254, a 10.9% increase. Collectively, these recent movements in male and female full-time employee earnings distributions imply that there has been some convergence between full-time

¹ See Box 4.2, page 61, 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).

employee male and female earnings distributions in recent years.

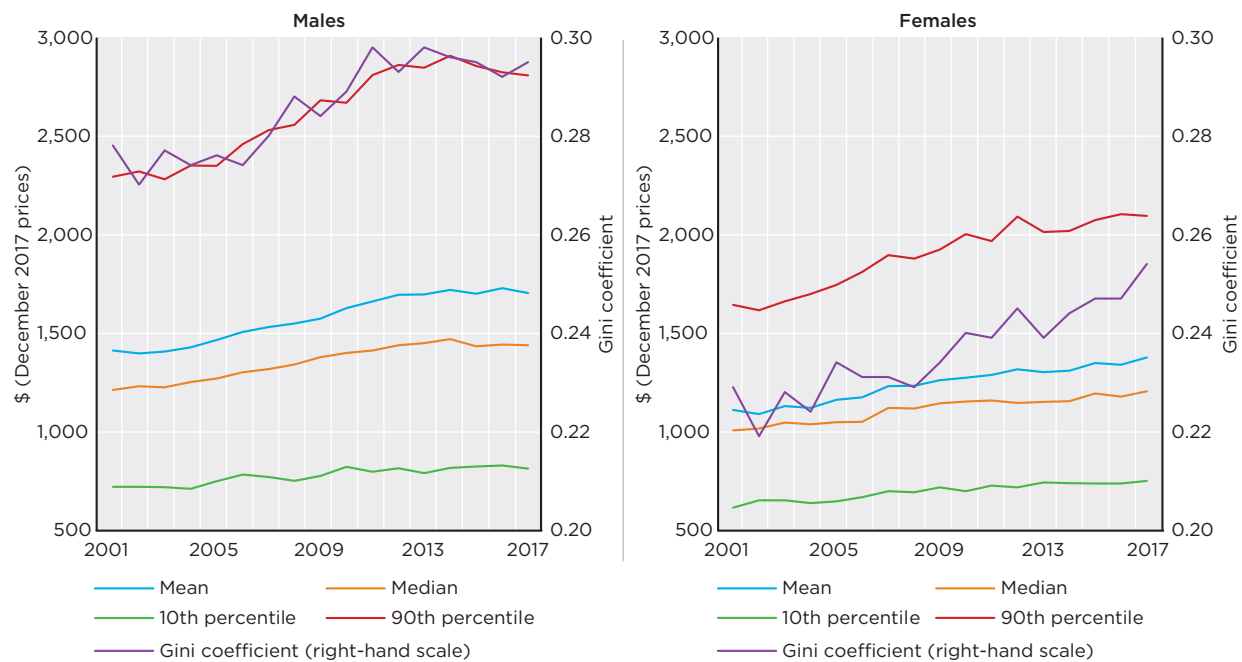
For hourly earnings of part-time employees, between 2001 and 2017, the mean increased by 12.6% for males and by 15.9% for females. The Gini coefficient for hourly earnings of part-time employees exhibits considerable year-to-year fluctuation, especially for males, so it is difficult to discern the underlying trend. However, over the 2001 to 2017 period as a whole, the Gini coefficient decreased by 14.6% for males and 7.8% for females.

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 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 2017 is slightly more muted for all male

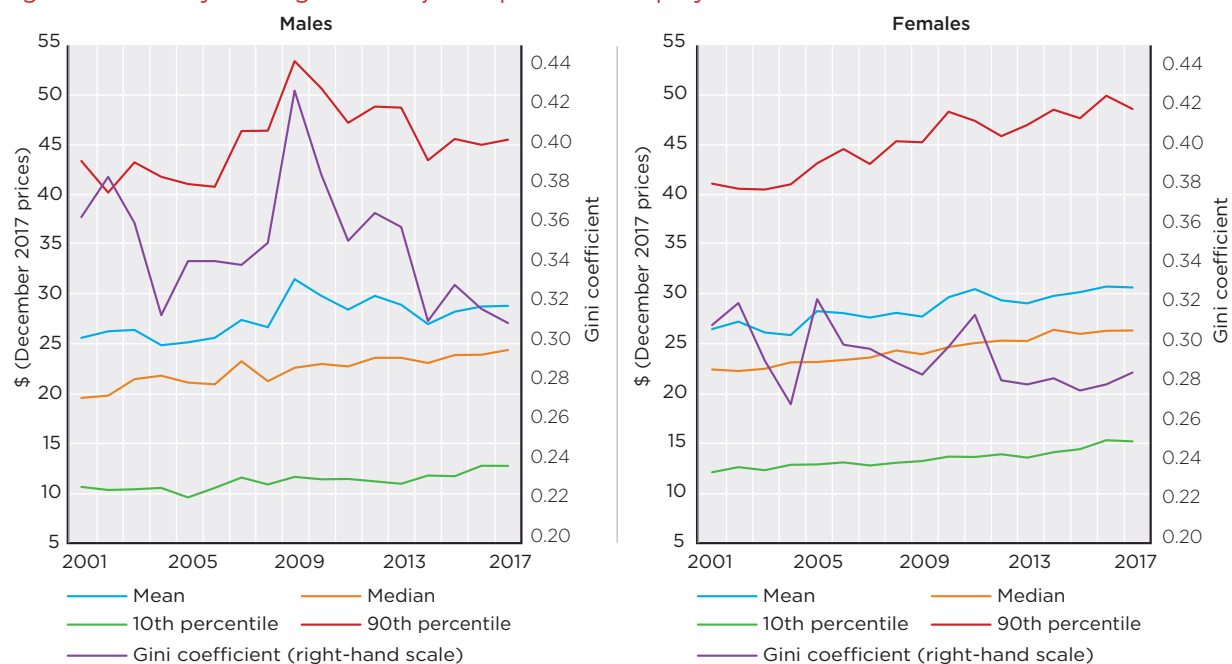


Figure 4.3: Weekly earnings in main job of full-time employees



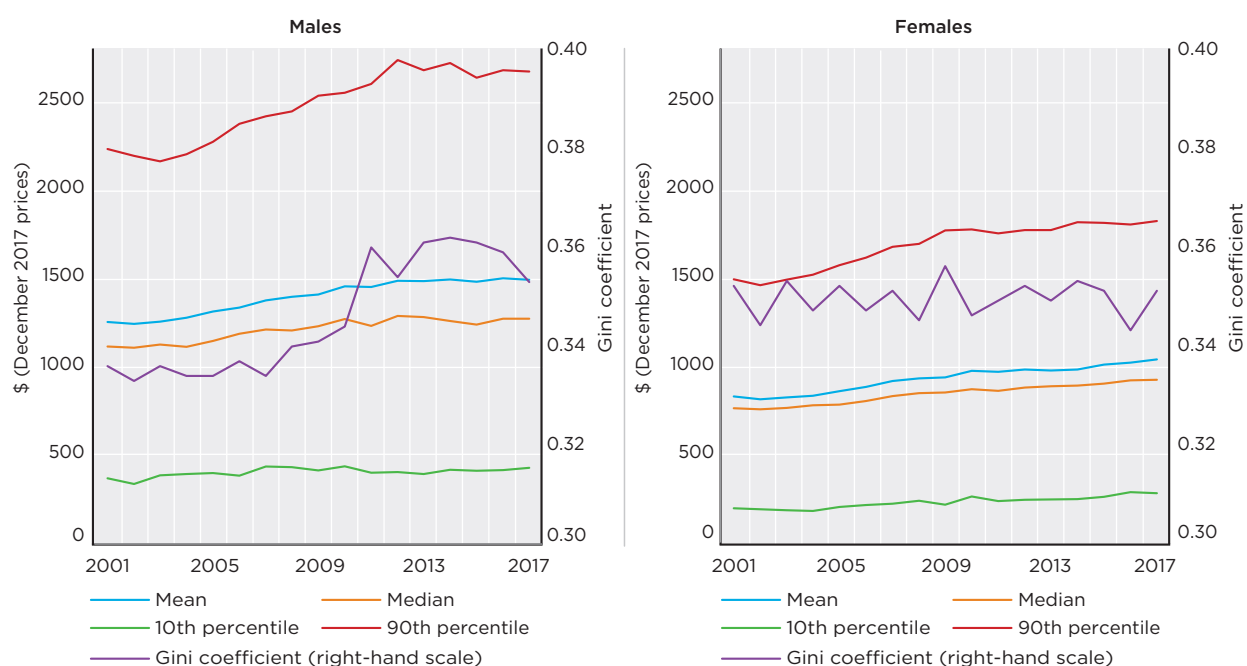
Note: Weekly earnings less than \$100 at December 2017 prices have been excluded.

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



Note: Hourly wages less than \$2 and more than \$500 at December 2017 prices have been excluded.

Figure 4.5: Weekly earnings in all jobs of all employees



employees than for male full-time employees, rising by 18.9%. Weekly earnings of all female employees increased by 25.2% between 2001 and 2017, which is slightly above the growth in mean weekly earnings of female full-time employees, and markedly higher than the 15.9% 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 moderate decline. The sharp rise in the Gini coefficient is not evident for female employees, and indeed the Gini coefficient has hovered at approximately 0.35 for the entire 2001 to 2017 period.

Salary sacrifice and non-cash benefits of employees

Salary sacrifice and non-cash benefits (as defined in Box 4.3, page 64) can be important components of the overall remuneration of employees. Since 2010, the HILDA Survey has collected detailed information on these components of employee benefits, including the types of goods and services received and the value of those goods and services (see Box 4.4, page 64).

In this section, we examine the extent and nature of salary sacrifice and non-cash benefits of employees and how these arrangements vary over time. Table 4.2 examines annual receipt of salary sacrifice and non-cash benefits, showing that both are received by sizeable proportions of employees, and are on average

Box 4.3: Definition of salary sacrifice and non-cash benefits

A salary sacrifice arrangement is where an employee pays for goods or services out of pre-tax wage and salary income and thereby reduces the wage and salary income subject to income tax. Only certain goods and services are eligible for salary sacrifice, as determined by Australian tax law.

Non-cash benefits are goods or services provided by an employer to an employee. To be considered a non-cash benefit, the good or service must represent a 'private' benefit and not simply be used by the employee to carry out his or her job. For example, a computer provided for work purposes is not a non-cash benefit unless it is also used for non-work private purposes (and, even then, only a fraction of the value of the computer would be treated as a non-cash benefit). Non-cash benefits are not always well defined. For example, employer-provided car parking is a non-cash benefit only if it would 'normally' be expected that the employee pay for parking at the place of work.

Box 4.4: HILDA Survey treatment of salary sacrifice and non-cash benefits

Since Wave 10, the personal interview component of the HILDA Survey has contained detailed questions about the types and dollar values of salary sacrifice arrangements and non-cash benefits. Information is obtained for the current main job, all other current jobs (combined), and all jobs held in the previous financial year (combined). Respondents are also asked whether they included salary sacrificed amounts in their (earlier) reported wage and salary income—approximately 30% of employees do include salary sacrifice in their reported wage and salary income.

Following Australian Bureau of Statistic (ABS) practice (ABS, 2006b), non-cash benefits are not treated as part of cash incomes, but salary sacrifice is treated as equivalent to cash income and is included in the HILDA Survey income measures. However, to allow researchers to employ a consistent measure of wage and salary income across all waves of the HILDA Survey (including prior to Wave 10), an additional measure of wage and salary income is retained in the data which excludes salary sacrifice unless the employee reports that it was already included in their reported wage and salary income.



Table 4.2: Salary sacrifice and receipt of non-cash benefits by employees, 2010 to 2017

	Received (%)		Mean value among those who received (\$, December 2017 prices)	
	Salary sacrifice	Non-cash benefits	Salary sacrifice	Non-cash benefits
2010	14.4	15.2	8,440	12,018
2011	15.1	17.0	8,310	12,090
2012	15.2	16.9	7,763	12,614
2013	15.5	17.4	7,776	11,347
2014	15.5	16.9	8,396	11,079
2015	15.6	17.1	7,497	11,730
2016	15.5	16.6	6,567	11,479
2017	15.9	17.0	6,787	10,917
Change 2010 to 2017	1.6	1.8	-1,653	-1,101

of considerable value. In 2017, 15.9% of employees reported having a salary sacrifice arrangement and 17.0% reported receiving non-cash benefits. The mean value of salary sacrifice among those using the arrangement was \$6,787 and the mean value of non-cash benefits among those receiving them was \$10,917.

Over the period from 2010 to 2017, the proportion of employees using salary sacrifice increased by 1.6 percentage points and the proportion receiving non-cash benefits increased by 1.8 percentage points. However, the mean value of these forms of remuneration declined considerably over this period, by \$1,653 for salary sacrifice and by \$1,101 for non-cash benefits. It therefore turns out that, while more people were making use of these forms of remuneration, their total value per employee has in fact declined from \$3,042 in 2010 to \$2,935 in 2017.

Table 4.3 examines the types of goods salary sacrificed and received as non-cash benefits. The upper panel examines users of salary sacrifice and the lower panel examines recipients of non-cash benefits. Superannuation is clearly the most commonly salary-sacrificed item, applying to over 50% of those using salary sacrifice. Motor vehicles and



housing are the next most-common items, salary sacrificed by approximately 15% to 18% of those who salary sacrifice. Household and personal bills are also quite commonly salary sacrificed, but this has become less common between 2010 and 2017. In 2010, 17.7% of employees using salary sacrifice reported using it for household and personal bills, whereas only 10.5% did so in 2017. Significant numbers of employees using salary sacrifice—between 15% and 21%—also use it for various other items, such as computers, telephones and child care.

Among those salary sacrificing superannuation, the mean value in 2017 was \$5,485 at December 2017 prices, down from \$6,389 in 2010. The mean value of salary-sacrificed motor vehicles also declined in real terms from

\$2,083 to \$1,610. By contrast, among those salary sacrificing housing, the mean value increased in real terms from \$1,575 to \$2,058 between 2010 and 2017. Combined with the increase in the proportion salary sacrificing housing (from 16.8% in 2010 to 19.0% in 2017), it is clear that housing has become a more important component of salary sacrifice since 2010. Among those salary sacrificing household and personal bills and other items, there has been no trend change in their average value.

The most common non-cash benefit is a telephone, although the average value of the benefit is less than \$500 per year. Superannuation is less commonly received as a non-cash benefit than it is salary sacrificed, but it is still among the most common non-cash benefits, with motor

vehicles and computers similarly common non-cash benefits. Over the period since 2010, the proportions receiving superannuation and motor vehicles as non-cash benefits have declined, as have the mean values of the benefits among those receiving them. The decline in superannuation is particularly pronounced. In 2010, superannuation was a non-cash benefit for 31.6% of those receiving non-cash benefits and had an average annual value of \$2,067 at December 2017 prices. In 2017, superannuation was received by only 21.7% of recipients of non-cash benefits and had an average value of \$1,567.

The types of employees who use salary sacrifice arrangements and receive non-cash benefits are examined in Table 4.4. The table



Table 4.3: Items salary sacrificed and received as non-cash benefits, 2010 to 2017

Salary sacrifice recipients

	<i>Superannuation</i>	<i>Motor vehicle</i>	<i>Housing</i>	<i>Household and personal bills</i>	<i>Other</i>
<i>Received (%)</i>					
2010	56.5	18.1	16.8	17.7	15.7
2011	56.7	16.0	16.2	15.0	19.2
2012	56.7	16.8	16.5	15.0	18.6
2013	56.8	17.0	18.2	12.8	20.2
2014	55.1	15.9	18.5	10.6	20.8
2015	57.9	16.5	18.6	9.1	19.8
2016	56.1	15.1	20.1	11.4	18.2
2017	59.4	15.1	19.0	10.5	16.0
<i>Mean value among those salary sacrificing the item (\$, December 2017 prices)</i>					
2010	6,389	2,083	1,575	1,068	732
2011	6,523	2,045	1,646	953	897
2012	6,808	1,927	1,798	1,109	886
2013	5,078	1,963	2,102	970	1,157
2014	5,453	1,665	2,101	923	1,089
2015	5,886	1,742	2,190	920	1,118
2016	5,821	1,620	2,134	1,283	695
2017	5,485	1,610	2,058	974	724

Non-cash benefits recipients

	<i>Superannuation</i>	<i>Motor vehicle</i>	<i>Car parking</i>	<i>Telephone</i>	<i>Computer</i>	<i>Other</i>
<i>Received (%)</i>						
2010	31.6	24.9	14.1	38.2	20.0	20.8
2011	27.4	25.8	15.7	39.9	20.9	19.6
2012	27.0	25.4	14.8	43.5	23.6	22.2
2013	26.0	23.4	14.4	43.3	19.6	20.9
2014	24.3	24.0	13.1	43.8	23.1	24.2
2015	23.5	23.3	12.8	45.2	23.0	22.1
2016	19.9	21.8	13.4	43.4	22.6	25.1
2017	21.7	21.9	13.2	43.1	25.6	24.5
<i>Mean value among those salary sacrificing the item (\$, December 2017 prices)</i>						
2010	2,067	3,465	319	489	276	1,213
2011	2,043	3,305	395	408	232	1,356
2012	1,895	3,099	355	438	252	1,185
2013	2,079	2,850	370	463	199	1,153
2014	2,221	2,971	340	414	256	1,453
2015	1,940	2,949	346	490	242	1,086
2016	1,519	2,492	362	428	223	1,159
2017	1,567	2,823	347	407	275	935



presents estimates of mean marginal effects of factors on the probability of salary sacrificing and/or receiving non-cash benefits, derived from Probit regression models. (See the Technical Appendix for a brief explanation of Probit models and mean marginal effects.)

From the first row of the table we see that, holding other factors constant, the probability of using salary sacrifice is on average 1.3 percentage points higher for men than women, while the probability of receiving non-cash benefits is on average 3.7 percentage points higher, and the probability of at least one of salary sacrifice and non-cash benefits is on average 3.6 percentage points higher for men.

Salary sacrifice and non-cash benefits are least likely in major urban areas and are most likely in non-urban areas, even after controlling for industry of employment. The probability of using salary sacrifice is increasing in age, but no clear age pattern is evident for receipt of non-cash benefits, other than that young workers aged under 25 and older workers aged 55 and over are less likely to receive non-cash benefits than workers in the 25 to 54 age range.

Those who earn more are more likely to use salary sacrifice and receive non-cash benefits. This is unsurprising given that the tax advantages of these forms of remuneration are greater for those with higher earnings because of the progressive income tax scale—the higher the income, the higher the average tax rate. To directly investigate whether tax rates impact on the propensity to salary sacrifice or receive non-cash benefits, two additional variables are included for whether an employee's earnings puts them in the top tax bracket (facing a marginal tax rate of 42%) or the second-top tax bracket (facing a marginal tax



rate of 30%). Perhaps surprising is that being in the top tax bracket acts to decrease the probability of salary sacrifice and non-cash benefits—by approximately 6 percentage points compared with an employee below the second-top tax bracket (the reference category), and by approximately 9 percentage points compared with an employee in the second-top bracket.

Independent of earnings level, full-time employment acts to increase the probabilities of salary sacrifice and non-cash benefits, while casual employment has very large negative impacts on these probabilities. Fixed-term employment has no significant impacts on salary sacrifice but does decrease the probability of receiving non-cash benefits.

Increased tenure in the current job increases the likelihood of salary sacrifice and non-cash benefits. All else equal, trade union members have a higher probability of salary sacrifice than non-members, but a lower probability of non-cash benefits.

Comparing across occupations, managers have the greatest use of salary sacrifice and non-cash benefits. Professionals and sales workers also have relatively high rates of salary sacrifice and receipt of non-cash benefits, while clerical and administrative workers have relatively high rates of salary sacrifice, but not non-cash benefits. Labourers are least likely to salary sacrifice, while both labourers and machine operators and drivers are relatively unlikely to receive non-cash benefits.

Table 4.4: Characteristics associated with salary sacrifice and receipt of non-cash benefits by employees, 2010 to 2017

	<i>Salary sacrifice</i>	<i>Non-cash benefits</i>	<i>Any salary sacrifice or non-cash benefits</i>
Male	0.013	0.037	0.036
<i>Region of residence (Reference category: Non-urban area)</i>			
Major urban area	-0.012	-0.016	-0.025
Non-major urban area	<i>ns</i>	-0.019	-0.013
<i>Age group (Reference category: 15–24)</i>			
25–34	0.028	0.037	0.035
35–44	0.048	0.038	0.038
45–54	0.072	0.022	0.042
55 and over	0.129	<i>ns</i>	0.079
Weekly earnings (\$ '000, December 2017 prices)	0.042	0.043	0.080
<i>Marginal tax bracket (Reference category: Less than second-top tax bracket)</i>			
Top tax bracket	-0.061	-0.055	-0.138
Second-top tax bracket	0.025	0.050	0.052
Employed full-time	0.016	0.029	0.026
<i>Contract type (Reference category: Permanent/ongoing)</i>			
Fixed term	<i>ns</i>	-0.013	-0.020
Casual	-0.148	-0.092	-0.159
Tenure in current job (years)	0.004	0.002	0.005
Member of a trade union	0.041	-0.029	0.020
<i>Occupation (Reference category: Managers)</i>			
Professionals	-0.011	-0.069	-0.055
Technicians and Trades Workers	-0.046	-0.121	-0.138
Community and Personal Service Work	-0.049	-0.109	-0.123
Clerical and Administrative Workers	-0.021	-0.102	-0.098
Sales Workers	-0.035	-0.055	-0.062
Machinery Operators and Drivers	-0.049	-0.205	-0.195
Labourers	-0.085	-0.165	-0.191
<i>Industry (Reference category: Agriculture, Forestry and Fishing)</i>			
Mining	0.051	-0.113	-0.115
Manufacturing	0.034	-0.128	-0.134
Electricity, Gas, Water and Waste Services	0.083	-0.094	-0.077
Construction	<i>ns</i>	-0.088	-0.111
Wholesale Trade	0.034	-0.080	-0.085
Retail Trade	<i>ns</i>	-0.159	-0.178
Accommodation and Food Services	<i>ns</i>	-0.136	-0.132
Transport, Postal and Warehousing	<i>ns</i>	-0.107	-0.160
Information Media and Telecommunications	0.065	-0.069	-0.084
Financial and Insurance Services	0.072	-0.066	-0.064
Rental, Hiring and Real Estate Services	<i>ns</i>	-0.121	-0.137
Professional, Scientific and Technical Services	0.041	-0.117	-0.124
Administrative and Support Services	0.039	-0.104	-0.109
Public Administration and Safety	<i>ns</i>	-0.119	-0.144
Education and Training	<i>ns</i>	-0.166	-0.214
Health Care and Social Assistance	0.144	-0.222	-0.067
Arts and Recreation Services	<i>ns</i>	-0.091	-0.123
Other Services	<i>ns</i>	-0.121	-0.136
<i>Sector (Reference category: For-profit private sector)</i>			
Public sector	0.083	<i>ns</i>	0.091
Non-profit private sector	0.131	0.054	0.145
<i>Firm size (Reference category: Fewer than 20 workers)</i>			
20–99 workers	0.039	<i>ns</i>	<i>ns</i>
100 or more workers	0.055	0.013	0.036
Year	<i>ns</i>	<i>ns</i>	<i>ns</i>
Number of observations	69,563	69,530	69,500

Notes: The table presents mean marginal effects estimates from Probit models of the probability an employee has a salary sacrifice arrangement, receives non-cash benefits or has either of these two forms of remuneration. See the Technical Appendix for further information on Probit models and mean marginal effects. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

Comparing across industries, other factors being equal, salary sacrifice is most prevalent in health care and social assistance, followed by electricity, gas and water services. Non-cash benefits, however, are most common in agriculture, forestry and fishing, followed by financial and insurance services, and information media and telecommunications. Non-cash benefits are least common in health care and social assistance, education and training, and retail trade.

Use of salary sacrifice and receipt of non-cash benefits is also relatively high in the non-profit non-government sector, which undoubtedly reflects legislation that provides for greater accommodation of these forms of remuneration for many employees in this sector. Finally, employees of larger firms are, all else equal, more likely to salary sacrifice and more likely to receive non-cash benefits. In part, this will reflect greater scope for employer-provided goods and services, such as child care, in larger firms.

The persistence of salary sacrifice and non-cash benefits over time is considered in Table 4.5. The upper panel of the table examines the distribution of the number of years in which these remuneration components were received over a five-year period (for those who were employees in all five years). It shows that, on average, 10.6% of employees had a salary sacrifice arrangement in all five years, which is approximately two-thirds of the employees with a salary sacrifice arrangement in any given year. There is less year-to-year persistence in non-cash benefits, with 6.3% of employees receiving them in all five years, which is just over one-third of those receiving non-cash benefits in any given year. It is much more common to receive non-cash benefits in only

one of the five years, which applies to 18.1% of employees.

Overall, over a five-year period, relatively high proportions of employees salary sacrifice or receive non-cash benefits. The proportion using salary sacrifice in at least one of the five years is 34.7%, the proportion receiving non-cash benefits in at least one year is 46.2%, and the proportion receiving at least one of these components of remuneration is 61.6%.

The lower panel of Table 4.5 examines how the weekly value of salary sacrifice and non-cash benefits differs between

persistent recipients and occasional recipients. It shows the mean value of the income component for those who received it in one or two of the five years and the mean value of the income component for those who received it in four or five of the five years. Clearly evident is that regular recipients on average have higher values for the income components. For example, the mean amount salary sacrificed per week was \$160 for those with a salary-sacrifice arrangement in one or two of the five years, but \$254 for those with a salary-sacrifice arrangement in four or five of the five years.



Box 4.5: Classification of occupations and industries

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 (2006a) for details. In this report, only the 1-digit level classification is used.

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

Table 4.5: Salary sacrifice and non-cash benefits over a five-year period—Employees employed in all five years

	<i>Salary sacrifice</i>	<i>Non-cash benefits</i>	<i>Salary sacrifice and non-cash benefits combined</i>
<i>Distribution of number of years received (%)</i>			
None	65.4	53.8	38.4
One year	8.7	18.1	16.3
Two years	5.1	9.3	9.7
Three years	5.2	6.5	8.8
Four years	5.1	6.0	9.0
All five years	10.6	6.3	17.8
Total	100.0	100.0	100.0
<i>Mean value per week, by number of years received (\$, December 2017 prices)</i>			
One or two years	160	88	109
Four or five years	254	159	241

Notes: The table presents pooled estimates of five-year salary sacrifice and non-cash benefits over the periods 2010 to 2014, 2011 to 2015, 2012 to 2016 and 2013 to 2017. Cells may not add up to column totals due to rounding.

Trends in non-standard employment

Recent decades have seen concern in Australia and other Western countries about rising levels of non-standard employment, and the implications of this trend for the quality of jobs (for example, Australian Council of Trade Unions (ACTU), 2018; Kalleberg et al., 2000; McGovern et al., 2004; Watson, 2005). This section looks at the development of different employment types over the 2001 to 2017 period to investigate whether there has indeed been a rise in non-standard employment, and if so which demographic groups (in terms of sex and age) have been particularly affected. Four forms of non-standard employment arrangements are considered: part-time work; fixed-term contracts; casual contracts; and temporary agency work. While self-employment can also be regarded as non-standard (see Box 4.6, page 72), trends in the prevalence of this employment type were examined in last year's report (Wilkins and Lass, 2018). The analysis includes all employees aged 15 years and older. For multiple job-holders, analysis is restricted to the employee's *main* job.





Box 4.6: Definition of non-standard employment used in this report

Non-standard employment is usually defined in negative terms as employment arrangements that deviate from the 'standard' employment relationship of full-time dependent employment on a permanent contract (for example, OECD, 2015). While this covers a very broad and disparate array of employment arrangements, this report focuses on four types of non-standard employment:

- i) Fixed-term contracts, defined as employment contracts that end at a specified date or upon completion of a specific task.
- ii) Casual employment, which lacks a clear and agreed-upon definition, but for which the main criterion is the absence of any advance commitment on the part of the employer (and the employee) to both the continuity of employment and the number of days or hours to be worked (Creighton and Stewart, 2010). Usually, this is accompanied by the absence of paid leave entitlements (most notably, paid sick leave and annual leave) and a compensating pay loading relative to non-casual employees performing the same jobs. Note that the Australian Bureau of Statistics (ABS) has, in its publications, used the absence of any paid leave entitlements as a proxy measure for casual employment (for example, ABS, 2018b), but in this report casual employment is based on self-identification of employees as being employed on a casual basis. In 2017, the HILDA Survey data show that 96% of people who identified as being employed on a casual basis did not have paid leave entitlements, while 85% of those without paid leave entitlements identified as being employed on a casual basis.
- iii) Temporary agency employment, also called labour hire work, which is characterised by the tripartite relationship between the worker, the agency (which is the employer) and the host company (to which the labour service is being provided).
- iv) Permanent part-time employment, where part-time employment is defined in this chapter as usually working less than 35 hours per week in the main job. Permanent part-time employees typically have the same leave and other entitlements as permanent full-time employees on a pro rata basis, and usually have a guaranteed minimum number of hours per week.

The contract type (permanent, fixed-term and casual) and whether employed through an agency are based on self-identification of the respondents. There is a small group of employees who report being on contract types other than permanent, fixed-term and casual. These employees are excluded from the analyses in this section given their very low number (for example, in 2017 they constituted 0.3% of employees) and the diversity of employment arrangements contained in this category.

Note also that temporary agency workers can be hired on either permanent, casual or fixed-term contracts. For the analyses in this section, mutually exclusive groups are created by assigning all workers employed through an agency or labour hire firm to the category of temporary agency work, regardless of contract type.

Sex-specific trends

Figure 4.6 presents the trends in the share of non-standard employment over the 2001 to 2017 period, separately for men and women. Throughout the period, the proportion of employees in non-standard employment is much higher among women than men, with an average of approximately 59% of female employees working in non-standard employment, compared with only around one-third of male employees. What is considered 'non-standard' from a definitional point is therefore in fact the actual standard for working women in Australia. However, given the presumed disadvantages in terms of job quality connected to these

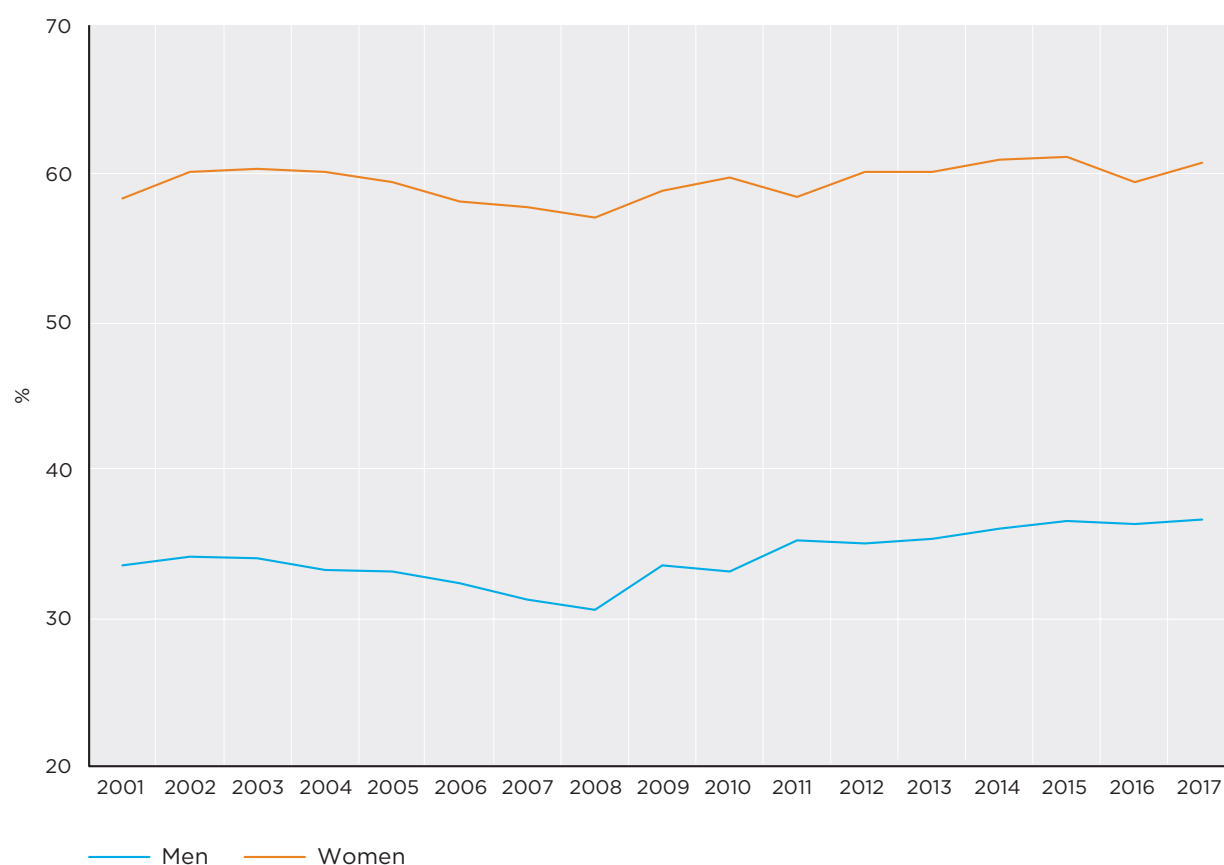
employment types compared to permanent full-time employment (notwithstanding that permanent part-time jobs typically have, on a pro rata basis, the same entitlements as permanent full-time jobs), the distinction between standard and non-standard employment, as defined, still appears useful.

While non-standard employment is considerably more prevalent among women, the trends over time have been similar for the two sexes. In the period until 2008, non-standard employment was on the decrease, from 34% in 2001 to 31% in 2008 for men, and from 58% to 57% over the same period for women. Since then, possibly as a consequence of the GFC, the share of non-standard

employment has risen markedly. For men, it has since increased by 6 percentage points, to reach 37% in 2017; and for women, it has increased by 4 percentage points, to 61% in 2017. For both men and women, non-standard employment was at its highest (or equal-highest) share of employment in 2017.

Figure 4.7 splits the broad group of non-standard employment into different subtypes and presents the trends in these types for men and women over the 2001 to 2017 period. The figure shows notable differences with respect to the prevalence of these employment types, both between types and between sexes. Casual employment is the most frequent type of non-standard

Figure 4.6: Proportion of employees in non-standard employment, by sex



employment, accounting for approximately 25% of female and 19% of male employees in 2017.

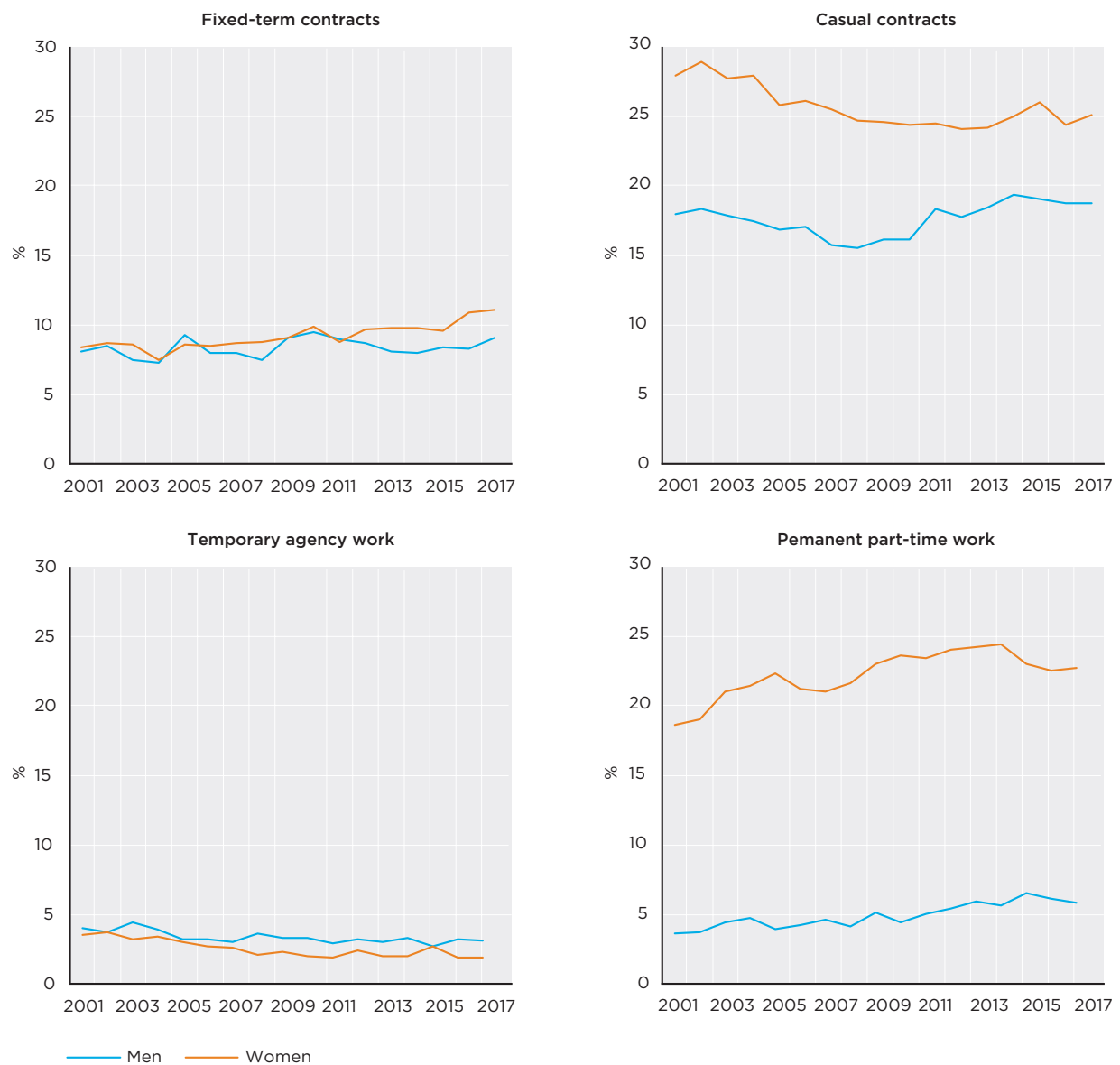
The second-largest group among women is permanent part-time work, where 23% of female and 6% of male employees can be found. Fixed-term contracts are much less prevalent overall, accounting for 11% of female and 9% of male employees in 2017.

