# **MELBOURNE INSTITUTE Applied Economic & Social Research**



The Household, Income and Labour Dynamics in Australia Survey: Selected Findings from Waves 1 to 21







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





# The Household, Income and Labour Dynamics in Australia Survey: Selected Findings from Waves 1 to 21

# The 18th Annual Statistical Report of the HILDA Survey

Roger Wilkins, Esperanza Vera-Toscano and Ferdi Botha Melbourne Institute: Applied Economic & Social Research The University of Melbourne



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



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

© Commonwealth of Australia 2024

ISSN Print: 2205-0558 ISSN Online: 2205-0566

Suggested citation: Roger Wilkins, Esperanza Vera-Toscano and Ferdi Botha (2024) *The Household, Income and Labour Dynamics in Australia Survey: Selected Findings from Waves 1 to 21.* Melbourne Institute: Applied Economic & Social Research, the University of Melbourne.

This is the 18th Annual Statistical Report of the HILDA Survey. The first nine reports (2006 to 2014) were published as *Families, Incomes and Jobs: A Statistical Report of the HILDA Survey.* 

All material presented in this publication is provided under a Creative Commons CC-BY Attribution 3.0 Australia <a href="http://creativecommons.org/licenses/by/3.0/au/deed.en">http://creativecommons.org/licenses/by/3.0/au/deed.en</a> licence. For the avoidance of doubt, this means this licence only applies to material as set out in this document.



The opinions, comments and analysis expressed in this document are those of the authors and do not necessarily represent the views of the Minister for Social Services or the Australian Government Department of Social Services and cannot be taken in any way as expressions of government policy.

Photo credits: Shutterstock.

Designed and manufactured by the Junction Print Group.



# Contents

1.	Introduction	4
2.	Households and family life	7
3.	Household economic wellbeing	53
4.	The labour market	91
5.	Life during the COVID-19 pandemic in 2020 and 2021	: 111
6.	Health and health care	.125
7.	Legal and illegal drug use	140
8.	Psychological distress	.164
9.	Loneliness	.170
10.	Quantity and quality of sleep	. 175
11.	The wellbeing of people receiving National Disability Insurance Scheme supports	.183
12.	People who have served in the Australian Defence Force	.189
Re	ferences	.195
Teo	chnical Appendix	.197
HIL	_DA Survey Personnel	205

# Acknowledgements

We acknowledge comments received on draft versions of this report from the Australian Government Department of Social Services and other Australian Government departments and agencies. Thanks also to The Editorial Collective for subediting and to Sasha Sweatman for overseeing the subediting, design and printing of the report.

# 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. As of December 2023, 22 waves (years) are available to researchers, while this year saw the collection of the 23rd wave.

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 nonresident 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 continue indefinitely, 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 lifecourse 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 furthermore valuable 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.

With 22 waves of data now available, the HILDA Survey is also becoming a sufficiently longrunning panel to enable very long-term analyses, including studies of intergenerational linkages. For example, it is possible to examine whether children who have poor parents when growing up are themselves more likely to be poor as adults, and to investigate the drivers of any such linkages.

# This report

This report presents brief statistical analyses of the first 21 waves of the study, which were conducted between 2001 and 2021. As with last year's report, an important theme of this year's report is how the COVID-19 pandemic impacted life in Australia. The 2020 and 2021 data provide an insight into how the first two years of the pandemic impacted our economic wellbeing, family and social life, health, labour market activity and many other aspects of life in Australia. All of these life domains are explored in this report.

This report should 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 were released in January 2003. Further details on the publications resulting from these studies are available on the HILDA Survey website at <https:// melbourneinstitute.unimelb.edu. au/hilda/publications/> and at <https://flosse.dss.gov.au/>.

It also bears emphasising that, since this year's report examines Waves 1 to 21, it does not examine the period after 2021, when rising interest rates and high inflation are likely to have supplanted the pandemic as the most pressing issue for the Australian community and economy. Of course, future releases of the HILDA Survey data will provide information on how this period of rising cost of living has impacted Australians and this will be a topic addressed in future volumes of this report.

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 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 males and females 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 nonresponse and attrition. These weights are used in all analysis presented in this report, so that all statistics represent estimates for the Australian population. Note, however, that the HILDA Survey under-represents immigrants arriving in Australia after 2011. Section B of the Technical Appendix further discusses this limitation. While precise data are not available, visa grants and migration flow data suggest that in 2021 between 4.5% and 6% of residents in Australia (approximately 1.1 to 1.5 million people) were immigrants who arrived after 2011. These individuals are largely not represented in the HILDA Survey sample and therefore in the analysis presented in this report.

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%. A relative standard error that is less than 25% implies that 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

Esperanza Vera-Toscano

The HILDA Survey collects information on various aspects of family life every year. These aspects comprise family and household structures; how parents cope with parenting responsibilities, including the care arrangements they use and the care-related problems they face; issues of work-family balance; perceptions of family relationships; and perceptions of and attitudes to roles of household members. Collecting this information from the same individuals every year allows us to investigate how and why family circumstances change over time—partnering and marriage, separation and divorce, childbirth, adult children leaving the family home, and any other change to the composition or nature of family circumstances.

In this chapter, we present analyses for the 2001 to 2021 period on six aspects of family life:

- the changing living arrangements of Australians, as described by the household types in which they live;
- partnering and separation, with particular attention to relationship satisfaction with partners;
- young adults still living at home;
- family situation of children and their child-care arrangements;
- use and cost of paid child care for children not yet in school, with particular attention paid to the difficulties connected to child-care use; and
- parenting stress, work-family conflict and satisfaction with family relationships.

# The changing living arrangements in Australia

# Household dynamics, 2001 to 2021

Table 2.1 presents the evolution of household types (as described in Box 2.3, page 9) over the 2001 to 2021 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 [below], 2.2 [page 8] and 2.3 [page 9]).

## 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 to be classified as a dependent child of the couple.

For a child to be classified as a member of the household, in most cases the child must reside in the household at least 50% of the time. 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 the event that a child resides exactly 50% of the time in each parent's household, the child is assigned to the mother's household.



### Box 2.2: Single parents

We adopt the Australian Bureau of Statistics' (ABS) definition of a single parent in this report (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. However, a person who reports being legally or de facto married will not be classified as a single parent even if their partner is not usually resident in the household.

Broadly, the distribution of household types has been relatively stable across the 21 years. A household containing a couple with dependent children (and no one else) has remained the most common household type, with approximately 41% 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. Single-parent

households have been the third most common household type, accounting for about 11% to 12% of individuals. The fourth position in the ranking is for people living alone (the single-person household type), accounting for around 10% of individuals.

Nonetheless, some important trends are evident. The proportion of people living in multiple-family households increased from 2.7% in 2001 to 3.9% in 2021, up by 1.2 percentage points. The peak was in 2019, when the proportion reached

Change Change

### Table 2.1: Proportion of individuals in each household type, 2001 to 2021 (%)

												2001	2019
	2001	2003	2005	2007	2009	2011	2013	2015	2017	2019	2021	to 2021	to 2021
Couple with children	52.4	52.0	52.9	53.6	52.8	51.6	50.6	50.3	51.3	50.3	51.5	-0.8	1.3
Couple with dependent children	41.4	41.4	41.4	41.4	40.9	41.2	40.3	41.1	41.1	40.5	40.2	-1.2	-0.3
Couple with dependent children and others <sup>a</sup>	2.4	1.8	1.9	2.0	2.7	2.6	2.3	1.7	2.0	1.6	2.5	0.0	0.9
Couple with non- dependent children, with or without othersª	8.5	8.8	9.5	10.2	9.1	7.8	8.0	7.5	8.2	8.2	8.8	0.4	0.7
Couple without children, with or without others <sup>a</sup>	20.4	20.7	20.8	20.2	20.6	21.0	21.5	21.2	20.9	20.5	21.1	0.6	0.6
Single-parent household	11.4	12.1	12.2	11.8	11.4	10.8	11.5	12.2	12.1	12.6	11.4	0.0	-1.2
Single parent with dependent children	6.9	7.4	6.9	6.6	6.4	6.1	6.6	6.8	6.7	6.5	5.9	-1.0	-0.6
Single parent with dependent children and others <sup>a</sup>	1.5	1.3	1.3	1.0	1.3	1.2	1.4	1.4	1.1	1.1	1.2	-0.3	0.1
Single parent with non-dependent children, with or without others <sup>a</sup>	3.0	3.5	4.0	4.2	3.6	3.5	3.4	4.0	4.3	4.9	4.2	1.3	-0.7
Single person	9.5	9.4	9.3	9.3	9.3	9.4	9.5	9.7	9.8	9.9	10.0	0.5	0.1
Other household type	6.4	5.9	4.9	5.2	6.0	7.2	7.0	6.6	6.0	6.8	6.1	-0.3	-0.8
Other family household	1.1	1.3	1.1	0.9	1.2	1.5	1.4	1.5	1.2	1.3	1.4	0.2	0.1
Multiple-family household	2.7	3.1	2.6	3.1	3.2	3.8	4.3	4.3	3.7	4.6	3.9	1.2	-0.7
Group household	2.5	1.4	1.3	1.2	1.6	1.9	1.3	0.9	1.2	1.0	0.8	-1.7	-0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Note*: <sup>a</sup> Others' comprises related people and unrelated people. 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.

4.6%. However, this upward trend reversed between 2019 and 2021, with the proportion of multiplefamily households declining by 0.7 percentage points. Additionally, the proportion of group households had the largest decrease of any household type, declining by 1.7 percentage points between 2001 and 2021.

Couple households with dependent children and no other household members also declined, by 1.2 percentage points, between 2001 and 2021. However, during the 2019 to 2021 period, while the proportion of couple households with only dependent children continued to shrink by 0.3 percentage points, there was a 0.9 percentage-point increase in couple households with dependent children and others, as well as a 0.7 percentage-point increase in couple households with nondependent children, with or without other members.

It is also evident that single parents with dependent children exhibited a declining trend between 2001 and 2021, with a decrease of 1.0 percentage points, of which 0.6 percentage points occurred between 2019 and 2021. On the other hand, the proportion of people living in single-parent households with non-dependent children, with or without others increased by

### 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 people of the couple or single parent (including siblings and parents) and unrelated people. For couples with non-dependent children and single parents with non-dependent children, 'others' can include other related people and unrelated people (but not dependent children). In a couple household, 'others' comprises related people other than children as well as unrelated people.
- 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 7), 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 people (none of whom is residing with a related person).

In some of the analysis presented in this report, individuals are classified according to family type (see Box 3.4, page 56) 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.



1.3 percentage points between2001 and 2021 but decreased by0.7 percentage points between2019 and 2021.

# Changes in household structure

While the proportion of households of each type remained quite stable over the 21-year period, for many individuals, their household structure would have changed at least once during this time. Some may have had household members leave because of a relationship breakdown and some may have had adult children leave the family home. For others, the household structure may have changed due to the death of a household member. The household structure could also

have changed as new members joined the household, for example, due to the birth of a baby, the adoption of a child, or a couple moving in together.

To begin with, we focus on household types and how individuals have changed their household types over various timeframes. Results are shown in Table 2.2. We focus on changes in household type from 2011 onwards, examining timeframes of one year (2011 to 2012), five years (2011 to 2016) and 10 years (2011 to 2021). Each row of the table shows, for each initial household type, the proportion of individuals in each household type in the subsequent year under examination. For example, the second row of the table shows that for individuals in

couple with children households in 2011, 92.1% were still in that household type in 2012, while 2.6% were in couple without children households, 1.6% were in single-parent households, 1.8% were in single-person households and 1.9% were in other household types.

Between 2011 and 2012, couple families were the most stable. Of individuals who were in a couple without children household in 2011, 89.6% remained in that household type in 2012. For individuals in couple with children households, 92.1% stayed in that household type. Of those who were no longer in couple without children households, the most common reason for the change was the arrival of a child, accounting for

Table 2.2: Changes in household structure over various timeframes (%)									
		Household t	ype in 2012	(1 year later)					
	Couple without children	Couple with children	Single parent	Single person	Other household type	Total			
Household type in 2011									
Couple without children	89.6	6.3	0.2	2.4	1.5	100.0			
Couple with children	2.6	92.1	1.6	1.8	1.9	100.0			
Single parent	2.3	4.6	84.2	5.8	3.1	100.0			
Single person	4.8	1.4	1.7	90.3	1.8	100.0			
Other household type	13.5	11.1	6.9	8.9	59.6	100.0			
		Household ty	/pe in 2016	(5 years later)					
	Couple without children	Couple with children	Single parent	Single person	Other household type	Total			
Household type in 2011									
Couple without children	71.8	17.4	1.1	7.9	1.7	100.0			
Couple with children	10.6	74.7	6.3	5.4	3.1	100.0			
Single parent	6.9	15.5	56.3	15.5	5.8	100.0			
Single person	11.1	7.2	3.7	76.6	1.5	100.0			
Other household type	19.7	29.3	10.2	15.2	25.6	100.0			
		Household ty	pe in 2021 (	10 years later)					
	Couple without children	Couple with children	Single parent	Single person	Other household type	Total			
Household type in 2011									
Couple without children	64.1	22.0	1.6	11.2	1.1	100.0			
Couple with children	18.4	60.1	7.8	8.3	5.3	100.0			
Single parent	11.4	17.6	41.4	24.7	4.9	100.0			
Single person	11.9	13.9	5.4	67.1	1.6	100.0			
Other household type	17.5	38.9	12.1	15.9	15.5	100.0			

6.3% of cases. Single-parent households also showed stability, with 84.2% of individuals who were living in single-parent households in 2011 still living in a single-parent household in 2012. People living alone had a retention rate of 90.3%, but 6.2% moved in with partners (4.8% + 1.4%). In contrast, the category of 'other households' was the least persistent, with only 59.6% of individuals remaining in this category from 2011 to 2012.

Clearly, it is much more likely that households will change structure over a longer timeframe. Significantly, over the longer timeframes, the single-person household type is clearly the most persistent household type. For example, of those in singleperson households in 2011, 67.1% were in that same household type 10 years later. This compares with 10-year persistence rates of 64.1% for couples without children, 60.1% for couples with children, 41.4% for single-parent households and only 15.5% for the 'other household type' category.

While persistence of household types declines over longer timeframes, it necessarily follows that people are more likely to transition from each household type to another as the timeframe increases. For example, of those in couple without children households in 2011, 6.3% were in couple with children households in 2012, 17.4% were in couple with children households in 2016, and 22% were in couple with children households in 2021. The relative frequency of transitions from each household type to each other household type are, however, reasonably stable across the timeframes examined in Table 2.2. For all timeframes examined in the table, the most common transition from both couple with children and singleperson households was to couple without children households. The most common transition from couples without

children was to couple with children households. For singleparent households, the most common transitions were both to couple with children households and single-person households.

Lastly, the least common household structures also tend to be the least static—of those individuals in the 'other household'<sup>1</sup> type in 2011, only 15.5% remained in the same category in 2021. These sorts of living arrangements seem to be temporary for the vast majority of people—for example, while studying at university.

Changes in household composition are of course possible without any change in household type occurring. For example, a couple with children may have another child, or those with more than one child may have one of their children leave home. In Table 2.3, a broader range of changes to household composition is presented. The



<sup>1</sup> 'Other household type' is comprised of multi-family households, group households and 'other-family' households. See Box 2.3, page 9 for more information.

table shows the proportion of the population (including children under 15 years of age) experiencing various changes in household composition over time. The first row presents the proportion of people experiencing any change to household composition, whether this arises from the individual moving or another person entering or leaving that person's household. The second row presents the proportion experiencing an increase in

### Table 2.3: Changes in household composition by state of residence, 2018 to 2021 (%)

	All states and territories	NSW and ACT	Victoria	Rest of Australia
2018 to 2019				
Household composition changed (someone left and/or someone entered)	19.6	20.0	18.9	19.7
Household size increased	8.1	8.8	7.5	7.8
Household size decreased	11.1	10.2	11.0	11.8
Nature of change in composition:				
Partnering	3.0	3.7	2.5	2.7
Separation	2.0	1.0	3.1	2.0
Birth of a child	5.3	6.7	4.6	4.5
Child moving into parent home	3.5	3.3	3.4	3.8
Child moving out of parent home	10.5	9.5	10.9	11.0
Death of a household member	0.5	0.3	0.4	0.6
Other source of increase in household size (entry)	10.0	8.5	10.2	11.0
Other source of decrease in household size (exit)	8.0	9.3	7.2	7.4
2019 to 2020				
Household composition changed (someone left and/or someone entered)	17.9	18.3	16.1	18.7
Household size increased	7.7	8.6	7.3	7.1
Household size decreased	10.2	10.2	9.2	10.8
Nature of change in composition:				
Partnering	2.3	2.0	2.9	2.1
Separation	2.1	2.7	1.6	1.9
Birth of a child	4.1	4.1	3.4	4.5
Child moving into parent home	3.2	3.4	2.9	3.2
Child moving out of parent home	9.7	9.5	8.5	10.8
Death of a household member	0.6	0.3	0.4	0.8
Other source of increase in household size (entry)	9.6	9.9	8.4	10.0
Other source of decrease in household size (exit)	7.0	7.8	6.8	6.6
2020 to 2021				
Household composition changed (someone left and/or someone entered)	18.0	17.5	18.3	18.1
Household size increased	7.9	6.9	8.1	8.6
Household size decreased	10.2	11.9	9.6	9.2
Nature of change in composition:				
Partnering	2.3	1.9	1.9	2.8
Separation	1.9	2.1	1.6	2.1
Birth of a child	4.2	3.9	4.5	4.1
Child moving into parent home	3.5	2.5	3.3	4.3
Child moving out of parent home	9.4	9.8	9.5	9.1
Death of a household member	0.4	0.5	0.5	0.3
Other source of increase in household size (entry)	9.3	10.1	9.1	8.7
Other source of decrease in household size (exit)	7.5	6.6	7.8	8.1

household size, and the third row presents the proportion experiencing a decrease in household size. The remaining rows show the proportion of people experiencing particular changes to household composition: partnering, separation of partners, birth of a child, a child moving out, a child moving in, death of a household member, or other source of increase in household size, and other source of decrease in household size.

In light of the recent COVID-19 pandemic and the associated lockdowns, these changes are examined only between 2018 and 2020 by state of residence. Thus, we explore the changes occurring between every wave within the timeframe being analysed.

Results show that, between 2018 and 2019 (just before the COVID-19 pandemic hit), 19.6% of people living in Australia experienced at least one change in household composition. However, between 2019 and 2020, only 17.9% of people living in Australia experienced at least one change in household composition. This percentage was the smallest for Victorian residents (16.1%).

As the virus spread and new states and territories were affected by different degrees of lockdown, the results show that between 2020 and 2021, 18% of Australian residents experienced at least one change in household composition (with similar results observed across states).

While the most important driver of change in household composition is related to children moving out of the parental home, only 8.5% of Victorian residents experienced this change between 2019 and 2020, compared to 9.5% of people in New South Wales and the Australian Capital Territory, and 10.8% in the rest of Australia. Again, results are more similar across states for this event in the second year of the pandemic (2020 to 2021).

Partnering was somewhat more common in Victoria than in the rest of the country between 2019 and 2020, while it was less common in Victoria than the other regions during the COVID-19 pandemic years. Interestingly, other changes in household composition, such as the birth of a child or a child moving into the parental home, were also less likely to happen in Victoria than in the rest of the country, particularly between 2019 and 2020.

# Partnering and separation

The data from the HILDA Survey allow for an examination of changes to marital status at the individual level over time. In this section, we provide a brief analysis of the patterns of partnering and separation experienced by individuals.

Table 2.4 presents cross-sectional snapshots of the marital status of the population in 2001, 2010, 2019, 2020 and 2021, broken down by sex and age group. We specifically report information from 2019 and 2021 to capture potential impacts of the COVID-19 pandemic. The table distinguishes between legal

Table 2.4: Marital status by sex and age group, 2001 to 2021 (%)										
	20	001	20	010	20	2019		020	20	021
	Married	De facto								
Men										
18-24	3.5	8.5	2.7	10.6	*1.3	10.5	*1.3	10.8	*0.8	10.9
25-29	25.5	20.0	22.2	24.4	17.5	28.9	12.7	30.2	14.6	32.1
30-34	49.7	14.3	47.4	19.1	42.5	24.9	39.0	25.8	37.2	29.6
35-39	58.9	12.3	55.3	16.7	62.4	16.1	62.4	14.4	55.9	17.2
40-49	69.6	8.7	63.1	11.1	61.3	15.7	61.8	15.7	64.1	15.0
50 and over	76.6	4.1	74.1	5.3	68.1	7.6	68.6	7.9	67.9	8.1
Total	56.3	9.0	53.3	11.3	50.5	13.9	50.6	14.0	50.3	14.7
Women										
18-24	8.1	14.8	5.7	18.1	3.1	14.8	2.7	16.3	3.4	16.7
25-29	35.9	18.6	36.1	24.8	27.9	33.7	25.0	32.8	20.6	35.8
30-34	60.7	14.3	55.2	18.0	51.1	21.4	48.4	22.7	45.6	25.1
35-39	67.6	11.7	61.1	15.4	58.8	17.5	57.9	16.6	60.6	17.1
40-49	67.3	7.9	65.7	10.7	61.0	13.0	61.0	13.8	61.1	14.1
50 and over	62.1	2.9	60.6	4.1	57.2	6.0	57.6	6.4	57.4	6.6
Total	54.5	8.9	51.8	11.3	48.5	13.3	48.5	13.7	48.2	14.3

Note: \* Estimate not reliable

marriages ('married') and de facto marriages ('de facto'), with the latter category referring to individuals living with a partner but not legally married.

A trend decline in the proportion of the population that is married is evident, to a significant extent, accompanied by growth in de facto marriages. The proportion of men who were married declined from 56.3% in 2001 to 50.3% in 2021 while the proportion who were de facto married rose from 9.0% to 14.7%. The proportion of women who were married declined from 54.5% in 2001 to 48.2% in 2021, while the proportion who were de facto married rose from 8.9% to 14.3%. Significantly, for both men and women, the decline in marriage is predominantly among those aged 25 to 34. Growth in de facto marriages is evident for all age groups for both men and women.

# Individuals' experiences of partnering and separation

Taking a longitudinal perspective, in Table 2.5, we examine partnering by single people and legal marriage by unmarried people over five years. The first four columns present the proportions of single people who moved in with a partner, disaggregated by various sociodemographic characteristics at the start of the five-year window. The last four columns present the proportions of unmarried people who were legally married over the period, likewise disaggregated by several sociodemographic characteristics.

Four pooled periods are examined: the five-year periods beginning in 2002, 2003 and 2004; the five-year periods beginning in 2006, 2007 and 2008; the five-year periods beginning in 2010, 2011 and 2012; and the five-year periods beginning in 2014, 2015 and 2016.



Thus, for the first pooled period, everyone who was single in 2002 is examined over the period to 2007. Everyone who was single in 2003 is examined over the period to 2008. Everyone who was single in 2004 is examined over the period to 2009. Therefore, a single person in 2002, 2003 and 2004 would be represented three times in the data used to produce the 2002 to 2004 pooled estimates.

Overall, there has been a decline in the rates of partnering and marriage both for men and women. For example, while 31.1% of men and 26.8% of women partnered in the 2002 to 2004 period, only 26.7% of men and 23.7% of women did so in the 2014 to 2016 period.