Only a small minority of workers—2% of female and 3% of male employees—are hired through a temporary employment agency or labour hire firm.

Overall, women are thus overrepresented among three out of the four types of non-standard employment, which also happen to be the three most prevalent types. Only the small group of agency workers consists of a higher share of male employees.

Turning to the trends across the 2001 to 2017 period, Figure 4.7 shows differential developments

Figure 4.7: Proportion of employees in each type of non-standard employment, by sex



Note: Proportions employed on fixed-term contracts, casual contracts and permanent part-time work exclude those employed through a temporary employment agency.



for the individual employment types. Casual employment has experienced a similar trend to the overall rate of non-standard employment: it declined in the first half of the period, reaching its lowest point in 2008 for men and in 2012 for women, and then increased again. The increase has, however, been more marked among men, and thus the overall gender gap in casual employment has narrowed considerably. Whereas in 2001, the female share of casual employment was 10 percentage points higher than the male share, the gap in 2017 was only 6 percentage points. Among women, the share of casual workers in 2017 was in fact 3 percentage points lower than it was in 2001.

Two other employment types, namely fixed-term contracts and permanent part-time work, have been on the increase over the period. Among fixed-term contract workers, the increase was more marked for female employees, leading to an emerging gender gap in recent years. The share of permanent part-time work has increased for both sexes, but again, more strongly for women, which has widened the gender gap for this employment type: in 2001, the female share of permanent part-time employees was 15 percentage points higher than the male share, while in 2017, it was 17 percentage points higher.

In contrast, temporary agency work has seen a rather steady decline from a relatively low starting level over the period for both sexes: whereas in 2001, approximately 4% of men and women were employed through an agency, in 2017 it was 3% of men and 2% of women.

Trends by age group

Non-standard employment does not only have a systematic relationship with gender, as the previous section has highlighted,



but it is also closely linked with age. Figure 4.8 shows the trend in the different employment types for six different age groups. Among these, the youngest (15 to 24) and oldest (65 and over) age groups stand out as having particularly high shares of employees in non-standard employment.

Interestingly, these are also the two age groups in which the non-standard employment share exhibited the strongest changes over the 2001 to 2017 period. The non-standard employment share of the oldest group declined by almost 18 percentage points, from 79% in 2001 to 61% in 2017. The youngest group saw a trend in the other direction, whereby the share of non-standard employment among those aged 15 to 24 increased by 8 percentage points from 68% to 76%, turning young workers into

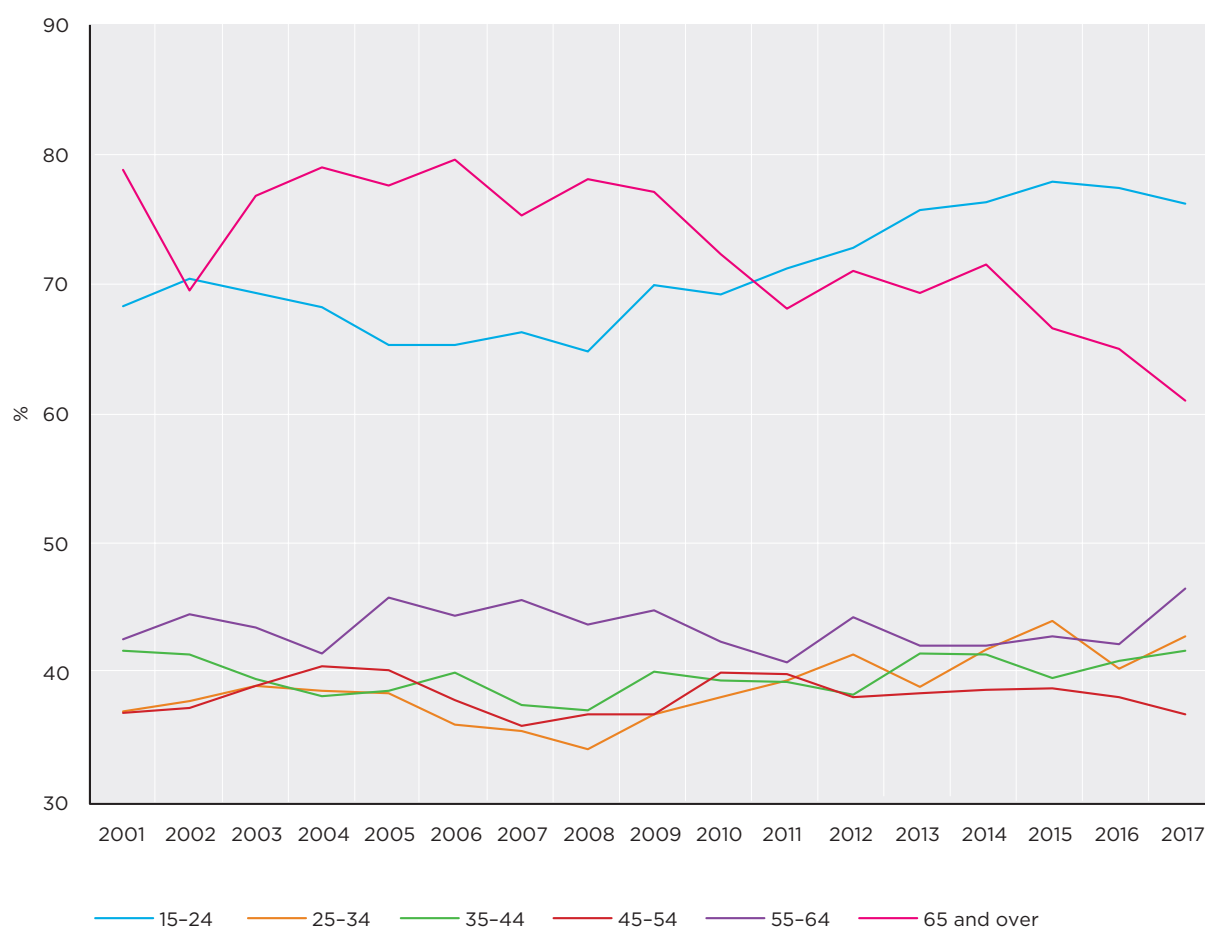
the group with the highest share of non-standard employment.

Non-standard employment has also increased for the second-youngest age group (from 37% to 43%), and for the second-oldest age group (from 43% to 47%). In the two middle age groups, however, the share of non-standard workers was the same in 2001 and 2017.

The changes in the overall share of non-standard employment by age group are composed of a range of different trends concerning specific employment types. Table 4.6 compares the prevalence of the different types of non-standard employment by age group in 2001 and 2017.

It shows that the 8 percentage-point increase in non-standard employment among the youngest age group is entirely due to a rise in the shares of two employment

Figure 4.8: Proportion of employees in non-standard employment, by age group



types: casual employment and permanent part-time employment. Overall, this is the only age group where casual contracts have been on the increase, and at the same time it is the group that already had the highest shares of casual employment. In 2001, 48.2% of workers below 25 years of age worked in casual positions, whereas in 2017 the share was 54.1%.

As further analyses in the form of Oaxaca-Blinder decomposition (results not reported)² show, the increasing share of casual contracts in this age group can in part be explained by a parallel increase in the share of full-time



² Oaxaca-Blinder decomposition was used to explain differences in the shares of a specific employment type between 2001 and 2017. The characteristics that were considered in the models are: whether a full-time student; sex; educational level; country of birth and Indigenous status; region; occupation; industry; firm size; age of youngest child (0 to 3 years, 4 to 7 years, 8 to 11 years, 12 to 14 years, no child below 15 years); number of children aged below 15 in the family; relationship status (married, de facto, single); and health satisfaction.

Table 4.6: Proportion of employees in each type of non-standard employment, by age group, 2001 and 2017 (%)

	15-24	25-34	35-44	45-54	55-64	65 and over	All ages
Fixed-term contracts							
2001	8.5	8.3	8.6	8.3	6.1	*12.5	8.3
2017	8.4	13.5	9.8	8.9	9.0	*7.7	10.1
Change	-0.1	5.2	1.2	0.6	2.9	-4.8	1.8
Casual contracts							
2001	48.2	16.8	16.6	12.1	19.4	*35.3	22.5
2017	54.1	16.0	13.4	11.3	14.8	29.0	21.7
Change	5.9	-0.8	-3.2	-0.9	-4.6	-6.4	-0.8
Temporary agency employment							
2001	4.7	3.9	3.7	2.6	*3.7	*7.0	3.8
2017	3.6	2.6	2.1	2.3	2.5	*0.3	2.5
Change	-1.2	-1.4	-1.6	-0.3	-1.2	-6.7	-1.2
Permanent part-time employment							
2001	6.8	8.0	12.9	13.9	13.5	*24.0	10.8
2017	10.2	10.9	16.4	14.4	20.3	24.1	14.2
Change	3.3	2.9	3.5	0.5	6.7	0.1	3.4

Notes: Proportions employed on fixed-term contracts, casual contracts and permanent part-time work exclude those employed through a temporary employment agency. * Estimate not reliable.



students. Whereas in 2001, close to 50% of workers in the youngest age group were full-time students, the share was 54% in 2017. There is a close link between being a full-time student and casual employment, with 65% of all employed full-time students, and 74% of those aged 15 to 24 years, being on casual contracts.

In contrast, employees aged 25 to 34 experienced a considerable rise in the share of fixed-term contracts as well as an increase in permanent part-time work. This

group now has the highest share of fixed-term contract workers, but around or below average shares of the other subtypes of non-standard employment. Decomposition analysis shows that the increase in fixed-term contracts in this group can in part be explained by a change in the mix of industries in which these employees work.

The 35 to 44 age group has also experienced a shift in employment types, although the overall share of non-standard employment has remained very

stable. In particular, casual positions have decreased by 3.2 percentage points, and permanent part-time positions have increased by 3.5 percentage points. Decomposition analysis shows that the decrease in casual employment can in part be attributed to rising educational qualifications among this group of workers, and the corresponding shift of occupations, especially a decline of labourers at one end of the spectrum and an increase of professionals and managers at the other.

A similar development of casual and permanent part-time work can be seen for the 55 to 64 age group, where casual contracts have decreased by 4.6 percentage points, whereas permanent part-time employment has increased by 6.7 percentage points. The decomposition suggests that the increase of permanent part-time work among this age group is in part due to changes in the gender composition of workers, with an increasing share of women this age working, as well as a decline in health satisfaction.

Within the group of persons aged 65 years and over, most estimates are not precise given the small number of respondents in non-standard employment arrangements, but it appears that there has been a decline of all types of non-standard employment other than permanent part-time work.

Looking across employment types rather than age groups, it appears that fixed-term contracts have gained in prevalence among most age groups, but most markedly among workers in their early-to-mid employment career between 25 and 34 years. Casual contracts, in contrast, have declined in all groups but the very young, and agency work has declined across all groups. Permanent part-time work has been increasing for most groups, particularly among workers below 45 years of age as well as among workers between 55 years and retirement age.

Commuting

Lengthy commutes have repeatedly been shown to be associated with reduced worker wellbeing and negative family outcomes (for example, Bureau of Infrastructure, Transport and Regional Economics (BITRE), 2016; Flood and Barbato, 2005;

Box 4.7: Measuring commuting times in the HILDA Survey

Each year, the HILDA Survey collects data on the amount of time people spend in a 'typical week' on a number of activities, with one of these activities being 'travelling to and from the place of paid employment'. However, the information from Wave 1 is not directly comparable to the following waves. In 2001, respondents could only report their time use in hours, but since 2002 they have been able to report hours and minutes. Therefore, Wave 1 is excluded from the analyses in this section.

In order to render results comparable across workers with different numbers of working days, daily rather than weekly commuting times will be reported in most parts of the section. Daily commuting times are derived by dividing the time spent travelling to and from work in a typical week by the usual number of days worked per week in the main job. The focus is on the main job because the exact working days for additional jobs are not known in the HILDA Survey. This leads to an overestimation of daily commuting times for the (small) group of multiple job holders who commute to their second job on different days than to their main job.

Following previous studies of commuting (for example, Rüger et al., 2011), we differentiate three groups of workers according to their daily commuting time: short-distance commuters (less than one hour); medium-distance commuters (at least one hour but less than two hours); and long-distance commuters (two or more hours).



Milner et al., 2017; Roberts et al., 2011; Rüger et al., 2011; Stutzer and Frey, 2008). This section analyses trends in commuting times in Australia over the 2002 to 2017 period, the distance between a person's place of residence and their place of work, as well as the characteristics of people with lengthy commutes. The analysis comprises all workers aged 15 years and older, including those with commuting times of zero (that is, who work from home).

Trends in time spent commuting

Table 4.7 presents information on how weekly and daily commuting times have developed in Australia over the 2002 to 2017 period, reporting values for every third year. (See Box 4.7, page 78, for information on the measurement of commuting times.) The table shows that mean weekly



Table 4.7: Commuting times of employed persons, 2002 to 2017

	2002	2005	2008	2011	2014	2017	Percentage change 2002-2017
Time per week (hours)							
Mean	3.7	4.0	4.3	4.2	4.4	4.5	23.2
Time per day (minutes)							
Mean	48.8	52.9	56.7	55.9	59.2	59.9	22.7
Median	30.0	36.0	40.0	40.0	48.0	48.0	60.0
10th percentile	3.3	5.0	6.0	4.3	6.0	6.0	80.2
90th percentile	120.0	120.0	120.0	120.0	120.0	120.0	0.0

Table 4.8: Mean daily commuting times of employed persons, by location, 2002 to 2017 (minutes)

	2002	2005	2008	2011	2014	2017	Percentage change 2002-2017
Mainland capital city	55.2	59.3	63.2	62.1	65.7	65.9	19.5
Other location	37.3	41.0	44.8	44.4	46.4	47.9	28.2
Sydney	60.6	65.4	69.5	65.0	71.2	71.1	17.4
Rest of New South Wales	41.9	40.9	48.9	46.1	47.7	51.4	22.6
Melbourne	58.6	60.3	66.5	64.1	68.0	65.4	11.5
Rest of Victoria	36.3	38.4	51.1	48.2	46.3	45.8	26.1
Brisbane	46.0	55.2	55.9	62.9	61.7	66.7	44.8
Rest of Queensland	37.8	42.7	44.0	44.0	47.8	49.0	29.7
Adelaide	44.8	53.7	51.6	52.1	54.6	56.3	25.6
Rest of South Australia	29.2	34.8	30.4	34.3	36.2	41.7	43.1
Perth	49.9	49.9	57.1	56.0	58.8	59.3	18.7
Rest of Western Australia	26.2	44.2	36.3	39.1	40.0	43.3	65.1
Tasmania	42.6	47.3	41.4	42.5	43.6	41.8	-1.9
Northern Territory	29.3	39.9	31.2	34.0	35.1	34.7	18.5
Australian Capital Territory	31.3	35.7	41.1	50.8	55.3	51.5	64.5



commuting times have increased considerably: in 2002, workers averaged 3.7 hours per week travelling to and from work, but by 2017 this number had risen to 4.5 hours, an increase of approximately 23%.

The mean daily commuting times have followed the same trend, also increasing by 23% from about 49 minutes in 2002 to almost one hour in 2017. The increase in daily commuting times has been particularly pronounced at the lower end and the median of the distribution. In 2002, those at the 10th percentile commuted 3.3 minutes per day, while in 2017 they commuted 6.0 minutes, an increase of 80% (albeit starting from a very low level). The median commuting time has increased from 30 minutes in 2002 to 48 minutes in 2017, a 60% increase. Commuting times have not changed at the top, however. In all years, the person at the 90th percentile of the commuting time distribution spent two hours per day travelling to and from work.

Commuting times are likely to differ substantially between regions in Australia. Workers in cities may live relatively close to their workplace and benefit from more public transport options, but they will also often

experience traffic congestion. Those in more rural areas will encounter less congestion but may often need to travel further to their workplaces. Therefore, Table 4.8 differentiates commuting times by geographical area, again reporting values for every third year. The top panel compares workers living in the mainland capital cities (Sydney, Melbourne, Brisbane, Adelaide and Perth) with those living in other parts of Australia.

Over the 2002 to 2017 period, those residing in the mainland capital cities had consistently longer commutes than those living elsewhere. In 2017, workers in the mainland capital cities spent an average of almost 66 minutes travelling to and from work each day, compared to close to 48 minutes for workers in other locations. However, the relative increase in commuting times has been more pronounced outside the mainland capital cities. While residents of the mainland capital cities experienced about a 20% increase, workers in other locations experienced an increase of approximately 28%.

The lower panel of Table 4.8 presents average commuting times for each of the mainland capital cities, the rest of each

state, Tasmania and each of the two territories. It shows that daily commuting times vary considerably between locations. In each year, average daily commuting times are longer in every capital city than in other areas of the same state. Within the group of capital cities, Sydneysiders have consistently had the longest average daily commutes, reaching approximately 71 minutes in 2017. The order of the other capital cities varies over the period. In 2017, people in Brisbane had the second-longest commute (approximately 67 minutes), followed by workers in Melbourne, Perth and Adelaide. Of all groups, workers in the Northern Territory had the shortest commutes in 2017, spending an average of close to 35 minutes per day travelling to and from work.

Trends in commuting times have also varied considerably across the country, with non-Perth Western Australia and the Australian Capital Territory experiencing the largest increases (of approximately 65%), whereas increases in Sydney, Melbourne, Perth and the Northern Territory were comparatively small (all below 20%), and average commuting times in Tasmania in fact decreased.

Distance between location of residence and workplace

In 2017, for the first time, the HILDA Survey asked respondents about the location (that is, the postcode) of their workplace (for their main job). Table 4.9 presents the distance between the postcode centroids (geographic centres) of the place of residence and the location of the workplace, and the corresponding mean weekly and daily commuting times. It shows that close to 28% of workers live and work in the same postcode. Most other workers (approximately 60% altogether) live and work in postcodes that were between

one and 29 kilometres apart, and only for a minority (a total of 11%) are the postcodes of the home and place of main job 30 or more kilometres apart.

The table also shows that commuting time increases almost steadily with distance. Those who live and work in the same postcode have the lowest commuting times, spending on average 2.4 hours per week and approximately 31 minutes per working day commuting. In contrast, those who live 50 to 99 kilometres from their place of work have the longest commuting times, averaging approximately eight hours per week and almost two hours (110.4 minutes) per day.

For those in the top category in terms of distance (100 kilometres or more), however, mean commuting times are lower than for those with distances between 30 and 99 kilometres. This finding may be explained by several factors. First, it is likely that many very-long-distance commuters are weekend commuters who travel to the location of the workplace only once a week and reside in a second home close to work during the week. Second, workers living this far from their place of work may be able to work from home for at least part of the week. Third, they are likely to be travelling in areas less affected by low speed limits and traffic congestion.

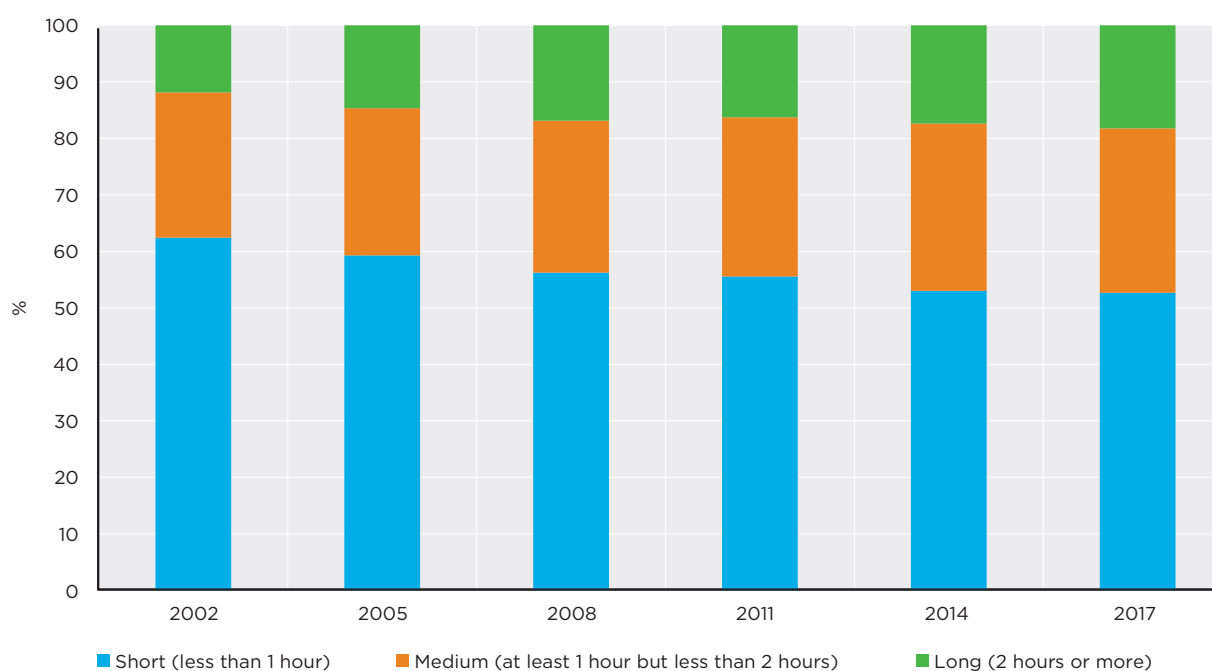


Table 4.9: Mean commuting time of employed persons, by distance between home and location of main job, 2017

	Proportion in each commuting distance category (%)	Mean weekly commuting time (hours)	Mean daily commuting time (minutes)
<i>Distance (kilometres)</i>			
0 (same postcode)	27.5	2.4	31.3
1-4	8.7	3.0	43.0
5-9	18.3	4.0	52.5
10-14	13.4	5.0	66.8
15-19	8.8	6.2	79.4
20-29	11.3	6.0	78.3
30-49	6.8	7.3	96.1
50-99	3.0	8.2	110.4
100 or more	2.2	6.4	78.2
Total	100.0	4.5	59.9

Notes: Distance between home and location of main job is the distance between the centroid of the postcodes of the two locations. Cells in the first column may not add up to the column total due to rounding.

Figure 4.9: Proportion of employed persons with short, medium and long daily commutes



Note: Daily commute times refer to the total time spent travelling to and from work per day worked.

Lengthy commutes

Against the background of increasing public and scientific concern about the potential negative consequences of commuting for workers, this section focuses on the characteristics of workers with lengthy commutes. Three commute lengths are distinguished: short (less than one hour per day); medium (at least one hour but less than two hours per day); and long (two or more hours per day).

Figure 4.9 presents how the distribution of commuters according to this classification has changed over the 2002 to 2017 period. In line with the trend towards increasing commuting times, the share of workers with lengthy commutes has increased over time, from approximately 12% in 2002 to 18% in 2017. In parallel, the share of workers with short commutes has declined, from above 62% to below 53%.

Table 4.10 presents the share of commuters in each commute-



Table 4.10: Prevalence of different commute lengths, by age—Employed persons, 2017 (%)

	<i>Short</i>	<i>Medium</i>	<i>Long</i>	<i>Total</i>
15–24 years	64.1	23.2	12.8	100.0
25–34 years	46.7	33.2	20.1	100.0
35–44 years	51.0	29.6	19.4	100.0
45–54 years	50.3	29.8	20.0	100.0
55–64 years	54.0	28.6	17.4	100.0
65 years and older	62.5	21.0	16.5	100.0
Total	52.7	29.0	18.3	100.0

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



length category in 2017 disaggregated by age. It shows that the youngest and the oldest workers had the highest likelihood of being short-distance commuters. Approximately 64% of workers aged 15 to 24, and close to 63% of workers aged 65 and over, spend less than one hour per day on commuting, compared with 54.0% for workers aged 55 to 64, 51.0% for workers aged 35 to 54, and 46.7% for workers aged 25 to 34. Workers in the 25 to 54 age-range are the most likely to have long commutes, applying to approximately 20% of these workers.

As can be seen in Table 4.11, the likelihood of being a long-distance commuter also varies by

sex and parenthood status. Overall, men were more likely than women to have lengthy commutes: almost 21% of men but less than 16% of women spent at least two hours a day travelling to and from work in 2017. Having dependent children had opposing impacts on the likelihood of lengthy commutes for the two sexes. Among men, it increased the share of long-distance commuters, while among women, it slightly decreased it. Fathers of two children were the most likely to have lengthy commutes, with a share of 27.0%, whereas mothers with two children were the least likely, with a share of less than 13%.

The probability of lengthy commutes may also depend on

the type of job. In this context, Table 4.12 shows that workers in high-skilled occupations were more likely to have lengthy commutes than other workers. Among these, technicians and trades workers had the highest share of long-distance commuters (23.2%). In contrast, the share of long-distance commuters was smallest among the sales workers, at 10.3%.

Spending a lengthy part of the day commuting may impact the way workers perceive their jobs. Table 4.13 presents an assessment of certain job-related statements by commuter type for the year 2017. The top panel reports average satisfaction scores with certain work-related aspects and the job overall, measured on a

Table 4.11: Prevalence of different commute lengths, by sex and parenthood status—Employed persons, 2017 (%)

	Men				Women			
	Short	Medium	Long	Total	Short	Medium	Long	Total
No dependent children	52.5	29.9	17.7	100.0	57.2	27.3	15.5	100.0
Any dependent children	43.9	30.4	25.7	100.0	55.9	28.8	15.3	100.0
One child	42.2	31.8	26.0	100.0	49.8	32.0	18.2	100.0
Two children	44.7	28.3	27.0	100.0	57.9	29.1	12.9	100.0
Three and more children	45.2	32.3	22.6	100.0	65.7	19.9	14.4	100.0
Total	49.2	30.1	20.7	100.0	56.7	27.9	15.5	100.0

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

Table 4.12: Prevalence of different commute lengths, by occupation—Employed persons, 2017 (%)

	Short	Medium	Long	Total
Managers	49.9	30.4	19.7	100.0
Professionals	46.5	33.3	20.2	100.0
Technicians and Trades Workers	45.7	31.1	23.2	100.0
Community and Personal Service Workers	59.0	26.1	14.9	100.0
Clerical and Administrative Workers	50.8	30.0	19.2	100.0
Sales Workers	67.8	21.9	10.3	100.0
Machinery Operators and Drivers	59.4	26.1	14.5	100.0
Labourers	61.3	22.5	16.2	100.0
Total	52.7	29.0	18.3	100.0

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

scale from 0 (totally dissatisfied) to 10 (totally satisfied).

Long-distance commuters appear to be less satisfied with the measured aspects compared to the other groups, especially the short-distance commuters. They are 0.2 points less satisfied than short-distance commuters with both working hours and the flexibility to balance work and non-work commitments. Satisfaction with total pay is also 0.1 lower for long-distance commuters, suggesting that the additional time spent getting to and from work may often not be compensated through high wages. Overall job satisfaction also declined with commuting distance, from 7.8 points among the short-distance commuters to 7.4 points among the long-distance commuters.

As the second panel of Table 4.13 shows, long-distance commuters also reported higher chances of leaving their jobs voluntarily or



Table 4.13: Evaluation of different job-related aspects, by commute length—Employed persons, 2017 (means)

	Short	Medium	Long	Total
Satisfaction with aspects of job (0–10 scale)				
Working hours	7.3	7.2	7.1	7.3
Flexibility to balance work and non-work commitments	7.6	7.4	7.4	7.5
Total pay	7.2	7.2	7.1	7.2
Job overall	7.8	7.6	7.4	7.6
Self-assessed percentage chance of ...				
Leaving job voluntarily in next 12 months	22.9	22.4	24.7	23.1
Losing job in next 12 months	10.2	12.1	12.4	11.2
Looked for a new job in last 4 weeks (%)	14.9	17.1	19.1	16.2

Table 4.14: One- and five-year transition rates between commute lengths—Employed persons, 2002 to 2017 (pooled) (%)

	Commute length one year later					Commute length five years later				
	Short	Medium	Long	Not working	Total	Short	Medium	Long	Not working	Total
Current commute length										
Short	70.5	15.3	5.6	8.6	100.0	56.6	19.0	8.0	16.4	100.0
Medium	29.5	49.9	14.9	5.7	100.0	32.0	40.1	15.3	12.6	100.0
Long	19.8	24.9	48.5	6.9	100.0	25.1	23.9	36.9	14.1	100.0
Not working	8.3	2.9	1.9	86.9	100.0	13.3	5.5	3.6	77.6	100.0
Total	34.7	17.3	9.8	38.2	100.0	33.6	18.1	10.3	38.0	100.0

Notes: Transition rates are for persons employed in both the years examined (current year and either one year later or five years later). Cells may not add up to the row total due to rounding.

losing their jobs within the next year than short-distance commuters. This is in line with the findings in the third panel, which shows that long-distance commuters are more likely to have looked for a new job at some time in the last four weeks.

The fact that workers with lengthy commutes are less satisfied with their jobs and are more likely to have the intent to leave raises the question of how persistent are long commutes for individual workers. Table 4.14 presents year-to-year and five-

year transition rates between the different commute-length types; that is, it reflects the commuting situation of the different types of commuters one year later and five years later.

The table shows that short-distance commuting was the most persistent of the three commuting types: more than 70% of those who spent less than one hour per day travelling to and from work did so also in the following year, and approximately 57% were still (or again) in this situation five years later. Long-

distance commuting, however, was also relatively stable. Almost 49% of long-distance commuters were still long-distance commuters the year after, and close to 37% were in this situation five years after. A quarter of long-distance commuters became medium-distance commuters from one year to the next, and close to 20% reduced their commuting to short-distance. Another finding is that long-distance commuters were no more likely than other workers to leave employment.



5

Dual-earner couples

Roger Wilkins



Associated with women's rising employment participation over the last 50 years has been a rise in 'dual-earner' couples—that is, couples in which both members are employed. This chapter documents levels and trends in this phenomenon over the course of this century, and explores the characteristics and outcomes associated with differences in the relative earnings of men and women in couples. Of particular interest is whether there has been growth in 'female-breadwinner' couples—where the female earns more than her (male) partner—and the characteristics and outcomes of these couples.

The analysis here is restricted to opposite-sex couples residing together who are both of 'working age', defined here as under the age of 65. Further, employment and earnings are examined for the financial year as a whole rather than simply focusing on current weekly employment and earnings. Thus, estimates for each year relate to the financial year ending in the indicated year. For example, 2001 refers to the financial year running from 1 July 2000 to 30 June 2001.

Relative earnings of males and females in couples

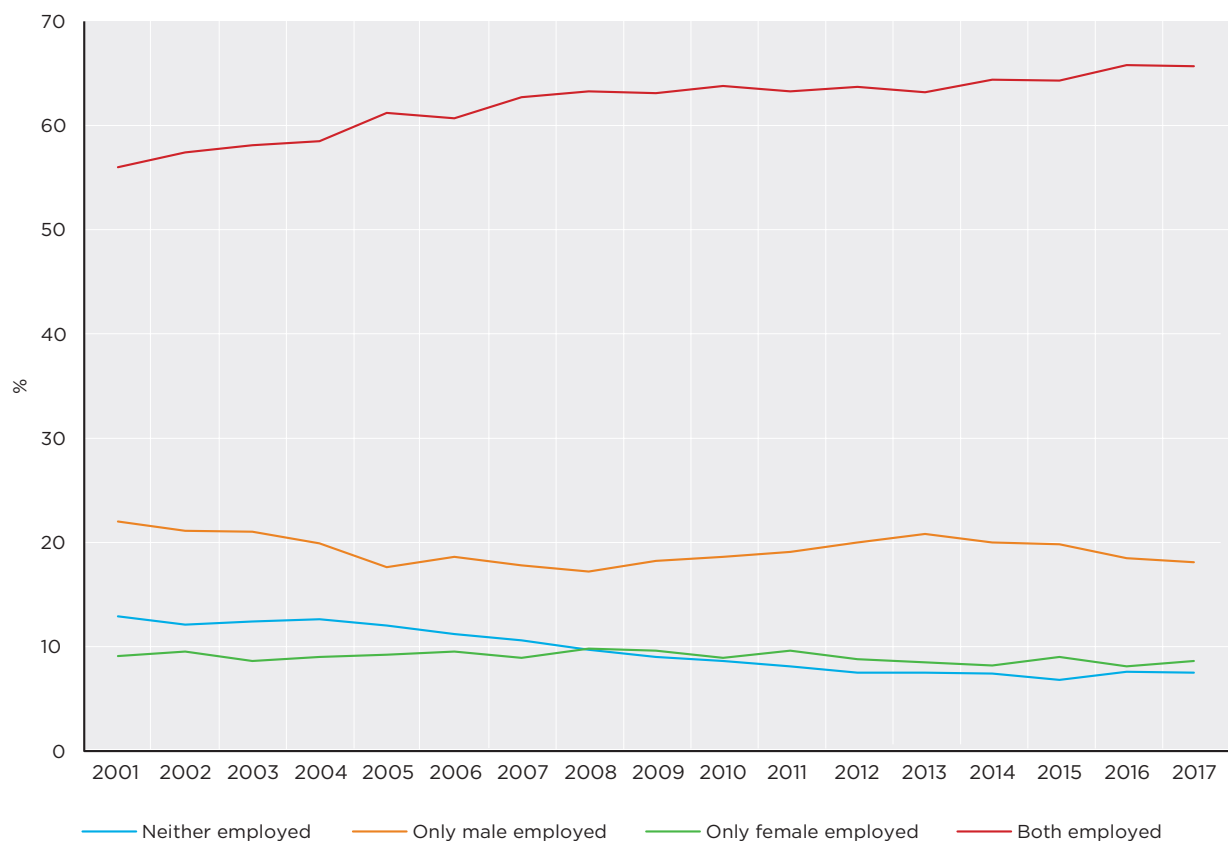
Figure 5.1 shows the prevalence of four broad groups of couples: dual-earner; male-only earner; female-only earner; and no-earner couples. Dual-earner couples have clearly grown as a share of all working-age couples since 2001. In 2001, 56% of working-age couples were dual-earner and by 2017 this had risen to 66%. There have been declines in both no-earner and male-only earner couples. In 2001, male-only earner couples accounted for 22% of working-age couples and non-earner couples accounted for 13%; in 2017, these proportions had fallen to 18% and 8%, respectively. Female-only earner couples have maintained a relatively stable share of 9% of couples.

Focusing on dual-earner couples, Figure 5.2 shows the proportion of these couples in which the

female earns more annually than the male. The trend is broadly upward, rising from approximately 22% in 2001 to 24% in 2017. Change has been somewhat uneven, however, and indeed almost all of the rise effectively occurred between 2012 and 2013. That said, given the rise in the proportion of working-age couples that are dual-earner, and the stability of the share that are female-only earner (both documented in Figure 5.1), the proportion of all working-age couples in which the female earns more than the male has risen somewhat more strongly: combining the results of Figures 5.1 and 5.2, the share of all working-age couples in which the female earns more than the male has risen from 22% in 2001 to 25% in 2017.

Figure 5.3 considers relative earnings of males and females in dual-earner couples in more detail. It shows the proportion of these couples in each of five relative earnings situations: (1) the female's earnings are less

Figure 5.1: Employment arrangements of couples



than 50% of the male's earnings; (2) the female's earnings are between 50% and 80% of the male's earnings; (3) the female's earnings are more than 80% of the male's earnings and the male's earnings are more than 80% of the female's earnings (interpreted as 'approximately-even' earnings); (4) the male's earnings are between 50% and 80% of the female's earnings; and (5) the male's earnings are less than 50% of the female's earnings.

In general, changes appear quite subtle, but clear trends are evident. The proportion of couples in which the female earns less than 50% of the male has declined (from 42% to 40%), and the proportion in which earnings are approximately even has risen (from 21% to 23%). Between 2002 and 2016, there was also a sizeable increase in the proportion of dual-earner couples in which the male earns between



Figure 5.2: Proportion of dual-earner couples in which the female earns more than her partner

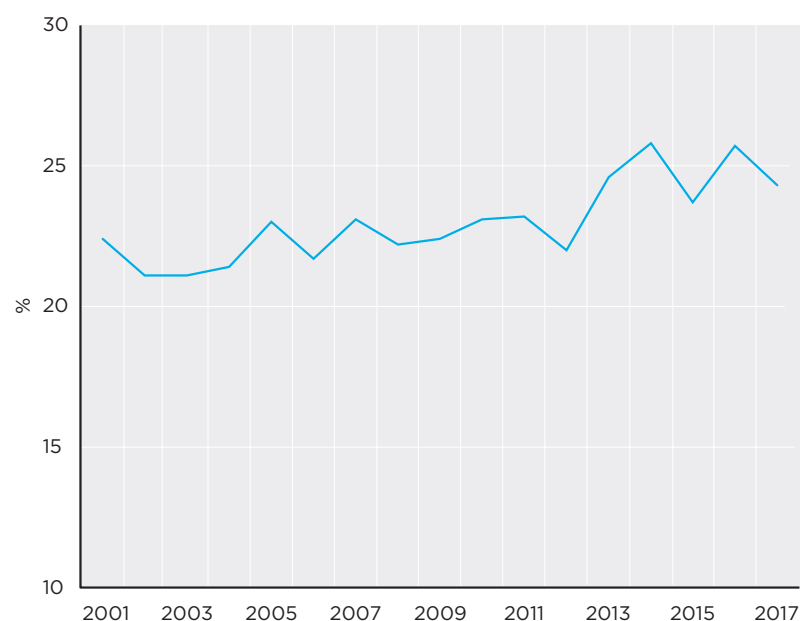
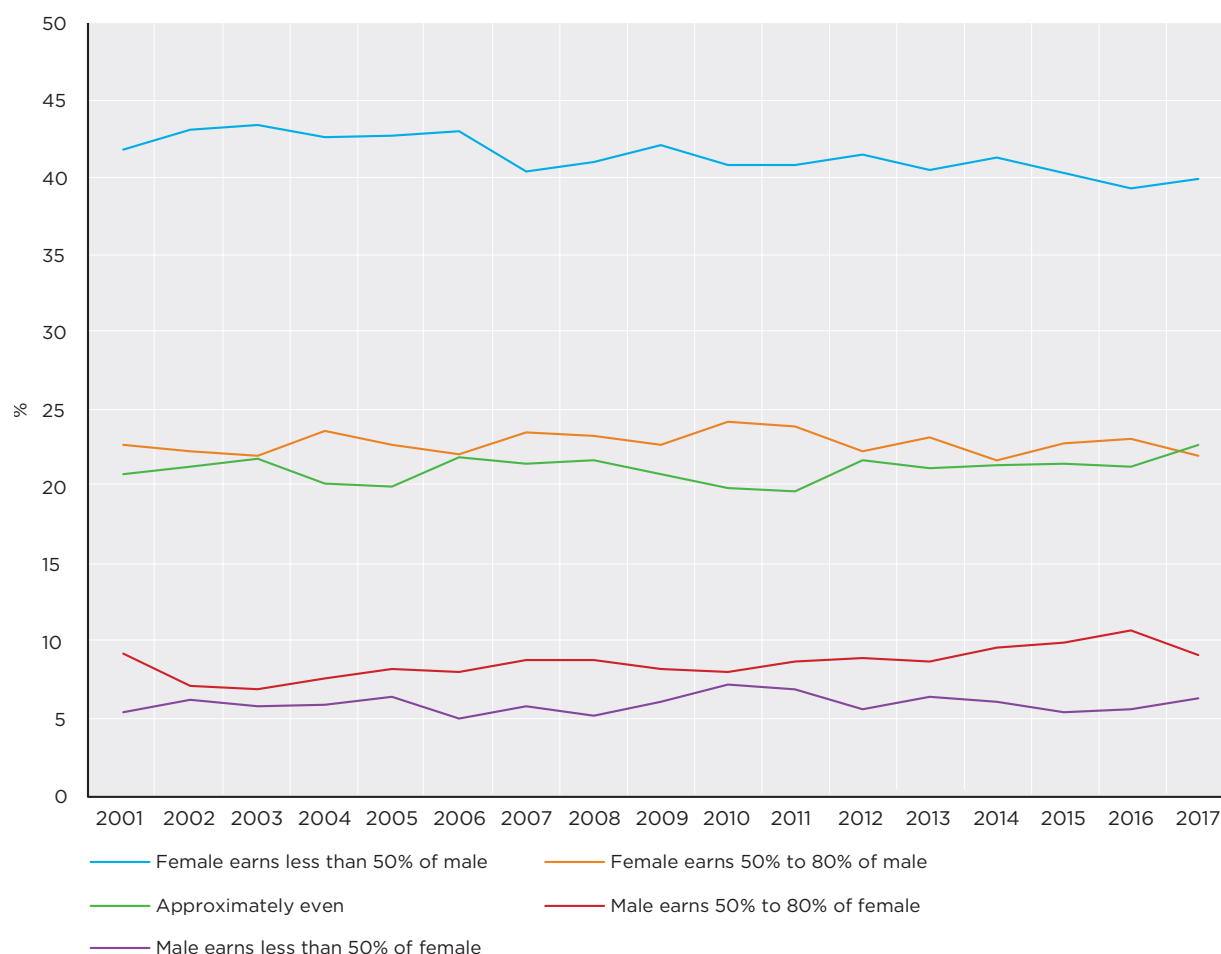


Figure 5.3: Relative earnings of dual-earner couples



50% and 80% of the female's earnings, from 7% to 11%, but this was entirely offset by declines between 2001 and 2002 and between 2016 and 2017.

There was also very little net change in the proportion of dual-earner couples in which the male's earnings were less than 50% of the female's earnings. The growth in dual-earner couples where the female earns more (shown in Figure 5.2) has therefore mainly occurred within the 'approximately-even' group. Thus, there has been no growth in the share of dual-earner couples in which the female could be regarded as the primary 'breadwinner', but there has been a decline in the share of dual-earner couples in which the male could be regarded as the primary 'breadwinner'.

The prevalence of 'approximately-even' and 'female-breadwinner' couples is examined for various demographic groups in Table 5.1. For this table, all couples in which at least one member of the couple is employed are included, not just dual-earner couples. Consequently, in addition to containing dual-earner couples in which the male's earnings are no more than 80% of the female's earnings, female-breadwinner couples also include couples in which the male is not employed at all.

Approximately-even couples and female-breadwinner couples are more common among couples without dependent children. In 2017, 19.0% of couples without dependent children had approximately-even earnings, compared with 14.9% of couples with dependent children. In the





same year, 28.3% of couples without dependent children were female-breadwinner couples, compared with only 15.0% of couples with children. Between 2001 and 2017, there was a greater increase in equal-earning couples among couples with dependent children—4.1 percentage points compared with 1.1 percentage points for couples without dependent children—but there was virtually no change in the proportion of couples with dependent children who were female-breadwinner couples, compared with a 3.6 percentage-point increase for couples without dependent children.

Examining how earnings arrangements are associated with university education, we see that both approximately-even and female-breadwinner couples are most common when only the female has a university degree. Both of these arrangements are relatively rare when only the male has a university qualification.

There has been little change in the association between university qualifications of the couple and the earnings arrangement, implying that the overall growth in approximately-even and female-breadwinner couples reflects the greater growth in university-level education among women.

Earnings arrangements do not appear to be strongly related to whether the members of the couple are immigrants from non-MES countries (see Box 2.4, page 12). The notable exception is that, in 2017, the proportion of couples with only the female born in a non-MES country who were approximately-even couples was low compared with other couples. This was, however, partly offset by a higher proportion of these couples being female-breadwinner couples—22.6%, compared with 20.5% of couples in which neither member of the couple was born in a non-MES country.

The fourth and fifth panels of Table 5.1 consider the role of the ages of the two members of the couple. Female-breadwinner couples are most common among couples aged over 50, followed by couples aged under 30. This is consistent with the associations between dependent children and earnings arrangement. However, approximately-even couples are in fact more prevalent in the 30 to 39 age group for both men and women than in the 40 to 49 or 50 and over age groups.

The bottom panel of Table 5.1 shows, perhaps surprisingly, that female-breadwinner couples are more prevalent among couples living in non-urban regions than among couples living in urban regions. Slightly over one-quarter of working-age couples in which at least one member is employed is a female-breadwinner couple, compared with just under 20% for couples living in both major urban and other urban regions.

Table 5.1: Proportion of couples in each earnings arrangement, by demographic group—Couples aged under 65 with at least one member employed, 2001 and 2017 (%)

	<i>Approximately-even</i>		<i>Female-breadwinner</i>	
	<i>2001</i>	<i>2017</i>	<i>2001</i>	<i>2017</i>
All couples	13.8	16.5	19.3	20.2
<i>Dependent children</i>				
Without dependent children	17.9	19.0	24.7	28.3
With dependent children	10.8	14.9	15.4	15.0
<i>Educational attainment of the couple</i>				
Both hold university degrees	20.6	20.9	20.2	18.5
Only the male holds a university degree	7.2	9.4	13.9	11.4
Only the female holds a university degree	20.4	22.7	30.0	31.7
Neither holds a university degree	13.0	14.2	18.0	18.7
<i>Immigrant status of the couple</i>				
Both born in non-MES country	10.9	20.7	19.9	17.7
Only the male born in non-MES country	12.5	20.0	24.8	19.7
Only the female born in non-MES country	13.6	12.4	18.7	22.6
Neither born in non-MES country	14.6	16.0	18.6	20.5
<i>Age group of the male</i>				
Under 30	18.4	23.1	18.8	21.8
30–39	13.2	18.3	17.1	14.9
40–49	13.7	14.1	15.6	18.1
50 and over	13.0	14.9	24.9	25.2
<i>Age group of the female</i>				
Under 30	17.5	21.7	17.9	20.3
30–39	12.0	16.9	15.6	15.1
40–49	14.8	15.0	20.4	19.6
50 and over	11.1	14.9	25.3	27.1
<i>Region of residence</i>				
Major urban	14.1	17.3	18.1	19.4
Other urban	11.6	15.1	19.5	18.8
Non-urban region	15.3	14.4	25.2	25.4





Characteristics associated with 'female-breadwinner' couples

Table 5.2 considers the characteristics associated with female-breadwinner couples, presenting mean marginal effects estimates from Probit models of the probability a couple is a female-breadwinner couple as a function of the characteristics of the couple, characteristics of the female, and characteristics of the male. As in Table 5.1, only couples in which at least one member of the couple is employed are included in this analysis.

Considering first couple characteristics, the table shows that being legally married (as opposed to de facto married) is associated with a 2.7 percentage-point reduction in the probability the couple has a female breadwinner. Consistent with the results presented in Table 5.1, dependent children, particularly

young dependent children, also substantially reduce the probability of being a female-breadwinner couple.

Also robust to controlling for other factors is the finding in Table 5.1 that couples residing in non-urban areas are the most likely to be female-breadwinner couples. Perhaps surprising, however, is that couples in which the female is older than the male have a 2.4 percentage-point lower probability of being a female-breadwinner couple, all else equal.

Variables included for year show that, other factors held equal, female-breadwinner couples have actually become less likely in recent years. Since 2012, for given characteristics of a couple, the probability of being a female-breadwinner couple has been approximately 1.5 percentage-points lower than in earlier years.

Turning to individual characteristics of each member of the couple (lower panel of Table 5.2), the broad pattern is that higher educational attainment of the female is

associated with a higher probability of being a female-breadwinner couple, while higher educational attainment of the male is associated with a lower probability. While the female being older than the male acts to reduce the likelihood of being a female-breadwinner couple, other things being equal, the older the female, the more likely the couple is a female-breadwinner couple. However, the only statistically significant effect found for the age of the male is that being aged 30 to 39 is associated with a 3.0 percentage-point reduction in the probability of being female-breadwinner.

Table 5.1 did not find clear and consistent associations between immigrant status and likelihood of being a female-breadwinner couple. The regression framework underpinning Table 5.2 provides a clearer picture of these relationships. It shows that the female being an immigrant from a non-MES country is associated with a higher probability of her being the breadwinner in the couple. The male being born in a

Table 5.2: Characteristics associated with female-breadwinner couples

	Couple characteristics	
Legally married	−0.027	
Have dependent children	−0.037	
Age of youngest child (Reference category: 15 and over)		
Youngest child aged under 5	−0.065	
Youngest child aged 5–9	−0.025	
Youngest child aged under 10–14	−0.025	
Female older than the male	−0.024	
Region of residence (Reference category: Major urban)		
Other urban	−0.015	
Non-urban region	0.050	
Year (Reference category: 2001–2004)		
2005–2008	ns	
2009–2011	ns	
2012–2014	−0.015	
2015–2017	−0.014	
	Female's characteristics	Male's characteristics
Educational attainment (Reference category: Year 11 and below)		
Year 12	0.058	−0.034
Diploma or Certificate 3 or 4	0.076	−0.049
Bachelor's degree	0.144	−0.103
Postgraduate degree	0.140	−0.073
Age group (Reference category: Under 30)		
30–39	0.044	−0.030
40–49	0.052	ns
50 and over	0.080	ns
Place of birth (Reference category: Australia)		
MES country	−0.004	0.029
Non-MES country	0.016	0.038
In poor general health (SF-36 measure)	−0.021	0.017
In poor mental health (SF-36 measure)	ns	0.035
Disability (Reference category: No disability that restricts work)		
Moderate disability	−0.053	0.146
Severe disability	−0.143	0.313
Extent to which have traditional views on marriage and children	0.006	ns
Extent to which have traditional views on parenting and paid work	−0.046	ns

Notes: Table presents mean marginal effects estimates from Probit models of the probability a couple is a 'female-breadwinner' couple. See the Technical Appendix for a brief explanation of Probit models and mean marginal effects. Only couples in which both are aged under 65 and at least one member of the couple has labour market earnings are included in the estimation sample. *ns* indicates the estimate is not significantly different from 0 at the 10% level.



non-MES country is associated with an even greater increase in the probability of being a female-breadwinner couple. Compared with the male being born in Australia, the male being an immigrant from a MES country is also associated with an elevated probability of being a female-breadwinner couple, although the magnitude of the effect is not as large as for immigrant males from non-MES countries. The female being an immigrant from a MES country is, by contrast, associated with a slightly lower probability of being a female-breadwinner couple compared with the female being born in Australia.

Unsurprisingly, poor general health (see Box 5.1, page 93) of the female is associated with a lower probability of the female being the breadwinner, while poor general health of the male is associated with a higher probability. Poor mental health of the male also acts to increase the probability of the female being the breadwinner, but no statistically significant effects of the female's mental health are evident. The evidence on the effects of disability (see Box 5.2, page 93) is clear and to be expected: disability of the female reduces the likelihood she is the breadwinner, and disability of the male increases the probability the female is the breadwinner.

Also considered in Table 5.2 are the roles of attitudes to marriage and children and to parenting and paid work. Summary variables capturing the extent to which one has traditional or conservative views on each of these topics (see Box 2.5, page 12 and Box 2.6, page 23) are included. The estimates indicate that the female's attitudes on these matters matter, but the male's attitudes do not. Most notably, more traditional views of the female on parenting and paid work are associated with large negative effects on the

Box 5.1: SF-36 measures of health

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

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

Box 5.2: 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'.



probability she is the breadwinner. However, more traditional views of the female on marriage and children are associated with a greater likelihood she is the breadwinner, although the magnitude of the effect is much smaller than the effect of attitudes to parenting and paid work.

Employment characteristics of dual-earner couples with different relative earnings

Table 5.3 compares the employment characteristics of males and females in couples across three categories of relative earnings of the two members of

the couple: male-breadwinner; approximately-even; and female-breadwinner. It focuses on recent years, presenting statistics for 2015 to 2017 (pooled). Note also that employment characteristics relate to the time of interview, whereas the relative-earnings group of the couple is based on earnings in the previous financial year.

As might be expected, the proportion of males employed full-time is highest in male-breadwinner couples and lowest in female-breadwinner couples. However, while the proportion of females employed full-time is lowest in male-breadwinner couples, it is considerably higher in approximately-even couples than in female-breadwinner couples—89.8% versus 62.5%.

Mean hourly earnings are considerably higher for males than females in male-breadwinner

couples, and are also slightly higher for males in approximately-even couples. Females in female-breadwinner couples, however, have quite high mean hourly earnings. Employed males in female-breadwinner couples have lower mean earnings than even employed females in male-breadwinner couples.

Tenure in current job is on average similarly high for males in male-breadwinner couples and females in female-breadwinner couples, at 8.6 years and 8.5 years, respectively. Females in male-breadwinner families have the lowest average job tenure, at 6.3 years.

Comparing the occupation composition of each relative earnings group (see Box 4.5, page 70), particularly notable is that a very high proportion of males in approximately-even

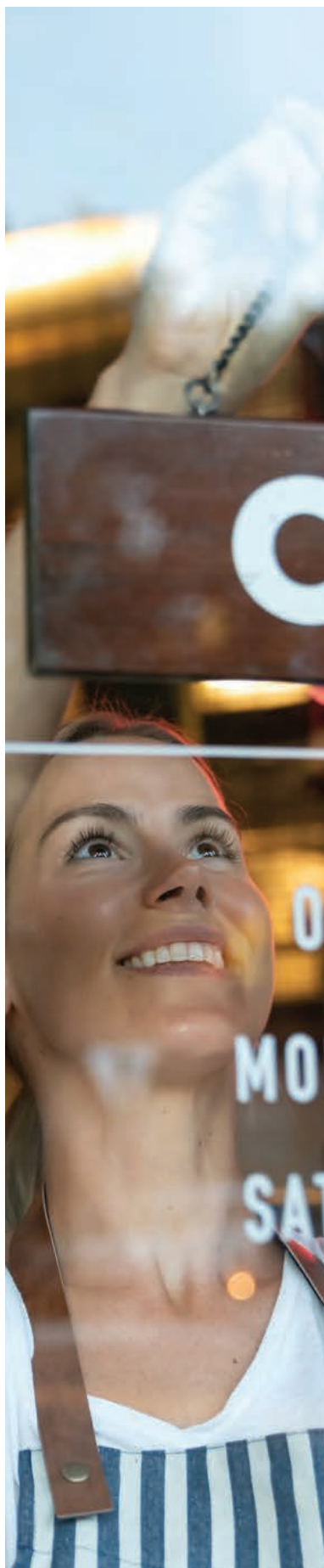


Table 5.3: Employment characteristics of couple, by earnings arrangement, 2015 to 2017 (pooled)

	<i>Male-breadwinner</i>		<i>Approximately-even</i>		<i>Female-breadwinner</i>	
	<i>Males</i>	<i>Females</i>	<i>Males</i>	<i>Females</i>	<i>Males</i>	<i>Females</i>
Employed full-time (%)	89.6	26.9	72.7	89.8	57.7	62.5
Employed part-time (%)	5.8	39.3	23.9	7.5	17.9	30.6
Employee (%)	84.0	57.7	90.1	85.6	41.9	86.4
Casual employee (%)	7.5	24.3	6.5	11.3	27.7	14.3
Fixed-term employee (%)	8.5	9.8	12.2	7.1	11.4	10.8
Mean hourly wage (\$, December 2017 prices)	45.47	31.80	37.08	35.94	31.05	38.31
Mean annual wage (\$, December 2017 prices)	107,366	27,611	75,310	76,390	25,114	73,988
Mean tenure in job (years)	8.6	6.3	7.9	7.8	8.0	8.5
<i>Occupation (%)</i>						
Managers	21.9	9.2	17.3	16.6	16.1	16.9
Professionals	23.9	28.2	38.4	24.2	18.7	34.3
Technicians and Trades Workers	19.8	5.0	2.8	17.5	27.2	2.4
Community and Personal Service Workers	5.3	19.5	10.1	7.7	7.9	15.2
Clerical and Administrative Workers	6.5	21.6	20.5	9.3	5.3	21.1
Sales Workers	3.3	8.3	5.9	5.2	3.7	5.6
Machinery Operators and Drivers	12.0	1.0	2.4	12.1	9.2	0.8
Labourers	7.2	7.1	2.6	7.3	12.0	3.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
<i>Industry (%)</i>						
Agriculture, Forestry and Fishing	1.8	1.3	0.8	1.6	6.1	1.9
Mining	5.2	0.5	0.5	0.8	0.4	0.5
Manufacturing	14.0	4.7	2.8	9.8	11.1	4.5
Electricity, Gas, Water and Waste Services	2.0	0.3	0.4	1.7	0.8	0.5
Construction	13.2	1.4	2.5	10.6	18.4	2.5
Wholesale Trade	4.7	1.8	1.9	4.6	5.4	2.1
Retail Trade	5.3	9.5	7.1	5.4	7.1	6.5
Accommodation and Food Services	1.9	5.6	3.7	3.0	3.6	3.0
Transport, Postal and Warehousing	8.1	2.3	3.6	8.2	5.4	2.5
Information Media and Telecommunications	1.8	1.6	2.6	2.0	1.4	2.1
Financial and Insurance Services	4.7	4.6	5.7	5.4	1.7	5.3
Rental, Hiring and Real Estate Services	1.8	2.3	1.9	1.5	0.7	1.5
Professional, Scientific and Technical Services	9.3	7.9	8.9	9.1	8.5	6.2
Administrative and Support Services	2.3	3.0	2.0	2.5	4.5	3.1
Public Administration and Safety	8.4	4.1	8.2	10.0	3.1	5.0
Education and Training	5.2	15.9	18.6	8.0	5.1	21.5
Health Care and Social Assistance	5.3	27.1	25.9	10.0	7.9	28.9
Arts and Recreation Services	1.1	1.3	1.2	2.5	3.3	0.8
Other Services	4.1	4.4	1.6	3.4	5.4	1.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

Note: Wages, tenure, occupation and industry are evaluated only for employed persons.





couples—38.4%—are employed in professional occupations. Females in female-breadwinner couples are also very concentrated in professional occupations, with 34.3% in these occupations.

Technicians and trades workers and machinery operators and drivers are relatively common among males in both male-breadwinner and female-breadwinner couples, but rare in approximately-even couples. Similarly, community and service workers and clerical and administrative workers are relatively common among females in both female-breadwinner and male-breadwinner couples, but relatively rare in approximately-even couples. Conversely, technicians and trades workers and machinery operators and drivers are rare among females in male-breadwinner and female-breadwinner couples, but relatively common among females in approximately-even couples. Clerical and administrative workers are also relatively common among males in approximately-even couples, but uncommon among males in male-breadwinner and female-breadwinner couples.

In terms of industry of employment (see Box 4.5, page 70), males in approximately-even couples are disproportionately concentrated in education and training and health care and social assistance, while males in both male-breadwinner and female-breadwinner couples are disproportionately concentrated in manufacturing and construction. Females in approximately-even couples are disproportionately concentrated in manufacturing, construction, transport, postal and warehousing and public administration and safety. Females in both male-breadwinner and

female-breadwinner couples are disproportionately concentrated in education and training, health care and social assistance and, to a lesser extent, retail trade.

Household incomes

Table 5.4 compares household incomes, both before and after income taxes, of male-breadwinner, approximately-even and female-breadwinner couples. Female-breadwinner couples are on average the lowest-income couples, while approximately-even couples are on average the highest-income. For example, over the 2015 to 2017 period, the mean household disposable income was \$131,274 for male-breadwinner couples, \$143,745 for approximately-even couples, and \$120,628 for female-breadwinner couples.

Income taxes should be higher for a given level of income the more concentrated earnings are on one of the partners, since Australia has a progressive income tax scale (higher tax rates the more you earn) and tax rates are largely based on individual incomes rather than family incomes. This is shown to be the case when comparing male-breadwinner and approximately-even couples, with income tax in 2001–2004 averaging 24% of gross income in male-breadwinner couples and 22% in approximately-even couples, despite average gross income being higher for approximately-even couples (which should act to increase their average tax rate). Thus, the income advantage of approximately-even couples is slightly greater after income taxes than it is before income taxes. Female-breadwinner couples paid only 21% of gross income in income tax in the 2001 to 2004 period, but this reflects

Table 5.4: Mean household incomes of couples, by earnings arrangement (\$, December 2017 prices)

	<i>Male-breadwinner</i>	<i>Approximately-even</i>	<i>Female-breadwinner</i>
2001–2004			
Household gross income	135,119	142,662	119,033
Household disposable income	102,734	111,039	93,658
2015–2017			
Household gross income	169,127	181,402	149,107
Household disposable income	131,274	143,745	120,628

the lower average income of these couples. The same pattern is observed in the 2015 to 2017 period, although average tax rates are somewhat lower, at 22% for male-breadwinner couples, 21% for approximately-even couples and 19% for female-breadwinner couples.

Time spent on paid and unpaid work

Table 5.5 examines the time spent on both paid and unpaid work by males and females in couples with different relative earnings. Unpaid work is defined to comprise housework—chores, errands and outdoor tasks—and looking after one’s own children. (See Box 5.3, page 99, for more information on the measurement of paid and unpaid work.)

Among couples without dependent children, total working time is higher for males in male-breadwinner couples, approximately equal for couples with approximately-even earnings, and higher for females in female-breadwinner families. Among couples with dependent children, however, total working time is approximately equal for males and females in male-breadwinner families, slightly higher for females in approximately-even couples, and substantially higher for females in female-breadwinner households.



Table 5.5: Mean working time of males and females in couples, by earnings arrangement (hours per week)

	<i>Male-breadwinner</i>		<i>Approximately-even</i>		<i>Female-breadwinner</i>	
	<i>Males</i>	<i>Females</i>	<i>Males</i>	<i>Females</i>	<i>Males</i>	<i>Females</i>
2002–2004						
<i>Couples without dependent children</i>						
Total time	59.3	50.3	60.6	59.4	47.8	59.1
Housework	12.8	25.2	13.0	17.4	17.0	21.6
<i>Couples with dependent children</i>						
Total time	74.5	74.3	73.7	78.6	62.3	75.3
Housework	13.7	31.8	14.8	24.4	17.1	26.6
Child care	10.5	23.8	9.2	17.3	9.4	17.0
2015–2017						
<i>Couples without dependent children</i>						
Total time	63.4	51.4	57.2	60.9	49.2	59.6
Housework	14.9	22.1	12.3	16.3	16.2	17.6
<i>Couples with dependent children</i>						
Total time	76.8	76.5	75.9	80.6	68.1	80.9
Housework	15.3	29.4	16.1	23.1	19.1	24.1
Child care	10.9	25.7	11.1	18.2	11.2	19.3



The above patterns hold in both the 2002 to 2004 period and the 2015 to 2017 period. Males in approximately-even and female-breadwinner couples with dependent children have slightly increased the amount of time they spend on housework and child care—by an average of approximately two

hours per week for each—but this has had little net impact on the total working time of males relative to females in these couples. For example, in female-breadwinner couples with dependent children, mean total working time of females was 13.0 hours per week more than mean total working

time of males in the 2002 to 2004 period, and 12.8 hours per week more in the 2015 to 2017 period. Similarly, for approximately-even couples, the female–male gap in mean total working time was 4.9 hours in 2002 to 2004, and still 4.7 hours in 2015 to 2017.

Satisfaction with aspects of life

The question of how well the different relative earnings arrangements work for males and females is further considered in Table 5.6, which presents mean satisfaction with relationships and several aspects of life for males and females in male-breadwinner, approximately-even and female-breadwinner couples.

Differences in satisfaction with the relationship with one's partner across the three earnings arrangements appear to be slight. In the 2001 to 2004 period, females in approximately-even couples were on average slightly happier with their relationship than females in the other two groups of couples; but in the 2015 to 2017 period, females in male-

Box 5.3: Classification of paid and unpaid work

In the self-completion questionnaire of the HILDA Survey, respondents are asked annually how much time they spend in a typical week on each of nine activities:

- Paid employment
- Travelling to and from the place of paid employment
- Household errands, such as shopping, banking, paying bills and keeping financial records (but not driving children to school and other activities)
- Housework, such as preparing meals, washing dishes, cleaning house, washing clothes, ironing and sewing
- Outdoor tasks, including home maintenance (repairs, improvements, painting, etc.), car maintenance or repairs, and gardening
- Playing with your children, helping them with personal care, teaching, coaching or actively supervising them, or getting them to child care, school or other activities
- Looking after other people's children (aged under 12 years) on a regular, unpaid basis
- Volunteer or charity work (for example, canteen work at the local school, unpaid work for a community club or organisation)
- Caring for a disabled spouse or disabled adult relative, or caring for elderly parents or parents-in-law

The question has been included in the HILDA Survey every year, although paid employment was only added in 2002, and the possibility to report time use in minutes (as opposed to hours only) was likewise only added in 2002. As a result, the time-use data is only comparable from 2002 on.

For the analysis reported in this chapter, total working time is equal to the sum of the time spent on these nine activities. Housework (defined as Items, c, d and e) and child care (Item f) represent the most important activities of unpaid work in the household, and are therefore also separately examined in this chapter.



Table 5.6: Mean satisfaction with relationships and other aspects of life, by earnings arrangement (0–10 scale)

	<i>Male-breadwinner</i>		<i>Approximately-even</i>		<i>Female-breadwinner</i>	
	<i>Males</i>	<i>Females</i>	<i>Males</i>	<i>Females</i>	<i>Males</i>	<i>Females</i>
2001–2004						
Relationship with partner	8.5	8.3	8.5	8.4	8.6	8.2
Relationship with children	8.4	8.6	8.2	8.6	8.4	8.6
Amount of free time	5.9	6.2	6.0	5.9	6.5	6.0
Feeling part of local community	6.7	6.8	6.7	6.8	6.7	6.8
Overall life satisfaction	7.9	8.1	8.0	8.1	7.9	8.0
2015–2017						
Relationship with partner	8.4	8.2	8.5	8.1	8.2	8.1
Relationship with children	8.4	8.7	8.3	8.5	8.1	8.6
Amount of free time	6.2	6.1	6.4	5.8	6.8	6.0
Feeling part of local community	6.8	6.9	6.7	6.6	6.8	7.0
Overall life satisfaction	7.9	8.0	8.0	7.9	7.8	7.9

Note: Satisfaction is measured on a 0–10 scale, where 0 is ‘totally dissatisfied’ and 10 is ‘totally satisfied’.

breadwinner couples were very slightly on average the most satisfied with their relationship. The males in female-breadwinner couples were on average the most satisfied with their relationship with their partner in the 2001 to 2004 period, but in the 2015 to 2017 period, it was males in approximately-even couples who were on average the most satisfied, and males in female-breadwinner couples were on average the least satisfied.

Differences in mean satisfaction with the relationship with one’s children are likewise quite small across the three earnings arrangement categories. No clear patterns are evident, other than

that males in female-breadwinner couples in the 2015 to 2017 period had relatively low mean satisfaction with their relationship with their children.

No clear association between overall life satisfaction and earnings arrangement is evident. That said, males in female-breadwinner couples have relatively low life satisfaction in the 2015 to 2017 period. For males, satisfaction with the amount of free time one has is strongly ordered by earnings arrangement, being lowest for males in male-breadwinner couples and highest for males in female-breadwinner couples. For females, those in approximately-

even couples have the lowest mean satisfaction with the amount of free time they have, followed by females in female-breadwinner couples and then females in male-breadwinner couples.

For satisfaction with feeling part of the local community, for males there is no relationship with earnings arrangement; nor is one evident for females in the 2001 to 2004 period. However, in the 2015 to 2017 period, females in approximately-even couples had low mean satisfaction with feeling part of their local community, while females in female-breadwinner couples had quite high mean satisfaction.



Persistence of earnings arrangements

Table 5.7 shows that persistence of female-breadwinner couples is lower than persistence of male-breadwinner couples, but it is still quite high. Among those in female-breadwinner couples in one year, well over half of couples who are still intact are still female-breadwinner couples five years later. Note, moreover, there is no evidence that female-breadwinner couples are more likely to separate. For all three earnings arrangements, approximately 85% of couples in any given year are still together five years later.

The least persistent arrangement is, in fact, approximately-even earnings, with approximately 40% of these couples in one year still with that arrangement five years later. Significantly, there is no evidence of changes in the degree of persistence of relative earnings groups over the course of this century.



Table 5.7: Persistence of couples' relative earnings arrangements—Proportion with the same arrangement one, three and five years later, by initial arrangement and time period (%)

	Male-breadwinner	Approximately-even	Female-breadwinner
One year later			
2001–2004	89.7	58.4	70.2
2005–2008	89.6	60.0	74.8
2009–2011	88.8	59.0	74.5
2012–2014	89.2	56.8	72.3
2015–2017	88.7	59.9	73.9
Three years later			
2001–2004	85.0	46.0	61.1
2005–2008	85.5	48.6	65.6
2009–2011	85.1	49.3	63.6
2012–2014	83.2	47.9	63.7
Five years later			
2001–2004	80.8	41.8	56.4
2005–2008	82.8	39.5	59.7
2009–2011	82.4	42.0	57.6
Proportion of couples still intact five years later (2001 to 2017)	85.1	85.6	85.7

Note: The table examines couples aged under 65 who remained together over the relevant time-frame (one, three or five years).

6

Work-family conflict

Inga Laß



Combining raising children with paid employment is the norm among Australian parents. In 2017, in approximately 68% of couple families with children aged under 18 both parents were employed, as were approximately 56% of single parents. Balancing these two life spheres, however, is not always easy and often results in work-family conflict, defined as a situation in which the demands of work and the family role are incompatible so that participation in one role is made more difficult by participating in the other (Greenhaus and Beutell, 1985). The conflict between work and family life can flow in both directions: work demands can interfere with the family role (known as work-to-family conflict) and family demands can interfere with the work role (family-to-work conflict). Work-family conflict may have consequences for the wellbeing of individuals and their family members, as well as for their work performance.

This chapter investigates the trends and correlates of work-family conflict in Australia. Although work-family conflict is bi-directional, the chapter focuses exclusively on the negative impact of work demands on family life. It examines the trends in work-family conflict over time, the work and family characteristics that are associated with work-

family conflict, the intra-couple distribution of work-family conflict, and the effects of work-family conflict on family wellbeing and future employment. The analysis draws on responses to four different statements, administered as part of the self-completion questionnaire, that elicit the extent of work-family conflict experienced by parents of children aged under 18 who

Box 6.1: Measuring work-family conflict

Each wave, based on an item battery developed by Marshall and Barnett (1993), the HILDA Survey ascertains from parents in paid work the extent to which they agree with a range of statements about combining work with family responsibilities. Following Hosking and Western (2008), in this report, responses to the following four statements are used to construct a measure of the extent to which work demands negatively impact on family life:

- Because of the requirements of my job, I miss out on home or family activities that I would prefer to participate in*
- Because of the requirements of my job, my family time is less enjoyable and more pressured*
- Working leaves me with too little time or energy to be the kind of parent I want to be*
- Working causes me to miss out on some of the rewarding aspects of being a parent*

These items are measured on a 7-point Likert scale (where 1 is 'strongly disagree' and 7 is 'strongly agree').

The values of the individual items are summed and then divided by four, so that the scale of the summary measure ranges from 1 (representing no conflict) to 7 (representing high conflict). If respondents are missing information on one of the statements, the values for the three remaining items are summed and divided by three. No composite measure is constructed for cases with more than one of the four items missing.

are in paid work.¹The responses are used to construct a work-family conflict index (see Box 6.1, page 102), which ranges from 1 ('no conflict at all') to 7 ('highest possible conflict').

Levels and trends in work-family conflict

In 2017, mothers had an average work-family conflict score of 3.7 on the 1-7 scale, whereas fathers had a slightly higher average score of 3.9. Given that the mid-point of the scale is 4, these numbers suggest that on average

parents experience mid-range levels of conflict between their work and their family lives. There is, however, considerable variation in how parents perceive the interplay of these two spheres. Figure 6.1 shows the distribution of work-family conflict scores for mothers and fathers in 2017. For a clear visualisation of the distribution, the index has been rounded to the nearest integer.