Moreover, for both men and women, rates of partnering and marriage are strongly ordered by age. The peak age group for both partnering and marriage is 25–29, with rates then declining with age. If we look at the four pooled periods, there are indications of declines in partnering and

people manying within nive years, by soc	A. m	Initially no	ot partner ith a partr	ed: ner	B. Initially not legally married: got married			
	2002-	2006-	2010-	2014-	2002-	2006-	2010-	2014-
Men	2004	2008	2012	2016	2004	2008	2012	2016
Age group								
18-24	43.5	40.3	35.9	38.9	18.8	15.0	13.1	11.7
25-29	47.9	50.8	48.6	44.7	31.5	31.6	34.1	27.0
30-34	29.1	35.8	39.0	28.6	19.3	27.4	32.3	26.8
35-39	34.3	24.8	35.5	35.6	18.1	13.2	15.9	17.1
40-49	24.2	21.4	22.6	17.7	12.6	13.9	9.4	12.7
50 and over	13.8	11.4	11.2	8.5	10.0	6.6	6.1	6.0
Educational attainment								
Bachelor's degree or higher	34.1	29.7	32.5	34.2	21.6	21.4	22.2	22.6
Other post-school qualification	37.3	34.3	31.6	27.8	21.2	19.1	18.0	15.5
Completed high school	34.2	32.3	32.0	32.0	17.6	12.2	13.1	11.0
Less than high school completion	23.2	23.1	22.4	16.4	7.3	8.3	8.0	4.8
Labour status	20.0	07 5	20.2		00.7	10.0	40.7	47.0
Employed	38.8	37.5	38.3	35.5	20.7	19.0	19.7	17.6
Unemployed	21.1	24.0	24.3	10.0	*7.5 E 4	*7.0	8.Z 2.1	5.9
States and territories	14.4	11.7	12.5	11.5	5.4	4.5	3.1	2.0
Now South Walos	20.0	28.1	28.6	30.2	18/	15.8	16.4	16 5
Victoria	32.5	26.2	20.0	26.4	16.4	13.4	15.1	11.5
Queensland	36.9	39.6	29.4	24.9	15.3	17.1	11.7	12.3
South Australia	26.6	31.0	30.3	29.2	12.9	13.8	18.3	12.2
Western Australia	25.6	23.6	25.7	18.1	12.3	13.0	13.7	11.6
Tasmania	29.8	24.0	31.2	17.7	16.2	15.9	12.2	7.8
Northern Territory	*47.4	*22.6	*19.0	*21.1	*3.1	*15.7	*11.8	*11.6
Australian Capital Territory	*19.2	*19.3	*23.2	28.4	*13.2	*11.3	11.3	13.2
Immigrant status and First Nations identity								
First Nations	*31.8	36.1	33.7	31.5	*17.2	*10.2	*5.6	9.1
Non-First Nations Australian-born	31.0	28.6	27.5	26.3	15.5	14.1	13.2	12.4
Immigrant, main English-speaking countries	32.4	22.5	24.8	21.4	17.2	12.4	12.3	8.8
Immigrant, other countries	31.0	35.1	37.6	30.4	20.2	25.4	30.1	24.1
Total	31.1	29.2	28.9	26.7	16.1	15.0	14.9	13.4
Women								
Age group								
18-24	49.1	50.6	46.5	43.5	23.7	21.1	18.1	15.1
25-29	51.8	50.3	49.5	46.0	33.8	40.1	35.4	30.5
30-34 7E 70	21.2	21 0	25.0	24.3	22.1	20.0	24.0	15.6
10-19	20.8	19.6	19.7	21.5	13.5	9.6	11 1	10.4
50 and over	4.0	6.3	55	5.4	2.8	4.2	3.5	3.1
Educational attainment	1.0	0.0	0.0	0.1	2.0	1.2	0.0	0.1
Bachelor's degree or higher	31.8	36.1	25.4	23.7	23.1	23.2	18.5	17.9
Other post-school gualification	34.7	26.3	26.2	22.8	18.5	15.7	16.3	12.2
Completed high school	35.6	35.6	39.5	35.7	17.3	17.3	15.6	13.4
Less than high school completion	18.2	22.8	17.7	17.1	7.7	8.2	6.0	5.1
Labour status								
Employed	36.5	38.4	34.8	32.2	18.8	20.2	17.8	16.2
Unemployed	34.0	29.0	31.4	22.9	15.0	10.8	10.0	5.8
Not in the labour force	12.4	14.5	13.3	12.0	7.9	6.9	6.4	4.7
States and territories								
New South Wales	24.8	29.1	21.5	20.7	15.4	14.3	11.9	13.1
Victoria	25.2	27.3	26.4	25.4	14.2	17.1	15.6	11.4
Queensland	32.4	28.1	29.4	26.0	16.3	15.4	11.9	12.1
South Australia	25.9	33.0	30.9	21.6	13.4	11.6	15.1	9.9
Western Australia	25.9	29.8	25.0	23.5	13.7	14.8	15.1	11.2
lasmania	36.2	27.0	35.9	27.8	16.0	12.6	9.2 *0.0	1.3
Northern Territory	*24.8	*23.3	*9.8	*20.3	*0.0	*10.7	*9.2	*0.7
Australian Capital Territory	‴∠ŏ.3	32.0	34.9	31.0	· 11.1	TO'8	-9.1	°ð./
First Nations	26.3	23.7	30.6	25.0	*8.6	12.6	73	77
Non-First Nations Australian-born	20.0	30.5	27.3	25.9	15.3	15.3	13.2	12.3
Immigrant, main English-speaking countries	17.8	19.7	15.1	17.5	12.6	11.0	11.1	13.6
Immigrant, other countries	25.7	24.1	21.9	15.0	13.7	15.0	16.9	9.1
Total	26.8	28.7	25.9	23.7	14.8	14.9	13.3	11.8

# Table 2.5: Percentage of unpartnered people partnering within five years, and percentage of unmarried people marrying within five years, by socio-economic characteristics

Notes: People not initially partnered (Panel A) include married people separated from their spouse. People not legally married (Panel B) include people living with a partner (i.e., de facto married). \* Estimate not reliable. Column headings indicate the initial years

of the five-year periods examined.

marriage among all age groups, except for men partnering at aged 35–39 and getting married at 30–34 years old.

Likewise, individuals who have completed high school or have higher levels of education, as well as those who are employed, are more likely to enter into partnerships and marriage. This trend is especially pronounced among men, where the difference between the employed and non-employed counterparts is more significant.

There has been a significant decline in the rates of partnering and marriage among both men and women in Tasmania and, to a lesser extent, in Queensland, This trend is observable between the 2002 to 2004 period and the 2014 to 2016 period. Male immigrants from non-main English-speaking (MES) countries (see Box 2.6, page 23) are more likely to enter marriage, and this trend has continued to increase since the 2002 to 2004 period. In the 2014 to 2016 period, the rate of marriage among this group reached 30.4%. In comparison,

there was a significant declining trend in entering marriage for female immigrants from non-MES countries.

Table 2.6 presents the counterpart to Table 2.5, showing the proportion of de facto married people becoming single and legally married people becoming single over five years. Most commonly, a person will become single due to separating, but some people, particularly in the older age groups, will become single because their partner died. Also, note that a person who is partnered with one person in one wave, and with a different person in the next wave, is deemed to have 'become single', although it is of course possible that at no stage was the person single.

Perhaps not unexpectedly, de facto couples are more likely to separate than married couples. In line with the results on marriage and partnership, there has been a notable decrease in the likelihood of separation from both de facto and legal unions. Specifically, data from the 2014 to 2016 period show that approximately 18% of both men and women in de facto marriages separated, compared to 26.9% of men and 23.3% of women in the 2002 to 2004 period.

In contrast to the findings for partnering and marriage, age does not appear to have a significant impact on the likelihood of separation. Although de facto couples between the ages of 18 and 24 have a higher probability of separating compared to older couples, there is no substantial difference in separation rates across the remaining age groups.

Lower levels of education are strongly associated with a higher likelihood of separation in both marriages and de facto relationships. Additionally, individuals who are unemployed or not in the labour force have a slightly elevated probability of experiencing a breakup in their romantic relationships, as compared to those who are employed.

No consistent patterns have emerged regarding the impact of place of residence on relationship



Table 2.6: Percentage of partnered people	A. I	nitially de got se	facto mai parated	ve years, rried:	B.	Initially leg got se	gally marr parated	ied:
	2002-	2006-	2010-	2014-	2002-	2006-	2010-	2014-
Men	2001	2000	2012	2010	2001	2000	2012	2010
Age group								
18-24	37.8	40.9	33.8	22.9	*18.6	*12.9	*8.3	*5.4
25-29	29.2	17.5	19.9	24.6	11.8	12.3	9.4	12.1
30-34	27.1	11.5	17.4	14.4	13.9	8.4	8.6	7.1
35-39	24.2	31.2	16.3	26.1	12.7	8.3	5.8	5.7
40-49	26.6	20.0	19.9	18.1	8.2	8.2	8.2	7.7
50 and over	19.5	13.2	13.1	11.4	5.4	5.3	4.5	5.0
Educational attainment								
Bachelor's degree or higher	23.0	8.9	15.7	10.1	8.7	5.7	4.4	4.8
Other post-school qualification	20.5	22.4	15.6	19.8	7.5	6.9	5.9	6.3
Completed high school	36.1	27.9	26.5	28.2	10.4	6.9	8.9	8.1
Less than high school completion	34.5	28.4	26.2	25.0	7.4	8.7	8.0	8.0
Labour status								
Employed	26.0	20.4	18.2	18.5	8.4	7.2	6.0	6.0
Unemployed	*38.4	*42.9	31.4	40.9	*11.9	*15.9	*11.4	*9.3
Not in the labour force	28.9	26.3	19.9	24.9	7.0	7.3	6.8	6.8
States and territories								
New South Wales	30.7	19.0	14.9	16.8	8.4	5.5	5.4	5.3
Victoria	28.4	16.7	18.9	17.9	7.1	6.9	6.6	6.0
Queensland	21.3	23.3	22.0	20.5	9.4	9.7	7.1	6.5
South Australia	30.9	35.3	16.0	20.5	6.8	8.2	6.3	5.9
Western Australia	*16.6	*15.6	24.0	19.4	5.8	5.4	4.4	6.6
Tasmania	*28.3	*21.3	*25.9	*10.8	17.4	13.3	*6.6	*5.3
Northern Territory	*43.3	*24.6	*18.8	*35.7	*1.7	*0.4	*4.5	*33.9
Australian Capital Territory	*31.3	*19.4	*16.6	*21.6	*12.2	*3.1	*5.1	*3.6
Immigrant status and First Nations identity								
First Nations	*66.2	*36.7	*16.9	25.7	*2.9	*13.1	*19.9	*10.9
Non-First Nations Australian-born	24.4	20.5	20.2	19.1	8.4	6.7	5.8	6.3
Immigrant, main English-speaking countries	30.1	*14.8	13.6	13.3	9.0	10.4	7.2	5.0
Immigrant, other countries	32.4	*24.5	*17.9	18.2	6.5	5.4	5.7	6.0
Iotal	26.9	20.6	19.1	18.6	8.1	6.9	6.1	6.2
women								
Age group	24.0	40.0	24.0	04.0	*107	*110	1 5 4	*7.0
18-24	31.0 27.7	40.0	21.9	24.0	11 5	°14.0	10.0	7.0
25-29	21.1	19.0	100	10.9	11.5	9.5	10.0	7.9
30-34 ZE ZO	20.5	21.1	10.0	19.0	11.0	10.2	7.2	6.5
35-39	21.0	20.9	23.0	10.2	0.2	10.5	1.3	0.0
40-49	17.1 *16.6	10.0	14.1	20.3	9.2	7.5	8.9 10.4	8.0
	10.0	10.8	14.1	10.0	10.0	9.4	10.4	9.9
Pachalor's dograa or higher	13.1	12.1	13.0	10.7	03	5 9	5.8	5.6
Other post-school qualification	28.7	28.4	13.9	22.0	9.3	0.9	11.0	5.0 8.6
	20.7	20.4	23.0	22.0	12.1	11.6	2.0	7.8
Less than high school completion	26.4	29.6	27.5	24.7	10.3	10.4	13.0	13.0
Less than high school completion	20.4	20.0	22.7	21.2	10.0	10.4	10.0	10.0
Employed	23.2	21.3	19.8	16.3	79	69	8.8	72
Unemployed	*40.0	51.8	43.4	31.6	*12.6	*12.9	*9.7	*10.9
Not in the labour force	24.0	27.4	24.9	26.3	12.8	12.4	11.5	11.5
States and territories								
New South Wales	24.9	23.5	14.7	13.8	10.6	8.6	8.9	8.6
Victoria	23.6	20.1	20.9	19.2	9.0	8.8	9.2	8.1
Queensland	21.2	25.6	26.9	21.4	12.7	12.2	12.3	9.1
South Australia	*22.2	32.8	24.0	21.1	8.1	9.2	8.3	10.3
Western Australia	*22.1	16.1	18.8	20.3	6.7	5.5	9.9	9.8
Tasmania	*22.7	33.9	31.9	*10.4	15.2	13.5	9.5	9.1
Northern Territory	*43.9	*23.9	*24.5	*18.5	*10.0	*0.5	*4.1	*11.2
Australian Capital Territory	*12.6	*17.0	*16.9	*29.2	*16.0	*7.1	*6.6	*2.8
Immigrant status and First Nations identity		-				-		-
First Nations	*44.2	*31.1	26.0	44.2	*6.0	*13.2	*9.2	*10.8
Non-First Nations Australian-born	22.1	22.3	20.6	17.7	11.0	9.6	10.1	8.7
Immigrant, main English-speaking countries	*19.1	22.6	16.3	9.6	11.3	11.2	10.4	9.3
Immigrant, other countries	*30.8	*32.4	26.4	20.6	6.3	5.9	7.8	8.4
Total	23.3	23.4	20.9	18.3	10.2	9.1	9.7	8.7

Notes: People not initially partnered (Panel A) include married people separated from their spouse. People not legally married (Panel B) include people living with a partner (i.e., de facto married). \* Estimate not reliable. Column headings indicate the initial years of the five-year periods examined.



stability. However, a notable finding from the 2014 to 2016 period is that First Nations men and women have a significantly higher likelihood of experiencing a breakup in their de facto marriage.

# Relationship satisfaction of partners

Each year, the self-completion questionnaire contains a question asking respondents to rate the extent to which they are satisfied with their partner on a scale from 0 (completely dissatisfied) to 10 (completely satisfied).

Table 2.7 presents the mean ratings for men and women in 2001, 2010, 2019, 2020 and 2021, distinguishing de facto married and legally married couples. Two clear patterns are evident. First, men consistently report higher satisfaction levels (ranging from 8.4 to 8.9) compared to women (ranging from 8.1 to 8.7), regardless of their marital status. Second, both men and women tend to be more satisfied in their legally married relationships than in de facto relationships. This pattern is consistent across the years surveyed.

Table 2.8 presents the association between various individual characteristics and relationship satisfaction (measured on the 0-10 scale) separately for men and women. The results indicate that the variations in relationship satisfaction between de facto and legal marriages, as observed in Table 2.7, can be attributed to differences in other factors such as relationship duration, rather than the types of relationships themselves. When controlling for these other factors, there is no significant difference in relationship satisfaction between de facto and legally married couples for either men or women.

However, a number of the other factors considered in Table 2.8 are found to significantly impact relationship satisfaction. Notably, the duration of the relationship is found to be a significant predictor of satisfaction, albeit with slightly different effects for de facto and legal marriages. Specifically, for both men and women, longer relationship duration is associated with lower satisfaction levels. Moreover, the presence of dependent children is found to have a negative impact on relationship satisfaction, reducing it by 0.28 for men and 0.34 for women.

Age is not a strong predictive factor for men, with the exception that men aged 40 to 49 are, all else being equal, significantly less satisfied with their partner. For women, relationship satisfaction decreases for those aged 40 to 59. Moreover, while men's satisfaction is not affected by an age difference of five or more years, women are 0.14 less satisfied, holding other factors constant, if their partner is five or more years older.

Partner's education level does not seem to affect relationship satisfaction. However, the labour force status of both oneself and one's partner also impacts relationship satisfaction, with unemployment of the woman negatively impacting the satisfaction of both members of the couple, and unemployment of the man negatively impacting his

Table 2.7: Mean satisfaction with relationship with partner, 2001 to 2021 (0–10 scale)										
	2001		2010		2019		2020		2021	
	Men	Women								
Married	8.9	8.7	8.5	8.3	8.5	8.2	8.6	8.3	8.5	8.2
De facto	8.5	8.3	8.4	8.2	8.4	8.1	8.4	8.2	8.4	8.1