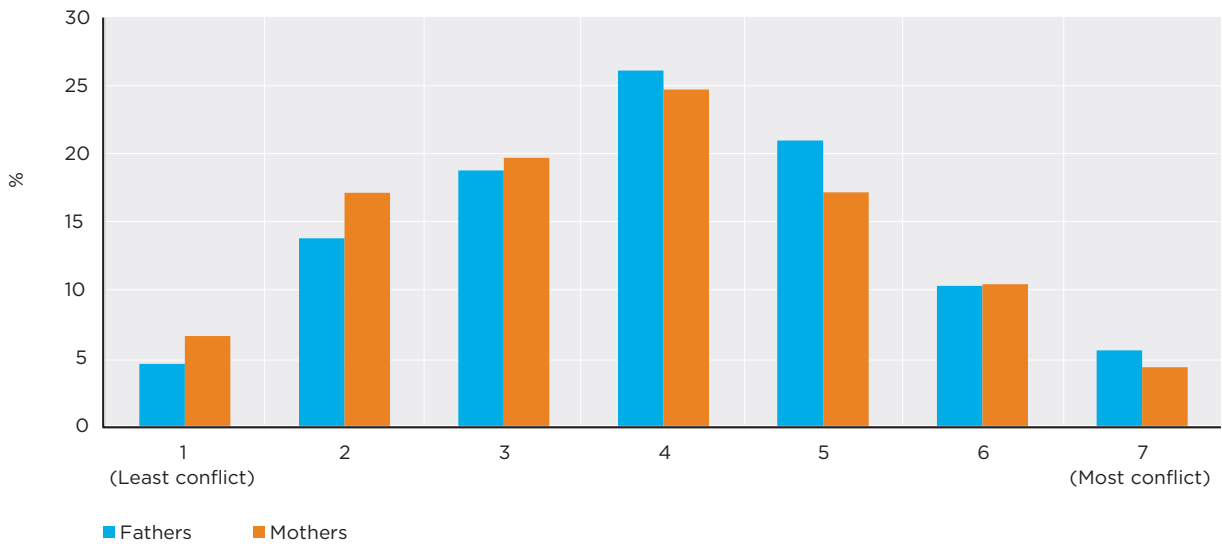
Figure 6.1 shows that the most common work-family conflict score is 4 (that is, between 3.5 and 4.4), with approximately 26% of fathers and 25% of mothers falling into this category. As we move towards the extremes, the shares gradually become smaller.

Approximately 5% of fathers and 7% of mothers have a score of 1 (that is, between 1 and 1.4) and therefore experienced very little conflict between their work and family roles, while approximately 6% of fathers and 4% of mothers have a score of 7 (that is, between 6.5 and 7) and therefore experienced particularly high conflict. It is also evident that mothers were considerably more likely than fathers to report lower work-family conflict (rounded scores of 3 or below), whereas fathers were more likely to report medium to high conflict.

Figure 6.2 shows how the mean work-family conflict score of



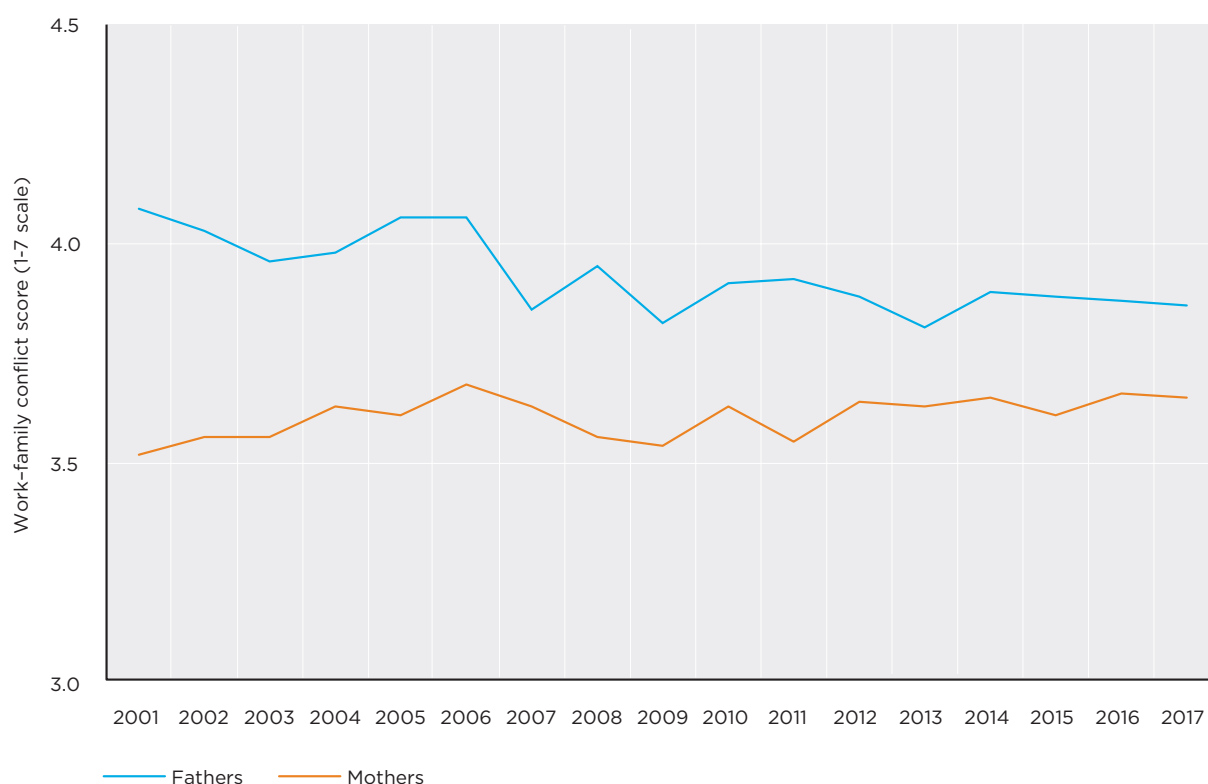
Figure 6.1: Distribution of work-family conflict of working mothers and fathers with children aged under 18, 2017



Note: The work-family conflict index is continuous but has been rounded to the nearest integer to aid visualisation for this figure only.

¹ The analysis includes all persons who form a parent-child relationship with a child aged under 18 living in their household (including biological, step and foster children as well as grandchildren where no parent is present), as well as persons with biological or adopted children aged under 18 living elsewhere. Note that approximately 1.5% of participants who completed the work-family conflict items do not have any children below age 18 and were therefore excluded.

Figure 6.2: Mean work-family conflict of working parents with children aged under 18



mothers and fathers has changed over time. In 2001, the level of work-family conflict differed by parental gender, with fathers reporting an average score of 4.1 and mothers reporting an average score of 3.5, a sizeable gap of 0.6 points on the 1-7 scale. Interestingly, work-family conflict has since trended in different directions for mothers and fathers. The average scores for fathers have slightly declined over the 2001 to 2017 period, while those of mothers have increased. Consequently, the gap between mothers and fathers has narrowed to only 0.2 points in 2017.

A higher degree of work-family conflict among fathers may come as a surprise, given that it is women who typically do the bulk of housework and child-care duties (see, for example, Chapter 5 of Wilkins and Lass, 2018). Therefore, we may have expected women to have more difficulties combining home duties with paid employment. That said, fathers

on average spend considerably more time in paid employment than mothers, which reduces the time they have available for family life. Moreover, it is possible that mothers and fathers work in jobs that differ in their conditions that might facilitate or impede combining work and family roles. The next section looks at how different employment and home characteristics are associated with work-family conflict.

Factors associated with work-family conflict

Table 6.1 shows results from a linear regression analysis that investigates the determinants of work-family conflict, based on pooled data from 2001 to 2017. The first model includes all

parents, while the second and third models separately investigate the effects for fathers and mothers, respectively. Each model considers the roles of several characteristics of the main job—namely work schedule, employment status, firm size, occupation, and whether a person has supervisory responsibilities—as well as working hours in all jobs. With respect to family characteristics, the models include variables for a person's relationship status, age of the youngest own resident child and the number of own resident children (with resident children being defined as those residing in the household at least 50% of the time; see Box 2.3, page 8). Another indicator variable is included for those who only have non-resident children. Further, the models include variables for sex (only in the joint model), age, whether a person

has a bachelor's degree or higher qualification, whether a person has a work-limiting disability and year.

Focusing on the model that includes all parents, there is a clear positive relationship between longer working hours and work-family conflict. For example, compared to those working less than 15 hours per week, the conflict scores of those working 55 or more hours per week is approximately 2 points higher on the 7-point scale. Further, the working schedule considerably affects how parents perceive the impact of work on their family lives. Compared to a regular daytime schedule, workers on regular evening schedules, rotating shifts, split shifts, on call, irregular shifts and 'other' types of shifts have significantly higher work-family conflict scores.



Table 6.1: Association between work-family conflict and worker and job characteristics—Working parents with children aged under 18, 2001 to 2017 (pooled)

	<i>All parents</i>	<i>Fathers</i>	<i>Mothers</i>
<i>Weekly working hours in all jobs (Reference category: Less than 15 hours)</i>			
15–24	0.516	0.218	0.501
25–34	0.984	0.524	0.964
35–44	1.279	0.698	1.340
45–54	1.588	1.045	1.588
55 and over	2.001	1.476	1.794
<i>Work schedule main job (Reference category: Regular daytime schedule)</i>			
Regular evening shift	0.189	0.218	0.172
Regular night shift	<i>ns</i>	0.199	<i>ns</i>
Rotating shift (changes from days to evenings to nights)	0.314	0.351	0.238
Split shift (two distinct periods each day)	0.282	0.310	0.259
On call	0.240	0.339	<i>ns</i>
Irregular schedule	0.124	0.199	<i>ns</i>
Other	0.378	0.436	0.349
<i>Employment status (Reference category: Employee)</i>			
Employer	–0.263	–0.217	–0.296
Solo-self-employed	–0.226	–0.219	–0.235
Unpaid family worker	–0.302	<i>ns</i>	<i>ns</i>
<i>Firm size (Reference category: Less than 20 workers)</i>			
20–99 workers	0.078	0.111	<i>ns</i>
100–499 workers	0.110	0.108	0.135
500 workers and more	0.154	0.136	0.181
<i>Occupation (Reference category: Manager)</i>			
Professional	0.075	<i>ns</i>	<i>ns</i>
Technician or Trades Worker	0.091	0.086	<i>ns</i>
Community or Personal Service Worker	0.085	0.173	<i>ns</i>
Clerical or Administrative Worker	<i>ns</i>	<i>ns</i>	–0.121
Sales Worker	0.141	0.187	<i>ns</i>
Machinery Operator or Driver	0.178	0.210	–0.274
Labourer	0.139	0.172	<i>ns</i>
Has supervisory responsibilities	0.141	0.108	0.175
Male	–0.201	–	–
Age	–0.004	–0.010	<i>ns</i>
Single parent	0.258	<i>ns</i>	0.321
<i>Age of youngest own resident child (Reference category: 0–3)</i>			
4–7	<i>ns</i>	<i>ns</i>	0.072
8–12	<i>ns</i>	<i>ns</i>	<i>ns</i>
13–17	–0.321	–0.263	–0.394
No resident child	–0.174	<i>ns</i>	<i>ns</i>
<i>Number of own resident children (Reference category: One)</i>			
Two	0.087	0.093	0.087
Three or more	0.216	0.221	0.226
Educational attainment of a bachelor's degree or higher	0.144	0.128	0.157
Work-limiting disability	0.379	0.310	0.419
Survey year	–0.004	–0.006	<i>ns</i>
Constant	11.388	15.162	<i>ns</i>
Number of observations	51,258	27,660	23,598

Notes: The table presents coefficient estimates from Ordinary Least Squares regression models of the level of work-family conflict. The models contain an indicator (not reported) equal to 1 if firm size is missing. *ns* indicates the estimate is not significantly different from 0 at the 10% level.





Table 6.1 shows that employers, the solo-self-employed and unpaid family workers have significantly lower work-family conflict than employees. This is perhaps driven by the self-employed having more control over their work, even though they potentially have more responsibilities. Additionally, workers in small firms with fewer than 20 workers report lower work-family conflict scores than workers in larger firms. Compared to managers, most other occupations have significantly higher conflict scores. However, workers who have supervisory responsibilities have higher conflict scores than those who do not.

Conflict with work and family life may also depend on a person's family situation. With respect to the age of the youngest resident child, having older children (aged 13 to 17 years) is related to significantly reduced levels of work-family conflict. Additionally, having only non-resident children is linked to lower conflict. Perhaps unsurprisingly, work-family conflict increases with the number of resident children. Also, single parents have significantly higher conflict scores than couple parents, suggesting that having a

partner in the household to share child-care responsibilities reduces work-family conflict.

Workers who have a bachelor's degree or higher educational attainment have significantly higher conflict scores than those with lower education, while workers with a work-limiting disability experience higher conflict than those without. Further, work-family conflict decreases with the age of the worker.

With respect to gender, Table 6.1 reveals that, after accounting for other worker and job characteristics, fathers have significantly lower work-family conflict than mothers. This is in direct contrast to the findings illustrated in Figure 6.2, where fathers had higher conflict scores. The difference is primarily due to the ability to control for working hours in the regression model. Mothers have lower average work-family conflict scores because they work fewer hours than fathers, but when *holding hours constant*, mothers have higher conflict scores. Gender differences in working hours are also key to understanding the differential development in the level of work-family conflict for

mothers and fathers over the 2001-2017 period. On average, fathers in the sample have experienced a decline in working hours over the period, from 47.0 to 44.5 hours, whereas mothers' working hours have increased, from 29.1 to 30.7 hours.

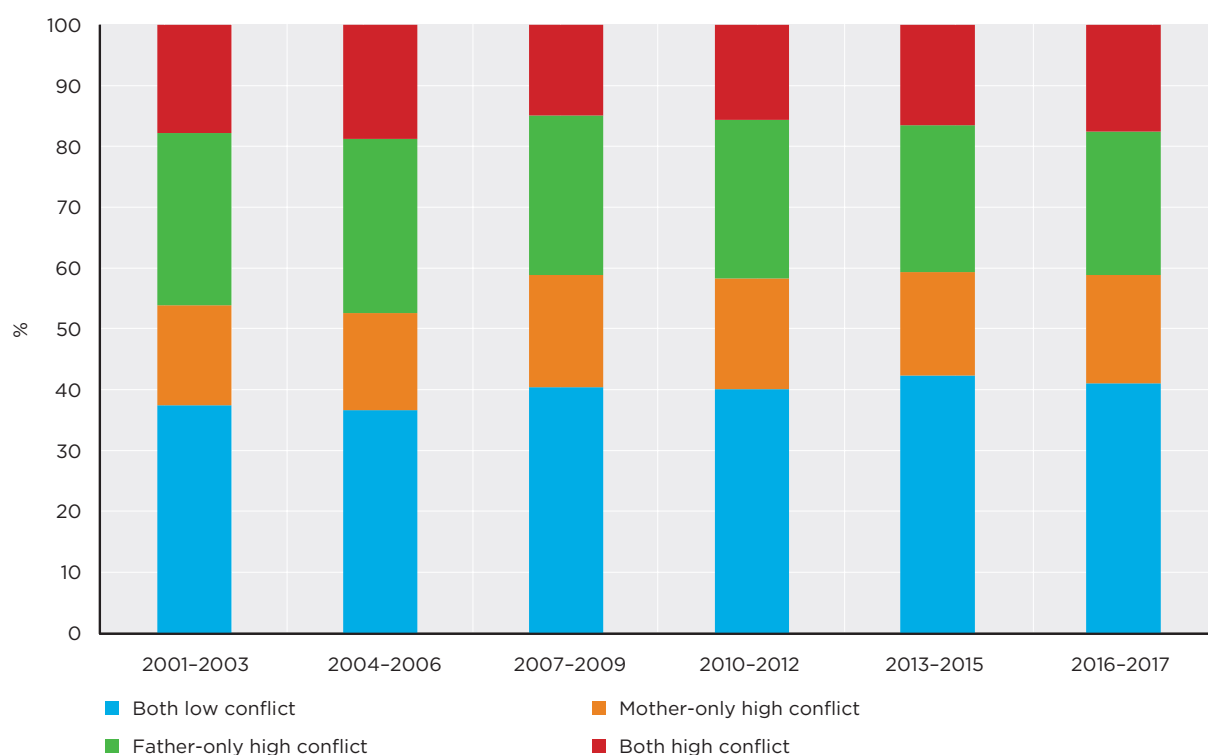
Comparing the impact of the different characteristics separately for fathers (second model) and mothers (third model) reveals some notable sex differences. Mothers with a youngest child aged 4 to 7 experience significantly higher work-family conflict than those whose youngest child is aged under 4, while this is not the case for fathers. Also, being a single mother is linked to significantly increased work-family conflict compared to being in a couple, while there is no statistically significant difference between single and coupled fathers. Work-family conflict decreases with age for fathers but not for mothers. Further, working a regular night shift, being on call or having irregular schedules significantly increases fathers', but not mothers', work-family conflict scores. There are also several differences with respect to occupation-specific effects.

The distribution of work-family conflict within couples

Work-family conflict may not only affect the individual person, but also their relationships and family wellbeing. In this context, it may matter whether only one or both parents experience difficulties in combining work demands with family life. This section considers both parents' levels of work-family conflict by focusing on four different types of (heterosexual) dual-earner couples, namely those in which: i) both parents experience low work-family conflict; ii) the mother experiences high levels of work-family conflict but the father does not; iii) the father experiences high levels of conflict but the mother does not; and iv) both parents experience high levels of conflict. 'High' conflict is



Figure 6.3: Couple types with respect to work-family conflict—Working parents with children aged under 18



defined as a work-family conflict score of more than 4, which is the mid-point of the scale and above the averages of both men and women.

Figure 6.3 shows the prevalence of these four types of couples across time, with average shares presented for three-year periods and for a two-year period for 2016–2017. In the most recent period, in 41.0% of couples both parents experienced low work-family conflict, in 17.8% of couples only the mother experienced high conflict, in 23.6% of couples only the father experienced high conflict, and in 17.6% of couples both parents experienced high levels of conflict.

Looking at the trends over the period in the prevalence of these types, the share of couples experiencing no conflict has slightly increased, from 37.5% in 2001–2003 to 41.0% in 2016–2017. Further, the share of couples in which only the father experiences high levels of conflict has decreased, from 28.3% to 23.6%. In contrast, the share of couples in which only the mother experiences high levels of conflict

has increased. These two trends are in line with the trends found in Figure 6.2. Finally, the share of couples in which both parents experience high conflict initially declined but has since increased, so that the 2016–2017 levels are similar to the 2001–2003 levels.

Among the majority of couples, one or both partners thus experience high work-family conflict, which raises the question of whether high levels of conflict affect couples' wellbeing. It is possible that work-family conflict not only negatively affects the worker's wellbeing, but that it 'spills over' to affect their partner's wellbeing as well. Further, the couple's wellbeing might be particularly affected if both partners experience work-family conflict.

Table 6.2 presents mean satisfaction scores with a range of family aspects as well as with life in general, all measured on a scale from 0 (completely dissatisfied) to 10 (completely satisfied). Both mothers and fathers fare best on all these indicators if both partners experience low work-family

conflict. In other words, if at least one partner experiences high work-family conflict, there is a reduction in family and life satisfaction for both partners. For example, mean satisfaction with the relationship with the partner is 8.5 for fathers in 'both low conflict' couples but drops to 8.1 in couples where only the mother experiences high conflict, 8.0 in couples where only the father experiences high conflict, and 7.8 in couples where both experience high conflict.

Among fathers, satisfaction scores are lowest if both partners experience high conflict, while for mothers there is often little difference between the 'mother-only high conflict' and 'both high conflict' situations, with women in both groups having particularly low satisfaction scores.

Since work-family conflict is related to lower satisfaction levels with the relationship with one's partner, it may also be linked to an increased risk of separation. Table 6.3 investigates the risk of separation of dual-earner couples by the level of work-family conflict. Couples in which both

Table 6.2: Mean satisfaction with family aspects and life overall, by couple type—Working parents with children aged under 18, 2001 to 2017 (pooled) (0-10 scale)

	<i>Relationship with partner</i>		<i>Relationship with children</i>		<i>Partner's relationship with children</i>		<i>Life overall</i>	
	<i>Father</i>	<i>Mother</i>	<i>Father</i>	<i>Mother</i>	<i>Father</i>	<i>Mother</i>	<i>Father</i>	<i>Mother</i>
<i>Couple type</i>								
Both low conflict	8.5	8.3	8.7	8.8	8.8	8.5	8.1	8.2
Mother-only high conflict	8.1	7.6	8.4	8.3	8.5	7.9	7.9	7.6
Father-only high conflict	8.0	7.9	8.3	8.6	8.5	8.2	7.7	8.0
Both high conflict	7.8	7.6	8.2	8.3	8.3	7.8	7.4	7.5
All couples	8.2	7.9	8.5	8.6	8.6	8.2	7.9	7.9

Table 6.3: Share of couples separated one year later, by couple conflict-type—Working parents with children aged under 18, 2001 to 2017 (pooled) (%)

<i>Couple type</i>	
Both low conflict	1.6
Mother-only high conflict	2.1
Father-only high conflict	2.3
Both high conflict	2.5
All couples	2.0





partners experienced low levels of conflict are the most stable, with only 1.6% of these couples separating one year later. Couples in which only one partner has high work-family conflict are also relatively stable, with 2.1% of couples having separated the following year if mothers experienced high conflict, and 2.3% having separated if only fathers experienced high conflict. The highest separation risk is found among couples in which both have high work-family conflict, of which 2.5% separate one year later.

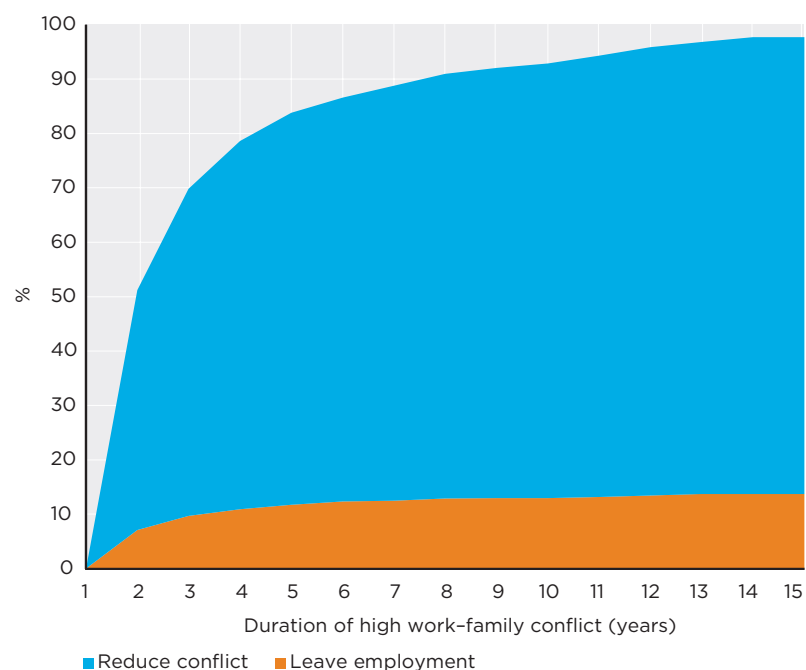
Exiting high work-family conflict

This last section investigates whether high conflict between the work and family spheres is a

transitory or long-lasting experience. To this end, we follow workers from the onset of high work-family conflict (again, defined as a value above 4 on the work-family conflict index) until they exit this state. Two different types of exits are considered: a) remaining in employment but reducing work-family conflict to a value of 4 or below; and b) leaving employment.

Figure 6.4 presents the cumulative share of persons with high work-family conflict who have left this situation after a certain period, differentiated by the type of exit.² The share of workers who have exited high work-family conflict increases steeply in the initial years after the onset of high conflict. One year following the onset of high conflict, about 51% no longer experience high conflict, with the majority of these (44%) having

Figure 6.4: Cumulative rate of exit of working parents from high work-family conflict, by duration since onset of high work-family conflict



Notes: The figure examines working parents with children aged under 18 over the full 2001 to 2017 period. Estimates are unweighted.

² Note, however, that the HILDA Survey only observes the level of work-family conflict at the time of interview. Movements out of and back into high work-family conflict between interviews can thus not be captured.

Table 6.4: Proportion of workers experiencing employment-related changes, by level of work-family conflict—Working parents with children aged under 18, 2001 to 2017 (pooled) (%)

	<i>Reduce hours</i>	<i>Change working schedule</i>	<i>Give up supervision</i>	<i>Change employer</i>	<i>Change occupation</i>	<i>Mean number of events</i>
Low conflict	30.1	16.1	17.6	10.6	30.9	0.9
High conflict—persistent	33.8	17.0	13.7	11.1	29.0	1.0
High conflict—exiting	40.4	17.4	19.7	15.6	33.1	1.2

stayed in employment and 7% having left employment. Five years after the onset of high conflict, 87% have left this state, with a total of 74% staying employed and 12% leaving employment.

Nevertheless, the figure also shows that there is a small share of workers who experience high work-family conflict over an extended period: 21% of workers entering high work-family conflict experience it for at least three years; 13% of workers still experience high conflict after five years; and 6% after 10 years.

How do workers manage to remain employed and reduce work-family conflict? Table 6.4

compares the share of workers experiencing a range of employment-related changes from one year to the next among those who experience high work-family conflict in two consecutive years ('persistent') and those who experience high work-family conflict in one year but not the next ('exiting'). Workers who have low conflict in the first year and remain employed in the following year are also included in the table.

The table shows that workers who experience high work-family conflict but manage to reduce conflict the following year (that is, exit) were more likely than other workers to undertake changes

to their employment situation. For example, more than 40% of workers who exit high conflict reduced their working hours, compared to approximately 34% among those who continue to experience high conflict. They are also considerably more likely than other workers to change their employer, working schedule, occupation or to give up supervisory responsibilities. On average, workers who manage to reduce their work-family conflict undertook 1.2 of these changes, compared to 1.0 changes among workers with continued high conflict and 0.9 changes among workers with low conflict to begin with.



7

Family formation and labour market performance of young adults

Esperanza Vera-Toscano



Young adulthood, the period between the end of adolescence and the late 20s, is a time of significant change during which individuals graduate or leave school, settle into a career, start a new life on their own and/or choose to build a family. This chapter presents some important characteristics of this age group (aged 18 to 29) that will help us understand how the lives of young adults have changed since 2001.

Young adults living with their parents

Figure 7.1 shows that, despite the slight decline after 2007, the proportion of young adults living in the parental home has been growing over time. In 2001, 47.2% of men aged 18 to 29 and 36.5% of women aged 18 to 29 were living with their parents, while in 2017, 56.4% of men and 53.9% of women in this age range were living with their parents.

Women have experienced the larger increase between 2001 and 2017—47.7%, compared to 19.5% for men. This rise has been accompanied by a later age of departure. In fact, young adult women in 2017 who had left the parental home on average left at 24.2 years of age. This departure age has increased by over two years since 2001, when the corresponding average was 22.1 years. Similarly, young men no longer in the parental home had left their parents' home, on average, at 23.1 years of age in 2001 and at 23.5 years of age in 2017. These results suggest that young adults in Australia today are taking more time before entering living arrangements that have long defined adulthood.

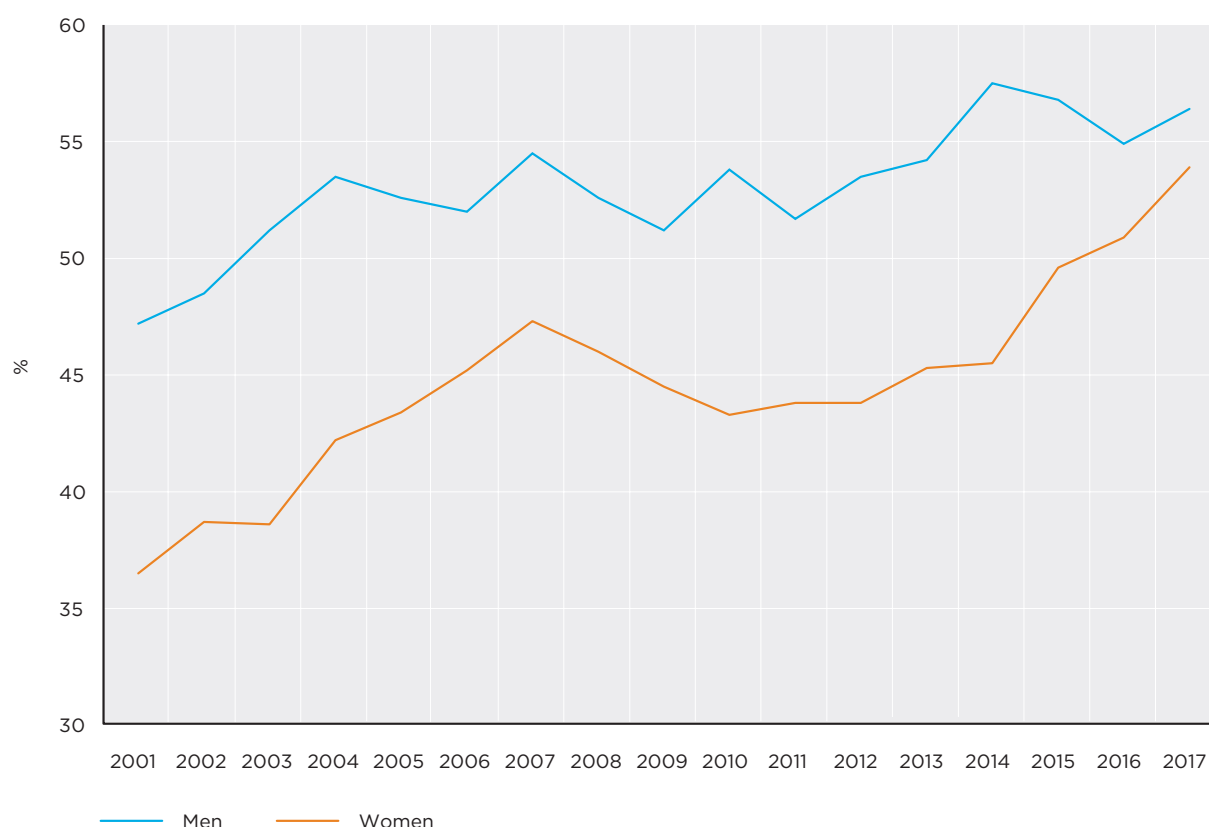
Figure 7.2 examines the proportion of young adults living

in the parental home disaggregated by age group. At least two interesting results warrant highlighting. First, the proportion of young adults living with their parents is, as expected, highest among the youngest cohort. Thus, we observe that, in 2017, 83.5% of men aged 18 to 21 lived with their parents, compared to 82.7% of women aged 18 to 21. This proportion drops to below 60% for both men and women aged 22 to 25, and to approximately 30% or below for those aged 26 to 29.

Second, across all age groups, we see a systematic increase in the share of young adults living with their parents over the period 2001 to 2017. Interestingly, however, the largest proportionate increases are found among younger women—32.5% for those aged 18 to 21 and 85.3% for those aged 22 to 25.

Table 7.1 shows annual rates of movement into and out of the parental home, for the 2001 to 2017 period as a whole, and for the 2001 to 2003 and 2015 to 2017 subperiods. The upper panel in the table reports the proportion of young adults who move out of home from one year to the next, while the lower panel reports the proportion who move back home from one year to the next. For example, the upper left cell of the top panel shows that,

Figure 7.1: Proportion of persons aged 18 to 29 living with one or both parents, by sex

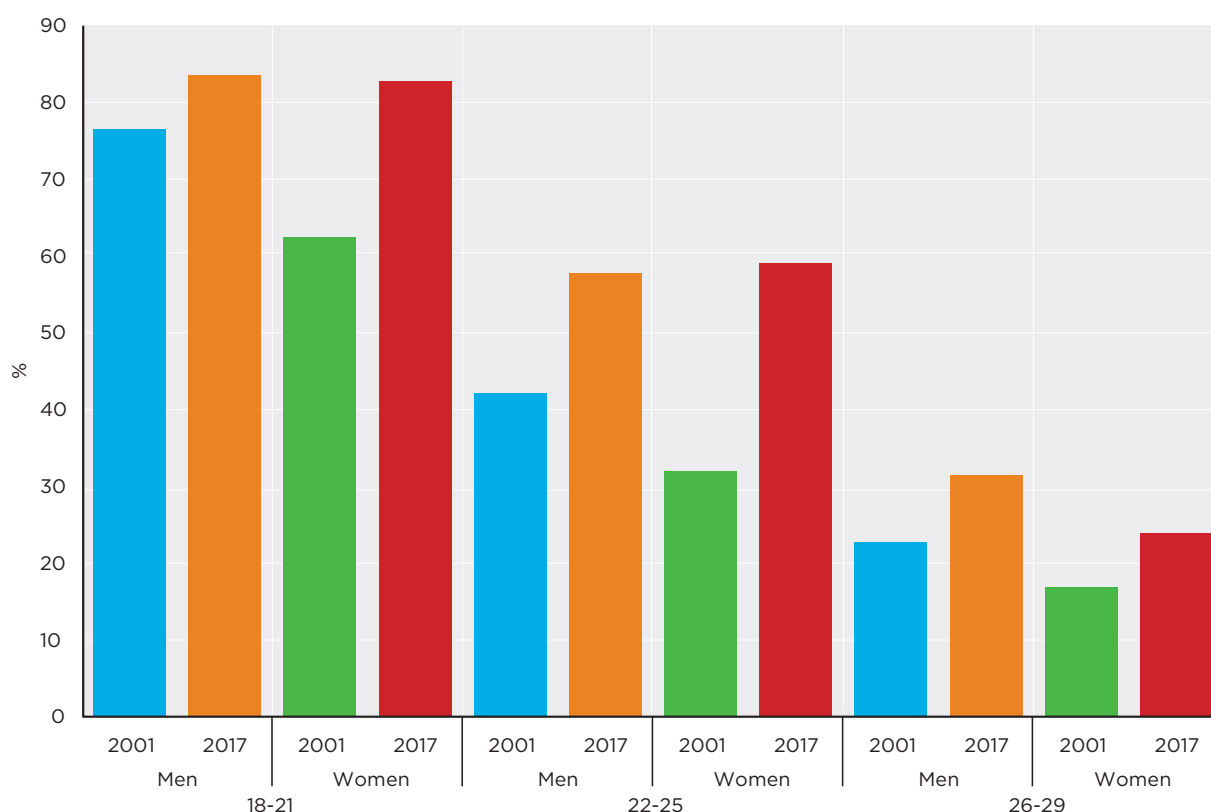


in the 2001 to 2003 period, on average 15.0% of men aged 18 to 21 living with their parents moved out from one year to the next. The upper left cell of the bottom panel shows that, in the same period, on average 7.8% of men aged 18 to 21 not living with their parents moved back into the parental home from one year to the next.

Overall, the results indicate that more young people move out of home than move back home. Thus, since 2001, 17.3% of young men living with their parents have, on average, moved out of their parents' home from one year to the next, compared to 20.5% of young women. As expected, older cohorts are more likely to move out of their parents' home. However, consistent with the growth in the proportion of young adults living in the parental home, there has been a small decrease in their mobility out of the parental



Figure 7.2: Proportion of persons aged 18 to 29 living with parents, by sex and age group



home. In the 2015 to 2017 period, the annual rate of movement out of home was 15.7% for young men and 18.3% for young women, compared with respective rates of 18.2% and 20.3% in the 2001 to 2003 period.

This notwithstanding, the proportion of young adults moving back home is not negligible. On average since 2001, 4.1% of young men, and 3.7% of young women living away from the parental home move back home each year. Moving back

home is most common among the youngest age group (18 to 21). Between 2001 to 2003 and 2015 to 2017 the proportion of young adults moving back has slightly decreased. Thus, the higher share of young adults living at home in recent years is driven by the lower proportion moving out, and not by growth in the proportion moving back home.

The growing proportion of young adults living with their parents is not a new phenomenon and is

not inherently either problematic or beneficial. An attempt to disentangle the drivers of the increased presence of young adults in their parents' home suggests that this growth appears to be driven mainly by economic factors and, to a lesser extent, by educational ones.

The circumstances and the timing of young people leaving their parental home change with social, cultural and economic developments. Marriage decline, the increase in the number of

Table 7.1: Annual rates of movement into and out of the parental home—Persons aged 18 to 29, by sex and age group (%)

	Men			Women		
	2001-2003	2015-2017	2001-2017	2001-2003	2015-2017	2001-2017
Proportion of those living at home who move out of home						
18-21	15.0	12.0	12.7	16.2	13.2	15.9
22-25	19.1	20.1	19.9	22.9	21.6	24.8
26-29	22.3	17.4	23.0	32.5	33.3	29.9
Total	18.2	15.7	17.3	20.3	18.3	20.5
Proportion of those living away from home who move back home						
18-21	7.8	6.7	8.7	6.5	5.1	8.2
22-25	6.6	4.8	4.5	*2.5	5.2	3.7
26-29	2.0	*1.6	*1.8	*1.2	*1.4	*1.5
Total	4.4	3.5	4.1	2.8	3.4	3.7

Note: * Estimate not reliable

young people undertaking post-secondary education and possibly the decline in employment opportunities for young people are some broad trends that are likely to influence the decision to leave the parental home.