Married         ns         ns           2 factor relationship duration (Reference category: <3)         -0.30         0.03           3 - 5 years         -0.46         -0.58           6 - 9 years         -0.61         -0.61           10 - 19 years         -0.61         -0.67           2 0 or more years         -0.61         -0.67           3 - 5 years         -0.01         -0.38           6 - 9 years         -0.62         -0.70           2 0 or more years         -0.62         -0.70           Ave a dependent child         -0.28         -0.34           2 0 or more years         -0.62         -0.70           Ave a dependent child         -0.20         0           30 - 59         ms         ns         ns           40 - 49         -0.10         -0.20         0.50           50 -59         ms         ns         ns         ns           7 artner is s years or more older         ns         ns         ns           7 artner is years or more older         ns         ns         ns           7 artner is years or more older         ns         ns         -0.10           7 artner is years or more older         ns         ns         ns		Men	Women
De fact relationship duration (Reference category, <3)         -0.30         -0.30         -0.30         -0.30         -0.30         -0.30         -0.40         -0.50	Married	ns	ns
3-5 years         -0.43         -0.44           0-9 years         -0.44         -0.45           10-19 years         -0.43         -0.44           20 or more years         -0.43         -0.44           3-5 years         -0.43         -0.43           5 years         -0.47         -0.58           10-19 years         -0.47         -0.58           10-29 years         -0.62         -0.70           20 or more years         -0.62         -0.70           30-39         -75         rest         -75           30-49         -0.50         -0.50         -0.50           30-59         -75         -75         -75           30-39         -75         -75         -75           30-40         -55         -75         -75         -75           30-39         -75         -75         -75         -75         -75           30-59         -75         -75         -75         -75         -75           30-59         -75         -75         -75         -75         -75           30-50         -75         -75         -75         -75           30-510         -75         -75	De facto relationship duration (Reference category: <3)		
6-9 years         -0.61         -0.67           10-19 years         -0.61         -0.67           20 or more years         -0.63         -0.63           3-5 years         -0.40         -0.33           6-9 years         -0.59         -0.58           10-19 years         -0.59         -0.58           20 or more years         -0.51         -0.58           10-19 years         -0.28         -0.34           20-29         -0.34         -0.38           30-39         -0.59         -0.58           30-39         -0.51         -0.52           60 and over         -0.5         -0.5           50-59         rs         -0.22           60 and over         rs         -0.53           Partner is 5 years or more younger         rs         rs           Partner is 5 years or more younger         rs         rs           Partner is 5 years or more younger         rs         rs           Partner is 5 years or more younger         rs         rs           Partner is 5 years or more younger         rs         rs           Partner is years or more younger         rs         rs           Partner is obard oringer difference category: 65 and over or not in the	3–5 years	-0.30	-0.36
10-19 years         -0.61         -0.67           20 or more years         -0.63         -0.44           45-years         -0.63         -0.47         -0.50           10-19 years         -0.62         -0.70         -0.52           10-19 years         -0.62         -0.70         -0.52         -0.70           10-19 years         -0.52         -0.70         -0.52         -0.70           10-19 years         -0.52         -0.70         -0.52         -0.53           10-19 years         -0.52         -0.50         -0.52         -0.53           10-20         50-59         -0.10         -0.20         -0.50           50-59         6.50 and over         ns         ns         ns           Partner is S years or more younger         ns         ns         ns         ns           Partner is S years or more younger         ns         ns         ns         ns           Comparise addication (Reference category: 65 and over or not in the labour force)         ns         ns         ns         ns           Younger than 65 and employed full-time         -0.06         -0.11         ns         ns         ns           Younger than 65 and employed part-time         -0.02         -0.12	6-9 years	-0.46	-0.58
20 or more years         -0.83         -0.84           3-5 years         -0.30         -0.35           6-9 years         -0.47         -0.58           20 or more years         -0.62         -0.70           Aves a dependent child         -0.28         -0.70           Aves a dependent child         -0.28         -0.34           30-39         ns         ns           30-39         ns         ns           30-39         ns         -0.10         -0.20           50-59         ns         ns         -0.44           S0-59         ns         -0.41         -0.28           Fatters is syears or more older         ns         ns         ns           Partner is syears or more older         ns         ns         ns           Partner is syears or more older         ns         ns         ns           Partner is Syears or more older         ns         ns         ns           Partner is Syears or more older         ns         ns         ns           Vounger than 65 and employed part-time         ns         ns         ns           Vounger than 65 and employed full-time         -0.010         ns         ns           Vounger than 65 and employed ful	10-19 years	-0.61	-0.67
Marniage duration (Reference category: <3)         -0.30         -0.37         -0.58           5-9 years         -0.59         -0.59         -0.58         -0.58           20 or more years         -0.62         -0.70         -0.88           20 or more years         -0.62         -0.70           30-39         -0.58         -0.28         -0.28           30-49         -0.10         -0.20         -0.20           50-59         -0.50         -0.50         -0.50           60 and over         ns         -0.5         -0.53           7-threr is 5 years or more older         ns         ns         ns           7-threr seducation (Reference category: Less than high school completion)         -0.10         -0.5         ns           7-threr seducation (Reference category: 65 and over or not in the labour force)         -0.06         -0.11           Younger than 65 and employed full-time         -0.06         -0.11         -0.20           Younger than 65 and employed full-time         -0.00         ns         -0.20           Younger than 65 and employed full-time         -0.01         ns         -0.20           Younger than 65 and employed full-time         -0.01         ns         ns           Younger than 65 and employed part-time </td <td>20 or more years</td> <td>-0.83</td> <td>-0.94</td>	20 or more years	-0.83	-0.94
3-5 years       -0.30       -0.38         6-9 years       -0.47       -0.55         10-10 years       -0.62       -0.60         2.0 or more years       -0.62       -0.70         have a dependent child       -0.28       -0.34         30-39       ns       ns       ns         30-39       ns       ns       ns         30-39       ns       ns       -0.10       -0.20         50-59       ns       ns       -0.11       -0.22         60 and over       ns       ns       -0.14       -0.14         Patteri is Syears or more younger       ns       ns       ns       rs         Patteri is Syears or more younger       ns       ns       ns       ns       rs         Patteri is Syears or more younger       ns       ns       ns       ns       ns       rs         Patteri is Syears or more younger       ns       ns <td>Marriage duration (Reference category: &lt;3)</td> <td></td> <td></td>	Marriage duration (Reference category: <3)		
6-9 years         -0.47         -0.58           2.0 or more years         -0.62         -0.70           Have a dependent child         -0.28         -0.34 <i>Age group</i> (Reference category: <30)	3-5 years	-0.30	-0.38
10-19 years         -0.69         -0.68         -0.70           Have a dependent child         -0.28         -0.34           Age group (Reference category: <30)	6-9 years	-0.47	-0.56
20 or more years         -0.62         -0.70           Have a dependent child         -0.28         -0.34           Age aroup (Reference category: <30)	10-19 years	-0.59	-0.68
Have a dependent child         -0.24         -0.34           30-39         ns         ns         ns           30-39         ns         -0.10         -0.20           60 and over         ns         -0.22         60 and over         ns         -0.22           60 and over         ns         -0.22         60 and over         ns         -0.22           60 and over         ns         -0.24         ns         -0.22           60 and over         ns         -0.24         -0.22           60 and over         ns         ns         -0.24           Partner is Syears or more younger         ns         ns         ns <i>Partner's Soluciation</i> (Reference category: Less than high school completion)         ns         ns           Bachelor's degree or higher         ns         ns         ns           Completed high school         ns         ns         ns           Labour force status (Reference category: 65 and over or not in the labour force)         -0.06         -0.11           Younger than 65 and employed part-time         -0.08         ns           Younger than 65 and unemployed         -0.12         -0.10         ns           Younger than 65 and employed part-time         -0.02         -0.	20 or more years	-0.62	-0.70
Age aroun (Reference category: <30)	Have a dependent child	-0.28	-0.34
30-39         ns         ns         ns           40-49         -0.10         -0.20           50-59         ns         -0.22           60 and over         ns         ns         ns           Partner is 5 years or more younger         ns         -0.14           Partner is 5 years or more younger         ns         ns         ns           Partner is 6 years or more younger         ns         ns         ns           Partner is 6 years or more younger         ns         ns         ns           Partner is 6 years or more younger         ns         ns         ns           Completed high school         ns         ns         ns         ns           Younger than 65 and employed part-time         -0.06         -0.11         Younger than 65 and employed part-time         -0.08         ns           Younger than 65 and employed part-time         -0.12         -0.12         Younger than 65 and employed part-time         -0.12         -0.12           Younger than 65 and employed part-time         -0.20         ns         ns         ns           Younger than 65 and employed part-time         -0.10         ns         ns         ns           Younger than 65 and employed part-time         -0.20         ns         ns <td><i>Age group</i> (Reference category: &lt;30)</td> <td></td> <td></td>	<i>Age group</i> (Reference category: <30)		
40-49         -0.10         -0.20           60 and over         ns         -0.22           60 and over         ns         ns           Partner is 5 years or more older         ns         ns           Partner is 5 years or more older         ns         ns           Partner is 5 years or more older         ns         ns           Partner is 5 years or more older         ns         ns           Partner is 5 years or more older         ns         ns           Partner is 5 years or more older         ns         ns           Partner is calculation (Reference category: Es and over or not in the labour force)         ns         -0.10           Younger than 65 and employed full-time         -0.06         -0.11           Younger than 65 and employed part-time         -0.08         ns           Younger than 65 and employed part-time         -0.08         ns           Younger than 65 and employed part-time         -0.08         ns           Younger than 65 and unemployed         ns         ns           Younger than 65 and unemployed         ns         ns           Younger than 65 and unemployed         ns         ns           Partner is poor mere per week         ns         ns           Partner in poor mental health (less t	30-39	ns	ns
50-59         ns         -0.22           60 and over         ns         ns           Partner is 5 years or more older         ns         -0.14           Partner is 5 years or more older         ns         -0.14           Partner's doucation (Reference category: Less than high school completion)         ns         ns           Bachelor's degree or higher         ns         ns         ns           Completed high school         ns         ns         ns           Completed high school         ns         ons         ns           Jounger than 65 and employed full-time         -0.06         -0.11           Younger than 65 and employed full-time         -0.08         ns         -0.20           Younger than 65 and employed part-time         -0.08         ns         -0.20           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.08         ns         ns           Partner's annual personal labour earnings (YOOD, Dec 2012 prices)         ns         ns         ns           <	40-49	-0.10	-0.20
60 and over         ns         ns         ns           Partner is 5 years or more older         ns         -0.14           Partner is 5 years or more older         ns         -0.14           Partner is 5 years or more older         ns         ns           Partner is 5 years or more older         ns         ns           Partner is 5 years or more older         ns         ns           Partner is 5 education (Reference category: 65 and over or not in the labour force)         ns         ns           Younger than 65 and employed part-time         -0.06         -0.01         ns         -0.20           Younger than 65 and employed part-time         -0.08         ns         -0.20           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.01         ns         ns           Younger than 65 and unemployed         -0.12         -0.15         Ns           Partner is poor more per week         ns         ns         ns           Partner in poor more per week         ns         ns         ns           Partner in poor mental health (less than 40)         -0.03         ns	50-59	ns	-0.22
Partner is Syears or more older         ns         -0.14           Partner is Syears or more oyonger         ns         ns         ns           Partner is Syears or more oyonger         ns         ns         ns           Partner is Syears or more oyonger         ns         ns         ns           Partner is Syears or more oyonger         ns         ns         ns           Partner is Syears or more oyonger         ns         ns         ns           Completed high school         ns         ns         ns           Completed high school         ns         ns         -0.06         -0.01         ns         -0.20           Younger than 65 and employed full-time         -0.01         ns         -0.20         ns         -0.20           Younger than 65 and employed part-time         -0.08         ns         ns         ns         ns           Younger than 65 and employed part-time         -0.02         ns         ns         ns         ns           Younger than 65 and employed part-time         -0.02         ns         ns         ns         ns           Partner is pore general health (less than 40)         -0.03         ns         ns         ns         ns           Partner is poro general health (less than or equal to	60 and over	ns	ns
Partner is Syears or more younger         ns         ns           Partner's ductation (Reference category: Less than high school completion)         ms         ns           Bachelor's degree or higher         ns         ns         ns           Completed high school         ns         ns         ns           Completed high school         ns         -0.01         ns         -0.02           Younger than 65 and employed full-time         ns         -0.20         -0.11         ns         -0.20           Partner's ductation (Reference category: 65 and over or not in the labour force)         ms         -0.20         -0.10         ns         -0.20           Younger than 65 and unemployed part-time         ns         -0.20         ns         -0.20         ns         -0.20           Younger than 65 and employed full-time         -0.01         ns         n	Partner is 5 years or more older	ns	-0.14
Partner's education (Reference category: Less than high school completion)         ns         ns         ns           Other post-school qualification         ns         ns         ns           Completed high school         ns         ns         ns           Zounger than 65 and employed full-time         -0.06         -0.11           Younger than 65 and employed full-time         ns         -0.20           Partner's labour force status (Reference category: 65 and over or not in the labour force)         ns         -0.20           Younger than 65 and employed part-time         -0.00         ns         -0.20           Younger than 65 and employed part-time         -0.08         ns         rs           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and menployed         ns         ns         ns           Partner's annual personal labour earnings (5'000, Dec 2012 prices)         ns         ns         ns           Partner works 50 hours or more per week         ns         ns         ns           Partner's personality         -0.09         -0.11           Partner's personality         -0.03         ns         ns           Extroversion         0.00         0.00         0.03         ns	Partner is 5 years or more younger	ns	ns
Bachelor's degree or higher         ns         ns         ns           Other post-school qualification         ns         ns           Completed high school         ns         ns           Labour force status (Reference category: 65 and over or not in the labour force)         -0.06         -0.11           Younger than 65 and employed part-time         ns         -0.20           Partner's labour force status (Reference category: 65 and over or not in the labour force)         -0.00         ns           Younger than 65 and employed part-time         -0.01         ns         ns           Younger than 65 and employed full-time         -0.02         -0.12         -0.15           Works 50 hours or more per week         ns         ns         ns           Partner in poor general health (less than 40)         -0.09         -0.11           Partner in poor general health (less than or equal to 50)         -0.36         -0.43           Partner in poor general health (less than or equal to 50)         -0.05         ns           Partner in poor mental health (less than or equal to 50)         -0.04         -0.03           Conscientiousness         0.07         0.10         Conscientiousness         0.02         0.05           Emotional stability         0.88         0.88         Openness to experience	Partner's education (Reference category: Less than high school completion)		
Other post-school qualification         ns         ns           Completed high school         ns         ns           Labour force status (Reference category: 65 and over or not in the labour force)         -0.06         -0.11           Younger than 65 and employed part-time         ns         -0.20           Younger than 65 and unemployed         ns         -0.20           Partner's labour force status (Reference category: 65 and over or not in the labour force)         -0.10         ns           Younger than 65 and employed part-time         -0.08         ns         -0.20           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed full-time         -0.12         -0.15         ns           Younger than 65 and employed full-time         -0.08         ns         ns           Younger than 65 and employed full-time         -0.12         -0.12         -0.12           Vounger than 65 and employed full-time         -0.08         ns         ns           Younger than 65 and employed full-time         -0.12         -0.12         -0.12           Partner in poor general health (lass than 40)         -0.09         -0.11         Agreeableness	Bachelor's degree or higher	ns	ns
Completed high school         ns         ns           Younger than 65 and employed full-time         -0.06         -0.11           Younger than 65 and employed part-time         ns         -0.22           Partner's labour force status (Reference category: 65 and over or not in the labour force)         ns         -0.22           Partner's labour force status (Reference category: 65 and over or not in the labour force)         ns         -0.22           Partner's labour force status (Reference category: 65 and over or not in the labour force)         ns         -0.22           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.12         -0.13         ms           Younger than 65 and employed part-time         -0.08         ns         ns           Partner son more per week         ns         ns         ns           Partner in poor general health (less than 40)         -0.09         -0.11           Partner's poor mental health (less than or equal to 50)         -0.36         -0.43           Partner's poor mental health (less than or equal to 50)         -0.03         ns           Conscientiousness         0.00         0.01         Agreeableness         -0.03         ns           Conscientiousness         0.02         0.05 <td>Other post-school qualification</td> <td>ns</td> <td>ns</td>	Other post-school qualification	ns	ns
Labour force status (Reference category: 65 and over or not in the labour force)         -0.06         -0.11           Younger than 65 and employed pul-time         ns         -0.20           Partner's labour force status (Reference category: 65 and over or not in the labour force)         -0.08         ns           Younger than 65 and employed pul-time         -0.08         ns         -0.20           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.12         -0.15         ns           Younger than 65 and employed part-time         -0.12         -0.15         ns           Younger than 65 and employed part-time         -0.12         -0.12         -0.11           Partner works 50 hours or more per week         ns         ns         ns           Partner in poor mental health (less than 40	Completed high school	ns	ns
Younger than 65 and employed part-time         -0.06         -0.12           Younger than 65 and employed part-time         ns         -0.20           Partner's labour force status (Reference category: 65 and over or not in the labour force)         -0.10         ns           Younger than 65 and employed part-time         -0.08         ns         rd           Younger than 65 and employed part-time         -0.08         ns         rd           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.08         ns         ns           Partner works 50 hours or more per week         ns         ns         ns           Partner works 50 hours or more per week         ns         ns         ns           Partner works 50 hours or more per week         ns         ns         ns           Partner works 50 hours or more per week         ns         ns         ns           Partner's personality         -0.03         ns         ns         ns           Conscientiousness         0.007         0.10         Conscientiousness <td>Labour force status (Reference category: 65 and over or not in the labour force)</td> <td>0.00</td> <td>0.44</td>	Labour force status (Reference category: 65 and over or not in the labour force)	0.00	0.44
Younger than 65 and employed part-time         ns         -0.121           Younger than 65 and unemployed         -0.10         ns         -0.20           Partner's labour force status (Reference category: 65 and over or not in the labour force)         -0.10         ns           Younger than 65 and employed part-time         -0.08         ns         ns           Younger than 65 and employed part-time         -0.12         -0.15           Works 50 hours or more per week         ns         ns         ns           Partner works 50 hours or more per week         ns         ns         ns           Partner in poor general health (less than 40)         -0.09         -0.11           Partner's personality         -0.36         -0.43           Extroversion         0.00         0.01         Agreeableness         0.00         0.01           Agreeableness         0.007         0.10         Conscientiousness         0.02         0.05           Extroversion         ns         ns         ns         ns           Agreeableness         -0.03         ns         ns           Conscientiousness         -0.05         ns         -0.03           Agreeableness         -0.04         -0.03         ns           Openness to experience <td>Younger than 65 and employed full-time</td> <td>-0.06</td> <td>-0.11</td>	Younger than 65 and employed full-time	-0.06	-0.11
Younger than 65 and unemployed         ns         -0.20           Partner's labour force status (Reference category: 65 and over or not in the labour force)	Younger than 65 and employed part-time	ns	-0.12
Partner's labour force status (Reference category: 65 and over or not in the labour force)         -0.10         ns           Younger than 65 and employed pull-time         -0.08         ns           Younger than 65 and employed part-time         -0.12         -0.15           Works 50 hours or more per week         ns         ns           Partner works 50 hours or more per week         ns         ns           Partner works 50 hours or more per week         ns         ns           Partner in poor general health (less than 40)         -0.09         -0.11           Partner works 50 hours or more per week         ns         ns           Partner yor per metal health (less than 40)         -0.03         -0.03           Partner's personality         -0.00         -0.11           Extroversion         0.00         0.01           Agreeableness         0.02         0.05           Emotional stability         0.08         0.08           Openness to experience         -0.03         ns           Agreeableness         -0.04         -0.03           Conscientiousness         -0.04         -0.03           Conscientiousness         -0.05         ns           Conscientiousness         -0.04         -0.03           Openness to experi	Younger than 65 and unemployed	ns	-0.20
Younger than 65 and employed full-time         -0.10         ns           Younger than 65 and unemployed         -0.12         -0.13           Works 50 hours or more per week         ns         ns           Partner works 50 hours or more per week         ns         ns           Partner in poor general health (less than 40)         -0.09         -0.11           Partner in poor general health (less than or equal to 50)         -0.36         -0.43           Partner's personality         -0.09         0.01           Extroversion         0.00         0.01           Agreeableness         0.07         0.10           Ocnscientiousness         0.02         0.05           Extroversion         ns         ns           Absolute difference in:         -0.03         ns           Extroversion         -0.03         ns           Openness to experience         ns         -0.03           Agreeableness         -0.05         ns           Conscientiousness         -0.03         ns           Source difference in:         -0.04         -0.03           Extroversion         ns         -0.03           Agreeableness         -0.04         -0.03           Conscientiousness         -0.04 <td>Partner's labour force status (Reference category: 65 and over or not in the labour force)</td> <td>0.10</td> <td></td>	Partner's labour force status (Reference category: 65 and over or not in the labour force)	0.10	
Younger than 65 and employed part-time         -0.08         ns           Younger than 65 and unemployed         -0.12         -0.15           Works 50 hours or more per week         ns         ns         ns           Partner works 50 hours or more per week         ns         ns         ns           Partner in poor general health (less than 40)         -0.09         -0.11           Partner in poor mental health (less than 40)         -0.36         -0.43           Partner's personality         -0.10         -0.36         -0.43           Partner's personality         -0.07         0.00         0.01           Agreeableness         0.007         0.10         Conscientiousness         0.02         0.05           Extroversion         0.08         0.0	Younger than 65 and employed full-time	-0.10	ns
Totnger than be and unemployed         -0.12         -0.13           Works 50 hours or more per week         ns         ns           Partner works 50 hours or more per week         ns         ns           Partner in poor general health (less than 40)         -0.09         -0.11           Partner's personality         -0.36         -0.38           Extroversion         0.00         0.01           Agreeableness         0.07         0.10           Conscientiousness         0.02         0.05           Extroversion         0.08         0.08           Openness to experience         -0.04         -0.03           Agreeableness         -0.04         -0.03           Conscientiousness         -0.04         -0.03           Agreeableness         -0.04         -0.03           Conscientiousness         -0.04         -0.03           Agreeableness         -0.04         -0.03           Conscientiousness         -0.04         -0.03           Denness to experience         ns         -0.04           Non-smoker and partner is a smoker         -0.24         -0.09           Non-regular drinker and partner is regular drinker         ns         -0.05           Major improvement in financial situ	Younger than 65 and employed part-time	-0.08	<i>ns</i>
Works So hours or more per week         ns         ns           Partner works 50 hours or more per week         ns         ns         ns           Partner in poor general health (less than 40)         -0.09         -0.11           Partner's personalizy         -0.36         -0.43           Extroversion         0.00         0.01           Agreeableness         0.07         0.10           Conscientiousness         0.02         0.05           Emotional stability         0.08         0.08           Openness to experience         -0.03         ns           Agreeableness         -0.05         ns           Conscientiousness         -0.05         ns           Agreeableness         -0.05         ns           Conscientiousness         -0.05         ns           Agreeableness         -0.05         ns           Conscientiousness         -0.04         -0.03           Extroversion         ns         ns         -0.03           Agreeableness         -0.05         ns         const           Conscientiousness         -0.05         ns         -0.03           Don-regular drinker and partner is a smoker         -0.24         -0.19           Non-regular d	Younger than 65 and unemployed	-0.12	-0.15
Partner Works SU hours of more per week         ns         ns         ns           Partner's annual personal labour earnings (\$'000, Dec 2012 prices)         ns         ns         ns           Partner in poor general health (less than 40)         -0.09         -0.11           Partner in poor mental health (less than or equal to 50)         -0.36         -0.43           Partner's personality         0.00         0.01           Extroversion         0.00         0.01           Agreeableness         0.07         0.10           Conscientiousness         0.02         0.05           Emotional stability         0.08         0.08           Openness to experience         -0.03         ns           Assolute difference in:         -0.05         ns           Extroversion         ns         ns         -0.03           Agreeableness         -0.05         ns         -0.04         -0.03           Conscientiousness         -0.04         -0.03         ms         -0.03           Extroversion         ns         ns         -0.03         ms           Conscientiousness         -0.04         -0.03         ms         -0.03           Conscientiousness         -0.04         -0.03         ms	Portran works 50 hours or more per week	ns	ns
Partner's annual personal habbur earnings (\$ 000, bec 2012 prices)         ns         ns           Partner in poor general health (less than 40)         -0.09         -0.11           Partner's personality         -0.36         -0.33           Extroversion         0.00         0.01           Agreeableness         0.07         0.10           Conscientiousness         0.02         0.05           Emotional stability         0.08         0.08           Openness to experience         -0.03         ns           Assolute difference in:         -0.05         ns           Extroversion         ns         -0.05         ns           Agreeableness         -0.05         ns         -0.03         ns           Agreeableness         -0.05         ns         -0.03         ns           Conscientiousness         -0.04         -0.03         ns         -0.04         -0.03           Conscientiousness         -0.04         -0.03         ns         -0.04         -0.03           Conscientiousness         -0.04         -0.03         ns         -0.05         ns         -0.03           Conscientiousness         -0.04         -0.03         ns         -0.03         ns         -0.03	Partner works 50 hours or more per week	ns	ns
Partner in poor mental health (less than or equal to 50)         -0.36         -0.31           Partner in poor mental health (less than or equal to 50)         -0.36         -0.38           Partner's personality         0.00         0.01           Extroversion         0.00         0.01           Agreeableness         0.07         0.10           Conscientiousness         0.02         0.05           Emotional stability         0.08         0.08           Openness to experience         -0.03         ns           Assolute difference in:         -0.05         ns           Extroversion         ns         ns         ns           Agreeableness         -0.04         -0.03         ns           Conscientiousness         -0.04         -0.03         ns           Conscientiousness         -0.04         -0.03         ns           Conscientiousness         -0.04         -0.03         ns           Conscientiousness         -0.24         -0.19         Non-snoker and partner is a smoker         -0.24         -0.19           Non-snoker and partner is regular drinker         ns         -0.05         ns         -0.02           Major improvement in financial situation         ns         0.06         -0.29<	Partner's annual personal labour earnings (\$ 000, Dec 2012 prices)	<i>ns</i>	<i>NS</i>
Partner's personality         -0.33         -0.43           Partner's personality         0.00         0.01           Agreeableness         0.07         0.10           Conscientiousness         0.02         0.05           Emotional stability         0.08         0.08           Openness to experience         -0.03         ns           Absolute difference in:         -0.05         ns           Extroversion         ns         ns         ns           Agreeableness         -0.04         -0.03         ns           Conscientiousness         -0.04         -0.03         ns           Conscientiousness         -0.04         -0.03         ns           Conscientiousness         -0.04         -0.03         ns           Openness to experience         ns         -0.04         -0.03           Non-regular drinker and partner is regular drinker         ns         -0.04         -0.03           Non-regular drinker and partner is regular drinker         ns         -0.05         ns           Major improvement in financial situation         -0.25         -0.29         -0.29         -0.29           Year (Reference category: Before 2020)         2020         ns         0.07         20.21	Partner in poor general health (less than 40)	-0.09	-0.11
Partner's personality         0.00         0.01           Agreeableness         0.07         0.10           Conscientiousness         0.02         0.05           Emotional stability         0.08         0.08           Openness to experience         -0.03         ns           Absolute difference in:         -0.05         ns           Extroversion         ns         ns           Agreeableness         -0.05         ns           Conscientiousness         -0.04         -0.03           Extroversion         ns         -0.03           Agreeableness         -0.04         -0.03           Conscientiousness         -0.04         -0.03           Depenness to experience         ns         -0.03           Non-smoker and partner is regular drinker         ns         -0.03           Non-smoker and partner is regular drinker         ns         -0.05           Major improvement in financial situation         -0.35         -0.29           Year (Reference category: Before 2020)         -0.05         ns           2020         ns         0.07         2021         -0.05         ns           Constant         8.56         7.95         71.589         71.589         71	Partner in poor mental nealth (less than or equal to 50)	-0.36	-0.43
Agreeableness         0.000         0.001           Agreeableness         0.002         0.005           Emotional stability         0.08         0.08           Openness to experience         -0.03         ns           Absolute difference in:         -0.05         ns           Extroversion         ns         -0.03         ns           Agreeableness         -0.04         -0.03         ns           Conscientiousness         -0.04         -0.03         ns           Non-smoker and partner is a smoker         ns         -0.03         -0.03           Non-regular drinker and partner is regular drinker         ns         -0.05         -0.29           Year (Reference category: Before 2020)         2020         ns         0.07           2020         ns		0.00	0.01
Agreeableness         0.07         0.10           Conscientiousness         0.02         0.05           Emotional stability         0.08         0.08           Openness to experience         -0.03         ns           Absolute difference in:         -0.05         ns           Extroversion         ns         ns         ns           Agreeableness         -0.04         -0.03         ons           Conscientiousness         -0.04         -0.03         ns           Conscientiousness         -0.04         -0.03         ns           Openness to experience         ns         -0.04         -0.03           Non-smoker and partner is a smoker         -0.24         -0.19         -0.03         ns         -0.05           Non-regular drinker and partner is regular drinker         ns         -0.05         -0.24         -0.19           Non-regular drinker and partner is regular drinker         ns         -0.05         -0.29         -0.24         -0.19           Valor worsening in financial situation         -0.35         -0.29         -0.29         -0.29         -0.29         -0.29         -0.29         -0.29         -0.29         -0.29         -0.29         -0.29         -0.29         -0.29 <td< td=""><td></td><td>0.00</td><td>0.01</td></td<>		0.00	0.01
Constitution         0.02         0.03           Emotional stability         0.08         0.08           Openness to experience         -0.03         ns           Absolute difference in:         -0.05         ns           Extroversion         ns         -0.03         ons           Agreeableness         -0.04         -0.03           Conscientiousness         -0.04         -0.03           Emotional stability         ns         -0.03           Openness to experience         ns         -0.03           Non-smoker and partner is a smoker         -0.24         -0.19           Non-regular drinker and partner is regular drinker         ns         -0.05           Major improvement in financial situation         ns         -0.05           Major worsening in financial situation         -0.35         -0.29           Year (Reference category: Before 2020)         2020         ns         0.07           2021         -0.05         ns         0.07           2021         -0.05         ns         0.07           Constant         8.56         7.95	Agreedblefless	0.07	0.10
Endulural stability         0.00 </td <td></td> <td>0.02</td> <td>0.00</td>		0.02	0.00
Absolute difference in:nsExtroversionnsAgreeableness-0.05Conscientiousness-0.04Emotional stabilitynsOpenness to experiencensNon-smoker and partner is a smoker-0.24Non-regular drinker and partner is regular drinkernsMajor improvement in financial situationnsMajor worsening in financial situation-0.35Year (Reference category: Before 2020)-0.052020ns2021-0.05Constant8.56Number of observations71,58971,58971,882	Openness to experience	-0.03	0.00
ExtroversionnsnsAgreeableness-0.05nsConscientiousness-0.04-0.03Emotional stabilityns-0.03Openness to experiencens-0.03Non-smoker and partner is a smoker-0.24-0.19Non-regular drinker and partner is regular drinkerns-0.05Major improvement in financial situation-0.35-0.29Year (Reference category: Before 2020)-0.05ns2020ns0.072021-0.05nsConstant8.567.95Number of observations71,58971,882	Absolute difference in:	0.00	115
Agreeableness-0.05nsConscientiousness-0.04-0.03Emotional stabilityns-0.03Openness to experiencens-0.03Non-smoker and partner is a smoker-0.24-0.19Non-regular drinker and partner is regular drinkerns-0.05Major improvement in financial situationns0.06Major worsening in financial situation-0.35-0.29Year (Reference category: Before 2020)-0.05ns2020ns0.072021-0.05nsConstant8.567.95Number of observations71,58971,882	Extroversion	ns	nc
Agreeable ress0.001.03Conscientiousness-0.04-0.03Emotional stabilityns-0.03Openness to experiencens-0.03Non-smoker and partner is a smoker-0.24-0.19Non-regular drinker and partner is regular drinkerns-0.05Major improvement in financial situation-0.35-0.29Year (Reference category: Before 2020)-0.05ns2020ns0.072021-0.05nsConstant8.567.95Number of observations71,58971,882		-0.05	ns
Emotional stabilityns-0.03Openness to experiencens-0.03Non-smoker and partner is a smoker-0.24-0.19Non-regular drinker and partner is regular drinkerns-0.05Major improvement in financial situation-0.35-0.29Year (Reference category: Before 2020)-0.05ns2020ns0.072021-0.05nsConstant8.567.95Number of observations71,58971,882	Conscientiousness	-0.04	-0.03
Openness to experiencens-0.03Non-smoker and partner is a smoker-0.24-0.19Non-regular drinker and partner is regular drinkerns-0.05Major improvement in financial situationns0.06Major worsening in financial situation-0.35-0.29Year (Reference category: Before 2020)-0.05ns2020ns0.072021-0.05nsConstant8.567.95Number of observations71,58971,882	Emotional stability	ns	-0.03
Non-smoker and partner is a smoker-0.24-0.19Non-regular drinker and partner is regular drinkerns-0.05Major improvement in financial situationns0.06Major worsening in financial situation-0.35-0.29Year (Reference category: Before 2020)ns0.072020ns0.05nsConstant8.567.95Number of observations71,58971,882	Onenness to experience	ns	-0.03
Non-regular drinker and partner is regular drinkerns-0.05Major improvement in financial situationns0.06Major worsening in financial situation-0.35-0.29Year (Reference category: Before 2020)ns0.072020ns0.05ns2021-0.05nsConstant8.567.95Number of observations71,58971,882	Non-smoker and partner is a smoker	-0.24	-0.19
Notice for together in tog	Non-regular drinker and partner is regular drinker	ns	-0.05
Major improvement in minicular struction       -0.35       -0.29         Year (Reference category: Before 2020)       ns       0.07         2020       ns       0.07         2021       -0.05       ns         Constant       8.56       7.95         Number of observations       71,589       71,882	Major improvement in financial situation	ns	0.06
Year (Reference category: Before 2020)         ns         0.07           2020         ns         0.05         ns           2021         -0.05         ns         7.95           Number of observations         71,589         71,882	Major worsening in financial situation	-0.35	-0.29
ns         0.07           2020         -0.05         ns           2021         -0.05         ns           Constant         8.56         7.95           Number of observations         71,589         71,882	Year (Reference category: Before 2020)	0.00	
2021         -0.05         ns           Constant         8.56         7.95           Number of observations         71,589         71,882	2020	ns	0.07
Constant         8.56         7.95           Number of observations         71,589         71,882	2021	-0.05	ns
Number of observations         71,589         71,882	Constant	8.56	7.95
Number of Observations (1,589 (1,682	Number of observations	71 500	71 000
Number of individuals 7 coo 7 c74		11,009	11,002

*Notes*: Table reports coefficient estimates from linear random-effects regression models of the determinants of the level of satisfaction with one's partner (measured on a 0-10 scale). See the Technical Appendix for further details on these models. The sample comprises all partnered people and estimation is on all 21 waves (2001–2021). *ns* indicates the estimate is not significantly different from 0 at the 10% level. Year dummies from 2001 to 2018 are also included and not reported. State dummies are also included, but not reported.

partner's satisfaction. Interestingly, employment particularly of the female partner—is also a negative factor (compared with being out of the labour force) for relationship satisfaction of both men and women. However, given employment, there is no evidence of additional adverse effects of long (50 or more) work hours. It also does not seem to matter how much one's partner earns.

Measures of health (see Box 2.4, below) included in the models reveal that health, especially mental health of one's partner, is related to relationship satisfaction.

Personality measures (see Box 2.5, below) included in the models show that the personality of one's partner and differences in personality between partners play a role in relationship satisfaction. Greater extroversion, agreeableness, conscientiousness and emotional stability of one's partner increase satisfaction for both men and women. Greater openness to experience of the female partner decreases men's satisfaction. Furthermore, the effects of personality differences show that for men, a larger difference in agreeableness and conscientiousness decreases relationship satisfaction, while differences in other traits do not significantly affect their satisfaction. On the other hand, for women, greater differences in emotional stability and openness to experience have a negative impact on relationship satisfaction.

The analysis also reveals that being a non-smoker and having a partner who smokes lowers relationship satisfaction, by 0.24 for men and 0.19 for women. However, differences in drinking behaviour have a significant impact only on women's satisfaction with the relationship (decreasing by 0.05). Also, a significant improvement in



### Box 2.4: 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 <a href="https://www.sf-36.org/">https://www.sf-36.org/</a>> for further details.

The SF-36 measures of general health and mental health are used in this report. The scores for both measures are constructed as per Ware et al. (2000) and 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 the HILDA Survey shows that approximately 10–15% of the population is at or below this threshold across the HILDA Survey period. Similarly, poor mental health is defined as a score less that approximately 10–15% of the population is at or below this threshold across the HILDA Survey period.