The results in Table 7.2 focus on several socio-economic and demographic characteristics of young adults, namely, the proportions of young adults who are unemployed, full-time students (and not working) and single. All young adults are examined, as well as the subgroup living with their parents to identify whether those living with their parents are relatively over-represented among the unemployed, non-working full-time students and unpartnered young adults.

The table indeed shows that, compared with all young adults, those living with their parents are over-represented among the unemployed, non-working full-time students and those who are single. In 2001 to 2003, 7.0% of those living with their parents were unemployed, compared with 6.4% for all young adults, while 9.4% of those living with their parents were non-working full-time students, compared with 7.0% of all young adults. Similarly,



Table 7.2: Socio-economic characteristics of persons aged 18 to 29 (%)

	2001-2003		2015-2017	
	All young adults	Young adults living with parents	All young adults	Young adults living with parents
Unemployed	6.4	7.0	6.6	8.3
Full-time student not working	7.0	9.4	8.1	11.1
Single	56.0	76.0	61.3	80.0

76.0% of young adults living with their parents were single, compared with 56% of all young adults.

The gap between young adults living with their parents and the general population of young adults has, furthermore, grown over the course of this century for both unemployment and non-working full-time study. The gap in the proportion unemployed increased from 0.6 (7.0 minus 6.4) percentage points in the 2001 to 2003 period, to 1.7 (8.3 minus 6.6) percentage points in the 2015 to 2017 period. Similarly, over the same period, the gap in the proportion in non-employed full-time study rose from 2.4 (9.4 minus 7.0) percentage points to 3.0 (11.1 minus 8.1) percentage points.



Figure 7.3: Marital status of persons aged 18 to 29 living outside the parental home, by sex

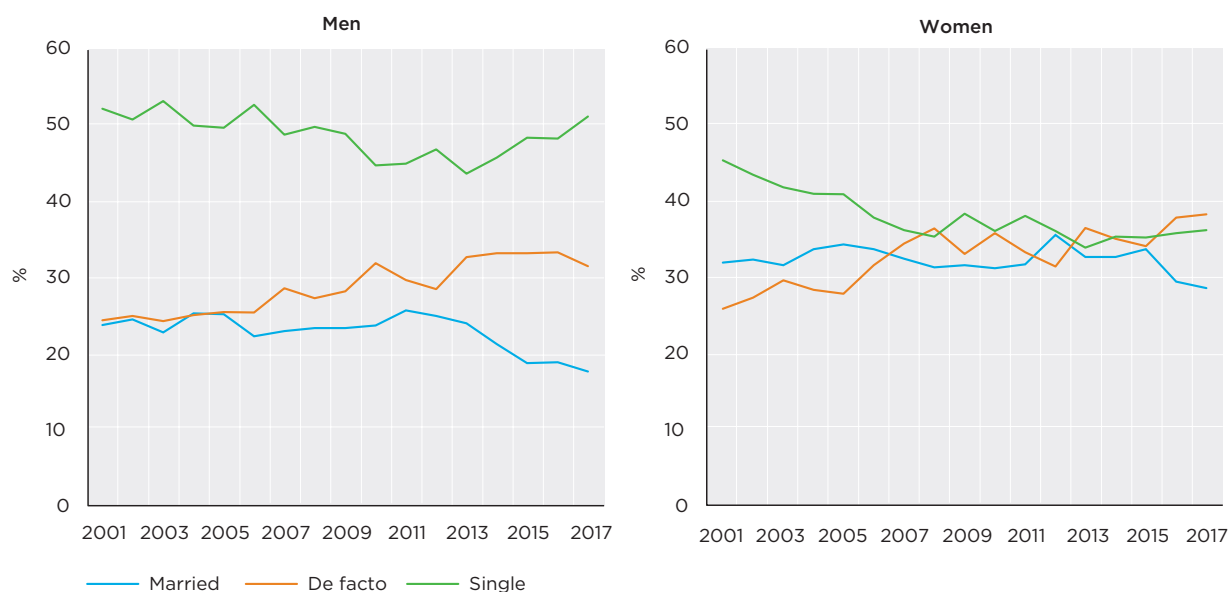
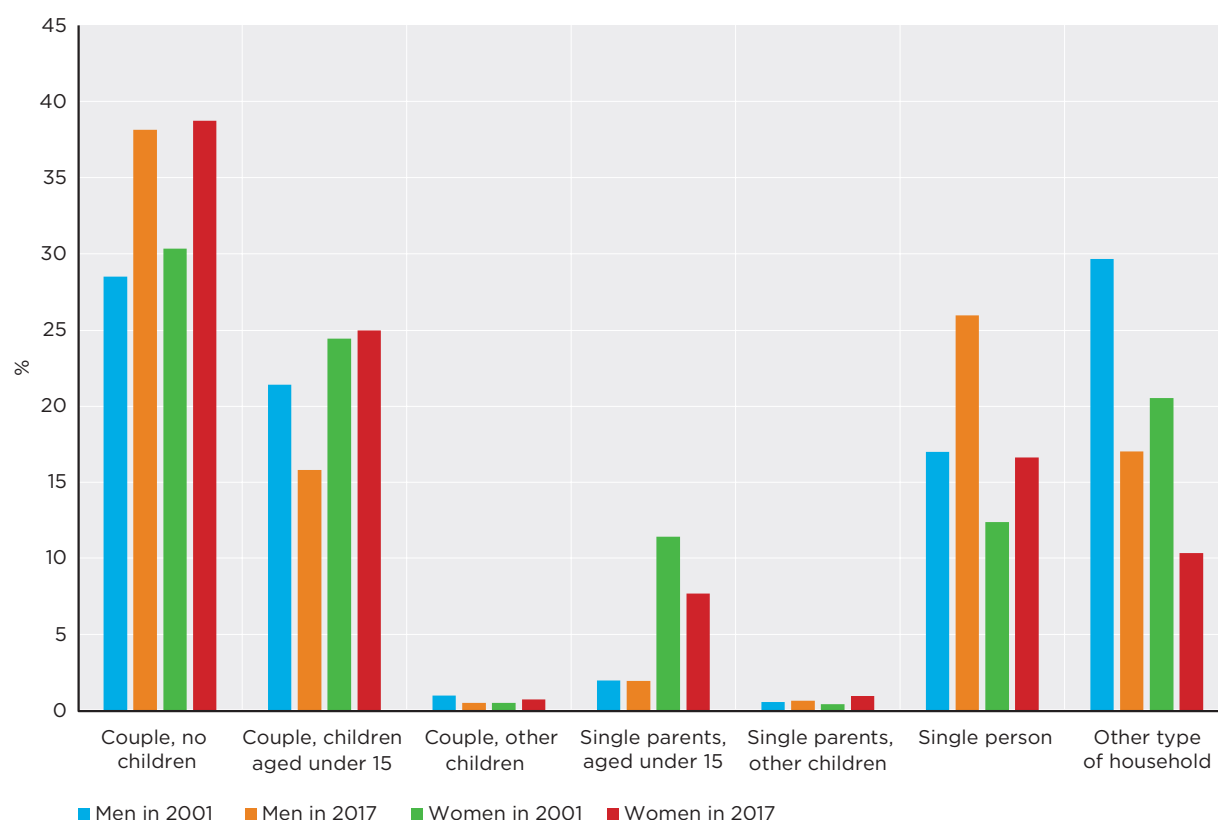


Figure 7.4: Household types of persons aged 18 to 29 who have moved out of their parental home, by sex



Notes: Couple and single-parent households containing children aged under 15 may also contain children aged 15 and over, other related people and unrelated people. Other couple and single-parent households containing children will not contain children aged under 15, but may contain other related and unrelated people. Couple households without children may contain other related and unrelated people. 'Other' households comprise group and multiple-family households.

Young adults and their family roles outside the parental home

Leaving the parental home is, without a doubt, an important step in the life of a young adult. However, results presented so far provide us with some evidence that this traditional milestone has been delayed until a little later in life, a common pattern experienced by other developed countries (OECD, 2011). This section presents additional information on the living arrangements and family circumstances of young adults once they leave their parental home and how this has evolved over the past 17 years.

Partnership and parenting are at the core of family formation.

Figure 7.3 shows how partner status and legal marital status have evolved over time for young adults living away from the parental home. A clear decrease in the proportion who are legally married is evident. For young adult men, this proportion goes from 23.7% in 2001 to 17.6% in 2017, whereas for young adult women, the decrease is less sharp, from 31.0% in 2001 to 27.8% in 2017. The decline in legal marriage does not reflect a decline in partnering, however, since there has been strong growth in the proportion in de facto marriages—7.1 percentage points for men and 11.9 percentage points for women.

Figure 7.4 provides information on the changes between 2001



and 2017 in the types of household young adults live in once they move out of their parental home. We observe significant increases in couples with no children—33.8% for men and 27.6% for women—and single-person households—52.7% for men and 34.1% for women. Declines have mostly been concentrated on ‘other’ household types, and on single-parent households for women and on couple households with children aged under 15 for men.

To further analyse the changes in living arrangements among young adults once they leave their parental home, Table 7.3 examines two cohorts of young adults: those aged 18 to 24 and living with their parents in 2001, and those aged 18 to 24 and

living with their parents in 2012. These two cohorts are followed for six years (to 2006 and 2017, respectively), at the end of which they are still young adults, aged 23 to 29. For each of these two cohorts, the table presents the proportions of young adults who are legally married, who are de facto married, who have dependent children, and who are both legally married and have dependent children, disaggregated by the number of years they have been living outside their parental home.¹

Unsurprisingly, partnering and having children are quite uncommon among young adults living with their parents, but there is also a tendency for partnering and having children to increase in prevalence the longer the time

out of the parental home. Comparing the two time periods, we also see a shift away from (legal) marriage which is only partially offset by a rise in de facto relationships.

Socio-economic roles of young adults: Labour market trends

Like family formation, gaining employment and financial independence from parents are also distinctive features of young adulthood. Figure 7.5, showing the proportion of young adults living in the parental home who are full-time students, provides evidence of why progression to



¹ Note that Table 7.3 includes all individuals aged 18 to 24 and living with their parents in the initial year (2001 or 2012), regardless of whether they moved out in the subsequent five years. Thus, only those who moved out in the first year are observed five years after leaving the parental home (bottom row of each panel of the table), whereas everyone who moved out at some stage in the six-year period is observed one year after leaving the parental home (second row of each panel). Differences in estimates by number of years outside the parental home will therefore reflect not only the effects of time out of the parental home, but also differences in who is observed, and the ages at which they are observed, at each length of time out of the parental home.

Table 7.3: Marital status and dependent children of young adults, by number of years living outside the parental home (%)

	<i>Married</i>	<i>De facto</i>	<i>Have dependent children</i>	<i>Married with dependent children</i>
Individuals aged 18 to 24 in 2001 and living in the parental home in 2001				
Living with parents	1.2	1.8	3.8	0.5
1 year outside the parental home	7.1	7.8	3.9	0.1
2 years outside the parental home	6.1	9.0	2.7	0.1
3 years outside the parental home	3.3	15.1	3.5	0.9
4 years outside the parental home	11.4	16.0	5.6	1.7
5 years outside the parental home	18.6	20.1	11.2	2.3
Individuals aged 18 to 24 in 2012 and living in the parental home in 2012				
Living with parents	2.4	2.8	1.7	0.7
1 year outside the parental home	2.2	6.5	4.7	0.1
2 years outside the parental home	1.6	9.3	3.1	0.4
3 years outside the parental home	5.4	20.4	4.5	1.9
4 years outside the parental home	6.4	16.1	5.3	1.8
5 years outside the parental home	13.1	20.8	5.7	2.4



Figure 7.5: Proportion of persons aged 18 to 29 living in the parental home who are full-time students, by sex and age group

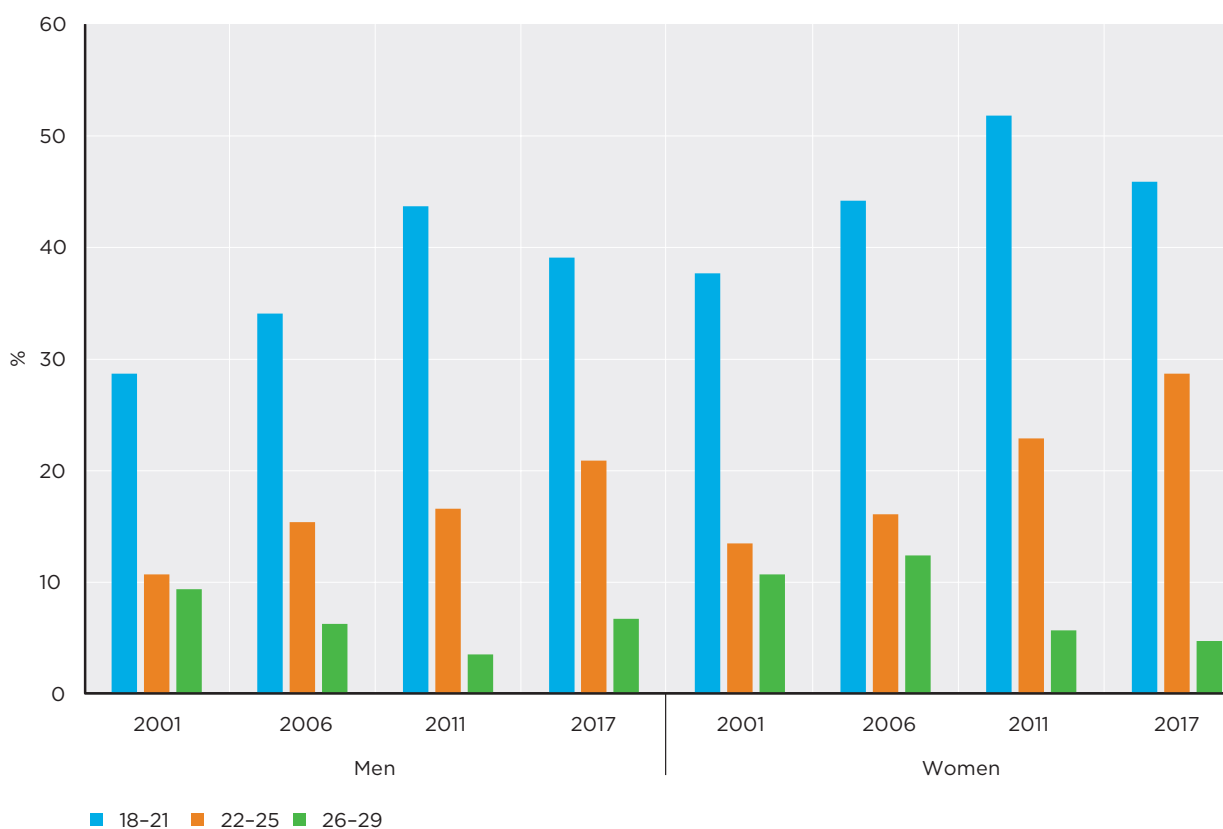
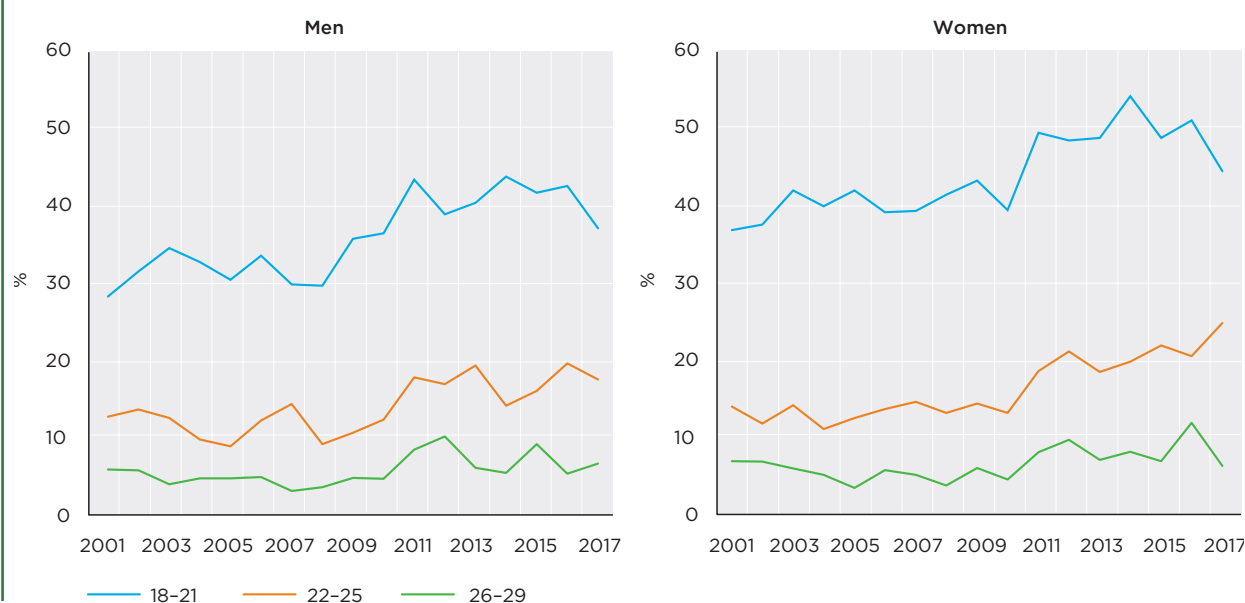


Figure 7.6: Proportion of persons aged 18 to 29 who are full-time students, by age group and sex



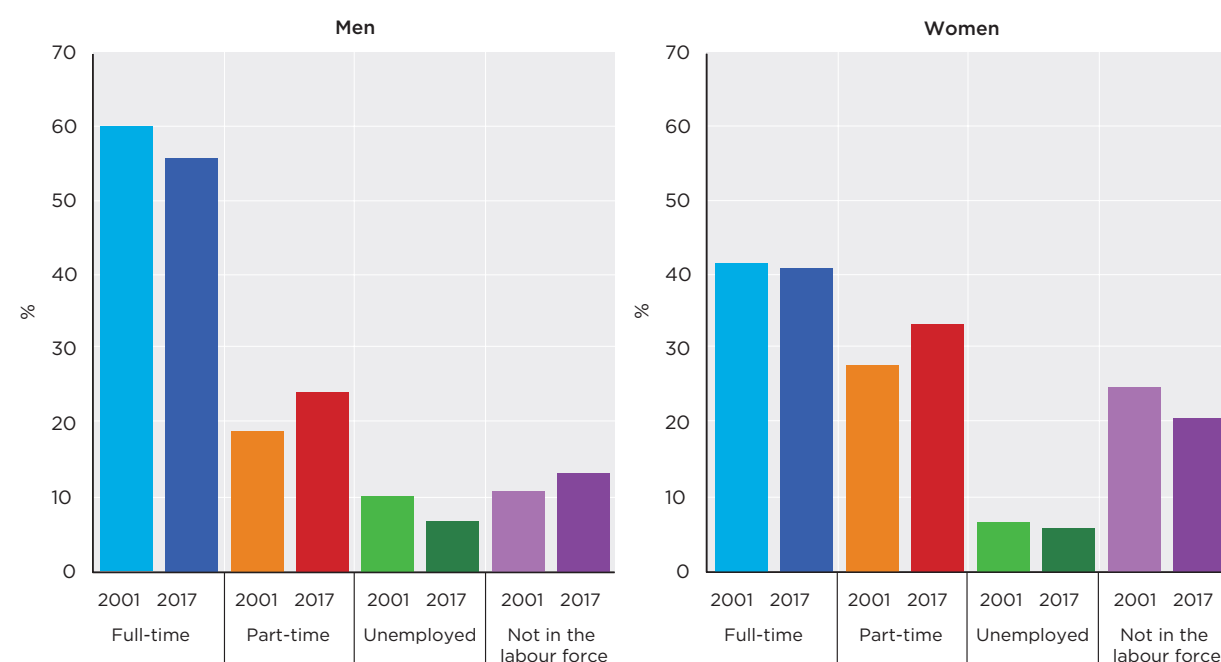
financial independence may be taking longer. The share of full-time students has risen considerably, especially among those young adults aged 22 to 25 still living at their parents' home.

Figure 7.6 provides information on the proportion of all young adults who are full-time students, irrespective of whether they live in the parental home or not. Results indeed confirm the rising education participation of young adults. Particularly significant is the increase among women aged 22 to 25, from 13.8 % in 2001 to 24.6% in 2017. This attests to the greater importance given to education today among young adults, particularly young women, who are delaying their departure from the parental home to undertake further education.

Turning to employment, Figure 7.7 shows the distribution of young adults among the different labour market states in both 2001 and 2017. Overall, full-time employment is more prevalent among men, with 56% being in this labour market state in 2017, compared to 41% of their female counterparts. However, this proportion decreased between 2001 and 2017, by 7 percentage



Figure 7.7: Labour force status of persons aged 18 to 29, by sex



points for men and by 1.4 percentage points for women. Approximately 33% of young women and 24% of young men were employed part-time in 2017, up from 28% and 19%, respectively, in 2001.

The proportion of young adults unemployed has decreased since 2001, both for men (by 3 percentage points) and women (by 1 percentage point). Interestingly, the proportion of women not in the labour force has also decreased from 25% to 21%. For male young adults, however, there has been a 2

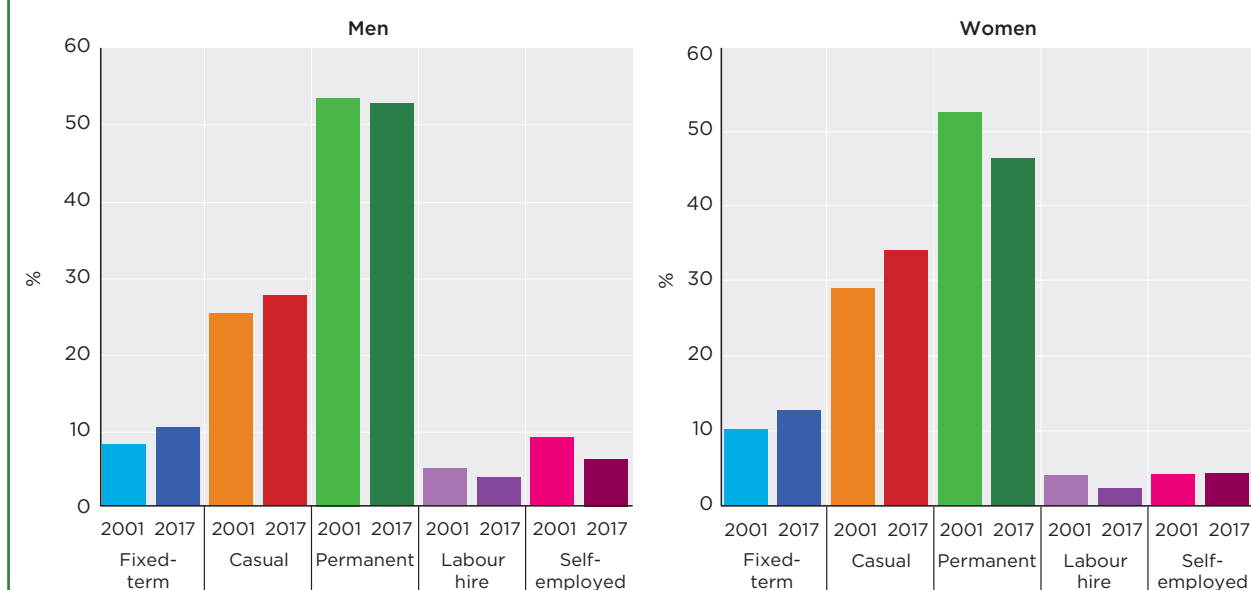
percentage-point increase in the rate of individuals not in the labour force. Overall, the trend for young adults between 2001 and 2017 has been one of declining unemployment and growth in part-time employment.

Figure 7.8 disaggregates employed young adults by type of employment (see Box 4.3, page 64). Permanent employment is the most prevalent form of employment among young adults, although this has declined slightly since 2001—more so for young-adult women: in 2017, 52% of employed

young men and 46% of employed young women were in this form of employment. Employed young men have also experienced a decline in self-employment, from 9% in 2001 to 6% in 2017.

Both young men and young women have experienced growth in fixed-term employment and casual employment. Between 2001 and 2017, fixed-term employment rose as a share of employment from 8% to 10% for young men and from 10% to 13% for young women. Over the same period, the casual employee share of employment

Figure 7.8: Employment type of persons aged 18 to 29, by sex



rose from 25% to 27% for young men and from 29% to 34% for young women.

Given the non-negligible proportion of young adults in casual employment, Figure 7.9 examines this type of employment in greater depth. Results show the rate of casual employment is considerably higher among young adults than among older working-age adults. Casual employment has also grown among young adults since around the time of the Global Financial Crisis (GFC) in 2008, both in absolute terms and relative to older adults. In 2017, 22% of men aged 18 to 29 and 25% of women aged 18 to 29 were employed in casual jobs, compared with 7% of men aged 30 to 64 and 10% of women aged 30 to 64.

These patterns in part reflect the level of, and growth in, post-secondary education participation among young adults. However, weakening labour market demand for young workers also seems to have played a role, since the growth in casual employment coincides with the post-GFC weakening of the economy.



Figure 7.9: Proportion of individuals in casual employment, by sex and age group

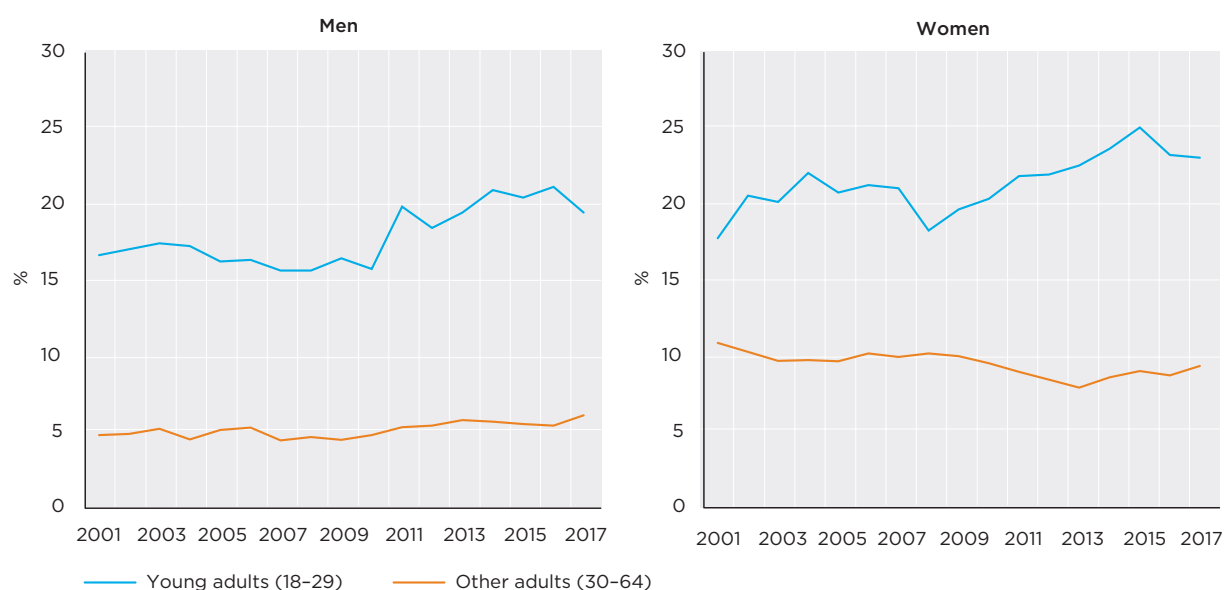


Figure 7.10 compares the persistence of casual employment for young adults and older working-age adults. It plots 'survival functions' (explained in the Technical Appendix), which show, for those who commence employment in a casual job, the proportion still in casual employment each year after commencement of casual employment. For example, the figure shows that, of young adult men who commenced employment in a casual job, approximately 46% are still employed in casual jobs after one year, and 15% are still in casual jobs three years later.²

It is evident that persistence of casual employment is greater among young adults than among older working-age adults, but

only up to approximately five years. Persistence beyond five years is higher for older adults, for both men and women, although the differences are slight. Indeed, despite the higher rate of persistence beyond five years compared with young adults, very few older adults actually remain continuously in casual employment beyond five years: less than 2% of older-adult men, and less than 5% of older-adult women, are still in casual employment six years after commencing a casual job.

Turning to earnings of those in employment, Figure 7.11 presents the mean hourly earnings of young employees over the 2001 to 2017 period. Over the period as a whole, hourly earnings for young adult employees increased

in real terms by 7.9% for men and 8.6% for women. However, the growth all occurred up to around 2011 or 2012. Indeed, for men aged 18 to 29, the mean hourly wage has been trending downwards since 2012, and in 2017 was 6% lower than it had been at its 2012 peak.

Figure 7.12 considers the extent of earnings inequality among young adult employees. It plots the Gini coefficient for their hourly wages over the 2001 to 2017 period, separately examining men and women. (The figure presents three-year averages of the Gini coefficient to reduce spurious volatility.) Inequality is higher among male young adults and has also grown to a greater degree over the 2001 to 2017 period. For male young adults,

² Note, however, that casual employment is only measured at the time of annual interview. A small proportion of people who appear to have been continuously in casual employment will, in fact, have left and then returned to casual employment between the annual interviews, and so will not have been continuously in casual employment.

Figure 7.10: Survival function for casual employment spells, by sex and age group

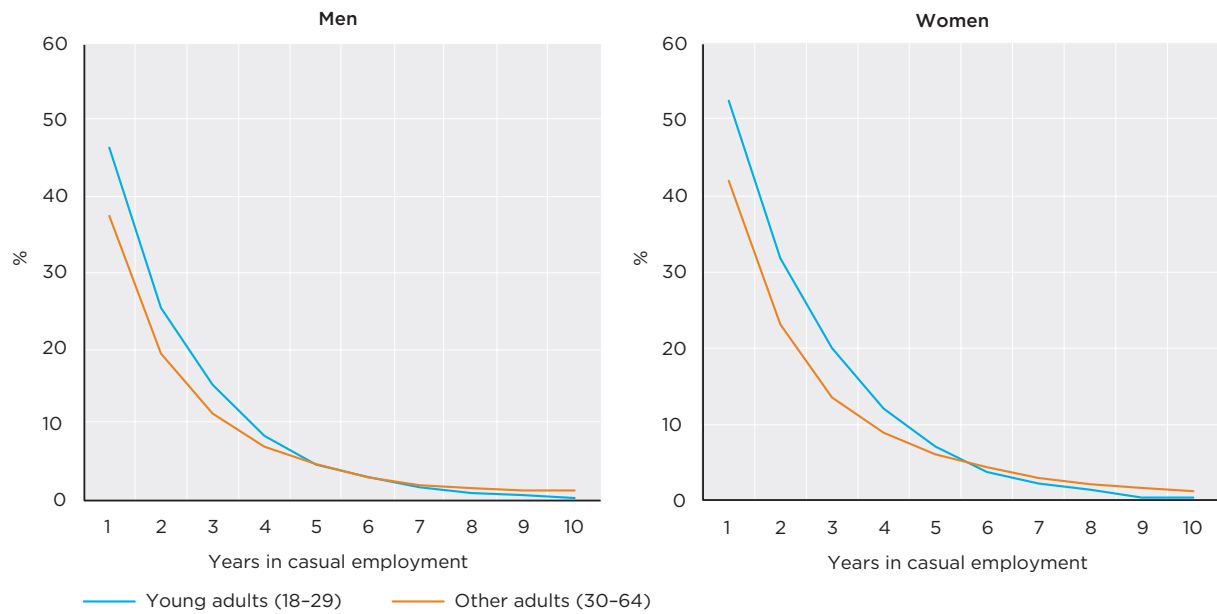
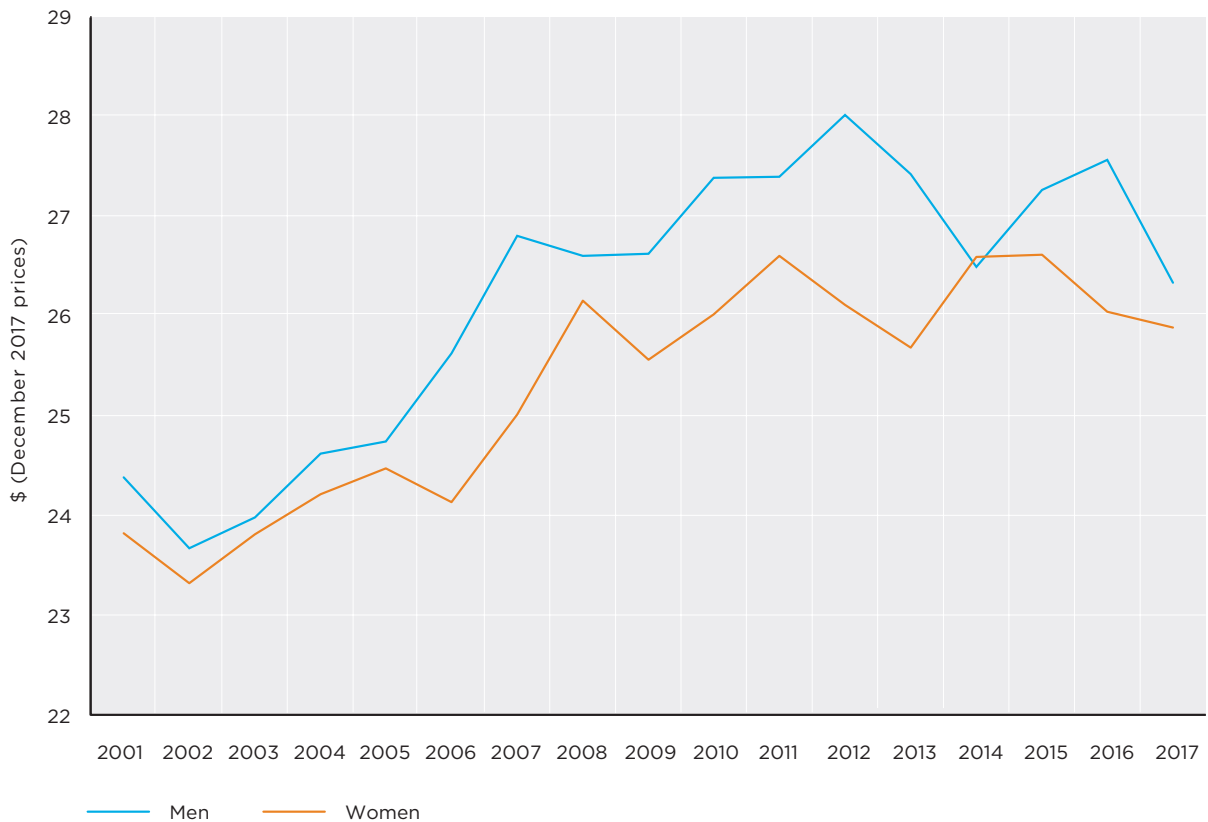
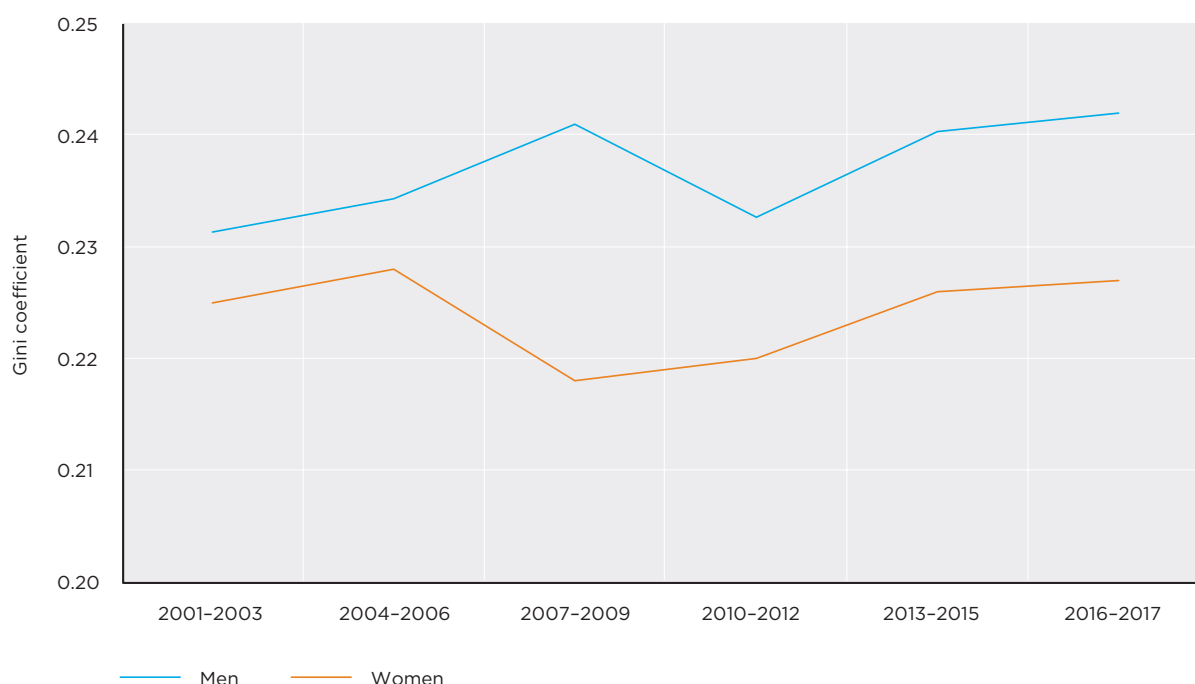


Figure 7.11: Mean hourly earnings in main job of employees aged 18 to 29, by sex



Note: Hourly earnings less than \$2 and more than \$500 at December 2017 prices have been excluded.