### Box 2.5: Personality measures in the HILDA Survey

Waves 5, 9, 13, 17 and 21 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. (2022) for more information on the derivation of the scores. In this report, the personality scores are assumed to be fixed for each individual at the average values over Waves 5, 9, 13, 17 and 21.

financial situation has a positive effect on relationship satisfaction for women, with an increase of 0.06, while no differences were observed for men. On the other hand, a major deterioration in financial situation has a significant negative impact, reducing satisfaction by 0.35 for men and 0.29 for women. Finally, the analysis also includes year variables in the models and the results indicate that, for men, relationship satisfaction significantly decreased by 0.05 in 2021 compared to 2019. For women, there was an increase in relationship satisfaction of 0.07 in 2020, with no significant differences observed in 2021.

# Young adults still living at home

Table 2.9 shows the proportion of young adults—people aged 18 to 29—living in the parental home over the 2001 to 2021 period. (In the case of separated parents, the parental home could be either parent's home.)

The table shows that there has been a growth in the proportion of young adults who live with their parents. However, it appears that all of the growth occurred around 2010 for men and 2015 for women, and since then, the trend has remained relatively stable. In 2001, 46.6% of men aged 18-29 and 35.9% of women in the same age range were living with their parents.

By 2021, these proportions increased to 54.3% for men and 46.7% for women (an increase of 7.7 percentage points for men and 10.8 percentage points for women). The fact that women tend to leave the nest earlier than men may reflect their inclination to partner at younger ages. As expected, the youngest age group in Table 2.9 had the highest proportion of individuals living with their parents, while the oldest age group had the lowest.

While it is clear that a high proportion of young adults live with their parents, what is not clear from the cross-sectional snapshots presented in Table 2.9 is the extent of 'fluidity' between the parental home and other places of residence. For example, it is not clear whether young adults tend to live with their parents until they move out, never to return, or whether they tend to move back and forth between the parental home and other places of residence. To investigate this question, in Table 2.10 we examine movements into and out of the parental home.

The upper panel in the table shows, for those living at home, the proportion moving out over one year, while the lower panel shows, for those living away from home, the proportion moving back home over the same timeframe. Results are provided for three distinct time periods: the beginning of the 21st century (2001-2003), the start of the 2010s decade (2009-2011), and the most recent years from 2018 to 2020, which coincide with the start of the COVID-19 pandemic.

Overall, it appears that most people move out once, never to return, with comparatively few people moving back home over a one-year period. Nonetheless, the proportion moving back home is not insignificant: around 3% of

Table 2.9: Percent	Table 2.9: Percentage of adult children (aged 18-29) living at home, by sex and age, 2001 to 2021										
	2001	2010	2015	2018	2019	2020	2021				
Men											
18-21	76.6	81.2	80.3	80.8	83.3	83.6	84.8				
22-25	42.1	51.4	53.7	54.1	54.8	53.7	54.1				
26-29	21.3	28.5	31.7	26.5	27.7	31.4	31.2				
Total	46.6	53.5	54.3	52.7	53.6	54.3	54.3				
Women											
18-21	61.9	71.3	84.1	78.7	78.9	78.2	79.5				
22-25	32.0	37.4	43.4	52.5	49.8	47.7	41.0				
26-29	15.9	18.1	19.4	17.3	19.8	21.7	27.5				
Total	35.9	41.7	46.4	48.3	47.1	46.9	46.7				





men and women aged 18-29 living away from the parental home move back in with their parents. Rates of return to the parental home are particularly sizeable for those aged 18-21, with 8.4% of men and 8.1% of women in this age group moving back in with their parents over the 2018-2020 period.

Between 2001 and 2003, young men and women were equally likely to leave their parental home (22.2% for men and 19.4% for women). However, the proportion of men leaving home has decreased significantly—by 7.3 percentage points to 14.9% between 2018 and 2020. Men also have a higher tendency to return to their parental home, which explains why they have a higher proportion of living with parents compared to women.

Consistent with expectations, state-level results show that young adults living in New South Wales, the Australian Capital Territory and Victoria are less likely to leave their parental home. Notably, there was a significant drop in the rate of young males leaving their parental home in New South Wales and the Australian Capital Territory between 2001 and 2003 (23.8%) and 2018 and 2020 (13.5%). This trend may be attributed to factors such as a larger education offering, rising housing prices and the impact of the COVID-19 pandemic.

# Characteristics associated with living in the parental home

The factors affecting whether young adults live with their parents are investigated in Table 2.11, which presents Probit regression model estimates of the probability of an individual living with their parents for the period 2001 to 2021. Each estimate can

Table 2.10: Adult children (aged 18–24) moving in and out of home from one year to the next, by sex, age and state of residence, 2001 to 2021 (%)

				Women			
	2001-2003	2009-2011	2018-2020	2001-2003	2009-2011	2018-2020	
oung adults living with their parents: Proportio	n who move ou	t of home					
Age group							
18-21	18.5	12.0	10.8	17.6	17.6	15.5	
22-25	26.5	21.1	19.9	20.7	23.5	22.4	
26-29	25.1	17.2	16.4	24.1	32.9	22.1	
States and territories							
New South Wales and Australian Capital Territor	y 23.8	12.8	13.5	18.8	19.2	18.0	
Victoria	13.5	13.1	11.5	18.1	18.3	18.0	
Rest of Australia	26.9	22.2	19.2	21.0	27.7	20.7	
īotal	22.2	15.8	14.9	19.4	21.8	19.0	
oung adults not living with their parents: Propo	rtion who move	e back home					
Age group							
18-21	*7.8	6.8	8.4	6.4	7.5	8.1	
22-25	6.3	4.3	2.6	*2.6	3.0	3.4	
26-29	*2.3	*1.9	2.3	*1.1	*1.3	1.7	
States and territories							
New South Wales and Australian Capital Territor	y *5.8	*2.5	*3.7	*2.8	*2.5	*2.9	
Victoria	*2.7	*4.3	*2.7	*3.1	*3.1	*2.2	
Rest of Australia	4.1	3.4	2.9	*2.0	3.1	3.6	
īotal	4.4	3.3	3.1	2.5	2.9	3.0	

Note: \* Estimate not reliable.

22

be interpreted as the effect on the probability that an individual lives in the parental home of a given value of the variable compared to the reference category. In the case of an indicator (or dummy) variable, this is simply the effect of changing the variable from 0 to 1.

As expected, given the results presented in Table 2.11, age is an important factor. For example, a man aged 28 or 29 is, all else being equal, predicted to decrease his probability of living with his parents by approximately 0.49 percentage points compared to a male young adult aged 18 or 19. A woman aged 28 or 29 is similarly predicted to decrease her probability of living with her parents by approximately 0.42 percentage points than a female aged 18 or 19.

Living in a major urban area decreases the likelihood of individuals living with their parents. Compared to their peers in New South Wales, male young adults from Queensland, Western Australia, Tasmania, Northern Territory and Australian Capital Territory have a lower tendency to live with their parents. On the other hand, young women from Victoria, Queensland and South Australia are less likely to reside with their parents than those from New South Wales.

First Nations women are, all else being equal, less likely to live with their parents than other Australian-born women, while immigrant men from the main English-speaking countries (see Box 2.6, page 23) are considerably less likely to live with their parents.

The presence of a disability (see Box 2.7, page 24 for information on the disability measure used in this report) significantly affects the probability of young males living with their parents (with a 0.034 higher probability). Conscientiousness is the only personality trait found to have a

### Box 2.6: Classification of place of birth and First Nations identity

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 (First Nations people) and other people born in Australia (non-First Nations people).

# Table 2.11: Factors associated with young adults living with their parents, 2001 to 2021

here and the second	Men	Women
Age group (Reference category: 18–19)		
20-21	-0.112	-0.125
22-23	-0.211	-0.231
24-25	-0.302	-0.316
26-27	-0.411	-0.366
28-29	-0.491	-0.415
Major urban area	-0.054	-0.024
State (Reference category: New South Wales)		
Victoria	ns	-0.035
Queensland	-0.097	-0.073
South Australia	ns	-0.051
Western Australia	-0.047	ns
Tasmania	-0.094	ns
Northern Territory	-0.183	ns
Australian Capital Territory	-0.143	ns
Immigrant status and First Nations identity (Reference category: Non-First Nations Australian-born)		
First Nations	ns	-0.083
Immigrant, main English-speaking countries	-0.085	ns
Immigrant, other countries	ns	ns
Disabled with moderate or worse work restriction	0.034	ns
Personality		
Extroversion	ns	ns
Agreeableness	ns	ns
Conscientiousness	-0.014	-0.009
Emotional stability	ns	ns
Openness to experience	ns	ns
Both parents live together	0.107	0.077
One or more parents has a degree	ns	-0.018
Full-time student	ns	ns
Labour force status (Reference category: Not employed)		
Employed full-time	-0.032	ns
Employed part-time	ns	0.025
Personal income (\$'000, Dec 2012 prices)	-0.001	-0.002
Partnered	-0.438	-0.425
Has a dependent child	-0.081	-0.070
Number of observations	24,188	26,105
Number of people	3,944	4,254

*Notes*: Estimates are mean marginal effects from random-effects Probit models of the probability a young adult lives in the parental home. See the Technical Appendix for details on these models. Sample comprises all people aged 18–29 and estimations are on Waves 2001 to 2021. Year dummies are included. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

### Box 2.7: 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 that has lasted, or is likely to last, for six months or more. This is an 'operational' definition of disability that is very similar to that used in many household surveys, such as the Australian Bureau of Statistics (ABS) 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 it 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'.

significant impact on the likelihood of residing with one's parents. Those who score higher on conscientiousness are less likely to live at home, potentially indicating their greater readiness to assume the responsibilities that come with living independently.

There is no apparent effect of parental education on the

likelihood of men living with their parents. However, for women, having at least one parent with a university degree reduces the probability of their living with parents by 0.018. Moreover, an individual is considerably more likely to live in the parental home if the parents themselves live together. Being a full-time student does not seem to affect the probability of living in the parental home. Interestingly, for men, full-time employment reduces the likelihood of living with parents by 0.032, compared to being not employed, while it has no effect on women. On the other hand, for women, part-time employment increases the probability of residing with parents by 0.025.

Higher personal income acts to decrease the probability of a person living with their parents, which is likely to simply reflect the greater capacity of higher-income individuals to move out on their own. Living with a partner substantially reduces the probability of living with one's parents, by 0.438 for men and by 0.425 for women, while having a dependent child also decreases the probability of living in the parental home for both men and women.



# Family arrangements and the level of care of children

This section of the report presents analyses for the 2001 to 2021 period of two important aspects of children's family life: their family type and their living arrangements. Specifically, we examine the family types of children aged 0-17, while for children with parents who do not live together, we also measure the frequency of interaction with their parents. The latter is particularly important for children living or spending time in more than one household.

# Family living arrangements of children

Table 2.12 describes the living arrangements of children, disaggregated by age group, in 2001, 2010, 2018, 2020 and 2021. Where a child does not live with both parents in the same household, they are treated as living with the parent they spend the majority of their time with (and in the situation where care is split equally the child is treated as living with their mother). In 2001, the majority of children under 18 (71.5%) were living with both parents, which increased to 74.7% in 2021.

The percentage of children living with one parent in a single-parent family decreased from 16.1% in 2001 to 14.1% in 2020 and 2021. The percentage of children spending the majority of their time with one parent and the parent's partner (including stepparents) decreased from 6.2% in 2001 to 5.5% in 2021. Children spending the majority of their time with one parent in a multiple-family household, such as with grandparents or other relatives, remained relatively stable at around 4.2%.

 Table 2.12: Family arrangements of children, by age group,

 2001 to 2021 (%)

	Younger than 6	6-12	13-17	All aged under 18
2001				
Both parents	79.1	69.0	66.0	71.5
One parent in single-parent household	14.6	18.3	14.6	16.1
One parent and their partner	2.1	7.5	9.3	6.2
One parent in multiple-family household	3.4	3.6	5.9	4.2
Neither parent	*0.8	1.6	4.3	2.1
2010				
Both parents	83.4	70.1	63.3	72.8
One parent in single-parent household	11.4	15.7	16.2	14.3
One parent and their partner	2.2	8.0	10.2	6.6
One parent in multiple-family household	2.4	4.6	7.1	4.5
Neither parent	*0.7	1.6	3.2	1.8
2018				
Both parents	82.0	72.7	63.3	73.5
One parent in single-parent household	11.9	14.6	18.3	14.6
One parent and their partner	2.0	7.0	9.1	5.8
One parent in multiple-family household	3.4	4.0	6.4	4.4
Neither parent	*0.7	1.6	2.9	1.6
2020				
Both parents	82.8	73.7	65.8	74.6
One parent in single-parent household	12.4	14.7	15.5	14.1
One parent and their partner	1.9	6.4	9.5	5.7
One parent in multiple-family household	2.1	3.6	6.8	4.0
Neither parent	*0.9	1.7	2.5	1.6
2021				
Both parents	83.6	73.4	65.5	74.7
One parent in single-parent household	11.4	14.8	16.3	14.1
One parent and their partner	1.6	6.3	9.1	5.5
One parent in multiple-family household	2.5	4.2	6.2	4.2
Neither parent	*1.0	1.2	2.9	1.6

Note: \* Estimate not reliable.

![](_page_25_Picture_8.jpeg)

Table 2.13: Living arrangement in years subsequent to the base year, by living arrangement in the base year— Children aged under 13 years in the base year, all waves pooled (%)

	Chi	ldren ag	jed 0-5	in base	Children aged 6-12 in base year						
	Livir	later	Living arrangement one year later								
	(1) (2) (3) (4) Total				(1)	(2)	(3)	(4)	Total		
Living arrangement in base year											
Both parents (1)	96.8	2.6	0.1	0.5	100.0	97.8	1.7	*0.0	0.4	100.0	
One parent in single-parent household (2)	6.5	85.1	5.2	3.3	100.0	2.9	87.3	6.7	3.1	100.0	
One parent and their partner (3)	*0.0	8.7	90.0	*1.3	100.0	*0.1	7.8	89.9	2.3	100.0	
Other arrangement (4)	4.9	18.1	3.4	73.6	100.0	*1.7	9.5	2.9	86.0	100.0	
	Livin	g arrang	lement f	ive year	s later	Livin	g arrang	iement fi	ive year	s later	
	(1)	(2)	(3)	(4)	Total	(1)	(2)	(3)	(4)	Total	
Living arrangement in base year											
Both parents (1)	89.5	7.8	1.3	1.4	100.0	90.5	6.3	0.7	2.6	100.0	
One parent in single-parent household (2)	9.1	65.0	20.8	5.1	100.0	3.8	67.2	18.7	10.3	100.0	
One parent and their partner (3)	*0.0	23.2	71.9	4.8	100.0	*0.1	17.0	74.3	8.6	100.0	
Other arrangement (4)	4.8	32.7	9.8	52.8	100.0	*2.1	18.8	9.8	69.4	100.0	
	Livin	ig arrang	gement t	en years	alater						
	(1)	(2)	(3)	(4)	Total						
Living arrangement in base year											
Both parents (1)	80.9	12.0	3.9	3.2	100.0						
One parent in single-parent household (2)	10.4	55.9	24.5	9.2	100.0						
One parent and their partner (3)	*0.0	29.5	61.2	9.3	100.0						
Other arrangement (4)	*5.8	24.7	22.4	47.0	100.0						

Notes: \* Estimate not reliable. Percentages may not add up to 100 due to rounding.

The percentage of children living with neither parent decreased from 2.1% in 2001 to 1.6% in 2021.

The data show that the proportion of children living with both parents in the same household is highest for those under six years old and decreases for those aged 13 to 17. This trend is consistent with most children being born to couples who may separate as children get older. In addition, the percentage of children living with one parent and their partner is lowest for those under six years old and increases for children aged six to 12, reaching its highest point for those aged 13 to 17. These findings suggest that when individuals become single parents, they may later enter into a new relationship, resulting in older children being more likely to live with one parent and their partner.

The dynamics of the different living arrangements of children are examined in Table 2.13. The table shows, for each initial living arrangement, and for children initially aged under six and six to 12, the proportion of children subsequently in each living arrangement one year later, five years later and, for children initially aged under six, 10 years later.

The diagonal values in bold show the percentage of children who remained in the same living arrangement, indicating the level of apparent stability for each living situation. The term 'apparent' stability is used as children living across more than one household may move between parents but remain in the same broad household type. For example, a child may live with their single-parent mother for more than 50% of the time and in the subsequent period live with their single-parent father for more than 50% of the time.

![](_page_26_Picture_8.jpeg)

![](_page_27_Picture_0.jpeg)

The results indicate that living with both parents in the same household is the most consistent living arrangement for children. For children initially living with both parents, approximately 97% remained in the same situation one year later, while 89.5% and 90.5% of children under six and aged six to 12, respectively, were still living with both parents five years later. Even 10 years later, 80.9% of children initially aged under six and living with both parents were still in the same living arrangement.

The other four living arrangements, involving mainly living with only one parent or mainly living with neither parent, have similar degrees of persistence, although persistence tends to be slightly lower for children initially aged under six than for children initially aged six to 12 (see diagonals in bold in Table 2.13).

Persistence drops to a greater degree for these four living arrangements (compared with living with both parents in the same household) when moving to a five-year timeframe, and again when moving to a 10-year timeframe. Over a five-year period, persistence falls to between 52.8% and 65.0% for children initially aged under six, and to between 67.2% and 74.3% for children initially aged six to 12.

Over a 10-year period, persistence (for children initially aged under six) falls to as low as 47% for those living with one parent in a multiple-family household or with no parents, and is no higher than 61.2% for children living with one parent and their partner.

The most common transition from 'living with both parents' is to 'mainly living with one parent in a single-parent household'; each year on average this applies to 2.6% of children aged under six and 1.7% of children aged six to 12. Over a five-year period, 7.8% of children initially living with both parents and aged under six find themselves living mainly with one parent in a single-parent household at the end of the period, while this transition applies to 6.3% of children initially living with both parents and aged six to 12.

For children initially living mainly in single-parent households, the most common transition depends on the age of the child and the timeframe examined. For children initially living mainly with one parent and their partner, the most common transition, irrespective of the age of the child or the timeframe, is to mainly living in a single-parent household.

# Time spent with a nonmajority-care parent

As previously noted, a significant number of children live mainly with only one parent. However, many of these children spend time living with, or in the care of, their other parent. The HILDA Survey gathers data on the level of time spent with the parent who is *not* identified as the parent caring for the child a majority of the time. The data in this section are those recorded by the majority-care parent. As outlined in Box 2.1, page 7, this includes parents who provide a minority level of care (less than 50%) or a father providing 50% of the care. In this section, we analyse this data to explore the time children spend living with or in the care of the parent not identified as the majority-care parent (referred to as nonmajority-care parents) and the prevalence and changes in shared-care arrangements.

Frequency of contact with the non-majority-care parent is identified for the youngest child in the household with a nonmajority-care parent. The majority-care parent is asked how often the child usually sees the other parent, with the response options being: daily; at least once a week; at least once a fortnight; at least once a month; once every 3 months; once every 6 months; once a year; less than once a year; and never. The majority-care parent is also asked to state the number of nights and the number of days the child spends with the non-majority-care parent (with the parent able to report over an interval of their choosing, such as per week, per month or per year).

Table 2.14 presents descriptive information on the frequency of in-person contact with non-

Table 2.14: Frequency of contact with non-majority-care parents— Youngest child in the household with a non-majority-care parent, 2003, 2010, 2019, 2020 and 2021 (%)

		Age group	1	All aged
	0-5	6-12	13–17	under 18
2003				
Have a non-majority-care parent	17.8	28.7	27.8	24.8
Frequency of contact with this parent				
Daily	*9.1	*4.4	*4.4	5.8
Weekly	21.1	21.3	27.2	22.8
Fortnightly	13.9	18.6	12.1	15.5
Monthly	*3.8	*6.3	10.6	6.8
Every 3-6 months	14.1	17.5	12.5	15.2
Once a year or less	*2.5	*2.6	*3.8	2.9
Never	35.6	29.3	29.3	31.1
2010				
Have a non-majority-care parent	14.1	26.2	31.0	23.1
Frequency of contact with this parent				
Daily	8.9	5.8	*3.4	5.9
Weekly	17.6	27.8	23.0	23.5
Fortnightly	17.3	16.1	13.0	15.4
Monthly	6.9	9.6	8.0	8.3
Every 3-6 months	11.8	10.3	12.8	11.5
Once a year or less	*2.3	*2.9	*6.7	3.9
Never	35.3	27.6	33.1	31.5
2019				
Have a non-majority-care parent	13.5	22.6	30.9	21.6
Frequency of contact with this parent				
Daily	*5.5	7.7	*4.3	6.0
Weekly	30.9	25.5	24.5	26.6
Fortnightly	15.9	22.4	16.5	18.7
Monthly	5.9	6.7	9.3	7.4
Every 3-6 months	7.2	8.7	11.2	9.1
Once a year or less	*4.9	*3.1	*7.5	5.1
Never	29.7	25.9	26.9	27.2
2020				
Have a non-majority-care parent	14.1	21.5	27.6	20.5
Frequency of contact with this parent				
Daily	*6.4	5.7	*2.2	4.9
Weekly	29.9	28.0	22.4	26.8
Fortnightly	14.2	19.5	20.9	18.4
Monthly	*6.1	6.6	*4.5	5.8
Every 3-6 months	7.8	9.6	13.2	10.1
Once a year or less	*1.8	*2.5	*4.5	2.9
Never	33.8	28.2	32.3	31.0
2021				
Have a non-majority-care parent	12.9	22.0	26.6	20.0
Frequency of contact with this parent				
Daily	10.1	8.2	*3.1	7.2
Weekly	29.0	25.5	22.8	25.6
Fortnightly	18.2	19.9	21.5	19.9
Monthly	*6.3	6.2	7.6	6.7
Every 3-6 months	7.5	8.3	11.8	9.1
Once a year or less	*0.7	*2.5	*3.0	2.2
Never	28.2	29.4	30.4	29.4

Note: \* Estimate not reliable.

majority-care parents, for all children with a non-majority-care parent and disaggregated by the age of the child. The table compares the situation in 2003 when the data became available with 2010, and with the most recent years—2019, 2020 and 2021. Data from each of the most recent three years are examined to identify any changes in patterns that may have resulted from the COVID-19 pandemic.

The first row of each panel in Table 2.14 indicates, consistent with Table 2.12, that there has been a marked decline in the proportion of children with a nonmajority-care parent, falling from 24.8% in 2003 to 23.1% in 2010 to 20% in 2021. Overall, 31.5% of children with a non-majority-care parent had no contact with the non-majority-care parent in 2010, while this proportion had dropped to 27.2% in 2019, prior to the onset of the COVID-19 pandemic. The trend reversed again in 2020 and 2021, with 31% and 29.4% of children, respectively, not having contact with their non-majoritycare parent.

In 2003, 28.6% (5.8% + 22.8%) of children with a non-majority-care parent had contact with that parent at least weekly, with a moderate increase over the following periods and up to 32.8% (7.2% + 25.6%) in 2021, and well over half (50.9% in 2003, 53.1% in 2010 and 59.4% in 2021) had contact at least monthly. Younger children, particularly those aged six to 12, are more likely to have at least monthly contact than older children, while children aged 13 to 17 are more likely to have contact only monthly, every three to six months, or once a year or less.

The prevalence of children in shared care is examined in Table 2.15. For the purposes of this section, shared care is defined as one night or more a week. This equates to around 14% of the care of a child. This level of care is Table 2.15: Nights per week spent with the non-majority-care parent— Youngest child in the household with a non-majority-care parent, 2003 to 2021 (%)

		Age group	)	Allaged
	0-5	6-12	13-17	under 18
2003				
None	43.6	28.5	39.9	35.3
Less than one night per week	19.0	35.6	29.9	30.2
One night per week	21.1	25.2	15.7	21.4
Two nights per week	*11.4	*5.0	*7.7	7.2
Three or more nights per week	*5.0	*5.6	*6.8	5.9
2010				
None	52.4	31.8	37.9	38.2
Less than one night per week	*10.8	25.0	26.8	22.8
One night per week	*22.7	16.7	17.6	18.3
Two nights per week	*5.4	*9.7	8.9	*8.5
Three or more nights per week	*8.7	16.8	8.9	12.2
2019				
None	44.0	31.7	38.0	36.7
Less than one night per week	*11.7	12.2	15.4	13.3
One night per week	*14.7	24.0	13.8	18.2
Two nights per week	*15.1	*8.1	9.2	*10.0
Three or more nights per week	*14.6	24.0	23.6	21.8
2020				
None	51.1	30.8	40.0	38.5
Less than one night per week	*7.3	13.0	12.7	11.6
One night per week	*18.2	26.0	14.4	20.3
Two nights per week	*12.0	*7.5	6.1	*8.0
Three or more nights per week	*11.4	22.8	26.9	21.6
2021				
None	54.7	27.0	28.6	33.8
Less than one night per week	*1.9	15.2	14.0	11.8
One night per week	*14.1	21.0	19.9	19.1
Two nights per week	*10.8	6.5	11.5	*9.0
Three or more nights per week	*18.5	30.3	25.9	26.3

Note: \* Estimate not reliable.

![](_page_29_Picture_7.jpeg)

![](_page_30_Figure_0.jpeg)

*Notes:* Results for male and female non-majority-care parents in 2001 sharing three or more nights per week are not reliable. Estimates for male non-majority-care parents in 2003 and 2004 sharing three or more nights per week are also not reliable.

referred to in both the Child Support Scheme and Family Tax Benefit as a parent having at least 'regular care'. In 2003, 34.5% (21.4% + 7.2% + 5.9%) of children with a non-majority-care parent were in such shared-care arrangements, with shared-care arrangements most common for children aged five and under (37.5%). The data show the percentages decreasing to 54.4% in 2021.

The COVID-19 pandemic had a significant impact on care arrangements for children aged under five, with the percentage dropping substantially from 44.4% in 2019 to 41.6% in 2020 and 43.4% in 2021. This reduction was driven by an increase in the percentage of children spending no time with the non-majoritycare parent, from 44% in 2019 to 54.7% in 2021. Notably, there has been an increase in children spending three or more nights per week with the non-majoritycare parent, from 5.9% in 2003 to 26.3% in 2021. Interestingly, the percentage of older children spending three or more nights with the non-majority-care parent increased during the COVID-19 pandemic from 23.6% in 2019, to 26.9% in 2020 to 25.9% in 2021.

In the early 2000s, most care arrangements had children spending less than one night per week with their non-majority-care parent, and one-third of these children spent even less time in such arrangements. However, this trend has significantly shifted as in 2019, only 13.3% of children in shared-care arrangements with a non-majority-care parent spent less than one night per week with them. In comparison, 18.2% of children shared one night per week, and 21.8% shared three or more nights per week. Nonmajority-care parents have become increasingly involved in shared-care arrangements, particularly for children aged six to 12, with 30.3% sharing three or more nights per week with the

non-resident parent in 2021.

According to Figure 2.1, which examines the gender of nonmajority-care parents based on the duration of care arrangements, it is evident that male parents are more frequently the non-majority-care parent for children with care arrangements of two nights or fewer per week. The analysis was performed on a sample of all children under 18 to ensure an adequate sample size. The results indicate that in 2001, 90.1% of non-majority-care parents were male, with this figure gradually decreasing to 77.8% in 2021.

As care arrangements become more equal in terms of number of nights spent with the child, the gender of the non-majority-care parent becomes more balanced. Thus, we observe that in 2002,<sup>2</sup> 50.2% of non-majority-care parents were female and the corresponding 49.8% were male. While this ratio has slightly fluctuated across time, big

<sup>2</sup> Estimates for 2001 are not reliable.

changes have not taken place and as of 2021 results indicate that 55.4% of non-majority-care parents are female and 44.6% are male respectively.

# Paid child care for children not yet in school

For several decades, child care has been a crucial public policy concern, primarily due to the continuous rise in female employment participation since the 1970s. The Australian Government provides substantial subsidies for child care for many families, but it is nonetheless clear that access to affordable and high-quality child care remains a significant concern for many parents with young children.

The HILDA Survey has gathered data on child-care use and access at the household level in every wave for households with children under 15 years of age. However, changes to the questionnaire between Waves 1 and 2 imply that comparable information on work-related child care is only accessible from Wave 2 onwards.<sup>3</sup>

This section focuses on child-care arrangements for young children who are not yet attending school, which is a topic of significant public interest. The analysis covers both single-parent and couple-parent families, but excludes multi-family households that have multiple families with children under five years old, as it is not possible to attribute childcare arrangements to a specific family in such cases.<sup>4</sup>

# Use of paid child care

Table 2.16 examines use of paid child care (both formal and informal, and for both workrelated and other purposes) for children aged under five over the 2002 to 2021 period. Two-year periods are examined to reduce the number of estimates—for example, the first column presents pooled estimates for 2002 and 2003. In 2002 and 2003, the use of paid child care for children under five was higher among single parents, with 48.7% using paid care compared to 42.1% of couple parents. However, in 2020 and 2021, the situation had reversed, with 52.8% of couple parents using paid child care and only 47.4% of single parents using paid child care.

Over the 2002 to 2021 period, use of paid child care increased by 10.7 percentage points for couple parents while it decreased by -1.3 percentage points for single parents, reversing the direction of the gap in child-care usage between the two groups. Although the use of paid child care has increased significantly among couples, the trend has been more volatile for single parents, with usage rates ranging from 49.5% in 2014 and 2015 to 39.2% in 2018 and 2019.

Table 2.17 presents the shares of parents with children under the age of five who use paid child

Table 2.16: Use of paid child care for children aged under five, 2002 to 2021 (%)												
	2002 and 2003	2004 and 2005	2006 and 2007	2008 and 2009	2010 and 2011	2012 and 2013	2014 and 2015	2016 and 2017	2018 and 2019	2020 and 2021	Change 2002-03 to 2020-21	
Couples	42.1	44.3	40.9	40.9	41.1	43.3	45.6	50.7	54.6	52.8	10.7	
Single parents	48.7	41.4	43.7	46.2	47.1	41.5	49.5	46.8	39.2	47.4	-1.3	

Note: Percentage-point change between 2002-2003 and 2020-2021.

![](_page_31_Picture_13.jpeg)

# Table 2.17: Proportion of parents with children aged under five using paid child care, by parents' labour force status, 2002 to 2021 (pooled) (%)

	Couple	Couple parents					
	Father	Mother	Single parents				
Employed full-time	47.6	61.8	62.3				
Employed part-time	42.8	60.0	65.5				
Unemployed	29.1	35.4	46.2				
Not in the labour force	28.9	22.9	29.8				
All people	45.7	45.1	45.4				

<sup>3</sup> 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'.

<sup>4</sup> For some of the analysis presented in this section it is not known whether the children are in school. It is assumed that children under the age of five as of 30 June of the survey year are not attending school, while those who are five or older on that date are assumed to be attending school. It should be noted, however, that this assumption will not hold true for all children.

![](_page_32_Picture_0.jpeg)

### Box 2.8: Types of child care

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

care, broken down by the parents' employment status. To account for the small number of single fathers, single parents are grouped together (with single mothers being the majority), while couple fathers and mothers are analysed separately. The data indicate that use of paid child care is strongly associated with the employment status of the parents. For instance, 61.8% of couple mothers who work fulltime or 60.0% of those who work part-time use paid child care, while only 35.4% of unemployed couple mothers and 22.9% of couple mothers who are not in the labour force utilise paid child care. This connection between employment participation and paid child-care use partly explains the observed rise in child-care usage during the survey period.

Table 2.18 disaggregates childcare use by the type of care used, distinguishing formal care from paid informal care, which is defined to be use of a nanny or paid sitter (see Box 2.8, left, for definitions of formal and informal care).

Table 2.18: Type of care used for children aged under five—Families using paid care, 2002 to 2021 (%)															
	2002 and 2003	2004 and 2005	2006 and 2007	2008 and 2009	2010 and 2011	2012 and 2013	2014 and 2015	2016 and 2017	2018 and 2019	2020 and 2021	Change 2002-03 to 2020-21				
Type of care used	Type of care used														
Couple parents															
Only formal care	89.1	90.5	89.5	89.1	89.3	91.0	93.1	92.6	93.2	96.4	7.3				
Only nanny/sitter	5.5	4.1	4.7	4.2	5.5	*2.7	*2.1	2.7	*3.0	*1.6	-3.9				
Both formal and nanny	5.4	5.4	5.9	6.8	5.2	6.3	4.8	4.7	3.8	2.0	-3.3				
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0					
Single parents															
Only formal care	94.7	90.9	98.1	97.7	97.5	98.5	97.0	96.9	94.7	97.6	2.9				
Only nanny/sitter	*1.9	*3.9	*0.8	*0.9	*1.0	*0.0	*1.9	*1.2	*1.3	*0.5	-1.4				
Both formal and nanny	*3.4	*5.2	*1.2	*1.4	*1.5	*1.5	*1.2	*1.9	*3.9	*1.9	-1.5				
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0					
Use paid care for wo	rk-related	l purposes	5												
Couple parents	69.5	73.6	78.8	82.7	79.1	77.3	85.3	87.8	90.4	90.5	21.0				
Single parents	54.7	47.6	55.9	62.5	62.9	53.6	69.0	60.1	67.0	64.5	9.9				

Note: The upper panels of the table on use of formal and informal paid care relate to all paid care, whether for work-related or other purposes.

Most families who use paid care use only formal care. A small proportion uses a combination of formal care and paid informal care, and an even smaller proportion uses only paid informal care. Couple parents are more likely to use a nanny or paid sitter than single parents. Interestingly, the trend over the 2002 to 2021 period shows an increase in the use of formal child care only, with the use of formal care rising by 7.3 percentage points for couple parents and 2.9 percentage points for single parents.

In contrast, there has been a decrease in the exclusive use of a nanny or paid sitter among couple-parent families, as well as a decrease in the combined use of formal and informal paid care among both couple- and singleparent families. Specifically, the proportion of couple parents using only nanny care or paid sitters decreased from 5.5% in 2002 and 2003 to 2.7% in 2016 and 2017. Reliable data for more recent years are not available.

The bottom panel of the table shows that for most of the

couple-parent families using paid care (between 69.5% and 90.5%, depending on the year), care is work-related (see Box 2.9, page 37). Paid care used by single parents is less likely to be at least partially workrelated; nonetheless, in most years, the majority of single parents used paid care for work-related purposes. Over the 2002 to 2021 period, the share of couple parents who used child care for work reasons increased by 21.0 percentage points. For single parents, work-related care increased by 9.9 percentage points.

As noted previously, the increase in work-related care reflects the increasing employment participation of both single and couple parents over the period. Table 2.19 examines the number of hours of paid care used per week for each child not yet at school. The table focuses on the period since 2006. Full information on the number of children not yet at school per household is only available from 2005. Since we are combining information every two years, we begin in 2006. The upper panel of the table shows the weekly hours of care per child by family type. For couple parents who used paid formal care, an average of around 18.1 hours per week was used for each child in 2006–2007, which increased by 32.6% to 24 hours in 2020–2021.

Among single parents using formal care, mean hours per child are somewhat higher, at around 19 to 25 hours per week throughout the period. Weekly hours of formal care have also increased for single parents, by 30.1% between 2005-2006 and 2020-2021. Mean hours of paid informal care among those using paid care are very low, particularly for single parents; while couple parents used around one hour of informal care per week in most years across the past 15 years. single parents used between only 0.1 and 0.4 hours of nanny care or paid sitters per week.

The lower panel of Table 2.19 presents the weekly hours of paid care separately for each third of the income distribution. The table

Table 2.19: Mean weekly hours of paid care per child not yet at school—Families using paid care, 2006 to 2021										
	2006 and 2007	2008 and 2009	2010 and 2011	2012 and 2013	2014 and 2015	2016 and 2017	2018 and 2019	2020 and 2021	Percentage change over the full period	
Weekly hours by parent type	e and type o	f care								
Couple parents										
Formal care	18.1	18.8	17.6	19.8	22.4	22.3	23.0	24.0	32.6	
Nanny or paid sitter	1.7	1.1	1.0	0.9	0.7	0.8	1.2	0.5	-0.6	
Single parents										
Formal care	18.6	22.9	20.7	21.7	24.8	23.3	21.3	24.2	30.1	
Nanny or paid sitter	0.2	0.1	0.0	0.1	0.2	0.4	0.2	0.2	0.0	
Weekly hours by tercile (thi	rd) of incom	e distributi	on and typ	oe of care						
Bottom third										
Formal care	16.0	15.7	16.3	16.4	18.6	19.2	17.7	18.7	16.9	
Nanny or paid sitter	0.6	0.2	0.3	0.2	0.2	0.4	0.2	0.0	-100.0	
Middle third										
Formal care	17.9	21.1	17.9	20.6	22.8	22.3	23.4	25.4	41.9	
Nanny or paid sitter	0.7	0.8	0.6	0.4	0.5	0.5	0.2	0.1	-85.7	
Top third										
Formal care	20.2	19.6	19.3	22.2	24.6	24.6	25.4	25.5	26.2	
Nanny or paid sitter	3.3	2.1	1.8	1.8	1.2	1.4	2.7	1.4	-57.6	

![](_page_34_Picture_0.jpeg)

shows a link between the number of child-care hours and the income position of the household. For example, in 2020–2021, families in the bottom third of the income distribution averaged 18.7 hours of formal care and no hours of nanny or paid sitter care. Families in the middle third of the income distribution averaged 25.4 hours of formal care and 0.1 hours of informal paid care, and families in the top third used 25.5 hours of formal care and 1.4 hours of informal care. Over the 2002 to 2021 period, families in all terciles increased their use of formal child care, with the rise in the middle third being the most marked (41.9%). Use of informal paid care has decreased in all terciles (less among the top 30% of the household income distribution).

### Expenditure on child care

In every wave of the HILDA Survey, households who use child care are asked to report their usual weekly expenditure on child care<sup>5</sup> for each child 'after any regular child-care benefit you may receive has been deducted'. Table 2.16 shows that, each year, between 41% and 55% of couple families with children aged under five and between 40% and 50%

Table 2.20: Expenditure on child care for children under five, by family type and income tercile—Families with expenditure on child care, 2002 to 2021

											Percentage	
	2002	2004	2006	2008	2010	2012	2014	2016	2018	2020	2002-	
	and	and	and	and	and	and	and	and	and	and	2003 to	
	2003	2003	2007	2009	2011	2015	2015	2017	2019	2021	2020-2021	
Median weekly expend	diture (\$	, Decemb	er 2021 pi	rices)								
Couple-parent family	76.7	98.9	136.0	142.2	133.7	150.1	168.5	166.3	173.4	172.2	124.5	
Single-parent family	39.3	46.5	50.4	73.3	75.4	83.4	102.6	105.3	84.1	86.1	119.1	
Median weekly expenditure per child (\$, December 2021 prices)												
Couple-parent family	62.9	72.7	103.0	116.4	103.3	116.6	136.8	136.1	141.9	152.0	141.7	
Single-parent family	34.5	33.5	44.8	64.7	72.9	79.8	89.9	88.7	66.3	80.1	132.2	
Median expenditure p	er hour o	of child ca	are (\$, Dec	cember 20	021 prices	)						
Couple-parent family	5.0	6.0	6.9	7.2	7.1	7.3	6.8	6.9	6.4	6.8	36.0	
Single-parent family	2.2	2.5	3.1	3.2	3.9	4.4	3.9	4.4	3.5	3.3	50.0	
Median proportion of household disposable income spent on child care by tercile (third) of the income distribution (%)												
Bottom third	3.5	3.5	4.4	4.5	4.9	5.9	5.8	6.4	5.3	5.9	68.6	
Middle third	4.1	5.2	5.5	6.5	6.1	6.4	7.3	7.5	6.8	6.6	61.0	
Top third	5.3	5.5	6.8	6.8	6.0	6.3	6.7	6.7	7.4	7.2	35.8	

<sup>5</sup> Child-care costs mainly arise from the types of formal and informal child care analysed in the previous section on child-care usage. However, a minority (around 4%) of parents with child-care costs for children not yet at school report child-care costs incurred by paying relatives, friends or other people for informal child care. This section of the report includes all types of child-care costs.

of single-parent families with children aged under five usually pay for some child care for those children.

Table 2.20 shows, for couple- and single-parent families with expenditure on child care for children not yet at school, the median weekly child-care expenditure (at December 2021 prices) on these children. Estimates are presented for pooled two-year intervals over the 2002 to 2021 period.

The first panel in the table shows sustained and substantial rises in median expenditure for child care for children not yet at school over the 2002 to 2020 period for both couple- and single-parent families. In 2002 and 2003, among those with expenditure on child care for children not yet at school, median weekly expenditure on child care was around \$77 for couple-parent families and around \$40 for single-parent families. In 2020 and 2021, the corresponding medians were approximately \$172 and approximately \$86, which translates to large real increases in child-care costs of 124.5% and 119.1%, respectively.

Theoretically, the increase in total child-care costs per family over the 2002-2021 period may be due to several factors. First, it is possible that child-care usage has increased through an increase in the number of children not yet at school in families using child care.

Second, child-care costs will increase if parents use more

hours of child care for each child. As Table 2.19 has shown, past years have seen a considerable increase in hours of formal child care per child, particularly among couple parents, who used 40.4% more hours of formal child care in 2020 and 2021 than they did in 2002 and 2003.

Third, child-care prices per hour might have gone up. This might be due to increasing prices for a given type of child care or due to parents shifting their demand from cheaper types of care (such as friends or relatives) to more expensive types of care (such as formal care or sitters). The middle parts of Table 2.20 investigate these different channels by providing child-care expenditure per child as well as expenditure per hour of child care.

![](_page_35_Picture_8.jpeg)
The second panel of Table 2.20 breaks down the median weekly expenditure on child care per child under five years of age in order to investigate the extent to which the increase in childcare costs may be due to changes in the number of children in families using child care. While in 2002-03. couple parents spent an average of \$63 per child on child care, single-parent families spent around \$35. Expenditure per child has increased over the period to \$152 per child for couple-parent families and approximately \$80 per child for single-parent families in 2020-21. This translates to a 141.7% increase for couple parents and a 132.2% increase for single parents.

The third panel divides 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 childcare costs. In 2002-03, the median expenditure per hour of child care for children not yet at school was \$5, and for single parents it was \$2.2.

Median hourly rates increased across the period, but not as fast as overall child-care expenditure. Couple-parent families experienced an increase of 36% in hourly child-care prices to \$6.8 per hour in 2020-21, while single-parent families experienced an increase of 50% to \$3.3 in 2020-21.

In conclusion, rising child-care costs are a consequence of both the use of more hours of paid child care, especially formal care, and an increase in hourly childcare costs. The burden of child-care costs for a household can be better understood by comparing child-care expenditure to the income of the household. This is done in the bottom panel of Table 2.20, which presents the median share of annual household disposable equivalised income spent on child care for children not yet at school, restricted to those families with expenditure on child care for children under five years of age.

In order to show how this measure of the burden of childcare costs depends on how well-off the family is, the estimates are presented separately for each third of the income distribution. Despite yearto-year volatility, the clearly evident trend is that, for households with expenditure on child care for children under five years of age, the share of income spent on this child care has risen between 2002 and 2021.

There are, moreover, indications of a systematic relationship between the trend in the childcare expenditure burden and rank in income distribution. As Table 2.20 indicates, there was a change in the median proportion of household income spent on child care during this period: from 3.5% to 5.9% (a 68.6% increase) for those in the bottom third of the income distribution; from 4.1% to 6.6% (a 61% increase) for those in the middle third; and from 5.3% to 7.2% (a 35% increase) for those in the top third.

These changes suggest that child-care costs may be acting to increase inequality of 'effective' income (income net of child-care costs) in 2020-21 compared with their effects in 2002-03. That is, income was reduced by childcare costs proportionately more for lower-income households in 2020-21. whereas in 2002-03 it was reduced by proportionately less. This effect could also be driven by relatively strong growth in income for the top decile offsetting the growth in childcare costs (even though the child-care costs may have grown more strongly for the top decile). Interestingly, however, the ratio of child expenditure and household income declined in 2018-19 for low- and middle-income families with respect to 2016-17 (by 17.2% and 9.3% respectively) when the Child Care Subsidy (especially for low- and middle-income families) was implemented halfway through 2018.



# 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. Given the previous section has demonstrated that most parents using any type of paid care use (exclusively or in part) formal child care, the focus here is on formal child care only. Results look at use of formal child care for children not yet at school by couple parents, and by single mothers.<sup>6</sup> This analysis is restricted to families who have at least one child aged four years and under.

The regression models include a range of characteristics of the resident parents: age; First Nations identity and country of birth (see Box 2.6, page 23); employment status; educational attainment; attitudes towards parenting and paid work<sup>7</sup> (see Box 2.9, opposite); and health satisfaction. Further, the models contain several family and household characteristics: age of the youngest child in the family; number of children aged under 14 in the family; region of residence (see Box 2.11, page 40); state of residence; equivalised household disposable income (see Box 3.1 and Box 3.2, page 54); 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 2.21 presents the results from the regression analyses in the form of mean marginal effects. In the case of indicator

## Box 2.9: 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.  $\hfill \hfill \hfi$
- k. On the whole, men make better political leaders than women do
- I. 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.

variables (such as part-time work, having a university degree 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.

As expected, most parental characteristics in the models are significantly related to the probability of using formal care. For example, in couple-parent families, a higher age of the



Single fathers with children not yet at school are relatively rare in the sample and so could not be analysed separately.
 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 backward across earlier waves and the last observed value was carried forward to subsequent waves. People 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 2.21: Factors associated with use of formal child care for children no	ot yet at school, 200	)2 to 2021
	Couple parents	Single mothers
Parental characteristics		
Age of mother (years)	0.003	ns
Age of father (years)	-0.002	-
<i>Immigrant status and First Nations identity of mother</i> (Reference category: Non-First Nations Australian-born)		
First Nations	ns	-0.11
Immigrant, main English-speaking countries	ns	ns
Immigrant, other countries	-0.04	-0.058
<i>Immigrant status and First Nations identity of father</i> (Reference category: Non-First Nations Australian-born)		
First Nations	ns	-
Immigrant, main English-speaking countries	ns	-
Immigrant, other countries	ns	-
Employment status of mother (Reference category: Employed full-time)		
Employed part-time	ns	ns
Not employed	-0.277	-0.288
Employment status of father (Reference category: Employed full-time)		
Employed part-time	-0.061	-
Not employed	-0.083	_
Bachelor's degree or higher held by mother	0.038	ns
Bachelor's degree or higher held by father	ns	
Extent to which mother has traditional views on parenting and work	-0.072	-0.058
Extent to which father has traditional views on parenting and work	-0.039	-
Satisfaction with health—Mother	-0.015	-0.008
Satisfaction with health—Father	-0.009	ns
Family and household characteristics		
Age of youngest child in family (years)	0.048	0.055
Number of children in family aged 0-14	0.014	ns
Region of residence (Reference category: Major urban)		
Other urban	ns	-0.061
Other region	-0.030	-0.095
State and territory of residence (Reference category: New South Wales)		
Victoria	-0.07	ns
Queensland	0.028	0.099
South Australia	-0.069	-0.054
Western Australia	-0.123	ns
Tasmania	-0.07	ns
Northern Territory	-0.076	ns
Australian Capital Territory	-0.071	ns
Equivalised income (\$'000, December 2017 prices)	ns	0.001
Other people living in household	-0.061	-0.101
Year	0.003	ns
Number of observations (households)	18,304	3,454

*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 an 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.

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: both couple- and single-parent families with mothers born in countries with non-English speaking backgrounds have a reduced probability of formal care usage (by 4 and 5.8 percentage points respectively) compared to families of non-First Nations Australianborn mothers. Single mothers identifying as First Nations people also have a significantly reduced probability of using child care.

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 coupleand single-parent families: if the mother is not working, the probability of using formal care is decreased by 27.7 percentage points among couple-parent families and 28.8 percentage points among single mothers. Interestingly, within couple-parent families, the father's employment status also matters, although the association is weaker: if the father works part-time, the probability of using formal care is reduced by 6.1 percentage points, and if he is not working, it is reduced by 8.3 percentage points. The direction of causality with respect to the link between employment



participation and formal childcare usage is not clear, however. On the one hand, having a fulltime 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 (fulltime) job.

Having a university degree is positively associated with formal child-care usage for coupled mothers. In contrast, more traditional attitudes and a higher satisfaction with health decrease the probability of using formal child 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-parent families and 5.5 percentage points per year among single mothers. The number of children in the family only has a significant effect in couple-parent families, as each child increases the probability of using formal care by 1.4 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. Interestingly, among single mothers, there is also a positive association between income and formal child-care usage.

# Difficulties connected to child-care use

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

Specifically, they are asked to rate, on a scale from 0 to 10, how much difficulty they have had with each of 12 types of difficulty. In this report, these 12 types are classified into three categories of difficulty: quality, availability and cost. The 12 types of difficulty, and the category to which each is assigned, are provided in Box 2.10, below.

Table 2.22 shows, for households with children aged under five who have used or thought about using child care, the proportion who have experienced moderate difficulty for at least one difficulty type (defined as a rating of 1 to 5 on the 0 to 10 scale) and the proportion who have experienced substantial problems with at least one difficulty type (defined as a rating of 6 to 10). Estimates are presented for each category of difficulty and all difficulty types combined. As elsewhere in this section, estimates are presented for each two-year block over the 2002 to 2021 period.

Results show that households that have used or considered using child-care services often

#### Box 2.10: Classification of types of difficulties with child care

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

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

Table 2.22: Experie	ence of	child-ca	re diffic	ulties by	househ	olds with	h childre	n aged ı	under fiv	ve, 2002	to 2021 (%)
	2002 and 2003	2004 and 2005	2006 and 2007	2008 and 2009	2010 and 2011	2012 and 2013	2014 and 2015	2016 and 2017	2018 and 2019	2020 and 2021	Percentage change over full period
Used or thought about using child care	52.8	53.9	53.7	55.1	57.4	54.4	58.6	61.4	67.4	66.9	
Households that had	used or t	hought al	oout using	child car	е						
Moderate difficulties (	7-5)										
Quality	30.4	35.6	37.9	38.7	39.3	39.2	39.0	41.6	40.8	37.8	24.2
Availability	64.5	71.2	72.6	73.9	74.9	73.3	72.4	76.5	74.9	76.1	18.1
Cost	35.3	34.1	37.1	38.1	38.1	33.5	37.4	36.3	36.2	40.5	14.8
Any moderate problem	74.3	79.2	79.7	80.4	81.5	80.5	80.9	82.6	80.6	82.4	10.9
Substantial difficulties	(6-10)										
Quality	34.6	39.4	31.1	32.1	33.7	36.3	35.9	33.6	26.6	26.2	-24.3
Availability	66.0	70.7	63.8	64.3	65.6	67.4	70.0	65.4	66.7	63.3	-4.1
Cost	47.4	53.7	56.6	53.2	52.8	58.5	60.0	58.7	57.9	51.8	9.2
Any substantial problem	73.1	76.0	74.3	73.8	74.4	77.1	78.5	75.9	77.0	70.8	-3.2

*Notes*: See Box 2.10, page 39, for the classification of difficulties into quality, availability and cost categories. A household is classified as having a moderate difficulty if a rating of 1–5 is reported for any component of the difficulty type, and a household is classified as having a substantial difficulty if a rating of 6–10 is reported for any component. Note, therefore, that a household could be classified as having both moderate and substantial difficulties with both quality and availability, since these difficulty types have more than one component.



face difficulties, with availability being the most common issue. Over most of the period examined in Table 2.22, approximately 80% of these households reported experiencing moderate difficulties, while about 75% reported substantial difficulties with at least one aspect of child care. Interestingly, the proportion of households reporting substantial cost difficulties has increased over time by 9.2%, while the proportion reporting substantial difficulties with quality and availability has decreased by 24.3% and 4.1% respectively since 2002.