Figure 7.12: Earnings inequality (Gini coefficient) among employees aged 18 to 29, by sex



Note: Gini coefficients have been averaged over three years, except for 2016 and 2017 where the average for the two years has been calculated.

the Gini coefficient increased by 8.2% between 2001 and 2017, while for female young adults it increased by 1.3% over the same period. Thus, the declining labour market fortunes of young adults have also been accompanied by growth in inequality among those participating in the labour market, particularly for men.

Concluding comments

Young adulthood is a unique period of life in which significant challenges are posed, and individuals are expected to

assume new responsibilities and obligations. Success or failure in navigating these pathways will ultimately affect the future trajectories of their adult lives.

The share of young adults living with their parents has significantly increased since 2001. This increase has particularly been led by female young adults who are now two years older on average than they were in 2001 (24 versus 22) when leaving their parental home. This trend is likely to have been driven by both social factors and economic factors, such as the changes in the labour market for young adults presented in this chapter

and changes in the housing market. The significant increase in the participation of young adults in post-secondary education (particularly among those aged 22 to 25) may further explain this delay.

Consistent with later movement out of the parental home is a broader pattern of young adults taking more time before entering into family roles that have long defined adulthood, and they are sequencing these roles in multiple ways. Notably, de facto relationships have grown in importance, at least in part because they are increasingly the first step when forming a family.



8

Serious illness conditions

Roger Wilkins



Health information is collected by the HILDA Survey in every wave, but in every four waves since Wave 9 (2009) additional health-related questions have been administered in both the interview and self-completion components. Topics covered include health of children in the household, health of respondents as children, diagnosed serious illness conditions, health care utilisation, private health insurance, restrictions due to disability, caring provided for others with a disability, diet and dieting, physical activity, and quantity and quality of sleep. In addition, in 2017, respondents were asked about their current and lifetime consumption of illicit drugs via a battery of questions in the self-completion questionnaire.

In this report, three topics are briefly examined that draw on the health-related information collected by the HILDA Survey: serious illness conditions (this chapter); health expectations and health outcomes (Chapter 9); and illicit drug consumption (Chapter 10).

Prevalence of diagnosed serious illness conditions

In 2009, 2013 and 2017, the interview component of the HILDA Survey ascertained from respondents whether they have been diagnosed with various serious illness conditions which they currently still have and which have lasted, or are expected to last, six months or more. Table 8.1 lists the conditions and provides estimates of the prevalence of each condition disaggregated by year, sex and age group.

With the exception of asthma, depression or anxiety and other mental illness, the conditions are most prevalent in the oldest age group and least prevalent in the youngest age group. Asthma is most prevalent among the youngest age group (15–34), while depression or anxiety is most prevalent in the middle (35–54) age group.

Women have somewhat higher reported rates of diagnosed depression or anxiety than men, and considerably higher rates of arthritis or osteoporosis.

In interpreting these results, it is important to recognise that reported prevalence could diverge from actual prevalence because of the potential for undiagnosed conditions. Estimated prevalence rates will therefore be affected by the propensity of individuals to present at health providers. This is unlikely to be the same across demographic groups; men, in particular, are less likely to see medical practitioners (see, for example, Wilkins and Warren, 2012) and therefore are at greater risk of undiagnosed conditions. That said, men aged 55 and over nonetheless have high reported rates of diagnosed Type 1 diabetes, Type 2 diabetes, cancer and heart disease.

Comparing across the eight-year span from 2009 and 2017, the main apparent change is a substantial increase in diagnosed

Table 8.1: Prevalence of selected serious illness conditions, by sex and age group, 2009, 2013 and 2017 (%)

	<i>Males</i>			<i>Females</i>		
	<i>15-34</i>	<i>35-54</i>	<i>55 and over</i>	<i>15-34</i>	<i>35-54</i>	<i>55 and over</i>
2009						
Arthritis or osteoporosis	1.4	9.2	29.7	1.6	12.6	47.9
Asthma	11.7	7.1	7.8	14.1	11.3	12.7
Any type of cancer	0.3	1.5	8.8	0.5	2.2	5.8
Chronic bronchitis or emphysema	0.2	0.9	5.6	0.6	1.7	4.4
Type 1 diabetes	0.7	0.8	1.8	0.7	0.7	1.0
Type 2 diabetes	0.8	3.1	15.0	0.6	3.4	9.1
Depression or anxiety	6.1	8.9	8.3	12.8	13.4	11.7
Other mental illness	1.5	1.3	2.0	1.3	1.5	1.0
Heart disease	0.3	2.0	13.6	0.2	1.6	11.1
High blood pressure	2.1	11.8	36.3	1.9	11.1	43.0
Any other serious circulatory condition (e.g., stroke, hardening of the arteries)	0.1	1.4	7.0	0.4	1.4	5.8
2013						
Arthritis or osteoporosis	1.5	8.7	28.6	2.4	11.8	47.1
Asthma	9.4	6.9	9.5	11.6	10.5	12.1
Any type of cancer	0.8	1.9	9.4	0.4	1.7	5.0
Chronic bronchitis or emphysema	0.1	0.9	4.5	0.3	1.4	4.6
Type 1 diabetes	0.4	0.8	2.4	0.5	0.6	1.5
Type 2 diabetes	0.3	3.4	15.1	0.3	3.1	10.0
Depression or anxiety	7.3	11.1	9.6	13.4	17.0	13.6
Other mental illness	2.5	1.8	1.0	1.9	1.8	1.1
Heart disease	0.1	2.1	14.7	0.2	1.1	10.6
High blood pressure	1.7	11.7	40.8	0.9	10.1	44.3
Any other serious circulatory condition (e.g., stroke, hardening of the arteries)	0.3	1.8	7.3	0.8	1.4	5.6
2017						
Arthritis or osteoporosis	1.1	9.2	27.6	1.6	11.2	45.9
Asthma	10.0	8.0	9.0	11.5	11.7	12.9
Any type of cancer	0.2	2.0	9.1	0.4	2.5	5.6
Chronic bronchitis or emphysema	0.4	0.7	4.4	0.2	1.5	4.6
Type 1 diabetes	0.5	0.8	2.0	0.4	0.9	1.2
Type 2 diabetes	0.5	3.3	15.2	0.5	3.1	10.3
Depression or anxiety	11.2	13.5	11.5	20.1	19.4	16.5
Other mental illness	2.3	2.6	1.5	3.1	3.2	1.2
Heart disease	0.4	1.9	16.1	0.2	1.3	10.0
High blood pressure	1.3	10.9	39.9	1.7	9.6	42.7
Any other serious circulatory condition (e.g., stroke, hardening of the arteries)	0.3	1.8	9.2	0.5	1.7	7.4



depression and anxiety.¹ Between 2009 and 2017, the proportion reporting having this condition rose from 6.1% to 11.1% among males aged 15 to 34, from 8.9% to 13.5% among men aged 35 to 54, and from 8.3% to 11.5% among men aged 55 and over. Among females, the corresponding changes were from 12.8% to 20.1% of females aged 15 to 34, from 13.4% to 19.4% of women aged 35 to 54, and from 11.7% to 16.5% of women aged 55 and over.

Onset and persistence of conditions

Table 8.2 shows rates of onset and persistence of the conditions over a four-year period, disaggregated by age group. The left panel shows, for those who did not have the relevant condition in the initial year, the proportion who reported having

the condition four years later. The right panel shows, for those who had the relevant condition in the initial period, the proportion who did not report having the condition four years later. Both the 2009 to 2013 and the 2013 to 2017 periods are examined (combined).

The table shows that rates of onset vary considerably across the 11 conditions examined and also vary considerably by age group. For example, 20.6% of those aged 55 and over in the initial year who did not have arthritis or osteoporosis subsequently reported, four years later, that they now had the condition. At the other end of the spectrum, rates of onset among people aged 15 to 34 are less than 1% for six of the 11 conditions examined.

For most conditions, the rate of onset is higher the older the age group. The exceptions are the same as for the prevalence rates

presented in Table 8.1: asthma, depression or anxiety and other mental illness. Also consistent with the evidence in Table 8.1 is the high rate of onset of depression and anxiety, particularly among those aged 15 to 34.

Reflecting the chronic nature of many of the serious illness conditions, their rates of persistence over four years are mostly quite high—generally well over 50%. Persistence does, however, appear to vary across conditions, and is also generally—but not always—highest for the oldest age group and lowest for the youngest age group. Despite the high rates of persistence, for some conditions persistence is lower than we should expect. Notably, Type 1 diabetes has no cure, and yet 22.3% of those aged 15 to 34, 23.1% of those aged 35 to 54, and 44.6% of those aged 55 and over who reported having Type 1 diabetes did not report having it four years later.



¹ In 2017, depression and anxiety were separately identified, but in 2009 and 2013 were combined into a single category. They are therefore combined in 2017 in this report to allow examination of changes over the 2009 to 2017 period.

Table 8.2: Rates of onset and persistence of selected serious illness conditions, by initial age group (%)

	<i>Rate of onset of condition: Proportion of those without the condition who reported having the condition four years later</i>			<i>Persistence of condition: Proportion of those with the condition who reported still having the condition four years later</i>		
	15–34	35–54	55 and over	15–34	35–54	55 and over
Arthritis or osteoporosis	1.8	7.7	20.6	38.3	63.8	74.5
Asthma	3.9	3.2	3.4	65.1	71.1	73.3
Any type of cancer	0.4	2.0	4.9	6.1	28.8	44.0
Chronic bronchitis or emphysema	0.3	1.0	2.4	1.6	53.0	63.3
Type 1 diabetes	*0.1	0.6	1.1	77.7	76.9	53.4
Type 2 diabetes	0.4	1.8	3.9	82.9	76.3	83.9
Depression or anxiety	9.1	7.8	6.6	60.3	69.8	64.8
Other mental illness	1.8	1.3	0.7	57.4	57.7	24.0
Heart disease	*0.1	1.5	7.2	24.1	61.6	67.5
High blood pressure	1.6	6.9	18.3	48.4	76.3	84.8
Any other serious circulatory condition (e.g., stroke, hardening of the arteries)	0.6	1.7	5.8	15.3	28.9	41.2

Note: * Estimate not reliable.

Rates of mortality associated with serious illness conditions

The estimates presented in Table 8.2 necessarily relate only to people who were alive over the entire four-year period being examined. This can create a misleading impression about the persistence or severity of an illness if it increases mortality. For example, cancer appears to have relatively low persistence, but will have relatively high mortality. Associations between the conditions and mortality are therefore examined in Table 8.3, over both a four-year period and an eight-year period. (See Box 8.1, page 129, for explanation of how deaths are identified in the HILDA Survey.)

Note that four-year mortality is based on both 2009 and 2013 data on serious illness conditions, whereas eight-year mortality is based only on 2009 data. To the extent that medical advances over time are reducing mortality, the eight-year estimates will be higher than would be found if it

Box 8.1: Identification of deaths in the HILDA Survey

Ascertaining whether a sample member has died is not always straightforward. Often, other household members can provide this information, but if the sample member was living alone or with only non-responding sample members, it can be difficult to distinguish death from attrition (non-response) or indeed from the sample member becoming out of scope (for example, because they moved overseas).

For Release 13 of the HILDA Survey (covering Waves 1–13), information from the National Death Index was used to attempt to better identify HILDA sample members who had died up until 2012. A statistical matching process was used, as described in Watson and Summerfield (2014), resulting in the identification of 304 additional deaths, in addition to the 1,238 deaths that were already identified to that point in time. Of course, for the period since 2012, there will again be some individuals incorrectly classified as non-responding sample members who are in fact deceased, so that deaths will be underestimated for the 2013 to 2017 period.



was possible to include eight-year mortality for 2013 data (but which will not be possible until 2021 data is available). It should also be acknowledged that the mortality rates presented in the table simply show empirical associations and do not identify the causal effects of each condition on mortality.

As suggested above, cancer is associated with relatively high mortality rates, especially among people aged 55 and over. However, several other conditions are associated with similar, or even higher, mortality rates.

Over a four-year period, the mortality rate among those aged 35 to 54 is 14.4% for Type 1 diabetes and 10.9% for heart disease, compared with 8.6% for cancer; among those aged 55 and over, cancer has the highest four-year mortality rate, 17.0%, but heart disease and chronic bronchitis or emphysema have almost the same four-year mortality rates.

Over an eight-year period, Type 1 diabetes has the highest mortality rate for both people aged 35 to 54 (24.7%) and people aged 55 and over (36.8%).

Among those aged 35 to 54, mortality rates are also high for cancer (17.6%) and heart disease (14.7%). Among those aged 55 and over, mortality rates are also high for 'any other' serious circulatory condition (33.5%), chronic bronchitis and emphysema (31.7%), heart disease (30.3%) and cancer (29.4%). By comparison, for those without any of the serious illness conditions, the eight-year mortality rate is 0.8% for those aged 35 to 54 and 8.5% for those aged 55 and over.



Table 8.3: Mortality over four years and over eight years of individuals with selected serious illness conditions, by initial age group (%)

	Four years			Eight years		
	15-34	35-54	55 and over	15-34	35-54	55 and over
Arthritis or osteoporosis	*0.8	1.5	8.5	2.7	1.5	17.4
Asthma	*0.6	0.9	8.2	1.0	2.0	17.4
Any type of cancer	6.4	8.6	17.0	6.9	17.6	29.4
Chronic bronchitis or emphysema	*0.0	1.0	16.0	*0.0	1.9	31.7
Type 1 diabetes	2.7	14.4	13.2	5.6	24.7	36.8
Type 2 diabetes	*0.4	3.8	11.0	*0.0	5.9	20.2
Depression or anxiety	*0.6	1.5	8.3	1.0	3.0	14.7
Other mental illness	1.5	2.0	10.8	3.7	2.1	22.8
Heart disease	*0.0	10.9	16.3	*0.0	14.7	30.3
High blood pressure	*0.1	1.8	7.9	*0.3	2.8	17.2
Any other serious circulatory condition (e.g., stroke, hardening of the arteries)	5.5	8.0	16.0	17.1	4.8	33.5
Population as a whole	0.2	0.8	7.6	0.4	1.6	16.9
Population without any of the above conditions	0.1	0.3	3.6	0.2	0.8	8.5

Note: * Estimate not reliable

Table 8.4: Proportion of individuals with serious illness conditions regularly seeing a doctor, by sex, 2009, 2013 and 2017 (%)

	2009		2013		2017	
	Males	Females	Males	Females	Males	Females
Arthritis or osteoporosis	72.4	76.0	72.6	76.8	72.6	76.9
Asthma	47.0	62.7	47.9	62.1	51.0	64.9
Any type of cancer	92.3	93.1	89.5	93.5	89.0	90.6
Chronic bronchitis or emphysema	85.7	87.6	92.6	87.2	83.1	85.9
Type 1 diabetes	96.3	95.0	98.7	95.6	93.4	96.8
Type 2 diabetes	93.1	93.9	92.7	95.4	93.8	93.7
Depression or anxiety	77.0	76.2	73.7	77.0	69.6	72.7
Other mental illness	84.4	87.1	78.4	86.5	78.7	85.4
Heart disease	94.0	95.1	93.9	93.4	94.2	96.2
High blood pressure	89.9	92.5	87.1	92.6	87.6	92.2
Any other serious circulatory condition (e.g., stroke, hardening of the arteries)	94.1	90.3	92.1	92.2	91.4	92.0
Any of the above conditions	71.1	73.1	70.9	73.4	69.8	72.4

Treatment of serious illness conditions

For people with one or more of the serious illness conditions, information is also obtained by the HILDA Survey on treatment received for these conditions, including whether a doctor is regularly seen about one or more of these conditions. Table 8.4 shows the proportion of people with one or more serious illness conditions regularly (at least annually) seeing a medical practitioner about at least one of those conditions.

Most people with these conditions appear to regularly see a doctor, although approximately half of male asthma sufferers and one-third of female asthma sufferers do not regularly see a doctor, and approximately one-quarter of those diagnosed with depression and/or anxiety do not regularly see a doctor. There is little evidence of change in propensity to see a doctor over the period from 2009 to 2017.

Associations between receiving treatment, defined as regularly seeing a doctor, and health

outcomes of people with serious illness conditions, are examined in Table 8.5. Only conditions where approximately 10% or more of people with the condition do not regularly see a doctor are considered in the table. This eliminates Type 1 diabetes, Type 2 diabetes, heart disease and 'any other' serious circulatory conditions. For each of the remaining seven conditions, four-year persistence, four-year change in self-assessed health, four-year mortality and eight-year mortality are examined, disaggregated by whether treatment was being received.

Persistence is in fact considerably higher among those receiving treatment for all seven conditions, for both males and females. This almost certainly reflects the fact that people are more likely to receive treatment for more severe illnesses, rather than an adverse effect of treatment on the likelihood of being cured. Consistent with this, mortality rates are much higher for those observed to be receiving treatment.

Interestingly, however, the mean change in self-assessed health over a four-year period was better (more positive, or less



Table 8.5: Health outcomes of people with selected serious illness conditions, by sex and whether they regularly see a doctor

Regularly see doctor?	Four-year persistence of condition (%)		Four-year change in reported health (1–5 scale)		Four-year mortality (%)		Eight-year mortality (%)	
	No	Yes	No	Yes	No	Yes	No	Yes
Males								
Arthritis or osteoporosis	49.9	69.1	–0.043	–0.041	2.6	9.4	5.5	18.0
Asthma	58.9	76.5	–0.070	0.037	0.3	6.7	1.1	11.3
Any type of cancer	29.3	46.4	–0.053	–0.065	4.6	16.3	9.0	29.6
Chronic bronchitis or emphysema	47.0	66.5	–0.202	–0.085	7.8	19.8	22.2	31.5
Depression or anxiety	47.9	69.1	0.053	0.096	0.6	6.4	1.0	9.8
Other mental illness	33.1	50.8	0.123	–0.197	1.6	4.4	*0.0	10.4
High blood pressure	63.1	81.9	–0.072	–0.034	*0.8	7.5	*0.8	14.6
Females								
Arthritis or osteoporosis	67.4	77.4	–0.138	–0.040	2.1	7.2	4.5	14.9
Asthma	63.5	75.8	–0.083	–0.021	*0.1	4.6	*0.2	9.5
Any type of cancer	20.2	32.4	0.295	–0.014	*0.0	14.8	*0.0	24.9
Chronic bronchitis or emphysema	20.5	57.4	0.094	–0.100	3.7	6.8	4.9	18.5
Depression or anxiety	55.7	70.7	–0.027	0.031	0.3	2.9	1.3	5.7
Other mental illness	49.5	51.8	0.300	0.200	*0.0	4.7	*0.0	10.8
High blood pressure	58.7	85.5	0.010	–0.086	2.6	6.2	9.2	13.1

Note: * Estimate not reliable



negative) among those regularly seeing a doctor for five of the seven conditions for males—arthritis or osteoporosis, asthma, chronic bronchitis or emphysema, depression or anxiety, and high blood pressure—and three of the seven conditions for females—arthritis or osteoporosis, asthma, and depression or anxiety. These results are, of course, conditional on still being alive four years later.

Factors associated with onset of serious illness conditions

Table 8.6 looks for empirical associations between characteristics, behaviours and events on the one hand, and subsequent onset of selected serious illness conditions on the other hand. The table focuses on the more prevalent conditions that tend to arise in adulthood. Consequently, asthma and Type 1

diabetes, which commonly first arise in childhood, are excluded from the table, as are chronic bronchitis or emphysema, ‘any other’ mental illness and other serious circulatory conditions, which have relatively low prevalence rates. The number of observations differs for each condition because the number of people initially without the condition varies. For example, more people have arthritis or osteoporosis than have cancer, so there are fewer observations for the model of the probability of onset of arthritis or osteoporosis.

Estimates presented in the table are mean marginal effects from Probit models of the probability of experiencing onset of the condition over the four-year period. (See the Technical Appendix for a brief explanation of these models.) The potential factors considered include demographic characteristics, economic circumstances, general health and disability, health behaviours, personality traits,

attitudes to risk and saving, and various life events over the four-year period.

All factors other than life events are measured at the start of the four-year period—that is, before the (potential) onset of the conditions. However, despite this regression framework, no causal inferences are possible based on the results, which simply show who is most prone to onset of the conditions, without explaining why this may be the case. That said, identifying empirical associations can be an important basis for more thorough causal analysis.

Males are less likely to report being diagnosed with arthritis or osteoporosis and depression or anxiety, but are more likely to report being diagnosed with cancer, Type 2 diabetes and heart disease. Consistent with the findings presented in Table 8.1, a clear age-gradient is evident for all conditions other than depression or anxiety—the older the age group, the higher the probability of reporting onset of the condition.

For most of the conditions, there is no significant association between family type and onset of diagnosed conditions. The notable exceptions are that couples with dependent children are less likely to report diagnosed arthritis or osteoporosis, depression or anxiety, and high blood pressure.

Indigenous people are, all else equal, more likely to report being diagnosed with Type 2 diabetes and heart disease, but no other significant differences by Indigenous status are evident. Immigrants from countries other than the main English-speaking countries are significantly more likely to report onset of Type 2 diabetes and high blood pressure, but significantly less likely to report onset of cancer and depression or anxiety.

Box 8.2: Experience 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.



Onset of arthritis or osteoporosis appears to be significantly higher for people living outside the major urban areas, while people living in non-urban areas are significantly less likely than people in urban areas to report onset of diagnosed depression or anxiety. No other significant differences by region of residence are evident.

Labour force status has little association with risk of onset of conditions, with the exceptions that employment is associated with a lower probability of onset of depression or anxiety, and unemployment is associated with a higher probability of onset of heart disease. No effects are

evident of long hours of work, defined here as usually working more than 50 hours per week.

The effects of economic wellbeing are captured by three variables: household equivalised income (see Box 3.2, page 30), experience of relative income poverty (see Box 3.6, page 42) and experience of financial stress (see Box 8.2, page 133). Higher household income is associated with a lower risk of onset of depression or anxiety and high blood pressure, but has no significant association with the onset of the other conditions. Experience of financial stress is associated with a higher risk of both cancer and arthritis or

Table 8.6: Factors associated with onset of selected serious illness conditions over a four-year period

	Arthritis or osteoporosis	Any type of cancer	Type 2 diabetes	Depression or anxiety	Heart disease	High blood pressure
Male	-0.034	0.007	0.006	-0.022	0.012	ns
<i>Age group (Reference category: 55-64)</i>						
15-24	-0.186	-0.092	-0.045	0.038	-0.078	-0.131
25-34	-0.146	-0.044	-0.030	0.040	-0.072	-0.098
35-44	-0.092	-0.021	-0.021	0.048	-0.038	-0.065
45-54	-0.039	-0.008	-0.010	0.028	-0.022	-0.021
65-74	0.024	0.013	ns	ns	0.015	0.040
75 and over	0.039	0.016	ns	ns	0.037	0.052
<i>Family type (Reference category: Single person)</i>						
Couple without dependent children	ns	ns	ns	ns	ns	ns
Couple with dependent children	-0.016	ns	ns	-0.023	ns	-0.016
Single parent	ns	ns	ns	ns	ns	ns
<i>Indigenous status and place of birth (Reference category: Non-Indigenous native-born or immigrant from MES country)</i>						
Indigenous	ns	ns	0.017	ns	0.017	ns
Immigrant from a non-MES country	ns	-0.020	0.013	-0.020	ns	0.014
<i>Region of residence (Reference category: Major urban area)</i>						
Non-major urban area	0.013	ns	ns	ns	ns	ns
Non-urban area	0.019	ns	ns	-0.020	ns	ns
<i>Labour force status (Reference category: Not in the labour force)</i>						
Employed full-time	ns	ns	ns	-0.036	ns	ns
Employed part-time	ns	ns	ns	-0.029	ns	ns
Unemployed	ns	ns	ns	ns	0.018	ns
Work more than 50 hours per week	ns	ns	ns	ns	ns	ns
Household equivalised income (\$' 00,000)	ns	ns	ns	-0.004	ns	-0.003
In relative income poverty	ns	ns	ns	ns	ns	ns
Experienced financial stress	0.015	0.008	ns	ns	ns	ns
In poor general health (SF-36 measure)	ns	ns	0.015	ns	0.007	ns
In poor mental health (SF-36 measure)	0.015	ns	ns	0.052	ns	ns
<i>Disability (Reference category: No disability)</i>						
Disability that severely restricts ability to work	0.063	ns	ns	0.045	0.016	0.028
Disability that moderately restricts ability to work	0.045	ns	ns	0.033	0.012	0.016
Disability that does not restrict ability to work	0.035	ns	0.006	0.028	ns	0.025
<i>Body mass index (Reference category: Normal)</i>						
Obese	0.020	ns	0.032	ns	0.017	0.074
Overweight	ns	ns	0.015	ns	0.013	0.031
Underweight	ns	ns	ns	ns	ns	ns
Smoker	ns	ns	ns	0.025	0.008	ns
Drink alcohol on 5 or more days per week	ns	ns	-0.009	ns	ns	ns
Drink at least 42 alcoholic drinks per week	ns	ns	ns	0.032	ns	ns
Exercise at least 3 times per week	ns	ns	ns	-0.011	ns	ns
Drink full fat milk	-0.015	-0.006	ns	-0.016	ns	ns
Eat vegetables on 3 or fewer days per week	ns	-0.011	ns	ns	ns	ns
Eat fruit on 3 or fewer days per week	0.015	ns	ns	ns	ns	ns
Eat breakfast on 3 or fewer days per week	ns	ns	ns	ns	ns	ns
Usually or always add salt to food	ns	ns	ns	ns	ns	ns

Note: Table 8.6 continued on next page.

Table 8.6 (continued): Factors associated with onset of selected serious illness conditions over a four-year period

	Arthritis or osteoporosis	Any type of cancer	Type 2 diabetes	Depression or anxiety	Heart disease	High blood pressure
<i>'Big Five' personality measures</i>						
Extroversion	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>	–0.004
Agreeableness	<i>ns</i>	–0.004	<i>ns</i>	<i>ns</i>	0.005	<i>ns</i>
Conscientiousness	<i>ns</i>	<i>ns</i>	<i>ns</i>	–0.005	–0.003	<i>ns</i>
Emotional stability	<i>ns</i>	<i>ns</i>	<i>ns</i>	–0.013	<i>ns</i>	–0.004
Openness to experience	<i>ns</i>	<i>ns</i>	<i>ns</i>	0.005	<i>ns</i>	<i>ns</i>
Extent to which prepared to take financial risks	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>	–0.005	<i>ns</i>
Savings horizon	<i>ns</i>	<i>ns</i>	–0.002	<i>ns</i>	<i>ns</i>	<i>ns</i>
<i>Life events over the four-year period</i>						
Separated from spouse or long-term partner	<i>ns</i>	<i>ns</i>	<i>ns</i>	0.029	<i>ns</i>	<i>ns</i>
Death of spouse or child	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>	–0.013	<i>ns</i>
Serious personal injury or illness to a close relative or family member	0.021	<i>ns</i>	<i>ns</i>	<i>ns</i>	0.006	<i>ns</i>
Victim of physical violence	<i>ns</i>	0.015	0.013	0.039	<i>ns</i>	<i>ns</i>
Fired or made redundant by an employer	<i>ns</i>	<i>ns</i>	–0.009	0.016	0.014	<i>ns</i>
Number of observations	15,524	18,384	18,000	16,784	18,164	15,324

Notes: The table reports mean marginal effects estimates from Probit models of the probability of onset of the condition indicated in the column heading. See the Technical Appendix for a brief explanation of Probit models and mean marginal effects. The population examined for each condition comprises all people in the initial year who reported not having the condition, and the outcome 'onset of the condition' is defined as reporting having the condition four years later. Note, therefore, that individuals diagnosed with a condition and cured within the four-year period are necessarily classified as not experiencing onset of the condition. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

osteoporosis, but not other conditions, while no significant effects are evident for experience of poverty.

A variety of measures of health, disability and health behaviours are also included as potentially having an impact on the onset of the conditions. Measures of poor general health and poor mental health based on the SF-36 health measure (see Box 5.1, page 93) show that poor general health is associated with an increased risk of subsequent onset of Type 2 diabetes and heart disease, while poor mental health is, unsurprisingly, associated with an increased risk of onset of diagnosed depression or anxiety. Perhaps surprising, however, is that poor mental health is also associated with an increased risk of onset of arthritis or osteoporosis. No other statistically significant effects of poor general and mental health are evident.



Box 8.3: Body mass index (BMI) and waist-to-height ratio

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

The waist-to-height ratio is, as the name suggests, the ratio of an individual's waist circumference to the individual's height. It provides a measure of abdominal fat. Waist circumference was collected in Waves 13 and 17, with respondents given a purpose-designed tape measure with which to measure themselves. The 'general healthy cut-off' for the waist-to-height ratio is 0.5, with higher values indicating an elevated risk of obesity-related cardiovascular diseases (Browning et al., 2010).



Measures of disability (see Box 5.2, page 93) are strongly predictive of subsequent onset of four of the six illness conditions examined in Table 8.6: arthritis or osteoporosis; depression or anxiety; heart disease; and high blood pressure. In general, the more severe the disability, where severity is measured by the extent to which the disability limits the work the individual can do, the more likely the onset of these four conditions. Only for high blood pressure, where a non-restricting disability increases the risk of onset by more than a moderately-restricting disability, is this ordering not evident for these four conditions. Additionally, the risk of onset of Type 2 diabetes is elevated by a non-restricting disability, but not by a more severe disability.

Weight categories based on body mass index (see Box 8.3, page 135) show that being obese appears to increase the risk of arthritis or osteoporosis, Type 2 diabetes, heart disease and high blood pressure. Being overweight also elevates risk, albeit not to the same extent, of Type 2 diabetes, heart disease and high blood pressure.

Smoking is associated with an increased risk of onset of diagnosed depression or anxiety and heart disease, but surprisingly is not associated with a (statistically significant) increased risk of onset of cancer. However, more thorough examination of links between

lifetime history of smoking and onset of cancer would most likely tell a different story. Regular alcohol consumption is not associated with elevated risks of any of the serious illness conditions, and indeed is associated with a slightly lower probability of onset of Type 2 diabetes. However, high total alcohol consumption—42 or more standard drinks per week—is associated with a higher probability of onset of depression or anxiety. Regular exercise—at least three times per week—is associated with a reduced likelihood of depression or anxiety, but no other effects on onset of serious illness conditions.

Information was collected in Waves 7, 9, 13 and 17 on individuals' diet, such as levels of consumption of fruit and vegetables, the type of milk consumed, and whether salt is added to food. Variables included for diet—whether full fat milk is usually consumed, whether fruit is usually consumed no more than three times per week, whether vegetables are usually consumed no more than three times per week, whether breakfast is usually eaten no more than three times per week, and whether salt is usually added to food—show few apparent negative effects of poor diet on subsequent onset of serious illness conditions.

Consumption of full fat milk is associated with significant effects on arthritis or osteoporosis, cancer and depression or anxiety,

but these effects are negative—consumption of full fat milk appears to act to reduce the probability of onset of these conditions. Similarly, failure to regularly eat vegetables is associated with a reduced probability of cancer. The only adverse effect of poor diet evident is that failure to regularly eat fruit is associated with an increased probability of onset of arthritis or osteoporosis.

Personality measures (see Box 2.7, page 23) are included in the estimated models on the basis that personality may be systematically related to behaviours that affect health (although there may be other reasons for a systematic relationship between personality and onset of the conditions). The estimates presented in Table 8.6 indeed show that personality traits are associated with significant effects on the likelihood of onset of several of the serious illness conditions.

Greater extroversion is associated with a lower probability of heart disease, greater agreeableness is associated with a lower probability of cancer and a higher probability of heart disease, greater conscientiousness is associated with lower probabilities of both depression or anxiety and heart disease, greater emotional stability is associated with lower probabilities of depression or anxiety and high blood pressure, and greater openness to experience is associated with a

Box 8.4: HILDA Survey measure of financial risk preference

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

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

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

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

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

In this report, an individual's 'appetite' for financial risk ranges from 1 (response (d) to either of the above questions) through to 4 (response (a) to either of the above questions).

higher probability of depression or anxiety. The reasons for these empirical associations are not investigated here, but would seem to warrant further study.

A measure of appetite for financial risk (see Box 8.4, page 137) was included on the basis that it may capture a propensity for risk taking more generally. However, the only significant effect found for this variable is that more appetite for financial risk is associated with a lower probability of onset of heart disease. Similarly, a variable labelled 'savings horizon' (see Box 8.5, page 137), which provides a measure of the weight (importance) placed on the future versus the present day, shows significant effects on likelihood of onset of only one condition: the greater the weight on the future, the lower the probability of onset of Type 2 diabetes.

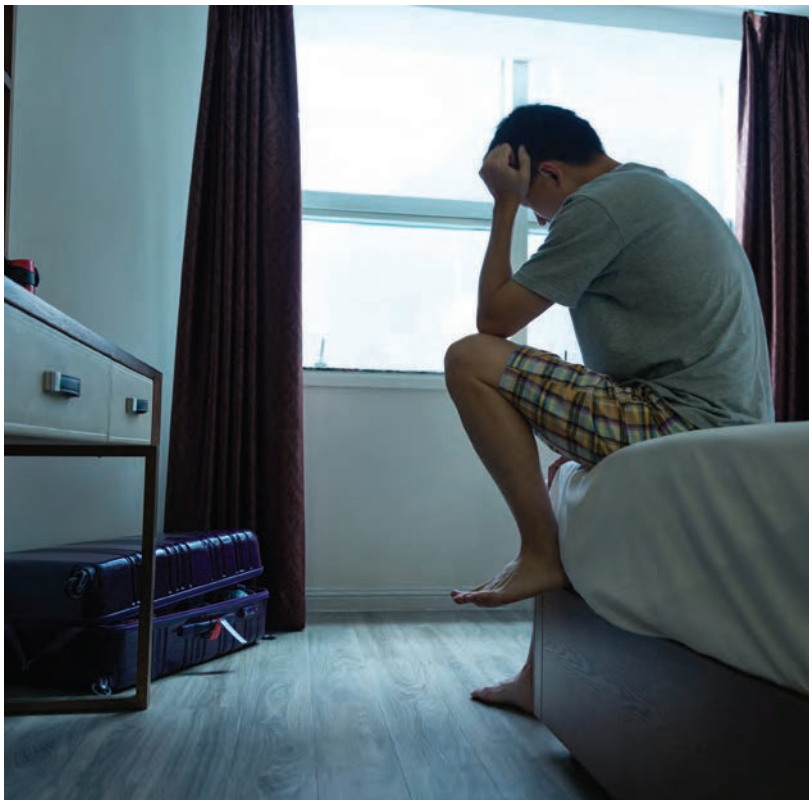
Finally, effects associated with various major life events occurring over the four-year period are examined in the table. The estimates show that separation from one's partner is associated with an elevated risk of diagnosed depression or anxiety, while serious injury or illness of a close family member is associated with an increased risk of arthritis or osteoporosis and heart disease. Being a victim of physical violence is associated with an increased risk of cancer, Type 2 diabetes and depression or anxiety. Being dismissed from one's job is associated with an increased risk of depression or anxiety and heart disease. However, job dismissal is associated with a decreased risk of Type 2 diabetes. Also somewhat hard to explain is that the death of a spouse or child is associated with a reduced risk of heart disease (and has no significant effects on onset of other conditions).

Box 8.5: Saving horizon

Saving horizon is measured by responses to the following question in the self-completion questionnaire:

In planning your saving and spending, which of the following time periods is most important to you? The next week, The next few months, The next year, The next 2 to 4 years, The next 5 to 10 years, More than 10 years ahead.

While there is a range of reasons for differences in saving horizon, it is common to treat this as a measure of the extent to which a person values the future versus the present—that is, it is a measure of 'time preference'. The measure of saving horizon used in this report takes one of six values, ranging from 0 (the next week) to 5 (more than 10 years ahead).