However, households that experienced substantial difficulties with cost reported the second-lowest statistic— 51.8% in 2020-21—over the

#### Box 2.11: 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 2021, approximately 69% of the population resided in major urban areas, 19% resided in other urban areas and 12% resided in non-urban areas.

In more detailed analysis by region, information on state or territory of residence, whether resident of the state's capital city, and the population density of the location of residence are combined to create more disaggregated regions, each of which has a sufficient sample size to support the statistical analyses. The most disaggregated classification distinguishes 16 regions: (1) Sydney; (2) other urban New South Wales; (3) non-urban New South Wales; (4) Melbourne; (5) other urban Victoria; (6) non-urban Victoria; (7) Brisbane; (8) other urban Queensland; (9) non-urban Queensland; (10) Adelaide; (11) rest of South Australia; (12) Perth; (13) rest of Western Australia; (14) Tasmania; (15) Northern Territory; and (16) Australian Capital Territory. Additionally, in some analysis, non-urban Nerthern Territory is combined with other urban South Australia.

Table 2.23: Experience of substantial child-care difficulties, by household characteristics—Households with children aged under five who have used or thought about using child care, 2002 to 2021 (pooled) (%) Any

	Quality	Availability	Cost	substantial problem
Family type				
Couple-parent	32.0	65.9	55.7	74.9
Single-parent	35.5	68.6	51.7	76.5
Income tercile				
Bottom-third	36.7	66.9	51.8	74.6
Middle-third	29.7	65.7	56.9	75.3
Top-third	33.0	66.5	55.9	75.3
Region				
Sydney	39.2	71.1	61.8	78.7
Other urban New South Wales	29.6	67.5	52.6	75.7
Melbourne	31.3	65.1	54.4	73.5
Other urban Victoria	32.1	65.1	46.6	72.6
Brisbane	30.9	65.6	60.7	78.1
Other urban Queensland	31.4	67.3	57.6	77.0
Adelaide	23.8	57.5	46.1	66.8
Other urban South Australia	38.7	73.5	56.6	80.1
Perth	30.3	61.1	49.5	70.5
Other urban Western Australia	32.8	66.8	39.9	73.8
Urban Tasmania	24.4	64.6	50.6	73.1
Northern Territory	31.9	67.4	50.2	70.9
Australian Capital Territory	37.7	58.8	58.6	70.6

20-year period, a 13.7% decline when compared with the period 2014-15 (the highest point). Overall, it appears that availability has been the predominant issue for both moderate and substantial difficulties.

Table 2.23 provides insight into the variations in reported childcare difficulties based on family type, income level and region of residence. The analysis covers the period from 2002 to 2021. Results indicate that single-parent families tend to report slightly higher levels of substantial difficulties with quality and availability. Interestingly, it appears that difficulties related to cost are more prevalent among couple-parent families, which may be unexpected. Similarly, differences by location (third) in income distribution are quite small although substantial cost difficulties are most prevalent among those in the middle third of the income distribution.

Comparing across regions (see Box 2.11, page 40), substantial





difficulties with quality are most commonly reported in Sydney, other urban South Australia and the Australian Capital Territory. Substantial difficulties with availability are most commonly reported in Sydney and in all noncapital-city urban areas other than Victoria and New South Wales. Reported substantial difficulties with cost are most common in Sydney (61.8%) and Brisbane (60.7%), about 20 percentage points apart from the lowest percentage reported in other urban Western Australia (39.9%).

#### Persistence of difficulties

Child-care difficulties may be temporary or persistent, and clearly persistent difficulties are of more concern than temporary difficulties that are resolved. Table 2.24 shows, however, that substantial difficulties are quite persistent from one year to the next. The table presents, for households that experienced substantial difficulties in one year, the proportion reporting substantial difficulties in the following year. Results are provided biannually from 2004.

The persistence of any substantial child-care problem is high, with over 80% of households reporting such difficulties. It is noteworthy that this persistence of substantial problems has decreased by 16.8% from 2004-05 to 2018-19 with the lowest decrease observed regarding cost difficulties. However, if we look at the more recent period up to 2020-21, the persistence of

Table 2.24: Persistence of substantial difficulties from one year to the next—Households with children aged under five who have used or thought about using child care, 2004 to 2021 (%)

	2004 and 2005	2006 and 2007	2008 and 2009	2010 and 2011	2012 and 2013	2014 and 2015	2016 and 2017	2018 and 2019	2020 and 2021	Change 2004- 2005 to 2018-2019	Change 2004- 2005 to 2020-2021
Quality	54.6	56.6	50.6	54.6	54.6	55.9	51.7	45.4	42.7	-16.8	-21.8
Availability	83.4	78.4	79.6	79.7	83.6	82.0	79.1	78.3	75.7	-6.1	-9.2
Cost	76.8	78.9	74.3	69.2	79.0	73.0	75.6	75.2	68.7	-2.1	-10.5
Any substantial problem	88.0	86.1	83.2	86.9	89.8	88.2	83.9	86.6	80.2	-16.8	-21.8

substantial problems has actually decreased by 21.8% with a substantial decrease in cost difficulties of 10.5%.

Among the types of problems, availability difficulties are the most persistent, followed by cost difficulties. It is noteworthy that while persistence of substantial difficulties has decreased among all domains, the decrease in cost difficulties is significant (almost five times larger than the decrease observed from 2004-05 to 2018-19).



#### Parenting stress, work-family conflict and satisfaction with family relationships

#### Parents' stress

Although most parents consider their family to be their top priority, they would also acknowledge that, at times, parenting can be a source of stress. This stress may arise from managing both work and family responsibilities, searching for suitable child-care options, attending to the needs of sick or disabled children, dealing with teenagers or adolescents, facing difficulties in blending with stepchildren, having limited time for socialising and leisure activities without the children, or coping with the routine pressures of parenthood.

In each year of the HILDA Survey, individuals with parenting responsibilities for children aged 17 or younger are asked how strongly they agree or disagree with statements related to parenting stress, including: 'Being a parent is harder than I thought it would be and I often feel tired, worn out or exhausted from meeting the needs of my children; I feel trapped by my responsibilities as a parent and I find that taking care of my child is much more work than pleasure'. The response scale runs from 1 (strongly disagree) to 7 (strongly agree).

Figure 2.2 shows how the mean parenting stress score<sup>8</sup> of single



<sup>8</sup> To calculate the Parenting Stress Index, the values of these individual items are summed and then divided by four, so that the scale of the summary measure ranges from 1 (representing strongly disagree) to 7 (representing strongly agree). 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.

Table 2.25: Mean scores of parenting stress by sex and marital status									
	2001	2011	2019	2020	2021				
Being a parent is harder than I thought it would be	Being a parent is harder than I thought it would be								
Single mothers	5.0	4.6	4.7	4.5	4.5				
Partnered mothers	4.4	3.9	4.0	4.0	4.0				
Single fathers	5.0	4.7	4.6	4.6	4.6				
Partnered fathers	4.5	3.6	4.2	4.0	4.0				
Total	4.7	4.3	4.4	4.3	4.3				
I often feel tired, worn out or exhausted from meet	ing the needs of	my children							
Single mothers	4.7	4.4	4.6	4.5	4.4				
Partnered mothers	3.9	3.7	3.8	3.9	3.9				
Single fathers	4.8	4.5	4.7	4.7	4.6				
Partnered fathers	4.5	3.9	3.8	4.0	3.5				
Total	4.3	4.1	4.2	4.2	4.1				
I feel trapped by my responsibilities as a parent									
Single mothers	2.8	2.6	2.9	2.8	2.9				
Partnered mothers	2.7	2.6	2.7	2.8	2.8				
Single fathers	3.0	2.9	3.0	3.1	3.1				
Partnered fathers	3.3	3.3	2.6	3.4	3.0				
Total	2.8	2.7	2.8	2.9	2.9				
I find that taking care of my child/children is much	more work than p	pleasure							
Single mothers	2.9	2.6	2.9	2.9	2.9				
Partnered mothers	2.8	2.7	2.8	2.9	2.9				
Single fathers	3.2	2.8	3.0	2.9	3.0				
Partnered fathers	2.9	2.8	2.6	3.0	3.0				
Total	2.9	2.7	2.9	2.9	2.9				

Table 2.26: Proportion of parents with high levels of parenting stress (5 or more out of 7), by sex and marital status (%)												
	2001	2003	2005	2007	2009	2011	2013	2015	2017	2019	2020	2021
Single mothers	35.7	34.5	35.7	23.6	23.5	24.2	19.6	24.8	27.6	31.4	32.2	30.2
Partnered mothers	27.2	20.1	21.7	16.4	18.2	20.5	15.9	19.8	19.2	26.0	25.3	26.1
Single fathers*	21.5	20.3	20.2	14.9	30.9	16.1	8.3	16.4	31.7	17.3	35.8	17.4
Partnered fathers	16.0	10.3	15.0	9.9	11.1	10.9	10.9	11.0	12.7	14.6	17.5	16.1
Total	23.1	17.1	20.0	14.4	15.4	16.7	13.4	16.2	17.1	21.0	22.5	21.3

Note: \* Estimate not reliable.



parents and parents who have a spouse or partner has changed over time. Except for single fathers, who may not have been adequately represented due to their low numbers in the HILDA Survey, parenting stress has exhibited a comparable trend across all groups, including single mothers, partnered mothers and partnered fathers. Single mothers experience more elevated levels of parenting stress compared to partnered mothers, while partnered mothers still experience a significant degree of stress. On average, the scores for parenting stress have slightly decreased between 2001 and 2021, with the decline being slightly more pronounced for mothers (both single and partnered) compared to partnered fathers.

Table 2.25 provides a breakdown of the Parenting Stress Index into four dimensions for three different time periods: the beginning of the HILDA Survey in 2001, the mid-year of 2011, and the recent years from 2019 to 2021.

Results show that it is much more common for women than men to agree with the statements 'Being a parent is harder than I thought it would be and I often feel tired, worn out or exhausted from meeting the needs of my children'. Compared to mothers who had a spouse or partner, it is more common for single mothers to agree with these statements.

Interestingly, we observed an increase in the mean score reported for these two statements for partnered mothers. Fathers (both single and partnered) also increased their agreement with the feeling tired, worn out and exhausted statement. The uncertainty related to the COVID-19 pandemic, the lockdowns and, more specifically, stay-at-home orders, have led families to spend



# Table 2.27: Proportion of parents reporting levels of parenting stress of 5 or higher out of 7, by age of children, 2021 (%)

	Mothers	Fathers
Younger than 2	32.4	20.6
2-4	37.6	26.7
5-8	32.6	18.7
9–11	26.7	16.3
12-14	20.3	9.9
15–17	16.2	9.1
At least one child under 18	26.8	16.2

*Note*: Parents with more than one child may appear more than once. For example, a parent with a child aged under 2 and a child aged 2-4 will appear in both the first and second rows of the table.

more time together, which could have certainly caused more significant parenting stress.

Similarly, although the proportion of parents who reported strong agreement with the statements, 'I feel trapped by my responsibilities as a parent and I find that taking care of my child/ children is much more work than pleasure' is relatively small, results follow the same pattern of the two previous statements.

Table 2.26 shows the proportion of parents who reported high levels of parenting stress—5 or higher out of 7—between 2001 and 2021 (results reported every alternate year). The proportion of parents reporting high levels of parenting stress decreased considerably between 2001 and 2013, from 23.1% in 2001 to 13.4% in 2013. However, the proportion of parents reporting parenting stress has increased since reaching 22.5% in 2020 and 21.3% in 2021. In 2019, 31.4% of single mothers reported high levels of parenting stress, compared to 26% of partnered mothers; 17.3% of single fathers and only 14.6% of partnered fathers reported high levels of parenting stress. Interestingly, the years 2020 and 2021, which were marked by the COVID-19 pandemic, exhibit similar levels of parenting stress as the previous year, 2019.

Table 2.27 further disaggregates the proportion reporting high levels of parenting stress by the age of the children in 2021. For both mothers and fathers, the proportion reporting high levels of parenting stress was largest among those who had a child between the ages of two and four—37.6% of mothers and 26.7% of fathers. However, in comparison, having younger children (aged two years old and under) is slightly less stressful for both fathers and mothers.

#### Work-family conflict

When both are employed, Australian parents often balance child-rearing with paid work. However, juggling these two domains can often result in workfamily conflict, where the demands of work and family responsibilities clash, leading to difficulty in fulfilling one role due to the demands of the other (Greenhaus and Beutell, 1985). This conflict can occur in both directions, where work demands can interfere with the family role (work-to-family conflict), or family demands can interfere with the work role (family-to-work conflict). Work-family conflict can have negative consequences on individuals' and their family members' wellbeing, as well as their work performance.

This section investigates the trends and correlates of workfamily conflict in Australia. Although work-family conflict is bi-directional, this section focuses exclusively on the negative

#### Box 2.12: 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:

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





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 workfamily conflict on family wellbeing and future employment. The analysis draws on responses to four different statements, administered as part of the selfcompletion questionnaire, that elicit the extent of work-family conflict experienced by parents of children aged under 18 who are in paid work.<sup>9</sup> The responses are used to construct a work-family conflict index (see Box 2.12, page 46), which ranges from 1 ('no conflict at all') to 7 ('highest possible conflict').

Figure 2.3 shows how the mean work-family conflict score of

mothers and fathers has changed over time. In 2001, there was a notable difference in the level of work-family conflict experienced by fathers and mothers. Fathers had an average score of 4.1, while mothers had an average score of 3.5, resulting in a substantial gap of 0.6 points on the 1-7 scale. However, interestingly, workfamily conflict has trended differently for mothers and fathers over time. Fathers' average scores have slightly decreased from 2001 to 2017, whereas those of mothers have increased. This has led to a reduction in the gap between the two groups, which narrowed down to only 0.2 points in 2017. Although data were not collected in 2018 and 2020, the results for 2019 and 2021 indicate a significant drop in the mean work-family conflict scores for both mothers and fathers,

decreasing to 3.6 and 3.7, respectively. This has resulted in a further reduction of the gap to only 0.1 point in 2021.

It may be surprising that fathers have more work-family conflict than mothers, considering that women are often responsible for most household and child-care duties. One might have expected women to struggle more with balancing these duties with paid employment, especially in light of the growth in female employment over the HILDA Survey period (see Table 4.1, page 93). However, this discrepancy could be because fathers generally spend more time in paid employment than mothers, leaving them with less time for family-related responsibilities.

Additionally, it is possible that the nature of the jobs held by mothers and fathers differs in ways that affect their ability to balance work



<sup>9</sup> The analysis includes all people 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 people 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 are therefore excluded.



and family roles. The conditions and demands of a job can either facilitate or hinder the combination of work and family duties, and it is plausible that mothers and fathers have different experiences in this regard.

# Factors associated with work-family conflict

Table 2.28 looks at how different employment and home characteristics are associated with work-family conflict, presenting findings from a linear regression analysis that examines the factors contributing to workfamily conflict, using combined data from 2001 to 2021. Three models are included: the first model covers all parents, while the second and third models investigate the effects separately for mothers and fathers. The analysis takes into account several characteristics of the primary job, such as work schedule, employment status, firm size, occupation and supervisory responsibilities. Additionally, the study considers the total number of working hours across all jobs.

Regarding family-related factors, the models include variables related to a person's marital status, age of their youngest child residing with them at least 50% of the time, and number of resident children. The term 'resident children' refers to those who live with the individual for at least 50% of the time, as explained in Box 2.3 (page 9). The models also incorporate an indicator variable for individuals who only have non-resident children. Additionally, the analysis accounts for variables such as sex (included only in the joint model), age, education level (whether a person has a bachelor's degree or higher), disability status limiting work, 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 two points higher on the 7-point scale. Further, the working schedule is a significant factor that influences how parents experience the effects of work on their family lives. Those with regular evening schedules, rotating shifts, split shifts, on-call duties, irregular shifts and other non-traditional schedules tend to report significantly higher levels of work-family conflict than those on regular daytime schedules.

Table 2.28 shows that selfemployed individuals experience considerably lower levels of work-family conflict compared to employees. This finding could be attributed to the greater autonomy and control that selfemployed individuals have over their work, despite potentially having more responsibilities. As anticipated, those in permanent part-time and fixed-term employment report significantly higher levels of work-family conflict. Additionally, workers in small firms with fewer than 20 workers report lower work-family conflict scores than workers in larger firms.

According to Table 2.28, most occupations have considerably higher conflict scores than managers, with the exception of clerical or administrative workers. However, workers with supervisory responsibilities tend to report higher conflict scores than those without such responsibilities.

The relationship between workfamily conflict and a person's family situation is also noteworthy. Having older resident children is associated with significantly lower levels of workfamily conflict, while an increase in the number of resident children

	All parents	Mothers	Fathers
Weekly working hours in all jobs (Reference category: Less than 15	hours)		
15-24	0.510	0.490	0.208
25-35	0.962	0.930	0.510
35-44	1 282	1 282	0.698
45-54	1.590	1.524	1.050
55 and over	1.992	1.756	1 466
Work schedule main ich (Peference category: Pegular davtime sch		1.100	1.100
Pequilar evening shift	0.208	0 198	0 233
Regular evening sint	0.139	0.138	0.205
Regular hight shift	0.281	0.210	0.200
Solit shift (two distingt pariods each day)	0.281	0.219	0.321
On cell	0.246	0.200	0.302
	0.233	ns	0.312
Irregular schedule	0.117	ns 0.242	0.185
	0.374	0.343	0.444
Employment status (Reference category: Permanent full-time)	0.054	_	
Permanent part-time	0.054	ns	ns
Fixed-term	0.079	ns 0.117	0.060
Casual	ns	-0.117	0.103
Other employees	ns	ns	ns
Self-employed	-0.239	-0.310	-0.212
Unpaid family worker	ns	ns	ns
Firm size (Reference category: Less than 20 workers)	0.070		
20-99 workers	0.072	ns	0.105
100-499 workers	0.107	0.137	0.093
500 workers and more	0.138	0.162	0.116
Occupation (Reference category: Manager)			
Professional	0.077	0.059	0.055
Technician or trades worker	0.089	0.124	0.083
Community or personal service worker	0.098	ns	0.168
Clerical or administrative worker	-0.051	-0.121	ns
Sales worker	0.141	0.108	0.170
Machinery operator or driver	0.201	-0.195	0.209
Labourer	0.131	ns	0.142
las supervisory responsibilities	0.141	0.173	0.114
Male	-0.190		
Age	-0.008	-0.003	-0.013
Single parent	0.270	0.312	
Age of youngest own resident child (Reference category: 0-4)			
5-11	0.067	0.150	ns
12-17	-0.139	-0.117	-0.148
Number of own resident children (Reference category: One child)			
Two children	0.140	0.150	0.137
Three or more children	0.332	0.372	0.314
Educational attainment of a bachelor's degree or higher	0.153	0.193	0.104
Work-limiting disability	0.398	0.441	0.317
Year (Reference category: 2001)			
2019	-0.099	ns	-0.143
2021	-0.240	-0.208	-0.288
Constant	2.634	2.376	3.290
Number of observations (bouseholds)	54.815	26,480	28.335

*Notes*: The table presents coefficient estimates from ordinary least squares regression models of the level of work-family conflict (measured on a 1–7 scale). The models contain an indicator (not reported) equal to 1 if firm size is missing. The model includes year dummies but only years 2019 and 2021 are reported in the table. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

is linked to higher conflict scores. Single parents report higher conflict scores than those who live with a partner, suggesting that sharing child-care responsibilities with a partner can mitigate work-family conflict.

Additionally, workers with higher educational attainment tend to experience significantly higher conflict scores than those with lower levels of education, while those with work-limiting disabilities report higher conflict levels than those without such disabilities.

Finally, after controlling for other job and worker characteristics, fathers have significantly lower work-family conflict scores than mothers, which contradicts the findings illustrated in Figure 2.2 where fathers reported 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.

Results further indicate that work-family conflict has decreased significantly since 2001. Notably, in 2019, there was already a significant reduction in scores compared to previous years, with a 0.1 point decrease on the 1-7 scale. However, in 2021, the mean score decreased even further by 0.24 points. These findings may be attributed to the effects of the COVID-19 pandemic and the accompanying changes in labour market flexibility, which allowed individuals to better balance their work and family responsibilities.

Comparing the impact of the different characteristics separately for mothers (second model) and fathers (third model) reveals some notable sex differences. Mothers with a youngest child aged five to 11 experience significantly higher work-family conflict than those whose youngest child is aged under four, while this is not the case for fathers. Also, being a single mother is linked to significantly increased workfamily conflict compared to being in a couple, while there is



no statistically significant difference between single and coupled fathers.

Working a regular night shift, being on call or having irregular schedules significantly increases fathers', but not mothers', workfamily conflict scores. Moreover, being a casual employee decreases mothers' but increases fathers' work-family conflict scores. This difference in the impact of casual employment on work-family conflict for mothers and fathers could be due to differences in gender roles and expectations, as well as differences in the types of jobs that men and women typically have as casual workers. For example, for mothers, being employed as a casual worker reduces work-family conflict scores, which may be because they have more flexibility and control over their working hours compared to permanent parttime or full-time employees. There are also several differences with respect to occupationspecific effects.

# The distribution of work-family conflict within couples

Balancing work demands with family responsibilities can have a significant impact, not only on an individual's wellbeing, but also on their relationships and family as a whole. This section examines the work-family conflict levels of both parents in four types of dual-earner couples. These couples include heterosexual couples where: i) both parents have low work-family conflict levels; ii) the mother has high levels of work-family conflict while the father does not; iii) the father has high levels of workfamily conflict while the mother does not; and iv) both parents have high levels of work-family conflict. To determine 'high' conflict levels, the study uses a score of more than 4, which is



above the mid-point of the scale and the average scores of both men and women.

Figure 2.4 shows the prevalence of these four types of couples across time. The average shares are shown for three-year periods until 2015, a two-year period for 2016-2017, and a one-year period for 2019 and 2021, as no information was collected in 2018 or 2020.

In 2001–2003, in 57.7% of couples both parents experienced low work-family conflict, in 21.6% of couples only the father experienced high conflict, in 12.5% of couples only the mother experienced high conflict, and in 8.3% of couples both parents experienced high levels of conflict.

Looking at trends, the proportion of couples experiencing low workfamily conflict has shown a slight upward trend over time. Specifically, the share of couples with low conflict increased from 57.7% during 2001-2003 to 62.3% in 2019, and then further increased to 65.6% in 2021. This may be indicative that more couples are successfully managing their work and family responsibilities. Further, the share of couples in which only the father experiences high levels of conflict has decreased, from 21.6% in 2001-2003 to 15.6% in 2021. In contrast, the share of couples in which only the mother experiences high levels of conflict has slightly increased. These two trends are in line with the trends found in Figure 2.3. Over the years, the percentage of couples in which both parents experience high conflict decreased from 8.3% in 2001-2003 to 5.9% in 2007-2009. but then it started to increase, reaching 9.4% in 2019.

# Table 2.29: Mean satisfaction with family relationships and life overall, by work-family conflict category—Working parents with children aged under 18, 2001 to 2021 (pooled) (0-10 scale)

	Relationship with partner		Relationship with children		Partner's relationship with children		Life overall	
	Father	Mother	Father	Mother	Father	Mother	Father	Mother
Neither high conflict	8.3	8.1	8.7	8.7	8.8	8.3	8.0	8.1
Only father high conflict	7.8	7.7	8.2	8.6	8.4	8.0	7.5	7.9
Only mother high conflict	7.9	7.4	8.3	8.2	8.4	7.8	7.8	7.5
Both high conflict	7.7	7.5	8.2	8.4	8.3	7.8	7.4	7.5
All couples	8.2	7.8	8.5	8.6	8.6	8.0	7.8	7.8

However, in 2021, the percentage dropped down to 5.5%. This suggests that while the prevalence of high work-family conflict among both parents was increasing, it decreased during the COVID-19 pandemic period. The decrease in this type of conflict may be attributed to the introduction of flexible working arrangements and other support measures that allowed parents to better balance their work and family responsibilities.

Among almost half 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 workfamily conflict.

Table 2.29 presents mean satisfaction scores with a range of family relationships as well as with life in general, all measured on a scale from 0 (completely dissatisfied) to 10 (completely satisfied). The results show that both mothers and fathers report higher levels of satisfaction in all

aspects of family life and overall life satisfaction when both partners experience low workfamily conflict. On the other hand, when at least one partner experiences high work-family conflict, there is a decrease in family and life satisfaction for both partners. For instance, fathers in couples where both partners experience low conflict report an average satisfaction score of 8.3 for their relationship with their partner. However, this score drops to 7.8 when only the father experiences high conflict, to 7.9 when only the mother experiences high conflict, and to 7.7 when both partners experience high conflict.



# 3



# Household economic wellbeing

Roger Wilkins

The HILDA Survey has, since its inception, placed considerable emphasis on measuring and understanding the drivers of economic wellbeing of Australians. Most important to this effort has been the annual measurement of household incomes via a detailed set of questions, asked of each household member aged 15 and over.

The HILDA Survey also regularly collects data on household expenditure and wealth, which are important complements to income data in obtaining a complete picture of economic wellbeing. Further, information is regularly collected on the experience of financial stress, the ability to raise funds at short notice, experience of material deprivation, perceived adequacy of household income, saving habits, saving horizon, attitudes to financial risk and satisfaction with one's financial situation.