9

Health expectations and health outcomes

Roger Wilkins

The HILDA Survey has obtained information on expectations about future health on three occasions to date—in 2009, 2013 and 2017—making it possible to examine how individuals' expectations change over time. Perhaps of more interest, however, is that it is possible to examine how these expectations correlate with actual health outcomes over the following years. For example, we can investigate the extent to which people anticipate future declines in health. In this section, we briefly examine the health expectations data, how expectations correlate with health outcomes, and whether there are identifiable factors that impact on health expectations.

Self-assessed health, health expectations and mortality expectations

As explained further below, the HILDA Survey question about health expectations is asked in reference to (and depends on the response to) a question on self-assessed health. It is therefore useful to first briefly describe the self-assessments of health provided by respondents before examining expectations. Table 9.1 presents the distribution of self-assessed overall health in the four waves in which a question on overall health has been administered in the personal interview. The distribution of responses is also presented for the same years for a very similar question administered in the self-completion questionnaire.¹

Given the options 'excellent', 'very good', 'good', 'fair' and 'poor', the most common response in the personal interview is that one's health is 'very good', followed by

'good', then 'excellent', 'fair' and, lastly, 'poor'. The ordering is broadly the same for the self-completion questionnaire, although in 2017 more people reported their health was 'good' than reported it was 'very good'.

Further comparing the interview and self-completion questionnaire responses, there is a clear greater tendency to report both excellent health and poor health in the personal interview. The gap in propensity to report excellent health is particularly pronounced in Wave 1 (2001), when 19.9% of individuals reported excellent health in the personal interview, compared with 15.8% in the self-completion questionnaire.

In other waves, while the propensity to report extreme health ratings is still higher in the personal interview, the differences from the self-completion questionnaire are quite small. For example, in 2017, the proportion assessing their health as excellent was 13.8% in the interview and 12.1% in the self-completion questionnaire, while the proportion assessing their health as poor was 4.2% in the

¹ The question in the personal interview is 'In general, how would you rate your health?' with five response options offered: *excellent*, *very good*, *good*, *fair*, and *poor*. In the self-completion questionnaire, the question is framed as 'In general, would you say your health is ...' with the same five response options offered.



Table 9.1: Rating of own health, 2001 to 2017 (%)

	<i>Excellent</i>	<i>Very good</i>	<i>Good</i>	<i>Fair</i>	<i>Poor</i>	<i>Total</i>
Personal interview						
2001	19.9	34.7	28.5	12.7	4.3	100.0
2009	15.7	34.6	31.7	13.4	4.7	100.0
2013	14.6	35.6	31.8	14.0	4.0	100.0
2017	13.8	34.7	33.3	14.1	4.2	100.0
Self-completion questionnaire						
2001	15.8	35.3	32.2	13.1	3.7	100.0
2009	13.2	35.8	34.3	13.4	3.4	100.0
2013	12.5	36.2	34.7	13.4	3.3	100.0
2017	12.1	34.3	35.5	14.8	3.4	100.0

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

interview and 3.4% in the self-completion questionnaire.

In the personal interview in Waves 9, 13 and 17, immediately following the question on overall health was a question on health expectations over the next four years. The question essentially identifies the subjective probability an individual's health will deteriorate over the four-year period, but how this is ascertained depends on the response given to the question about overall health. If reported health is 'excellent', the question is 'What do you think is the per cent chance that your health will still be excellent four years from now?' If reported health is 'very good', 'good' or 'fair', the question is 'What do you think is the per cent chance that your health will still be very good / good / fair or better four years from now?' If reported health is 'poor', the question is 'What do you think is the per cent chance that your health will have improved significantly four years from now?'

Table 9.2 summarises responses to this question in each of the three waves, presenting the mean probability (per cent chance) and the proportion reporting a probability less than 50%, in total and disaggregated by self-reported overall health. On average, the self-assessed



Table 9.2: Expectations of health over the following four years, 2009, 2013 and 2017 (%)

	<i>Excellent</i>	<i>Very good</i>	<i>Good</i>	<i>Fair</i>	<i>Poor</i>	<i>Total</i>
Mean reported probability health will not deteriorate over the next four years						
2009	90.7	83.3	74.5	61.3	25.0	76.0
2013	91.2	84.4	74.0	60.5	26.8	76.4
2017	90.9	83.4	73.4	60.1	30.8	75.6
Proportion reporting a less-than-50% probability health will not deteriorate over the next four years						
2009	0.5	1.7	5.1	20.3	68.2	8.2
2013	0.3	1.4	5.8	20.7	65.9	7.9
2017	0.4	1.7	5.5	20.3	62.1	7.9

Note: For people in poor health, estimates are for the probability health will significantly improve over the four years.



probability that health will not deteriorate (or will significantly improve if health is currently poor) is just over 75%, while approximately 8% of people believe there is a less-than-50% chance their health will not deteriorate (or will not significantly improve if health is currently poor).

Health expectations are strongly ordered by current health level. In the case of those in poor health, that can at least partly be explained by the different nature of the question, since they are asked about the probability their health will significantly improve, whereas others are asked about the chances their health will not deteriorate. However, the ordering by current health level is also strongly evident over the 'fair' to 'excellent' range. The subjective probability of health not deteriorating is over 90% for

people in excellent health, approximately 83% for people in very good health, approximately 74% for people in good health, and just over 60% for people in fair health. It therefore appears that the expected future change in health is worse the poorer is current health.

Patterns are quite stable across the three waves, the main discernible change being that people in poor health have become slightly more optimistic about their future health. In 2009, the mean percentage chance health would improve significantly was 25.0% and the proportion reporting a less-than-50% chance of significant improvement was 68.2%. In 2017, the mean percentage chance of health improving significantly had risen to 30.8%, and the proportion reporting a less-

than-50% chance of significant improvement had fallen to 62.1%.

Mortality expectations were ascertained in Waves 9, 13 and 17 for individuals aged under 65 by asking them whether they thought it very likely, likely, unlikely or very unlikely that they would live to 75 years of age. People aged 65 and over were asked the same question, but the survival age was varied depending on current age: 80 if aged 65 to 69, 85 if aged 70 to 74, 90 if aged 75 to 79, 95 if aged 80 to 84 and 100 if aged 85 to 89. People aged 90 and over were not asked the question.

Table 9.3 presents the distribution of responses in 2009 and 2017 disaggregated by sex and age group.

Unsurprisingly, females tend to report a higher likelihood of living to the given age. For example, in 2017, 55.3% of women aged 35 to

54 thought it very likely they would live to 75, compared with 45.3% of men in the same age range. Among those aged under 65, there is no clear pattern by age in mortality expectations, other than a very slight increase in the proportion thinking it very unlikely they will live to 75 as we move from the youngest to the oldest of the three age groups.

Beyond age 65, the proportion believing it likely they will live to the given age is lower the older the age group. For example, in 2017, among those aged 65 to 69, 83.6% of men and 88.9% of women believed it likely or very likely that they would live to 80; among those aged

85 to 89, 32.9% of men and 27.0% of women thought it likely or very likely they would live to 100.

Comparing 2009 and 2017, there appears to have been a slight increase in expected length of life among men, but relatively little change among women. This is best illustrated by comparing responses for men and woman of all ages, shown in the column headed 'Total' in Table 9.3. This column shows that the proportion of males believing it very likely they will live to the given age increased from 38.8% in 2009 to 41.4% in 2017, while for females this proportion fell from 49.2% to 48.5%.

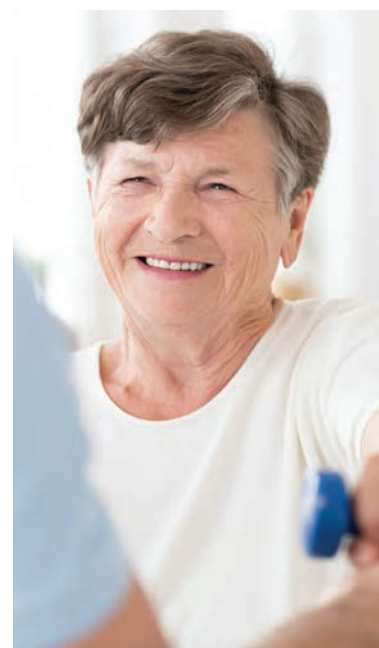


Table 9.3: Likelihood of living to 75 (or at least 10 to 15 more years if aged over 65), by sex and age group, 2009 and 2017 (%)

	15-34	35-54	55-64	65-69	70-74	75-79	80-84	85-89	Total
2009									
<i>Males</i>									
Very likely	38.4	41.7	47.6	33.3	28.6	12.0	10.1	6.8	38.8
Likely	51.5	44.5	40.2	48.3	48.3	40.7	33.2	22.2	46.3
Unlikely	8.4	11.5	9.9	15.3	15.2	31.9	37.7	53.2	11.8
Very unlikely	1.7	2.3	2.3	3.1	7.8	15.4	18.9	17.9	3.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Females</i>									
Very likely	52.3	54.3	55.8	37.5	30.4	19.0	10.1	6.0	49.2
Likely	42.4	37.3	35.5	50.8	51.0	46.9	30.8	35.7	40.2
Unlikely	4.4	6.3	6.6	8.0	11.9	25.0	43.4	42.5	8.0
Very unlikely	0.8	2.2	2.0	3.8	6.7	9.1	15.8	15.7	2.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2017									
<i>Males</i>									
Very likely	44.8	45.3	43.5	35.7	27.5	17.4	11.3	7.1	41.4
Likely	46.3	44.2	45.6	47.9	46.9	45.0	34.6	25.8	45.1
Unlikely	7.7	8.8	8.9	12.8	21.7	28.6	38.4	45.5	11.0
Very unlikely	1.2	1.8	1.9	3.6	3.9	9.0	15.7	21.6	2.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Females</i>									
Very likely	51.1	55.3	52.2	41.4	29.7	16.1	14.6	8.6	48.5
Likely	44.7	37.3	39.6	47.5	52.4	47.5	35.9	18.4	41.5
Unlikely	3.3	6.2	5.5	8.0	13.5	27.5	36.5	54.7	7.7
Very unlikely	0.9	1.2	2.7	3.1	4.3	9.0	13.1	18.2	2.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes: Estimates relate to the likelihood of living to 75 for people aged under 65, 80 for people aged 65-69, 85 for people aged 70-74, 90 for people aged 75-79, 95 for people aged 80-84 and 100 for people aged 85-89. Cells may not add up to column totals due to rounding.

Individual-level changes in health and health expectations

Changes in individuals' self-assessed health, health expectations and mortality expectations over four years are examined in Table 9.4. The table includes changes between 2009 and 2013 and between 2013 and 2017 (combined). Panel A compares self-reported health in one year with self-reported health four years later. For each initial health rating, it presents the proportion reporting each health rating four years later. For example, among those initially reporting their health to be excellent, 43.9% reported their health was excellent four years later, while 40.4% reported their health was very good, 12.6% reported their health was good, 2.8% reported their health was fair, and 0.4% reported their health was poor.

The estimates in bold correspond to people who did not change their health rating. For all initial health ratings, this is the most common outcome. Nonetheless, a substantial proportion of people change their health rating, although it is not common for the health rating to go up or down by more than one step on the scale.

Panel B of Table 9.4 examines changes in health expectations, showing the proportions for whom the reported probability health will not deteriorate decreases, stays the same and increases. Estimates are shown in total and disaggregated by initial self-reported health rating. Despite there being 101 possible response options (ranging from 0 to 100), 25.9% of people do not change their response over four years.

The proportion having the same expectations at the start and end

of the four-year period is highest for those initially reporting excellent health (34.8%) followed by those initially reporting poor health (31.6%). For all people other than those initially in poor health, health expectations are more likely to decrease than increase. Overall, health expectations decrease for 41.2% of people and increase for 32.9% of people.

For mortality expectations (Panel C of Table 9.4), the population examined is restricted to people aged under 61 at the beginning of the four-year period, since for most older people the question asked is not the same at the start and end of the four-year period. For example, a person aged 64 is asked about the likelihood of living to 75 in the first year, whereas a person aged 68 is asked about the likelihood of living to 80.

For those who initially indicated they thought it very likely or likely they would live to 75, there is a high degree of persistence in this assessment: 68.7% of those who initially thought it very likely also thought it very likely four years later, while 59.3% of those who initially thought it likely also thought it likely four years later. For those who initially thought it unlikely or very unlikely they would live to 75, there is less persistence in beliefs, with the majority improving their expectations of living to 75. Indeed, the tendency towards improved expectations is also evident for those who initially thought it likely they would live to 75, with 33.6% of those who initially thought it likely they would live to 75 switching to thinking it very likely they would live to that age.



Table 9.4: Changes in self-assessed health, health expectations and mortality expectations over four years (%)

A. Self-assessed health

	Health rating four years later (%)					Total
	Excellent	Very good	Good	Fair	Poor	
<i>Initial health rating</i>						
Excellent	43.9	40.4	12.6	2.8	0.4	100.0
Very good	12.2	53.9	28.4	4.7	0.8	100.0
Good	3.7	24.1	51.7	17.7	2.8	100.0
Fair	1.3	10.8	31.4	44.1	12.4	100.0
Poor	1.2	4.3	13.9	35.6	45.0	100.0
Total	12.4	34.8	33.3	15.0	4.5	100.0

B. Self-assessed probability health will not deteriorate

	Change in probability over four years (%)			Total
	Decreased	Unchanged	Increased	
<i>Initial health rating</i>				
Excellent	41.7	34.8	23.5	100.0
Very good	41.9	27.1	31.1	100.0
Good	41.6	22.3	36.1	100.0
Fair	42.9	19.9	37.2	100.0
Poor	22.0	31.6	46.4	100.0
Total	41.2	25.9	32.9	100.0

C. Self-assessed likelihood of living to 75—Persons aged 15 to 61 in the initial year

	Likelihood four years later				Total
	Very likely	Likely	Unlikely	Very unlikely	
<i>Initial likelihood</i>					
Very likely	68.7	29.1	1.6	0.6	100.0
Likely	33.6	59.3	6.0	1.2	100.0
Unlikely	11.4	43.7	37.5	7.4	100.0
Very unlikely	15.1	27.9	34.7	22.3	100.0
Total	49.0	43.0	6.4	1.7	100.0

Notes: In Panel B, for people in poor health, estimates are for the probability health will significantly improve over the four years. Cells may not add up to row totals due to rounding.



Health expectations and health outcomes

To what extent do people accurately anticipate changes in their health? Table 9.5 investigates this question by comparing expectations with actual subsequent changes in health. The upper panel presents the mean reported probability health will not deteriorate by whether actual reported health did deteriorate over the four-year period, in total and disaggregated by initial health rating. The lower panel presents the proportion reporting a less-than-50% chance health will not deteriorate disaggregated in the same way as the upper panel.

The estimates indicate that expectations have some predictive power for actual

changes in health. For all initial health levels, the mean probability health will not deteriorate is lower, and the proportion reporting a less-than-50% chance of health not deteriorating is higher, for those whose health did in fact deteriorate.²

Table 9.6 further extends the investigation of the predictive power of expectations by examining subsequent mortality, over both a four-year period and an eight-year period. It presents mortality (death) rates broken down by whether the self-assessed probability of health remaining the same or improving over the next four years was less than 50% (interpreted as an expectation that health will deteriorate) or greater than or equal to 50% (an expectation that health will not deteriorate). Again, we see evidence that

expectations are informative about subsequent health. Over all persons, the four-year mortality rate was 1.6% for those who did not expect health to deteriorate and 10.3% for those who did expect health to deteriorate. The eight-year mortality rates were, respectively, 3.3% and 20.6%.

Disaggregated by initial health rating, we see that mortality rates are strongly ordered by self-assessed health. However, the association between expectations and subsequent mortality holds for all initial health levels over eight years, and for all initial health levels other than 'excellent' over four years. Disaggregation by age group shows the same broad pattern: mortality rates are increasing in age, but within each age group are almost always higher for those expecting health to deteriorate.

Table 9.5: Four-year health expectations (probability health will not deteriorate), by initial health and actual change in health over four years (%)

	Health in initial year					Total
	Excellent	Very good	Good	Fair	Poor	
Mean reported probability health will not deteriorate over the next four years						
Actual health same or better ⁺	92.4	85.1	76.1	63.1	37.6	77.4
Actual health worse [#]	90.0	81.8	69.5	53.5	17.9	76.5
Proportion reporting a less-than-50% probability health will not deteriorate over the next four years						
Actual health same or better ⁺	0.3	1.2	4.0	17.8	51.0	6.4
Actual health worse [#]	0.4	2.4	8.8	29.6	78.4	8.7

Notes: Respondents reporting 'poor' health were asked for the probability their health would be 'significantly improved four years from now'. ⁺ Actual health 'better' for those initially reporting poor health. [#] Actual health 'the same' for those initially reporting poor health.



² The gaps in the health expectations measures between all people whose health did not deteriorate and all people whose health did deteriorate are smaller than the gaps for each initial health level because a relatively high proportion of those who experienced a deterioration in health initially reported excellent or very good health. These are groups in which the mean per cent chance of health not deteriorating, while lower than the mean for those whose health did not deteriorate, is still quite high (90.0% for those initially in excellent health and 81.8% for those initially in very good health).

Table 9.6: Mortality rates, by whether expected health to deteriorate over the next four years (%)

	Mortality rate four years later		Mortality rate eight years later	
	Did not expect health to deteriorate	Expected health to deteriorate	Did not expect health to deteriorate	Expected health to deteriorate
All persons	1.6	10.3	3.3	20.6
By initial health rating				
Excellent	0.7	*0.0	1.2	13.5
Very good	0.6	2.4	1.8	5.5
Good	2.0	5.4	4.0	11.2
Fair	4.0	7.5	7.5	21.1
Poor	8.3	17.5	15.5	27.8
By initial age group				
15–24	*0.1	2.3	*0.2	4.7
25–34	*0.2	*0.0	0.4	1.0
35–44	0.5	0.3	1.0	0.7
45–54	0.9	2.8	1.8	5.3
55–64	1.5	4.1	3.3	11.5
65–74	3.5	10.7	8.5	22.6
75 and over	15.3	31.3	31.2	58.5

Notes: An individual is defined to have expected health to deteriorate if the self-assessed probability of health remaining the same or improving was less than 50%. Respondents reporting 'poor' health were asked for the probability their health would be 'significantly improved four years from now'. * Estimate not reliable.

Factors impacting on health expectations and mortality expectations

Table 9.7 presents estimates from regression models seeking to identify factors impacting on health expectations. It presents results from two models: an Ordinary Least Squares model of the probability health will not deteriorate; and a Probit model of the probability of believing it very likely or likely that one will live to 75 (or to a given age 10 to 15 years in the future if aged 65 and over). For each model, a specification is estimated drawing on data from Waves 9, 13 and 17 (Models 1A and 2A), and a further model is estimated drawing on data from only Waves 13 and 17 (Models 1B and 2B) so as to allow inclusion of variables for waist



Table 9.7: Factors impacting on health expectations and mortality expectations

	1. Percentage chance health will not deteriorate		2. Very likely or likely to live to 75 (or another 10 to 15 years)	
	1A	1B	2A	2B
Male	ns	-0.86	-0.032	-0.030
<i>Age group (Reference category: 55–64)</i>				
15–24	10.22	10.10	ns	ns
25–34	8.63	8.21	-0.018	ns
35–44	6.46	6.54	-0.029	-0.024
45–54	2.63	2.77	-0.035	-0.026
65–74	-2.46	-3.27	-0.071	-0.077
75 and over	-8.14	-8.42	-0.218	-0.216
<i>Family type (Reference category: Single person)</i>				
Couple without dependent children	1.14	1.20	ns	0.015
Couple with dependent children	0.97	0.81	0.022	0.029
Single parent	ns	ns	ns	ns
<i>Indigenous status and place of birth (Reference category: Non-Indigenous native-born or immigrant from MES country)</i>				
Indigenous	-2.97	-2.76	-0.046	-0.075
Immigrant from a non-MES country	-2.37	-2.21	-0.021	-0.017
<i>Region of residence (Reference category: Major urban area)</i>				
Non-major urban area	ns	ns	-0.009	ns
Non-urban area	-0.90	-1.21	ns	ns
<i>Labour force status (Reference category: Not in the labour force)</i>				
Employed full-time	0.89	ns	ns	ns
Employed part-time	1.00	ns	ns	ns
Unemployed	ns	ns	ns	-0.037
Household equivalised income (\$' 00,000)	0.15	0.18	0.002	0.002
In poor general health (SF-36 measure)	-17.61	-16.73	-0.103	-0.091
In poor mental health (SF-36 measure)	-2.19	-1.35	-0.032	-0.019
<i>Disability (Reference category: No disability)</i>				
Disability that severely restricts ability to work	-20.82	-20.59	-0.087	-0.091
Disability that moderately restricts ability to work	-9.34	-8.55	-0.057	-0.051
Disability that does not restrict ability to work	-3.71	-3.26	-0.037	-0.036
<i>Body mass index (Reference category: Normal)</i>				
Obese	-1.53	ns	ns	ns
Overweight	-0.57	ns	ns	ns
Underweight	-1.22	ns	ns	ns
Smoker	-4.58	-4.72	-0.075	-0.070
Drink alcohol on 5 or more days per week	ns	ns	ns	ns
Drink at least 42 alcoholic drinks per week	ns	ns	-0.048	-0.037
Exercise at least 3 times per week	2.32	1.87	0.013	ns
<i>'Big Five' personality measures</i>				
Extroversion	0.68	0.60	0.004	0.005
Agreeableness	1.13	1.02	0.013	0.009
Conscientiousness	0.52	0.61	ns	ns
Emotional stability	1.14	1.13	0.009	0.009
Openness to experience	0.50	0.49	0.006	0.009
Waist-to-height ratio	-	-15.58	-	ns
Poor sleeper	-	-2.88	-	-0.026
<i>Year (Reference category: 2017)</i>				
2009	ns	-	-0.015	-
2013	0.72	0.83	ns	ns
Constant	56.44	65.88	-	-
Number of observations	38,193	25,503	37,852	25,244

Notes: Estimates for Models 1A and 1B are regression coefficients from Ordinary Least Squares models of the determinants of the self-assessed probability (expressed as a percentage with a potential range from 0 to 100) that one's health will not deteriorate over the next four years. Estimates for Models 2A and 2B are mean marginal effects from Probit models of the determinants of the probability one reports being 'very likely' or 'likely' to live to 75 (if aged under 65) or for another 10 to 15 years (if aged 65 to 89). See the Technical Appendix for a brief explanation of these regression models. ns indicates the estimate is not significantly different from zero at the 10% level.

Box 9.1: Measurement of sleep quality

The HILDA Survey has collected information on sleep quality in the self-completion questionnaire in Waves 13 and 17. Respondents were asked about the frequency of each of five specific sleep problems: trouble sleeping because of not getting to sleep within 30 minutes; trouble sleeping because of waking in the middle of the night or early in the morning; trouble sleeping due to coughing or snoring; taking medicine to help sleep; and trouble staying awake while driving, eating meals or engaging in social activity. Respondents were then asked to assess overall sleep quality over the past month by reporting whether it was 'very good', 'fairly good', 'fairly bad' or 'very bad'.

In this report, an individual is classified as having poor sleep quality if bad or fairly bad sleep quality was reported.



circumference and sleep quality, which were only measured in Waves 13 and 17.

Both models provide evidence that males have worse expectations than females, although the estimate is statistically significant in only one of the specifications for Model 1. Health expectations have a strong negative association with age, with older people having worse expectations, all else equal. Mortality expectations have a more complicated relationship to age, with those aged 55 to 64 and those aged under 35 having similar expectations on the likelihood of living to 75, but those aged 35 to 54 being less optimistic. In the age groups above the 55 to 64 age group, a negative association with age is evident, although people in these age groups are being asked a different question.³

Couples, with or without dependent children, have better health and mortality expectations than single people and single parents. Indigenous people have considerably worse expectations than other members of the Australian community, all else equal. Immigrants from non-MES countries (see Box 2.4, page 12), while having better expectations than Indigenous people, nonetheless have significantly worse expectations than other members of the community. People living in non-urban areas have worse health expectations, but not worse mortality expectations, than people living in urban areas.

No consistent evidence on the effects of labour force status is apparent, but household income is a positive contributor to both health expectations and mortality expectations. Unsurprisingly, measures of general and mental health (see Box 5.1, page 93) and

³ Additional models were estimated restricting to people under the age of 65 (who were all asked the same question). Results are broadly robust to the exclusion of people aged 65 and over.

disability (see Box 5.2, page 93) all show poor health and disability are associated with (much) worse expectations.

Having poor sleep quality (see Box 9.1, page 147) is also associated with worse health and mortality expectations. However, measures of overweight and underweight based on body mass index (see Box 8.3, page 135) are not consistently associated with worse expectations—although in the model of health expectations that draws on the larger sample (Model 1A), statistically significant negative effects of being overweight or underweight are evident. Further, in Model 1B, while the measures based on body mass index are not statistically significant, there is a large negative relationship between the waist-to-height ratio

(which is not included in Model 1A) and health expectations. The waist-to-height ratio may therefore be a better measure of how people perceive their own weight; at the very least, people appear to believe a high waist-to-height ratio has more adverse consequences for their future health than a high body mass index.

In terms of health behaviours, smokers have lower expectations for both their health and mortality, but regular drinkers of alcohol (at least five days per week) do not, although heavy drinkers—those consuming at least 42 standard drinks per week—have worse mortality expectations, other factors being equal. People who exercise at least three times per week have better health expectations, and

are also found to have statistically significant better mortality expectations in the model estimated on the larger sample.

Personality measures (see Box 2.7, page 23) are included in the estimated models, largely on the basis that they may be associated with (unobserved) health behaviours that influence peoples' expectations, although they could also impact on general optimism/pessimism. The measures show substantial statistically significant effects of personality on expectations. Extroversion, agreeableness, conscientiousness, emotional stability and openness to experience are all associated with better health expectations, and all but conscientiousness are associated with better mortality expectations.



10

Illicit drug consumption

Peter Butterworth



The Wave 17 HILDA Survey included a new set of questions assessing illicit drug use. These new items complement the measures of alcohol and tobacco use that have been part of the HILDA Survey since 2001. Drug use is an important health and social issue in Australian society. The adverse outcomes associated with illicit drug use are related to the frequency and quantity of use, and are most prominent amongst those with drug dependence (see Box 10.1, page 149, for a definition of illicit drug use).

Adverse health impacts for individuals arise from overdose, chronic use and increased risk of accident or injury. The consequences of illicit drug use potentially include premature death and disability and functional impairment (including adverse effects on physical, mental and cognitive wellbeing). Social and community costs include those associated with crime, violence and social dysfunction.

The new HILDA Survey data on illicit drug use complements the *National Drug Strategy Household Survey* (NDSHS). The NDSHS is the leading survey of illicit and legal drug use in Australia. The NDSHS is conducted every three years with a new sample of respondents (that is, a cross-sectional design). While the coverage of illicit drug use in the HILDA Survey is brief by comparison, the repeated collection of data from the same individuals over time will provide

novel insights not available through the NDSHS.

In the HILDA Survey, the drug use questions were included in the self-completion questionnaire rather than being administered by an interviewer. This may increase participants' willingness to accurately report their own use of (illegal) drugs. The short (one-page) questionnaire assessed the frequency of use of major types of illicit drugs (see Box 10.2, page 151). The data enables classification of whether each respondent had ever used drugs, and differentiates between past and recent (12-month) use. The questions also collected data on age of first (and last) use.¹ See Box 10.3, page 151, for a comparison of the HILDA Survey and NDSHS, including key findings.

The aims of this chapter are to provide a brief summary of drug use in Australia and to benchmark the HILDA Survey findings against those from the

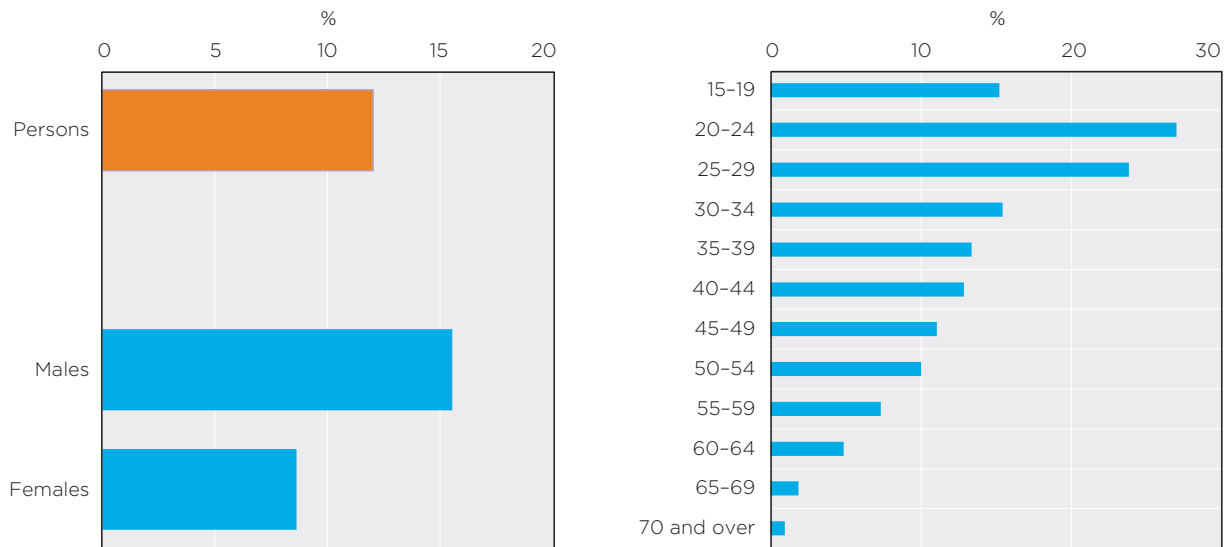
Box 10.1: What is meant by 'illicit drug use'?

The term 'illicit drug use' is used to reflect two types of drug use assessed in the HILDA Survey: i) the use of illegal drugs; and ii) the use of legal psychoactive substances in harmful ways (such as use of petrol or solvents as inhalants).

¹ A short set of questions also sought to assess misuse of legally available medications (such as painkillers, opioids and tranquillisers). The results obtained were deemed not credible, suggesting the questions were not interpreted by survey participants as intended (see Wooden et al., 2018). Therefore, these items were not included in the HILDA dataset and are not described in this chapter.



Figure 10.1: Estimated proportion of recent (12-month) illicit drug use in Australia, overall and by sex and age group, 2017



recent 2016 NDSHS. The main focus will be on recent (12-month) drug use (both overall and within the different drug types) and polydrug use (that is, concurrent use of multiple types of drugs). The final set of analyses will take advantage of the rich economic, family, social and health data available in the HILDA Survey to identify the differences between those using and not using illicit drugs, and to draw upon the household data in

HILDA to investigate the relationship between parental and child drug use.

Recent use of illicit drugs in Australia

Estimates of recent (12-month) use of any illicit drug are presented in Figure 10.1. Overall, the HILDA Survey data show that

12.0% of Australians aged 15 years or older had used at least one of these illicit drugs in the past 12 months.² This is consistent with the recent 2016 NDSHS, which found 12.6% had used an illicit drug in the past year. The figure shows that males were almost twice as likely to have recently used illicit drugs than females (15.5% versus 8.6%) and that illicit drug use was most common amongst those aged in their 20s, with almost a quarter of those in

² In a relatively small number of instances (77), individuals reported having used a type of drug in the past 12 months in the first set of questions, but subsequently reported no lifetime use of that drug. Such anomalous data was omitted from the analyses reported in this chapter.

this age range reporting recent (12-month) use. Rates of recent illicit drug use decline with increasing age.

Age of onset

Figure 10.2 presents, for those who had ever used illicit drugs, the cumulative incidence plot showing the reported age (in years) when illicit drugs were first used. The figure shows that initiation into illicit drug use usually occurs between the ages of 15 and 21 years, with two-thirds of individuals reporting their first use of illicit drugs within this age range. Over 90% of those who had used illicit drugs had done so

Box 10.2: Type of illicit drugs examined by HILDA

The illicit drug use questions included in Wave 17 of the HILDA Survey asked about the use of each of seven categories of drugs, using both formal and colloquial terms:

1. Marijuana/cannabis (e.g., Pot, Grass, Weed, Hash, Ganja, Joint);
2. Meth/amphetamine (e.g., Speed, Base, Ice, Crystal, Meth, Whizz), excluding use of prescription amphetamines;
3. Cocaine (e.g., Coke, Crack, Flake, Snow, Freebase);
4. Ecstasy (e.g., XTC, E, Ex, Ecce, MDMA, PMA, Molly);
5. Hallucinogens (e.g., Acid, LSD, Magic Mushrooms, Angel Dust);
6. Inhalants (e.g., Chroming, Sniffing, Solvents, Glue, Petrol, Bulbs, Poppers); and
7. Any other illicit drug (e.g., Heroin, GHB, Ketamine, K2, Synthetics).



Box 10.3: How does HILDA compare with the NDSHS?

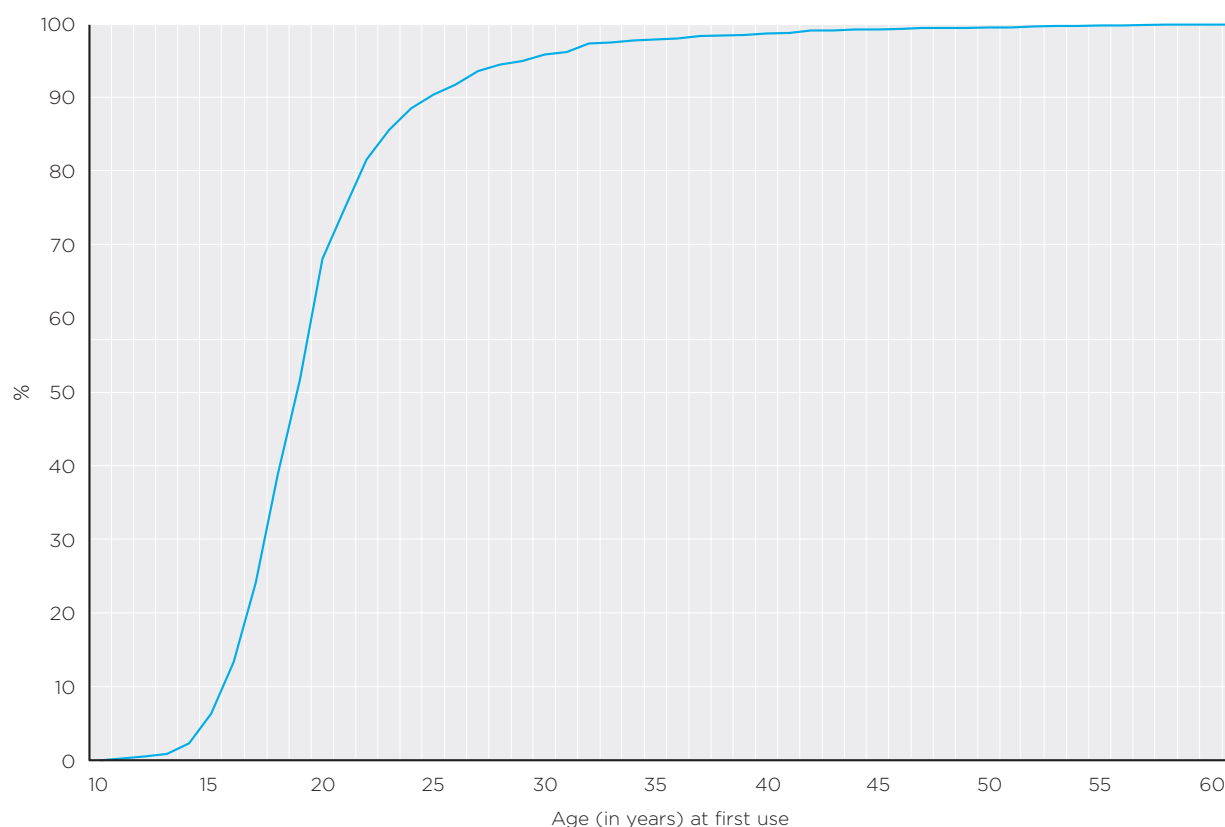
Characteristics of the two surveys

	HILDA Survey	NDSHS 2016
Design	Longitudinal study: original sample first interviewed in 2001 and re-interviewed annually. Some drop-out of original sample members and addition of new sample members (when children in household turn 15 years, when people move into household) and top-up sample in 2011.	Series of cross-sectional studies: new sample drawn for each survey, conducted every three years.
Sample scope	Stratified national sample of households: aim to interview all household members aged 15 years or older. Excludes those in non-private dwellings and institutional settings, but seeks to continue to interview panel members who move into non-private dwellings.	Stratified national sample of households: aim to interview one randomly selected household member aged 12 or older. Excludes those in non-residential/institutional settings.
Mode	Personal interview with all household members and self-complete (paper) questionnaire. Potential for telephone interview.	Multi-mode: choice of paper (drop-and-collect), online or telephone interview.
Content of interview	Wide-ranging survey content focused on economic and personal wellbeing, labour market dynamics and family life in Australia. Illicit drug use content is limited to one page of self-complete questionnaire, plan to repeat every four years. Five questions assess alcohol use and smoking each wave.	Extensive survey questionnaire with primary focus on substance use. Collection of basic socio-demographic and health information, but very detailed assessment of perceptions and attitudes of drugs and drug policy, assessment of harms associated with drug use, use of different types of illicit drugs, and tobacco and alcohol consumption.