This chapter examines the evolution and dynamics of economic wellbeing in Australia from a number of perspectives, considering not only household incomes, but also experiences of financial stress and housing stress. An important theme in this year's report is how things changed in 2020 and 2021 with the onset of the COVID-19 pandemic.

# 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 54) are presented in Table 3.1. For this table, the household is the unit of observation, meaning that each household contributes one 'observation' to the calculation of the mean and the median.

Mean and median household disposable incomes grew very strongly over the eight-year period from 2001 to 2009. Expressed at December 2021 prices, the mean increased by \$21,020, or \$2,628 per year; the median increased by \$20,877 over the same period. Most of this growth in fact occurred between 2003 and 2009, when both the mean and median grew by over \$3,000 per year. Between 2009 and 2018, growth in both the mean and median was much weaker. Over the nine years from 2009 to 2018, the mean household income grew by only \$2,953, or 3%, while the median in 2018 was \$694 lower than in 2009 (having fallen between 2009 and 2011, risen in 2012, and remained broadly unchanged thereafter). Since 2018, there has been stronger growth in mean and median incomes, with the mean rising by \$6,941 and the median rising by \$6,418. However, at least some of the growth between 2019 and 2021 is attributable to government income supports introduced in response to the COVID-19 pandemic in 2020 and 2021 and therefore may not persist into future years.

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 54, for an explanation of how equivalised

#### 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<sup>a</sup> 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 the price level prevailing in the December quarter of 2021 (referred to as 'December 2021 prices'), to give real 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, superannuation, 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.

<sup>a</sup> Following the ABS practice in its Survey of Income and Housing (2017), Commonwealth Rent Assistance is included as income, despite being a rental subsidy. Note that this approach is inconsistent with the Canberra Group's recommendation (United Nations, 2011).

#### 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 gender 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 primarily 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 three-bedroom flat is typically less than three times the rent on an otherwise comparable one-bedroom flat) and that children require less than adults. The equivalised income calculated for a household is then assigned to each member of the household, the implicit assumption being that all household members experience the same standard of living (which will, of course, not always be the case-particularly in households containing unrelated people).

#### 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- and middle-income levels are described by the mean and median, respectively, 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.

income is calculated and Box 3.3, below, for an explanation of the statistics presented in the table). The individual is the unit of observation, meaning the statistics presented are for the distribution of equivalised incomes across all individuals in the population, including children.

Patterns in average level of income between 2001 and 2021 evident for incomes of households are also evident for equivalised incomes of individuals. This is unsurprising given that changes in household composition of the population between 2001 and 2021 have been relatively modest (see Table 2.1, page 8).

The HILDA Survey indicates that there was little net change in income inequality between 2001 and 2019. For example, the Gini coefficient, a common measure of overall inequality, remained between 0.29 and 0.31 over the entire 19-year period. However, in 2020, the first year affected by the COVID-19 pandemic, there was a marked decline in inequality. This was despite only the last three-and-a-half months of the financial year ending 30 June 2020 potentially affected that is, mid-March to 30 June 2020. (See Box 5.2, page 112, for a brief timeline of the pandemic and associated public health measures.) Indeed, the Gini coefficient decreased from 0.304 in 2019 to 0.289 in 2020, the lowest level ever recorded by the HILDA Survey, albeit by a slim margin. The Gini coefficient subsequently increased in 2021, but remained lower than it had been pre-pandemic.



Table 3.1: Household annual disposable incomes, 2001 to 2021								
	Mean (\$, December 2021 prices)	Median (\$, December 2021 prices)	Number of households	Number of people				
2001	76,997	66,130	7,281,363	18,824,376				
2002	77,957	67,527	7,357,079	19,039,091				
2003	77,825	67,625	7,433,836	19,258,412				
2004	80,708	70,014	7,505,561	19,468,320				
2005	84,585	73,381	7,589,921	19,714,410				
2006	88,712	76,065	7,686,360	20,013,530				
2007	92,321	79,750	7,836,760	20,382,461				
2008	94,842	81,568	8,009,920	20,809,743				
2009	98,017	87,007	8,175,735	21,216,949				
2010	97,724	84,219	8,298,875	21,521,079				
2011	98,536	82,485	8,413,537	21,834,344				
2012	100,145	86,482	8,578,027	22,221,454				
2013	100,845	86,006	8,737,151	22,594,836				
2014	100,206	85,042	8,882,149	22,929,926				
2015	99,712	84,598	9,028,432	23,266,630				
2016	99,925	85,914	9,191,836	23,654,441				
2017	100,641	85,478	9,354,414	24,037,854				
2018	100,970	86,313	9,517,235	24,408,731				
2019	104,246	87,650	9,679,825	24,773,692				
2020	105,350	90,099	9,776,882	24,963,685				
2021	107,911	92,731	9,815,896	25,022,848				



Table 3.2: Distribution of individuals' household equivalised income, 2001 to 2021								
	Mean (\$, December 2021 prices)	Median (\$, December 2021 prices)	Ratio of 90th percentile to the median	Ratio of median to the 10th percentile	Gini coefficient			
2001	45,566	40,117	1.93	2.11	0.306			
2002	46,100	40,873	1.89	2.09	0.300			
2003	46,154	41,047	1.86	2.09	0.298			
2004	47,648	42,825	1.83	2.12	0.294			
2005	49,909	44,470	1.86	2.08	0.294			
2006	52,117	45,569	1.94	2.04	0.298			
2007	54,870	48,555	1.90	2.16	0.306			
2008	55,798	48,865	1.91	2.16	0.306			
2009	58,150	52,294	1.83	2.19	0.294			
2010	57,520	50,611	1.91	2.12	0.304			
2011	58,173	50,385	1.99	2.12	0.311			
2012	59,095	51,795	1.91	2.05	0.301			
2013	59,478	51,827	1.92	2.04	0.303			
2014	59,195	51,825	1.92	2.00	0.301			
2015	59,175	51,831	1.92	2.00	0.297			
2016	59,296	52,019	1.88	2.01	0.296			
2017	59,780	51,826	1.91	2.03	0.303			
2018	60,121	52,830	1.92	2.06	0.300			
2019	62,155	54,820	1.87	2.11	0.304			
2020	62,988	55,933	1.86	2.00	0.289			
2021	64,821	57,966	1.83	2.08	0.295			

#### Income differences by family type

Figure 3.1 compares median equivalised incomes across family types (defined in Box 3.4, opposite). A reasonably consistent ordering by type of family is evident across the 20 years of the survey, ranging from older people at the bottom to non-elderly couples without dependent children at the top. It also appears that there are three broad 'clusters' of family type: nonelderly couples without dependent children, who have the highest incomes; couples with dependent children and nonelderly single people, who have middle-level incomes; and singleparent families and older people, who have low incomes. All family types have exhibited growth in median incomes between 2001 and 2021, with non-elderly couples without children faring somewhat better than other family types.



#### Box 3.4: Family types

The following eight family types are distinguished in this report: (1) non-elderly couple, defined to be a couple (married or de facto) without dependent children with at least one member of the couple under 65 years of age; (2) couple with at least one dependent child living with them (regardless of the ages of the members of the couple); (3) single parent living with at least one dependent child (again, regardless of the age of the single parent); (4) non-elderly (aged under 65) single male; (5) non-elderly single female; (6) older couple, where both people are over 65 years of age; (7) older (aged 65 and over) single male; and (8) older (aged 65 and over) single female. In some analysis, only four family types are distinguished: (1) couple without dependent children; (2) couple with dependent children; (3) single parent with dependent children; and (4) single person.

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 nonelderly 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.



#### Figure 3.1: Median equivalised income, by family type

# Income differences by region

Figure 3.2 compares mean equivalised incomes over the 2001 to 2021 period across the five mainland capital cities as well as the combined rest of Australia (see Box 2.11, page 40).

Mean incomes are considerably higher in the mainland capital cities than in the other regions, with the notable exception of Adelaide, which consistently has a similar mean income to the combined rest of Australia. The mean income in Perth surged between 2010 and 2014, giving the city the highest mean income of the mainland capital cities, but its mean income fell between 2014 and 2016 and in 2021 was similar to that of Sydney, Melbourne and Brisbane.

#### Effects of government income taxes and transfers on household incomes

Government income taxes and benefits substantially impact the incomes households have available for consumption and saving. Figure 3.3 provides an indication of these impacts, presenting the Gini coefficient for







income before government benefits are received and income taxes are paid ('private' income), income after government benefits are received but before income taxes (gross income) and income after government benefits and income taxes (disposable income). The difference in the Gini coefficient between private and gross income reflects the effects of government benefits, while the difference between gross income and disposable income reflects the effects of income taxes.

## Box 3.5: Additional income supports introduced in response to the COVID-19 crisis

In the face of the shutdown of a significant share of the economy as a result of the COVID-19 pandemic in March 2020 and in the months following the Australian Government announced a series of fiscal measures to protect the economic wellbeing of the Australian community. The largest of these measures was the JobKeeper Payment, which was paid to employers and the self-employed (see Box 3.6, below). However, several important measures in respect of the income support (welfare) system were also introduced, including the **Economic Support** Payment and the Coronavirus Supplement. The Economic Support Payment was a \$750 payment in March 2020 and July 2020 to recipients of social security and veterans' payments, Family Tax Benefit and Farm Household Allowance as well as holders of certain concession cards. The Coronavirus Supplement was a fortnightly supplement payable to recipients of JobSeeker Payment, Parenting Payment, Youth Allowance and various other income support payments. It was \$550 from 27 April 2020 to 24 September 2020, \$250 from 25 September 2020 to 31 December 2020, and \$150 from 1 January 2021 to 31 March 2021, after which it ceased. From 25 March 2020 to 31 March 2021, eligibility criteria for various payments were also temporarily relaxed, which expanded the number of people who were eligible for payments. This included waiving the assets test and various waiting periods, relaxing the partner income test and extending eligibility for JobSeeker Payment and Youth Allowance to the self-employed and permanent employees who had been stood down or lost their iob. Note also that, throughout 2020 and 2021, various other federal and state government income supports were periodically introduced, such as the COVID-19 Disaster Payment, which was in place in the second half of 2021.

#### Box 3.6: JobKeeper Payment

The JobKeeper Payment, introduced by the Australian Government on 30 March 2020 in response to the COVID-19 pandemic, was a wage subsidy and income support program of unprecedented scale, with a total cost in excess of \$100 billion. In the first phase of the scheme, most employers significantly affected by the pandemic were eligible for \$1,500 per fortnight for each of their employees who was employed on 1 March 2020. Employees on temporary migrant visas and casual employees who had been with the employer for less than 12 months were excluded from the scheme. Employees were required to fully pass the payments through to employees. The self-employed were also eligible for the scheme.<sup>a</sup>

From 3 August 2020 the scheme was extended to adversely impacted employers in respect of employees employed on 1 July 2020. From 28 September 2020 two payment tiers were introduced, the upper tier payable for employees usually working at least 20 hours per week and the lower tier payable for employees usually working fewer than 20 hours per week. From 28 September 2020 to 3 January 2021, the upper tier was \$1,200 per fortnight and the lower tier was \$750 per fortnight. From 4 January until 28 March 2021, when the scheme was wound up, the upper tier was \$1,000 per fortnight and the lower tier was \$650 per fortnight.

In total, the scheme was in operation for 26 fortnights of which 11 were at the \$1,500 payment level, nine were at the \$1,200/\$750 level and six were at the \$1,000/\$650 level. Thus, the maximum JobKeeper payable in respect of a single employee was \$33,300 for those usually working at least 20 hours per week and \$27,150 for those usually working fewer than 20 hours per week. The financial year ending 30 June 2020 contained the first 92 days of the JobKeeper scheme, implying up to \$9,857 was paid per eligible employee in the 2019 to 2020 financial year, with the remainder paid in the financial year ending 30 June 2021.

For more details about the JobKeeper scheme, see Treasury (2021).

<sup>a</sup> Treasury (2020) shows why the scheme was a hybrid wage subsidy and income transfer program. Essentially, the payment represented an income transfer to the extent it was not subsidising wages normally payable for the hours worked. For example, it represented an income transfer for stood down employees (who were not working), but a wage subsidy for workers who continued working and did not experience an increase in employment income due to the payment. For workers who continued working and experienced an increase in employment income due to the payment, it represented a combination of a wage subsidy and an income transfer.



It is important to emphasise, however, that this is not the 'true' impact of income taxes and benefits on household incomes, because people are likely to behave differently if their private incomes are not taxed and the government does not pay any benefits. For example, it is likely that some people would increase their labour market participation. Nonetheless, it is valuable to measure the scale of government intervention in household incomes via income taxes and benefits, and to consider how the extent to which it redistributes income has changed over time.

Figure 3.3 shows that income taxes and benefits reduce income inequality, although the extent to

which they do this has diminished somewhat since the beginning of this century. Income taxes and government benefits reduced the Gini coefficient by 0.153 in 2001, but by 0.139 in 2021. The effect on the Gini coefficient in 2020 and 2021 was in fact slightly larger than in the years immediately preceding the COVID-19 pandemic, reflecting the impacts of additional income supports introduced in 2020 and 2021 (see Box 3.5, page 58).

# Average income tax rates since 2001

An individual's average tax rate is the proportion of their total income that is paid in income tax. Australia has a progressive income tax system, meaning that the marginal tax rate is higher on higher incomes. A consequence of this is that the average tax rate is higher, the higher one's income. Figure 3.4 shows this is indeed the case, presenting the average tax rate of each decile of the distribution of personal gross income in each year between 2001 and 2021. For example, in 2021, the average tax rate of those in the top decile was approximately 28%, compared with approximately zero in the second and third deciles, and a negative average tax rate among those in the bottom decile (due to tax credits). Note that gross income includes non-taxable income (some benefits,



superannuation in retirement, as well as deductions) and also note that capital gains, and tax on capital gains, are not captured. Also note this is the average tax rate, not the share of income paid in tax (that is, equal weight is given to each person, not each dollar).

In terms of trends over the period from 2001 to 2021, up until 2006, the average tax rate across all adults was approximately 11%. The average tax rate then declined over subsequent years, reaching a low of 8.5% in 2011 before gradually edging upwards until 2020, when it reached 10.5%. There was then a slight decline in 2021. This pattern is broadly evident in each of the top six deciles (deciles five to 10). The top decile had an average tax

Figure 3.4: Average personal income tax rates of individuals aged 18 and over, by decile of the distribution of personal gross income



*Notes:* People with zero or negative personal gross incomes are excluded. Each year, between 2.5% and 3.3% of people aged 18 and over report zero or negative personal income. Most of these people have zero income.

rate in excess of 30% in 2003 and 2004 before falling to 25.2% in 2011, then slowly rising to 28.8% in 2020, and dropping in 2021 to 27.6%.

The evolution of average tax rates disaggregated by sex and age group is shown in Figure 3.5. For both males and females, average tax rates are highest for people in the prime working-age years of 25 to 54, while they are lowest for people aged 65 and over. This largely reflects differences in income levels across age groups, although tax concessions available to retirees also contribute to the low average tax rates of those aged over 65. Notably, the average tax rate for people aged 55 to 64 has risen substantially since 2010, reflecting increased employment participation of this age group. By contrast, the average tax rate of people aged 15 to 24 declined considerably, from 9.3% in 2006 to 4.3% in 2014, and has since





Household economic wellbeing

only increased slightly. To a significant extent, this reflects the nature of the changes to the income tax schedule, which reduced income tax payable by relatively low-income earners. However, also potentially contributing was a reduction in the rate of full-time employment in this age group, itself partly due to increased participation in postschool education.

While patterns are similar for males and females, average tax rates are lower for females than males in all age groups, reflecting their lower personal incomes. Differences across age groups are also smaller for females, reflecting smaller differences in personal incomes.

#### Income mobility and income changes

Table 3.3 takes advantage of the longitudinal information from the HILDA Survey to examine income mobility over the short to medium term. The upper panel examines the mean absolute change in percentile rank, noting that the maximum possible change is 100 (moving from the

#### Table 3.3: Movements of individuals in the income distribution Initial years 2001-2007 2008-2014ª 2015-2020<sup>b</sup> Mean absolute change in percentile rank 12.4 Over 2 years 11.8 11.5 18.3 17.7 17.8 Over 5 years Over 10 years 21.8 21.8 Proportion of those in the bottom quintile remaining in the bottom quintile (%) 68.0 69.0 69.3 For 2 years For 5 years 38.5 39.5 39.2 22.8 23.3 For 10 years

Notes: a Ten-year changes are for initial years 2008 to 2011 only.  $^{\rm b}$  Five-year changes are for initial years 2015 and 2016 only.

bottom percentile to the top percentile, or vice versa). The lower panel examines persistence in the bottom quintile, showing the proportion of people in the bottom quintile who remain in that quintile.

Both mobility measures are examined over three timeframes—two years, five years and 10 years—and for three subperiods of the 2001 to 2021 period based on the initial year in which income is measured—2001 to 2007, 2008 to 2014 and 2015 to 2020.

The estimates for the three time periods show that short-term income mobility has reduced slightly this century. The mean absolute change in percentile rank from one year to the next was highest in the 2001 to 2007 period, at 12.4, and lowest in the 2015 to 2020 period, at 11.5. This pattern is evident for mediumterm (five-year) income mobility comparing 2001 to 2007 with 2008 to 2014, but medium-term mobility was similar in the 2015 to 2020 and 2008 to 2014 periods. For long-term (10-year) income mobility, there is no change in mobility evident.

Persistence in the bottom quintile appears to have remained relatively stable at about 68% to 69% over two years, approximately 39% over five years and about 23% over 10 years.

The characteristics associated with persistently low income are



successive years)	All people aged 15 and over	People aged 15 and over initially in the bottom quintile
Family type (Reference category: Non-elderly couple)		
Couple with dependent children	0.016	ns
Single parent	0.068	ns
Single non-elderly male	0.031	ns
Single non-elderly female	0.038	ns
Older couple	0.040	0.089
Single older male	0.055	0.095
Single older female	0.055	0.061
Age group (Reference category: 35–44)		
15-24	-0.024	-0.119
25-34	-0.008	ns
45-54	0.013	0.067
55-64	0.047	0.130
65-74	0.094	0.195
75 and over	0.119	0.205
Region (Reference category: Sydney)		
Other urban New South Wales	0.010	ns
Non-urban New South Wales	ns	-0.072
Melbourne	-0.008	-0.026
Other urban Victoria	0.016	ns
Non-urban Victoria	ns	-0.072
Brisbane	-0.018	-0.071
Other urban Queensland	ns	-0.072
Non-urban Queensland	0.012	-0.066
Adelaide	ns	ns
Other South Australia	0.032	ns
Perth	-0.016	-0.043
Other Western Australia	0.011	ns
Tasmania	0.034	0.052
Northern Territory	-0.069	-0.180
Australian Capital Territory	-0.084	-0.158
Moderate or severe disability	0.054	0.094
In poor mental health	0.021	0.031
In poor general health	0.018	0.045
Educational attainment (Reference category: Less than high-school completion)		
Bachelor's degree or higher	-0.087	-0.153
Other post-school qualification	-0.045	-0.082
High-school completion	-0.032	-0.061
Start year of 5-year period (Reference category: 2001 to 2003)		
2004 to 2006	ns	ns
2007 to 2009	ns	-0.029
2010 to 2012	ns	ns
2013 to 2015	ns	ns
2016 to 2017	ns	-0.017
Number of observations	199,210	41,579

Table 3.4: Factors associated with persistently low income (located in the bottom quintile for five successive years)

*Notes*: Estimates are mean marginal effects from a Probit model of the probability of being in the bottom income quintile for five successive years. See the Technical Appendix for further explanation of Probit models. The sample period is 2001 to 2021. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

considered in Table 3.4, which presents mean marginal effects estimates of the probability of remaining in the bottom quintile for five successive years. Results from two models are presented, the first estimated on all people and the second only on those initially in the bottom quintile. The former provides estimates of the effects of characteristics on the probability of being persistently in the bottom quintile. The latter provides estimates of the effects of characteristics on the likelihood of being persistently in the bottom quintile given you have entered the bottom quintile.

Non-elderly couples, with or without dependent children, have lower probabilities of persistent low income than people in other family types (as indicated by the estimates being positive and larger than for couples with dependent children for all other family types). However, conditional on being in the bottom quintile, there are no significant differences in the probability of persistent low income across the non-elderly family types, with older single people and older couples having a higher probability of persistent low incomes. Comparisons across age groups show persistent low income is more likely the older the age group, both unconditionally and conditional on initially being in the bottom quintile.

Comparing across regions, persistent low income is most likely in Tasmania and South Australia outside of Adelaide, and least likely in the two territories. Conditional on initially being in the bottom quintile, persistent low income is also least likely in the two territories, and is most likely in Tasmania.

Disability, poor mental health and poor general health are all



associated with persistent low income, as is low educational attainment. The likelihood of persistent low income does not significantly differ across the HILDA Survey period, but conditional on initially having low incomes, persistence of low incomes was lower for those initially in the bottom quintile in 2007 to 2009 and 2016 to 2017.

#### Income dynamics linked to partnering and parenting changes

Changes in family circumstances can precipitate changes in household equivalised income, not only because they may result in the gain or loss of income earners, but also because they can be associated with changes in how much existing household members earn and they can also affect the number of people depending on the household income (thereby impacting *equivalised* income even with no change in total income).

Table 3.5 briefly considers the association between changes in partner and parenting status and changes in equivalised income. The top panel examines changes in partner status, the middle panel changes in parent status (whether a parent of a dependent child), and the bottom panel examines changes in partner status for female parents of dependent children.<sup>1</sup>

Overall, changing from partnered to single has considerably more adverse effects on equivalised income for females than males, on average reducing income by at least 16.7%. Conversely, partnering has considerably more positive effects on income for women than men. This is likely to be linked to the greater employment earnings of men compared with women, and the (related) fact that unpartnered women are more likely to have care of dependent children than unpartnered men. Interestingly. however, while men on average experienced an increase in income when moving from partnered to single of 10.8% in the 2001 to 2007 period, this reduced to 6.8% in the 2008 to 2014 period, and -0.2% in the 2015 to 2021 period. This is likely to reflect growth in the importance of women's contribution to household incomes over the two decades.

For both men and women, becoming a parent of a dependent child is associated with a 10% to 15% decline in household equivalised income. Ceasing to be a parent of dependent children is associated with a greater average increase in

<sup>1</sup> Relatively few male parents with dependent children experience a change in partner status (while remaining a parent with dependent children), so sample sizes in the HILDA Survey are not large enough to produce statistically reliable estimates.

	M	len	Women		
	Mean income (initial year)	Mean change in income (%)	Mean income (initial year)	Mean change in income (%)	
Changes in partner status					
Partnered to single					
2001-2007	50,951	10.8	43,870	-17.1	
2008-2014	57,784	6.8	55,318	-20.6	
2015-2021	61,236	-0.2	55,127	-16.7	
Single to partnered					
2001-2007	57,639	1.2	46,041	20.2	
2008-2014	65,651	-1.7	55,061	15.3	
2015-2021	68,475	-1.6	58,297	15.4	
Changes in parent status <sup>a</sup>					
Non-parent to parent					
2001-2007	61,699	-12.1	59,040	-9.9	
2008-2014	75,123	-14.1	72,039	-12.5	
2015-2021	77,956	-14.4	76,202	-13.1	
Parent to non-parent					
2001-2007	52,283	15.2	51,210	8.0	
2008-2014	59,558	10.9	56,649	6.2	
2015-2021	64,316	12.0	62,287	8.6	
Changes in partner status for mothers of d	ependent children				
Partnered mother to single mother					
2001-2007	-	-	40,719	-21.1	
2008-2014	-	-	49,469	-19.9	
2015-2021	-	-	51,240	-19.0	
Single mother to partnered mother					
2001-2007	-	-	33,418	28.5	
2008-2014	-	-	42,295	22.4	
2015-2021	-	_	42,309	25.1	

Table 3.5: Changes in equivalised income associated with partner and parent status changes, 2001 to 2021

Note: <sup>a</sup> Parent of dependent children.

income for men than women, a difference that will be driven by the experiences of single mothers (and perhaps also single fathers).

Average income changes associated with changes in partner status for mothers of dependent children tend to be larger than for any of the other partner and parent changes examined in Table 3.5. The change from partnered mother to single mother is associated with an approximate 20% decline in equivalised income, while the change from single mother to partnered mother is associated with a 22.4% to 28.5% increase, depending on the period.



#### Longer-term incomes

Figure 3.6 examines inequality of income measured over five years. For each five-year period available in the data (for example, 2001 to 2005, 2002 to 2006, and so on), 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 longerterm inequality.

The figure shows that 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. The Gini coefficient for five-year income increased by approximately 4.1% between 2002-2006 and 2013-2017, but has since fallen by approximately 3.2%. This rise and then fall in inequality in five-year income contrasts with the finding of little change in inequality of one-year income since 2001 and reflects the fact that inequality of fiveyear income is affected by the extent to which people move up and down the income distribution from one year to the next.



#### Table 3.6: Distribution of income measured over 21 years Mean Median Ratio of 90th Ratio of Average of (\$, December (\$, December percentile to median to the Gini 1-year Gini 2021 prices) 2021 prices) coefficient coefficient the median 10th percentile All people 1,198,218 1,105,873 1.62 1.80 0.239 0.300 People aged 25-34 in 2001 1,269,277 1,175,225 1.52 1.64 0.213 0.273 People aged 35-44 in 2001 1,303,524 1,230,456 1.60 1.82 0.225 0.283

#### 66\_

The greater is mobility in incomes, the lower will be fiveyear income inequality relative to one-year income inequality.