Estimates of rates of recent (12-month) illicit drug use in the population aged 15 and over

	HILDA Survey 2017	NDSHS 2016
Any illicit drug	12.0%	12.6%
Marijuana/cannabis	10.6%	10.4%
Meth/amphetamines	1.2%	1.4%
Cocaine	2.9%	2.5%
Ecstasy	3.1%	2.2%
Hallucinogens	1.5%	1.0%
Inhalants	0.4%	1.0%

Figure 10.2: Cumulative incidence plot of reported age at which first used illicit drugs—Persons who reported ever using illicit drugs, 2017



by the age of 24 years. First use of illicit drugs is very rare after the age of 40 years. The average age reported for first use of illicit drugs was 18.4 years, and the median was 17 years. The HILDA Survey results are consistent with the 2016 NDSHS findings where the average age of first use of illicit drugs was 18.9 years.

Polydrug use: Concurrent use of illicit drugs, alcohol and tobacco

The concurrent use of multiple types of illicit and legal drugs (that is, polydrug use) is common. Polydrug use is important to consider as it increases personal and social risks. Polydrug use is associated with increased risk of drug



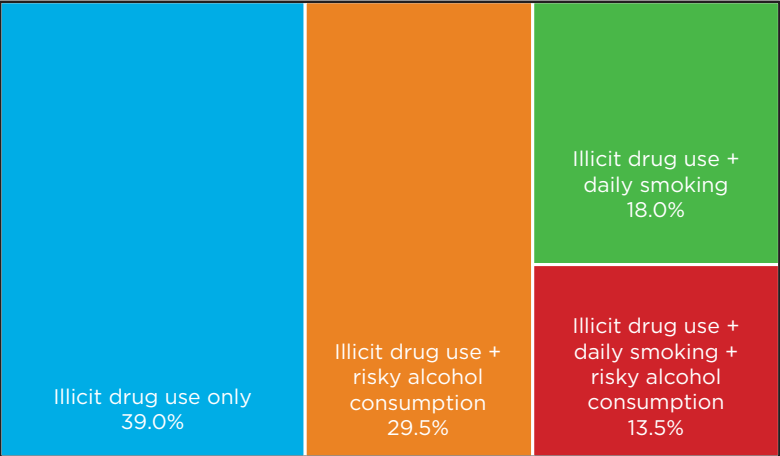
misuse, overdose, and adverse physical or mental health outcomes, and also represents a barrier to the effectiveness of treatment. Investigation of the combined use of drugs can also improve knowledge of the natural history and patterns of drug use across the life course (for example, identifying risk trajectories and common sequences of drug use). Figure 10.3 presents data from the HILDA Survey on risky alcohol consumption and daily tobacco smoking (see Box 10.4, page 153) among those identified as having recently used illicit drugs.

The results in Figure 10.3 show that just over 60% of those using illicit drugs also smoke tobacco and/or drink alcohol at risky levels. The combination of illicit drug use with risky drinking (42%) is more common than the combination with smoking (31%).

Box 10.4: Measures of legal drug use

A measure of risky alcohol consumption was derived by combining information from two questions in the HILDA Survey that assessed frequency and quantity of alcohol consumption. This information was used to identify individuals estimated to drink either i) more than two standard drinks per day (on average) or ii) more than four standard drinks on any occasion at least monthly. A measure of current daily smoking was also considered.

Figure 10.3: Tree plot of concurrent daily smoking and risky alcohol consumption among those who recently used illicit drugs (in the past 12 months), 2017



Considering different types of illicit drugs

This section reports on the use of the different types of illicit drugs measured in the HILDA Survey. Table 10.1 presents the percentage of never, past and recent use. It is clear that cannabis is the most commonly used illicit drug, with over a third of Australians reporting using cannabis at some point in their lives, and 10.6% reporting cannabis use in the past 12 months. Ecstasy and cocaine were the next most commonly used drugs, with approximately 3% of individuals reporting recent use of each. Further analysis (not presented in Table 10.1) shows that recent use

of these three different types of drugs is most common among those aged in their 20s, and men have double the reported rates of use of women.

Table 10.1 shows that 5.8% of individuals have used meth/amphetamines during their life, and 1.2% had recently used the drug. Estimates disaggregated by sex (not presented in the table) show that recent meth/amphetamine use was three times more common amongst men than women (1.8% and 0.6% respectively). Estimates disaggregated by age group (also not presented in Table 10.1) show that those recently using meth/amphetamines have an older age profile than those using the other illicit drugs: recent use was high amongst those in their late 20s

(2.0%) and early 30s (2.2%) but peaked in those aged in their late 30s (3.3%). As Box 10.3 shows (see page 151), the similarity in the estimates of use of the major classes of illicit drugs between the HILDA Survey and the NDSHS data is striking.

Concurrent use of different types of illicit drugs

The previous analysis showed how individuals often concurrently use illicit drugs while smoking and consuming alcohol at risky levels. It is also common for individuals to use more than one type of illicit drug. Amongst those who had used illicit drugs in the past 12 months, 37% had used two or more different types

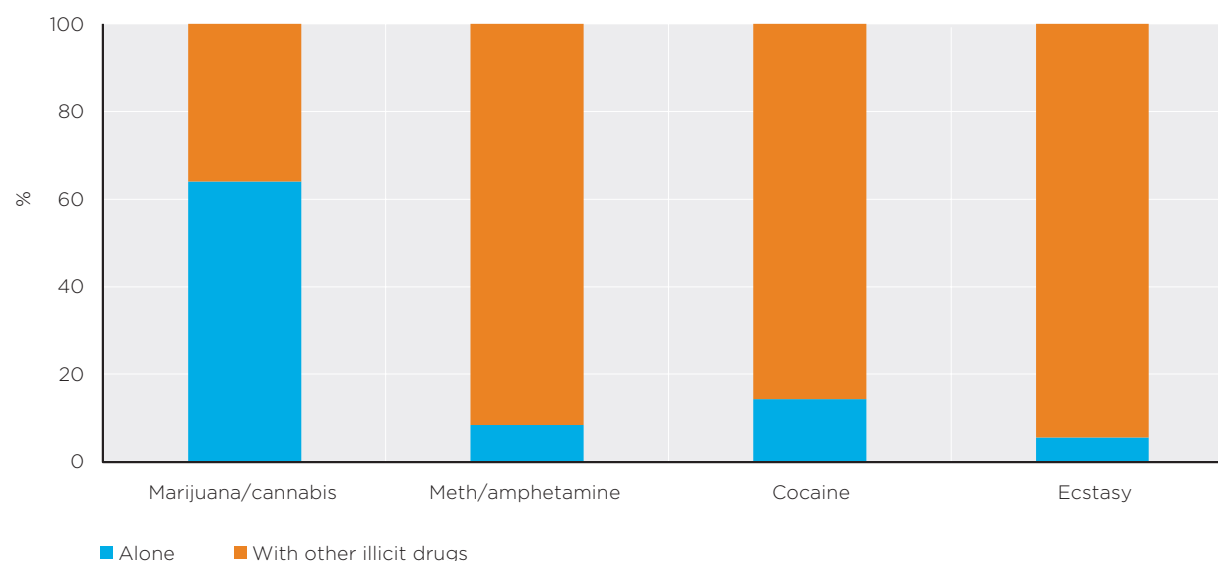
Table 10.1: Percent of individuals reporting never, past or recent (12-month) illicit drug use, by type of drug, 2017

	Never	Past	Recent (12-month)	Total
<i>Drug type</i>				
Marijuana/cannabis	65.5	24.0	10.6	100.0
Meth/amphetamine	94.3	4.6	1.2	100.0
Cocaine	90.9	6.2	2.9	100.0
Ecstasy	88.8	8.1	3.1	100.0
Hallucinogens	92.7	5.8	1.5	100.0
Inhalants	97.9	1.7	0.4	100.0
Other (e.g., Heroin, GHB)	97.5	1.8	0.7	100.0

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



Figure 10.4: Multiple (poly-) drug use versus single recent illicit drug use within the four most common drug types, 2017



of drugs and 12% had used four or more types. Figure 10.4 presents information on whether the four most commonly used illicit drugs (marijuana/cannabis, meth/amphetamine, cocaine and ecstasy) are used alone or in combination with other illicit drugs.

While marijuana/cannabis is the most commonly used illicit drug, the majority of those using the drug are not using any other type of illicit drug (63.9%). In comparison, only a small minority of those using meth/ amphetamines, cocaine or ecstasy only use this single drug. For example, only 5.4% of those who had recently used ecstasy had not also used other illicit drugs in the past year.

Factors associated with illicit drug use

A major benefit of including measures of substance use in the HILDA Survey is the opportunity to draw upon the rich economic, family, social and health data available to better understand the characteristics of those using

illicit drugs in Australia. As an initial step, a regression model is presented in Table 10.2 to investigate a range of characteristics potentially associated with recent (12-month) illicit drug use.

The model includes variables for age, sex, relationship status (whether married, in a de facto relationship, separated, widowed or divorced, or never married), whether the respondent has children, labour force status, household equivalised income, educational attainment, remoteness of residence, presence of high levels of psychological distress, long-term health conditions, and whether the respondent has experienced physical violence in the past year. In addition, the model includes indicators of whether the respondent is a daily smoker or consumes alcohol at risky levels.

It is important to recognise that this model is not directly assessing a causal relationship: the model is not implying, for example, that high levels of psychological distress lead to the use of illicit drugs. Rather it seeks to show whether distress is a characteristic that differs



Table 10.2: Factors associated with recent (12-month) illicit drug use of persons aged 15 years and over, 2017

	<i>Estimate</i>
<i>Age group (Reference category: 15-19 years)</i>	
20-24	0.05
25-29	0.04
30-34	<i>ns</i>
35-44	<i>ns</i>
45-54	<i>ns</i>
55-64	<i>ns</i>
65 and over	-0.07
Male	0.04
<i>Relationship status (Reference category: Legally married)</i>	
De facto married	0.08
Separated, widowed or divorced	0.05
Never married	0.06
Any resident children	-0.03
<i>Labour force status (Reference category: Employed)</i>	
Unemployed	<i>ns</i>
Not in the labour force	-0.02
Household equivalised income	<i>ns</i>
<i>Educational attainment (Reference category: Year 11 and below)</i>	
Year 12	<i>ns</i>
Certificate 3 or 4 or Diploma	<i>ns</i>
Bachelor degree or higher	<i>ns</i>
<i>Remoteness (Reference category: Major cities)</i>	
Inner regional Australia	<i>ns</i>
Outer regional Australia	<i>ns</i>
Remote/Very remote	<i>ns</i>
High or very high psychological distress (K10)	0.05
Long-term health condition	<i>ns</i>
Victim of physical violence (e.g., assault) in past 12 months	0.11
Daily smoker	0.13
Risky alcohol consumption	0.14
Number of observations	15,695

Notes: The table presents mean marginal effects estimates from Probit models of the probability one has used illicit drugs in the last 12 months. See the Technical Appendix for a brief explanation of Probit models and mean marginal effects. *ns* indicates the estimate is not significantly different from zero at the 10% level.

between those using and not using illicit drugs.

Table 10.2 presents the mean marginal effects from a Probit regression model. The numbers in the table indicate the increased probability of recent illicit drug use associated with each of the characteristics examined. For example, the model shows that, compared to individuals aged 15 to 19, individuals aged in their early 20s and their late 20s use illicit drugs at rates that are 5 percentage points and 4 percentage points higher, while those aged 65 or older use illicit drugs at rates 7 percentage points lower. This is the pattern evident in Figure 10.1. Similarly, men have greater risk of recent illicit drug use than women (4 percentage points), while having children is associated with lower risk (-3 percentage points). Compared to those who are legally married, those who are in a de facto relationship, who have been previously married or who have never married have increased risk.

The strongest differences are evident in the association of illicit drug use with smoking and alcohol consumption. Those who smoke daily (13 percentage points) or drink alcohol at risky levels (14 percentage points) are more likely to have recently used illicit drugs than those who do not smoke or drink. Another strong effect is found for the experience of physical violence. Those individuals who have been

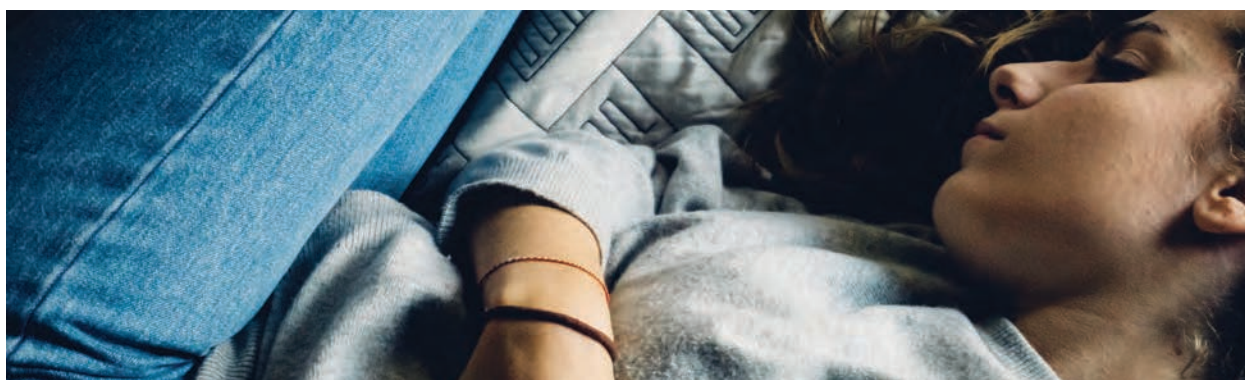
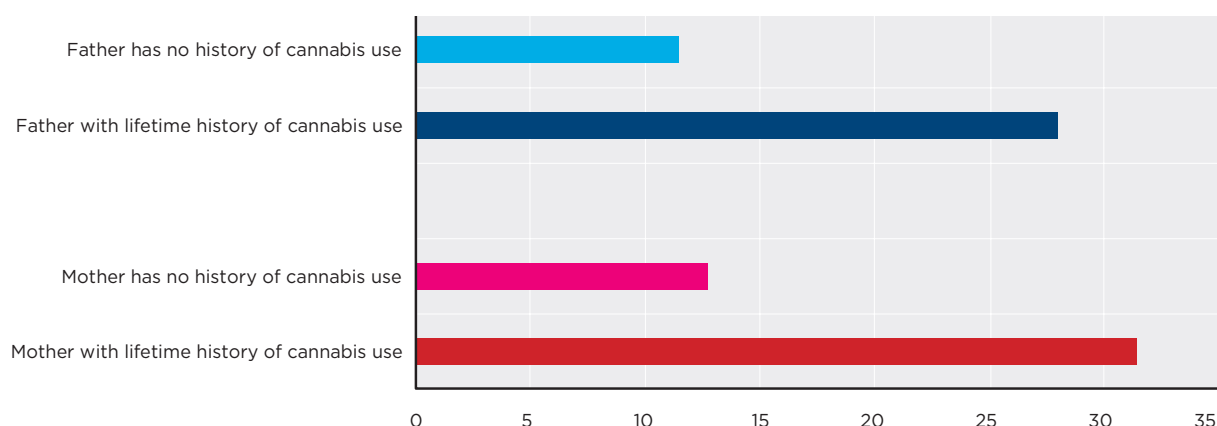


Figure 10.5: Percentage of respondents reporting recent (12-month) use of illicit drugs, by parental history of marijuana/cannabis use, 2017



a victim of physical violence in the past year are 11 percentage points more likely to be concurrently using illicit drugs than those who have not been a victim of physical violence in the past year.

Family characteristics

The final analysis in this chapter takes advantage of the household sampling frame used with the HILDA Survey. The HILDA Survey seeks to conduct interviews with all household members (rather than only one individual from each household). This enables the relatively unique consideration of the inter-relationship of illicit drug use among family members.

The social context is an important determinant of drug use. Family-level factors, such as parental drug use and conflict with parents, can increase the risk of initiation of drug use during adolescence. Similarly, growing

up in a household in which drug use is the norm may shape perceptions and subsequent behaviours.

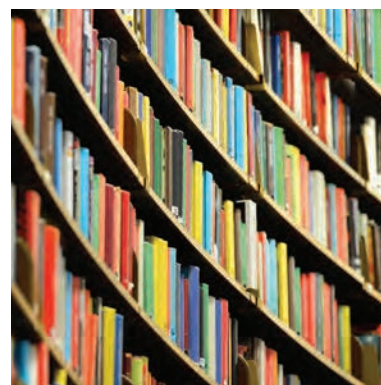
To illustrate, Figure 10.5 presents data from respondents aged under 35 years who lived in the same household as their father ($n=1,407$) and/or their mother ($n=1,781$) who also completed the survey. The figure shows the percentage of (child) respondents who had used illicit drugs in the past 12 months contingent on either their father's or mother's history of cannabis use.

The results demonstrate the strong intra-family relationship in drug use. Almost a third (31.4%) of respondents whose mother reports a history of cannabis use have themselves used an illicit drug in the past year, compared to 12.7% of those whose mother has reported no history of cannabis use. The results are

similar when father's history of cannabis use is considered.

Including parental drug use in Probit regression models, such as those presented in Table 10.2, shows that the association of parental history of cannabis use with recent illicit drug use is not explained by social, economic or health factors, and is only partly accounted for by an individual's own smoking and alcohol consumption. Again, it may be tempting to apply a causal interpretation to these findings. The increased use of illicit drugs amongst the responding children may be a direct consequence of parental modelling of drug use, or potentially reflect increased access and availability to drugs. However, both parental and child drug use may be a consequence of the broader context and reflect shared home/neighbourhood, socio-economic circumstances and interpersonal relationships that may promote substance use.

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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 2017 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 2017 prices, the value is multiplied by the ratio of the CPI for the December quarter of 2017 (112.1) 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 2017 prices, the wage is multiplied by 1.5 ($112.1/74.7$). The interpretation of this adjustment is that prices on average rose by 50% between the September quarter of 2001 and the December quarter of 2017, so we need to increase the wage measured in the September quarter of 2001 by 50% to make it comparable with a wage measured in the December quarter of 2017. 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.

Correlation coefficient

Often referred to as the Pearson correlation coefficient, it is a statistical measure of how two variables are associated with each other. It is equal to the covariance of the two variables relative to the product of their standard deviations, having a minimum possible value of -1 (perfectly negatively correlated) and a maximum possible value of 1 (perfectly positively correlated). Positive values indicate that when one variable increases, the other variable also tends to increase. Negative values indicate that when one variable increases, the other variable tends to decrease. If the correlation coefficient is 0, there is no (linear) association between the two variables. Note that the correlation coefficient does not tell us about the extent and nature of any causal relationship between the two variables.

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. (Survival rates can also be depicted as 'cumulative exit rates' (for example, as presented in Figure 6.4), which are simply 100% minus the survival rate.)

Indicator variable

Used in regression analysis, an indicator (or 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 an indicator variable is interpreted as the mean effect on the dependent variable of the presence of the characteristic/event, holding all else constant.

Mean marginal effects

Qualitative dependent variable models, such as Probit and Logit, 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 Logit model of the probability a household uses formal child care, presented in Chapter 2, the effects of income 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 income, which is measured in thousands of dollars, is the mean effect on the probability of using formal child care, evaluated over all members of the sample, of increasing income by \$1,000.

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.

Oaxaca-Blinder decomposition

Oaxaca-Blinder decomposition is based on multivariate regression analysis and is used to explain the difference in the means of a dependent variable between two groups or time points by decomposing the gap into one part that is due to differences in characteristics of the groups/time points, and one part that is due to differences in the effect of these characteristics on the dependent variable. For example, in the section on non-standard employment in Chapter 4, decomposition analysis is used to explain to what extent a change in the share of casual employment between 2001 and 2017 is due to changes in the characteristics of the workforce (for example, growth in the employment share of females), and changes in the propensity of workers with certain characteristics (for example, female employees) to work in casual employment.

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, ten 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 often estimated using HILDA Survey data:

- 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 and Logit 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 causes some groups to be relatively under-represented and others to be relatively over-represented. For example, non-response to Wave 1 of the survey was slightly higher in Sydney than 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 17, the household population weights sum to 9.25 million and the 'person' population weights sum to 24.05 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 data allow population inferences for analysis using any two waves (that is, any pair of waves) and analysis of any 'balanced panel' of a contiguous set of waves, such as Waves 1 to 6 or Waves 4 to 7. Longitudinal weights are also provided to allow analysis of 'rotating' content. For example, to facilitate longitudinal analysis of wealth, longitudinal weights are provided for Waves 2, 6, 10 and 14. In this report, cross-sectional weights are always used when cross-sectional results are reported and the appropriate longitudinal weights are used when longitudinal results are reported. Thus, all statistics presented in this report should be interpreted as estimates for the in-scope Australian population. That is, all results are 'population-weighted' to be representative of the Australian community.

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

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

¹ Further details on how the weights are derived are provided in Watson and Fry (2002), Watson (2004b) and Summerfield et al. (2018).

² In principle, the in-scope population in Waves 2 to 10 excludes most immigrants arriving in Australia after 2001, and the in-scope population in Waves 12 to 17 excludes most immigrants arriving after 2011. However, owing to a lack of suitable external benchmarks for this population subgroup, these immigrants are in practice included in the in-scope population. Consequently, in all waves, the HILDA Survey weights sum to the total Australian population inclusive of new immigrants.

C. Fieldwork process and outcomes

Sample

The HILDA Survey commenced, in 2001, with a nationally representative sample of Australian households (residing in private dwellings). Of the 11,693 households selected for inclusion in the sample in 2001, 7,682 households agreed to participate, resulting in a household response rate of 66%. The 19,914 residents of those households form the basis of the 'main sample' that is interviewed in each subsequent year (or survey wave), but with interviews only conducted with persons aged 15 years or older. As noted in Section B of this Technical Appendix, interviews are also conducted with any other person who joins a household in which an original sample member is living. These individuals are only interviewed as long as they remain living with an original sample member, unless they are an immigrant who migrated to Australia after 2001 or they have a child with an original sample member, in which case they become a 'permanent' sample member. Persons who are known to have died are removed from the sample (but their existing data is retained). We also do not pursue interviews with persons who have moved overseas, persons who have requested to no longer be contacted, or persons 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 175 interviewers in Wave 17, 145 of whom undertook interviews in person, with the remaining 30 being dedicated telephone interviewers. Most interviews are undertaken in person, usually in the home of the sample member. Some interviews, however, are undertaken by telephone, usually because the cost of sending an interviewer to the location of that sample member was prohibitive or because the sample member preferred a telephone interview. In Wave 17, 1,565 interviews (or 8.9% 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 17).³ Table A1 presents the number of households, respondents and children under 15 years of age in each wave. In Wave 17, interviews were obtained with a total of 17,571 persons, of which 13,972 were from the original sample and 3,779 were from the top-up sample. Of the original 13,969 respondents in 2001, 7,622, or 63.7%, of those still in scope (that is, alive and in Australia), were still participating at Wave 17.

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

Figure A1 reports re-interview rates (percentage of previous-wave respondents still in scope who were interviewed in the current wave) and response rates among new entrants to the sample for both the original sample and the top-up sample. As can be seen, 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 17, the original-sample re-interview rate was 96.7%. We expect much lower response rates among new individuals joining the sample. Nevertheless, response rates for this group have averaged approximately 75% to 80% for much of the period since Wave 4. In Wave 17, the rate was 84.2% for the original sample and 71.1% for the top-up sample.

Within the top-up sample, the re-interview rate in Wave 17 was 95.3%. The comparable rate within the original sample is the rate recorded in Wave 7, which was 94.7%. The interview rate for new entrants to the top-up sample in Wave 17 was, at 71.1%, also comparatively high.

All persons who are interviewed are also asked to complete a separate paper-based questionnaire. Of the 17,571 persons who were interviewed in Wave 17, 16,190 (92.1%) 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 17 waves and the proportion responding in Wave 17, disaggregated by characteristics in Wave 1 (that is, in 2001). Table A3 presents analogous information for the Wave 11 top-up sample.



³ More detailed data on the sample make-up, and in particular response rates, can be found in Summerfield et al. (2018).

Table A1: HILDA Survey sample sizes

	<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	13,634	3,625
Wave 15 (original sample)	7,546	13,754	3,653
Wave 16 (original sample)	7,635	13,835	3,765
Wave 17 (original sample)	7,660	13,792	3,815
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	3,878	1,045
Wave 15 (top-up sample)	2,085	3,852	1,037
Wave 16 (top-up sample)	2,115	3,859	1,054
Wave 17 (top-up sample)	2,082	3,779	1,021



Figure A1: HILDA Survey response rates, Waves 2 to 17 (2002 to 2017)

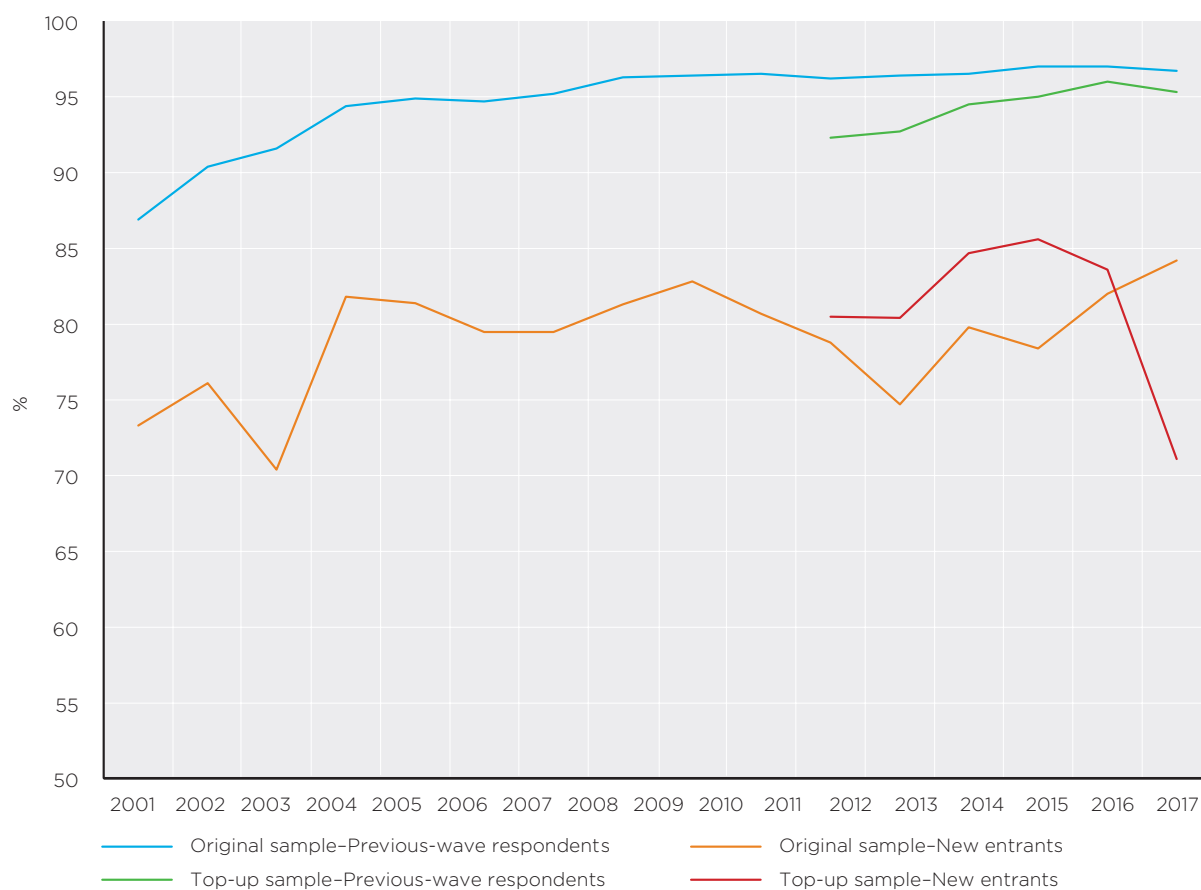


Table A2: Percentage of Wave 1 respondents re-interviewed by selected Wave 1 characteristics (%)

<i>Wave 1 characteristics</i>	<i>Interviewed in all waves</i>	<i>Interviewed in Wave 17</i>	<i>Wave 1 characteristics</i>	<i>Interviewed in all waves</i>	<i>Interviewed in Wave 17</i>
<i>Area</i>			<i>Indigenous status</i>		
Sydney	49.6	61.5	Indigenous	38.0	65.0
Rest of New South Wales	53.5	64.3	Non-Indigenous	52.4	63.7
Melbourne	50.0	63.5	<i>Education attainment</i>		
Rest of Victoria	51.1	62.3	Year 11 or below	46.9	59.1
Brisbane	56.0	66.0	Year 12	51.1	62.3
Rest of Queensland	53.4	63.4	Certificate 3 or 4	51.0	63.3
Adelaide	55.5	65.7	Diploma	58.9	68.9
Rest of South Australia	50.7	65.7	Degree or higher	62.9	72.9
Perth	50.9	60.3	<i>Dwelling type</i>		
Rest of Western Australia	47.5	62.7	House	52.6	64.3
Tasmania	55.0	67.9	Semi-detached	51.9	64.0
Northern Territory	66.1	81.3	Flat, unit, apartment	47.0	57.4
Australian Capital Territory	57.7	70.8	Other	46.8	58.3
<i>Sex</i>			<i>Labour force status</i>		
Male	50.3	62.1	Employed full-time	53.0	64.4
Female	53.6	65.0	Employed part-time	55.6	67.1
<i>Age group (years)</i>			Unemployed	41.3	55.9
15-19	37.6	56.0	Not in the labour force	49.9	61.3
20-24	39.9	56.2	<i>Employment status in main job^a</i>		
25-34	48.4	61.9	Employee	53.9	65.5
35-44	55.3	65.7	Employer	51.9	63.0
45-54	59.0	68.9	Own account worker	53.9	64.1
55-64	61.2	70.3	Contributing family worker	50.8	68.8
65-74	56.1	63.0	<i>Occupation^a</i>		
75 and over	26.2	33.9	Managers/administrators	54.7	67.0
<i>Marital status</i>			Professionals	62.8	73.6
Married	55.3	65.3	Associate professionals	54.2	63.9
De facto	50.6	63.4	Tradespersons	47.0	60.7
Separated	53.2	65.1	Advanced clerical/service	52.5	62.3
Divorced	59.0	69.8	Intermediate clerical/sales/service	54.7	66.5
Widowed	56.4	61.4	Intermediate production/transport	49.1	57.7
Single	42.8	59.0	Elementary clerical/sales/service	51.7	64.6
<i>Country of birth</i>			Labourers	45.6	57.8
Australia	53.7	65.3	<i>All Wave 1 respondents</i>		
Overseas				52.1	63.7
Main English-speaking	55.0	64.5	<i>Total number responding</i>		
Other	41.0	54.5		6,018	7,622

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

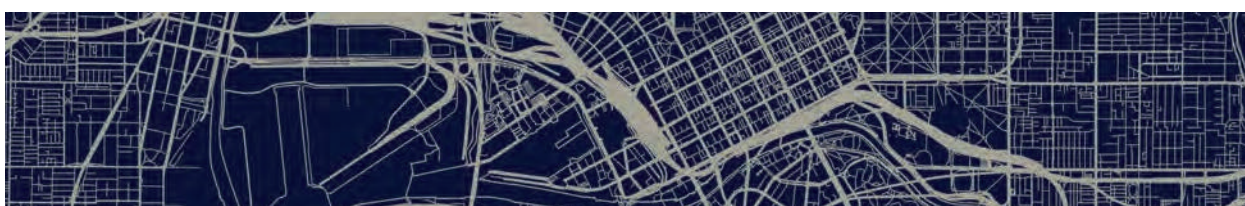


Table A3: Percentage of Wave 11 top-up respondents re-interviewed by selected Wave 11 characteristics (%)

<i>Wave 11 characteristics</i>	<i>Interviewed in all waves</i>	<i>Interviewed in Wave 17</i>	<i>Wave 11 characteristics</i>	<i>Interviewed in all waves</i>	<i>Interviewed in Wave 17</i>
<i>Area</i>			<i>Indigenous status</i>		
Sydney	69.9	74.6	Indigenous	72.8	78.3
Rest of New South Wales	77.0	80.6	Non-Indigenous	73.6	78.6
Melbourne	75.9	79.7	<i>Education attainment</i>		
Rest of Victoria	76.1	81.9	Year 11 or below	70.6	76.1
Brisbane	73.4	80.5	Year 12	74.1	79.4
Rest of Queensland	73.6	81.4	Certificate 3 or 4	75.6	81.1
Adelaide	74.5	75.9	Diploma	73.4	79.6
Rest of South Australia	77.4	81.1	Degree or higher	74.9	78.5
Perth	67.7	75.2	<i>Dwelling type</i>		
Rest of Western Australia	64.5	74.8	House	73.6	78.7
Tasmania	80.2	83.3	Semi-detached	70.1	76.6
Northern Territory	72.0	88.0	Flat, unit, apartment	76.0	79.6
Australian Capital Territory	78.9	81.1	Other	100.0	100.0
<i>Sex</i>			<i>Labour force status</i>		
Male	72.9	78.1	Employed full-time	72.7	79.0
Female	74.1	79.0	Employed part-time	73.2	76.7
<i>Age group (years)</i>			Unemployed	81.6	85.5
15-19	66.7	72.8	Not in the labour force	74.0	78.5
20-24	72.1	79.4	<i>Employment status in main job^a</i>		
25-34	75.4	81.1	Employee	73.0	78.2
35-44	73.5	79.0	Employer	65.3	78.0
45-54	73.4	77.7	Own account worker	74.1	78.9
55-64	76.1	80.8	Contributing family worker	70.0	80.0
65-74	80.1	83.4	<i>Occupation^a</i>		
75 and over	63.6	65.9	Managers	72.0	78.5
<i>Marital status</i>			Professionals	75.5	81.0
Married	75.4	79.4	Technicians and trades workers	69.2	74.2
De facto	71.0	79.5	Community and personal service workers	74.8	78.1
Separated	81.2	84.3	Clerical and administrative workers	71.9	79.2
Divorced	73.6	78.5	Sales workers	71.2	74.8
Widowed	69.3	72.0	Machinery operators and drivers	74.5	77.9
Single	70.7	76.7	Labourers	72.6	78.7
<i>Country of birth</i>			<i>All Wave 11 respondents</i>		
Australia	74.7	79.8	<i>Total number responding</i>		
Overseas				2,715	2,940
Main English-speaking	73.1	79.4			
Other	69.7	73.8			

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



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Julia Hastings

Ximena Ilich

Liam Jemmeson

Liam Jordan

Kieran Kelly

Anna Linardi

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Chris Brennan

Sheila Brown

Elaine Buck

Linda Buttel

Gordon Caldwell

Frances Carr-Boyd

Michael Carter

Christine Cheung

Jay Clark

Mwaba Cooper

Andrew Craker

Richard Crow

Laurie-Anne Curry

Melanie Davidson

Delwyn Dix

Beth Donnelly

Mark Dowe

Tara Dowe

Andrew Edwards

Beverley Edwards

Sandra Essex

Henry Ferst

Lana Fitt
 Anthony Foley
 Charmaine Foley
 John Girvan
 Kerry Green
 Sandy Grieve
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 Garry Grooms
 Timothy Haddad
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 Philip Hands
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 Loretta Ho
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 Annette Major
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Gaynor Martyn
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 Zoe Perrett
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 Lynndal Richards
 Lynnette Richardson
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Gillian Rivers
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 George Shaw
 Bev Short
 Roma Sirc
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 Elizabeth Stock
 Phillip Stock
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 Helen Szuty
 Bridgitte Tadrosse
 Lynda Taylor
 Fay Tomholt
 Suzanne Torok
 Kerrie Townley-Jones
 Brenda Treloar
 Robin Trotter
 Sunita Waghmode
 Tim Walker
 Julia Ward
 Elizabeth Waymark
 Ella Wellwood
 Sue Whiteley
 Dennis Williams
 Marlene Wills
 Bev Worrall
 Pamela Wright
 Jayne Wymer
 Jeffrey Yap
 Karen Yaxley





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.