Thus, while the increase in income stability from year to year up to the 2013-2017 period was a positive development for people with high incomes, this was not a good development for people with low incomes, since they are more likely to have *persistently* low incomes. From this perspective, the recent decline in inequality of five-year income is a welcome development. However, it remains to be seen if this is simply a temporary effect of the COVID-19 pandemic.

The distribution of total equivalised income received over the full 21-year history of the HILDA Survey is examined in Table 3.6, which presents the same distributional statistics presented in Table 3.2 for one-year income. The top row examines all people resident in Australia for the entire 21 years, while the bottom two rows focus on two cohorts: those aged 25 to 34 in 2001 (born 1967 to 1976) and those aged 35 to 44 in 2001 (born 1957 to 1966). For both of these cohorts, estimates apply to those living in Australia for the entire 21-year period. Both of these cohorts were of working age for the entire 21-year period.

Overall, the mean equivalised 21-year income is \$1,198,218 (at December 2021 prices), while the median is \$1,105,873. The Gini coefficient is 0.239, compared with the average one-year value of 0.3. For the two birth cohorts, we see higher mean and median incomes, but overall lower inequality within each cohort. Lower inequality is to be expected because inequality attributable to different lifecycle stages is largely eliminated when examining specific birth cohorts. Comparing the two cohorts, the older group has higher mean and median incomes, and also higher inequality than the younger group.

#### Income poverty

A wide variety of definitions or measures of poverty, or material deprivation, have been employed by economic and social researchers. As in previous volumes of this report, we examine two measures commonly applied to the study of poverty in developed countries, both of which conceive of poverty as *relative* deprivation or socioeconomic disadvantage, and which measure deprivation in terms of inadequacy of *income* (see Box 3.7, below). Consistent



#### Box 3.7: Relative 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 (OECD, 2019). In this report, we apply two alternative definitions of relative poverty. Under the first definition, a person is in relative income poverty if household equivalised income is less than 50% of the median household equivalised income. The second measure is similarly defined, but relates to income net of housing costs —that is, income after deducting housing costs.

The 'after-housing' poverty measure addresses a criticism of the measure based on total income—that it does not take into account the potentially large variation in housing costs across people, leading some people with low housing costs to be classified as poor, when they are not, and others with high housing costs to be classified as not poor, when in fact they have very little left over after paying for their housing. Most important in this regard is that many home owners (particularly those with little or no mortgage debt) have low housing costs, while renters often have high housing costs. An approach for addressing this criticism is to examine income net of housing costs—that is, income after deducting mortgage or rent payments on the home. For example, this is the approach favoured by the Australian Council of Social Service and the Social Policy Research Centre at the University of New South Wales in their two-yearly poverty report (Davidson et al., 2020).

Note that, while the after-housing measure addresses the issue of variation in housing costs across people, it has its own problems. First, housing costs are, like expenditures on all goods and services, the outcome of *choices* made by individuals. To the extent that some people choose to have high housing costs, we may classify people as poor who are not in fact poor—that is, some people may choose to spend a lot on housing, despite having available lower-cost (but still adequate) housing. Indeed, part of the amenity associated with higher expenditure on housing may be lower expenditure requirements for other items, such as transport.

A second problem is that the OECD equivalence scale used to adjust household incomes for household composition (see Box 3.2, page 54) is intended to apply to total income, not income after deduction of housing costs. A significant part of the economies of scale of households that underpin the OECD scale derive from sharing housing costs among household members. It is therefore likely that poverty is relatively overestimated among smaller households and underestimated among larger households when examining after-housing poverty—that is, the downward adjustment of the incomes of larger households is too small when applying the OECD scale to after-housing income. For this reason, in this year's report, poverty estimates for after-housing income are also produced using an equivalence scale that reduces the economies of scale. Essentially, the assumed economies of scale are halved for people aged 15 and over, while the income 'burden' of children aged under 15 is maintained at 60% of a person aged 15 and over. This means that total household income is divided by 1 plus 0.75 (instead of 0.5) for each person aged 15 and over after the first, plus 0.45 (instead of 0.3) for each child aged under 15.

This alternative equivalence scale provides an indication of how inferences are affected by taking into account the lower economies of scale available for after-housing-costs income, but note that further research is required to determine the appropriate scale for this income measure. Nonetheless, it is notable that the poverty measure that uses this equivalence scale produces results consistent with other indicators of financial resources, such as the measure of financial stress also examined in this chapter.

with the approach of the Organisation for Economic Cooperation and Development (OECD) and other international bodies, the first measure defines relative income poverty as having a household income below 50% of median income. The second measure is similarly defined, but relates to income net of housing costs—that is, income after deducting housing costs.

# Cross-sectional poverty rates

68

Figure 3.7 presents relative income poverty rates in each year covered by the HILDA Survey. Our income measure is equivalised income; thus, the relative poverty lines presented in Table 3.7 can be interpreted as the minimum annual income after taxes and government benefits (and after deduction of housing costs in the case of the measure based on income net of housing costs) that a single-person household would require to avoid relative income poverty. Poverty rates refer to the proportion of people (not households) living in poverty.

In this year's report, the afterhousing poverty measure is implemented using two different equivalence scales (see Box 3.7, page 67). The first scale is simply the routinely used 'modified OECD' scale (see Box 3.2, page 54). The second scale, recognising that much of the economies of scale underpinning the OECD scale stem from the sharing of housing costs, reduces the economies of scale by dividing household income by 1 plus 0.75 for each person aged 15 and over after the first plus 0.45 for each child aged under 15. This halves economies of scale for adults (those aged over 15), while maintaining children at 60% of the 'cost' of adults.

The estimated poverty rate is approximately 1 to 2 percentage points higher for income net of housing costs than for total income when using the standard OECD equivalence scale. Since around 2011, this is also true for the after-housing measure using the adjusted equivalence scale. However, in the first decade of this century, this poverty measure produced a poverty rate that was mostly between the two other poverty measures.

For all three measures, the proportion of the population below the relative poverty line has fluctuated over time, ranging



#### Table 3.7: Poverty lines for selected household types, 2001 and 2021 (\$, December 2021 prices)

	Total income		Income net of housing costs		Income net of housing costs, adjusted equivalence scale	
-	2001	2021	2001	2021	2001	2021
Single person	20,059	28,983	17,161	24,386	13,956	19,786
Couple	30,088	43,475	25,741	36,579	24,423	34,626
Single parent with 2 children	32,094	46,373	27,457	39,017	26,516	37,593
Couple with 2 children	42,123	60,865	36,038	51,210	36,983	52,433

between 9.9% and 12.9% for total income, 11.3% and 14.3% for after-housing income using the OECD equivalence scale, and 10.9% and 13.7% for after-housing income using the adjusted equivalence scale. All measures trended downwards between 2007 and 2014, but then trended upward up until 2019. Poverty fell sharply in 2020, reflecting the early effects of the income supports introduced in March and April of 2020 (see Box 3.5 and Box 3.6, page 58), but rebounded in 2021, albeit still below its 2019 levels.

#### Poverty by family type

Figures 3.8 and 3.9 show that relative poverty rates vary substantially by family type (see Box 3.4, page 56), although there is greater variation for total income than for income net of housing costs. Particularly notable is that poverty rates for older people are considerably reduced in moving from a poverty measure based on total income to a poverty measure based on income net of housing costs, and especially when the adjusted equivalence scale is used. This reflects the low housing costs of many older people. Indeed, only single-parent families stand out as having a high poverty rate once the adjusted equivalence scale is used. Non-elderly couples without dependent children have







consistently low poverty rates, irrespective of the year or poverty measure.

#### Child poverty

Child poverty is a particular concern for policy-makers because of the damage poverty may cause to children's future productive capacity and life prospects more generally. Figure 3.10 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 overall child poverty rate for total income is consistently below the community-wide poverty rate, in most years being below 10%, and in 2021 equal to 7.5%. However, the poverty rate for income after deducting housing costs is slightly higher



than the community-wide rate, indicating that housing costs tend to be larger for families with children.

Consistent with the evidence in Figure 3.8, poverty is considerably more prevalent among children in single-parent families than among children in couple-parent families. In most years, the poverty rate for children in single-parent families is over twice the poverty rate for children in couple-parent families. The poverty rate is also more volatile from one year to the next for single-parent families. This is largely because many single-parent families have incomes placing them just under or just above the poverty line, so that relatively small changes in income can produce relatively large changes in poverty rates. That said, over the entire 21 years to 2021, the poverty rate has hovered around 20% for total income and around 30% for income after housing costs (and using the adjusted equivalence scale).

#### Long-term poverty

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. Poverty measures based on both total income and income net of housing costs (with the adjusted equivalence scale) are examined, and separate estimates are produced for men and women in each of two age groups (aged 18 to 55 at the start of the period and aged 65 and over at the start of the period) and in each of two 10-year periods (2001 to 2010 and 2012 to 2021). The first age group broadly corresponds to people who were 'working-age' adults for the entire period (being aged 27 to 64 at the end of the period) and the second age group broadly corresponds to people who were of 'retirement age' for the entire period.


Considering first the younger age group, for the poverty measure based on total income, approximately 72% of men and 68% 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 approximately 28% of men and 32% of women did experience poverty in at least one year. For 18% of men and approximately 20% of women, poverty was experienced in only one or two years, and a further 5.2% of men

and 5.7% of women experienced poverty in three or four of the 10 years. Highly persistent or recurrent poverty was confined to the 4.5% of men and 6.4% of women who were in poverty in at least five of the 10 years.

The 10 years from 2011 to 2020 saw slightly lower proportions of working-age people experience poverty at any stage over the 10year period. For the measure of poverty based on income net of housing costs, higher proportions of both men and women of working age experienced poverty in at least one of the 10 years, but patterns are otherwise similar to those found for the total-income poverty measure. The main exception is that, comparing the 2001 to 2010 period with the 2012 to 2021 period, the proportion of men and women experiencing poverty in seven or more years increased slightly for the net-ofhousing-costs measure, whereas it decreased slightly for the totalincome measure.

For people aged 65 and over at the start of the 10-year period, poverty is both more prevalent

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

		Numb	er of years in	poverty		
	0	1 or 2	3 or 4	5 or 6	7 or more	Total
People aged 18-55 at the start of the 10-	year period					
Total income						
2001-2010						
Men	72.2	18.0	5.2	2.0	2.5	100.0
Women	67.7	20.2	5.7	3.4	3.0	100.0
2012-2021						
Men	75.3	13.9	4.8	3.6	2.4	100.0
Women	72.7	16.4	5.5	3.0	2.4	100.0
Income net of housing costs						
2001-2010						
Men	63.5	23.8	7.0	2.6	3.1	100.0
Women	58.3	26.0	8.1	4.1	3.4	100.0
2012-2021						
Men	65.6	21.4	5.9	3.1	4.0	100.0
Women	62.4	22.9	6.7	4.1	3.9	100.0
People aged 65 and over at the start of t	he 10-year period					
Total income						
2001-2010						
Men	28.2	26.7	12.0	10.8	22.3	100.0
Women	22.0	24.5	16.2	8.7	28.6	100.0
2012-2021						
Men	43.1	23.6	12.2	7.6	13.5	100.0
Women	29.9	24.9	16.4	8.2	20.5	100.0
Income net of housing costs						
2001-2010						
Men	46.1	36.9	8.3	3.0	5.7	100.0
Women	49.5	31.1	10.0	3.7	5.6	100.0
2012-2021						
Men	54.5	31.4	6.1	2.7	5.4	100.0
Women	51.1	29.8	8.3	4.2	6.7	100.0

Notes: Income net of housing costs is equivalised using the adjusted equivalence scale (Box 3.8, page 74). Cells may not add up to row totals due to rounding.

and more persistent. Indeed, for women, it was more common to be in poverty (based on total income) in seven or more of the 10 years from 2001 to 2010 than it was to avoid poverty in all 10 years—28.6% were in poverty in seven or more years, whereas only 22.0% were never in poverty.

Similar to what is found for working-age people, older men are less likely to experience poverty, and less likely to experience entrenched poverty, than older women. The decline in experience of poverty between the 2001 to 2010 period and the 2012 to 2021 period evident for 'working-age' people is also evident for older people. Moreover, a substantial decline in entrenched poverty among older people is evident. The proportion experiencing poverty in seven or more years fell from 22.3% to 13.5% for men, and from 28.6% to 20.5% for women.

In contrast to working-age adults, the proportion of older people experiencing poverty at some stage of the 10-year period is lower for income net of housing costs than for total income. This is unsurprising given their high rate of outright home ownership. As with the total-income poverty measure, the proportion experiencing poverty over 10 years based on income net of housing costs was lower in the second decade. However, in contrast to the total-income poverty measure, the proportion of older women in poverty for five or more of the 10 years based on income net of housing costs actually rose from 9.3% in the first decade to 10.9% in the second decade.

Long-term poverty experiences of children are considered in Table 3.9 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 table examines children born in the period from 1 July 2000 to 30 June 2012. Two birth cohorts are compared: those born between 1 July 2000 and 30 June 2005, and those born between 1 July 2007 and 30 June 2012.

The upper panel of the table, examining poverty based on total income, shows that 67.7% of children born between 1 July 2000 and 30 June 2005 were not living in poverty in any of their first 10 years of life. This increased to 70.7% for those born between 1 July 2007 and 30 June 2012. For the earlier cohort, 19.5% were in poverty for one or two years, 7.6% were in poverty for three or four years, 3.7% were in poverty for five or six years, and 1.6% were in poverty for seven or more of the 10 years. For the more recent cohort, there were lower proportions in poverty in one to four years, but a higher proportion in poverty in five or more of the 10 years.

For the poverty measure based on income net of housing costs, there was similarly a lower rate of experience of any poverty in the first 10 years of life for the more recent cohort, accompanied by an increase in highly persistent poverty, with the proportion in poverty in seven or more years increasing from 5.9% to 6.4%.

Table 3.9: Experience of poverty in the first 10 years of life (%)						
	Number of years in poverty					
	0	1 or 2	3 or 4	5 or 6	7 or more	Total
Before-housing costs poverty measure						
Born 1 July 2000 to 30 June 2005	67.7	19.5	7.6	3.7	1.6	100.0
Born 1 July 2007 to 30 June 2012	70.7	17.9	5.3	4.0	2.2	100.0
After-housing costs poverty measure						
Born 1 July 2000 to 30 June 2005	49.2	28.8	8.3	7.8	5.9	100.0
Born 1 July 2007 to 30 June 2012	54.3	22.2	9.4	7.7	6.4	100.0

*Notes*: Income net of housing costs is equivalised using the adjusted equivalence scale (Box 3.8). Cells may not add up to row totals due to rounding.



### **Financial stress**

While income approaches remain the most widely used basis for defining and measuring inadequacy in material living standards, other measures potentially provide useful—and even superior—information on individuals' economic wellbeing. Measures of 'financial stress' provide one such piece of alternative information.

Experience of financial stress refers to an inability to meet basic financial commitments because of a shortage of money. Measures of financial stress therefore provide direct evidence

### Box 3.8: HILDA Survey measure of financial stress

In each wave, the self-completion questionnaire contains the following question: 'Since January [survey year] did any of the following happen to you because of a shortage of money?'

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

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





on the adequacy of economic resources of individuals and households. In each wave, the self-completion questionnaire contains a question on whether, *because of a shortage of money*, the respondent had experienced each of seven events, such as not paying the rent or mortgage on time or going without meals, which facilitates the construction of measures of financial stress. (Box 3.8, page 74, itemises all seven events.)

Figure 3.11 shows the prevalence of each of these seven indicators of financial stress among people aged 15 and over between 2001 and 2021.<sup>2</sup> Inability to pay electricity, gas or telephone bills on time and asking for financial help from friends or family are the most commonly occurring of the seven indicators, followed by inability to pay the rent or mortgage on time. In most years, inability to heat the home is the least-common indicator.

Prevalence rates tended to decline for all indicators up until around 2008, and then increased up to 2011. Between 2011 and 2017, the prevalence of each indicator tended to remain steady or steadily decline. Between 2017 and 2020, there was a significant drop in the proportion of people reporting asking for financial help from friends or family, but upticks in the proportion asking for help from welfare or community organisations and the proportion unable to pay the mortgage or rent on time. Between 2020 and 2021, the prevalence of most indicators decreased slightly.

Figure 3.12 examines the proportion of people aged 15 and over in a household experiencing a measure of financial stress specifically, experiencing two or more of the seven indicators shown in Figure 3.11. The figure presents estimates for all people and for each of eight family types (see Box 3.4, page 56, for an explanation of the family types).

The trend in financial stress over time is quite similar across most family types, tending to decrease in prevalence up until 2008, increasing between 2008 and 2011, and thereafter remaining



<sup>2</sup> Estimates are not available for 2010.

relatively stable. However, levels of prevalence of financial stress are very different across family types. Single-parent families stand out as particularly prone to financial stress, while non-elderly single people also have relatively high prevalence rates.

Similar to the finding on poverty rates when examining income net of housing costs with the equivalence scale adjusted for reduced economies of scale (Figure 3.9), older people have very low rates of financial stress. This may reflect not only their low housing costs, but also their relatively high wealth beyond housing (see Wilkins et al., 2020) and their lower expenditure needs (itself partly a reflection of government inkind assistance and subsidies targeted to older people).

### Housing stress

A further indicator of low economic wellbeing is housing stress—a situation where a family with a modest income faces housing costs that are very high relative to income. A widely accepted definition of housing



stress (see Box 3.9, below) is a situation in which housing costs are more than 30% of household income, and the household is in the bottom 40% of the income distribution. The main housing costs are rent and mortgage repayments but council rates should in principle also be included. However, the HILDA Survey does not collect data on expenditure on council rates, and so these are not included in the housing costs measure employed in this report.<sup>3</sup>

Figure 3.13 presents the proportion experiencing housing stress each year, in total and disaggregated by family type. Among all people, housing stress was highest in 2011, 2012 and 2018, when 10.7% of the population was in housing stress. Between 2018 and 2021, there was a marked decline in housing stress, reaching an all-time low of 7.3% in 2021. Of course, housing stress is likely to have increased substantially after 2021 due to rising rents and interest rates; it will be important to examine this in future releases of the HILDA Survey data.

In common with the findings for financial stress (and indeed for poverty), single-parent families have the highest rates of housing stress. They experienced particularly large increases in housing stress prevalence between 2009 and 2010 and between 2016 and 2017. Since 2010, the rate of housing stress among single-parent families has remained considerably above the 2009 rate, despite the substantial fall since 2017. Nonelderly single people also tend to have relatively high rates of housing stress, although the difference from the population as a whole is not large. Couples without children, both elderly and non-elderly, have the lowest levels of housing stress.

Table 3.10 presents mean marginal effects from Probit models of factors associated with housing stress. Results from two specifications are presented, the second specification adding variables for housing tenure type to the first. For the first specification, consistent with Figure 3.13, single-parent families stand out with the highest likelihood of housing stress, followed by nonelderly single people. Urban Queensland outside of Brisbane is the region with the highest likelihood of housing stress, followed by Sydney and nonurban Queensland.

People living in flats are more likely to be in housing stress than people living in other dwelling types, with people in detached houses having the lowest likelihood of housing stress. Across the 21-year span of the HILDA Survey, housing stress was

#### Box 3.9: Housing stress

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

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

<sup>3</sup> The HILDA Survey began collecting expenditure on council rates and owners' corporation fees in Wave 22, so it will be possible to include these housing costs for 2022 onwards. Arguably, other expenses, such as maintenance and repairs and insurance premiums, should also be included, although studies of housing stress typically do not include these expenses. most prevalent between 2010 and 2019.

Estimates in the second specification for housing tenure type show housing stress is highest for those renting privately, followed by those renting social housing and owner-occupiers with a mortgage. Adding these variables affects estimates for family type, reflecting the systematic differences in tenure type across family types. Most notably, we see that older people have a higher probability of experiencing housing stress once we control for housing tenure type. Similarly, differences by dwelling type are much smaller once tenure type is controlled for. Patterns by region are, however, robust to the addition of housing tenure-type variables.







Table 3.10: Characteristics associated with h	ousing stress	
	Excluding tenure type	Including tenure type

Family type (Reference category: Non-elderly c	ouple)						
Couple with dependent children	0.048	0.030					
Single parent	0.135	0.099					
Single non-elderly male	0.061	0.044					
Single non-elderly female	0.067	0.053					
Older couple	-0.015	0.050					
Single older male	0.049	0.088					
Single older female	0.030	0.073					
Region (Reference category: Sydney)							
Other urban New South Wales	-0.011	-0.019					
Non-urban New South Wales	-0.027	-0.022					
Melbourne	-0.011	-0.011					
Other urban Victoria	-0.028	-0.038					
Non-urban Victoria	-0.013	-0.009					
Brisbane	-0.009	-0.023					
Other urban Queensland	0.009	-0.005					
Non-urban Queensland	ns	ns					
Adelaide	-0.023	-0.026					
Other South Australia	-0.032	-0.039					
Perth	-0.010	-0.019					
Other Western Australia	-0.021	-0.032					
Tasmania	-0.024	-0.036					
Northern Territory	-0.062	-0.066					
Australian Capital Territory	-0.054	-0.052					
Type of home (Reference category: Detached h	ouse)						
Semi-detached house	0.037	0.008					
Flat	0.069	0.022					
Other	0.017	0.000					
Year (Reference category: 2001–2005)							
2006-2009	0.009	0.006					
2010-2013	0.021	0.012					
2014-2017	0.020	0.008					
2018-2019	0.019	0.006					
2020	0.007	-0.006					
2021	-0.009	-0.022					
Housing tenure type (Reference category: Owner-outright)							
Renter of social housing		0.151					
Renter in private market		0.197					
Owner with a mortgage		0.149					
Number of observations	427,906	427,253					

*Notes*: Estimates are mean marginal effects from a Probit model of the probability of being in housing stress. See the Technical Appendix for further explanation of Probit models. *ns* indicates the estimate is not significantly different from 0 at the 10% level.



### Welfare reliance

Reliance on social security (welfare) payments remains a significant concern for policymakers in Australia (see Box 3.10, page 79, for a brief explanation of the Australian social security 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 social security system provides an important '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 reliance on welfare.

The HILDA Survey is an important data source for understanding welfare reliance, since the longitudinal nature of the data enables the study of the duration, intensity and dynamics of benefit receipt. Importantly, it is possible to identify entrenched reliance and the factors associated with it. The HILDA Survey is therefore a key data source for policymakers seeking to address long-term reliance.

### Income support receipt and welfare reliance over a one-year timeframe

Figures 3.14 and 3.15 respectively present cross-sectional estimates of income support receipt and welfare reliance for 'working-age' people, defined here as people aged 18 to 64. In the financial year ending 30 June 2021, 32.3% of individuals aged 18 to 64 were

#### Box 3.10: The Australian social security system

The Australian social security system contains two broad categories of cash benefits. In the first category are benefits known as **income support payments**, which are intended to represent the primary source of income of recipients. Income support payments comprise the Age Pension, Disability Support Pension, Carer Payment, Parenting Payment (Single and Partnered), JobSeeker Payment (a consolidation of the previous Newstart Allowance and several other payments from 20 March 2020 on), Youth Allowance and Department of Veterans' Affairs Service Pension, as well as several other less common payment types. In the second category are **supplementary government benefits** (non-income support payments), which include Family Tax Benefit (Parts A and B) and Carer Allowance. Studies of reliance on welfare benefits in Australia typically focus on receipt of income support payments, but include non-income support payments in assessments of the extent of reliance on government cash benefits of income support payment recipients.<sup>a</sup>

<sup>a</sup> 'Welfare' is a 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 benefits. However, the approach taken in this report is consistent with the approach taken by most Australian researchers on welfare reliance.

living in a household that received income support at some stage of the year. This is substantially lower than at the beginning of the HILDA Survey in 2001, when the corresponding figure was 38.1%, but considerably up on 2019, when it was 28.4%. Most of the decline in household income support receipt up until 2019 was between 2002 and 2009 and between 2014 and 2018.

Figure 3.15 presents estimates of welfare reliance for two definitions of welfare reliance (as

explained in Box 3.11, page 80): 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 welfarereliant is higher for the 50% threshold than for the 90% threshold. In terms of trends over time, the two measures both show a sharp decline in reliance between 2004 and 2007, but since then there has been a slow trend decline in the proportion





Figure 3.15: Reliance on welfare among people aged 18–64



receiving more than 50% of household income from welfare, while the proportion receiving more than 90% of household income from welfare has remained broadly unchanged. Both measures, however, show a small decline in reliance in 2021 following the rise in 2020.

Figure 3.16, examining family types (see Box 3.4, page 56), shows that welfare reliance among working-age people is very much associated with living in single-parent families. For each year from 2001 to 2021, the figure presents the proportion of individuals in each family type obtaining more than 50% of financial-year household income from welfare benefits. Singleparent families have considerably higher rates of welfare reliance than other family types, although there was some decline in singleparent-family welfare reliance between 2002 and 2008, falling from 45.3% to 32.2%. After 2008, however, welfare reliance among single-parent families remained essentially unchanged, and, indeed increased following the onset of the COVID-19 pandemic from 30.9% in 2019 to 34.8% in 2021.

Individuals in couple families, with or without dependent children, have the lowest rates of welfare reliance, and have also exhibited declines in welfare reliance over most of the two-decade period to 2021. Overall, the proportion of people who were welfare-reliant fell from 7.2% in 2001 to 3.9% in 2021 for couples with dependent children, and from 10.2% in 2001 to 5.0% in 2021 for couples without dependent children.

Single men and women have welfare-reliance rates somewhat higher than couples, and have exhibited a slight trend increase in welfare reliance since 2006. In

#### Box 3.11: Definitions of welfare reliance

Welfare reliance is usually conceived of as a situation in which welfare payments, in Australia often referred to as social security payments, represent the primary or main source of income for a household. In this report, two alternative specific definitions of welfare reliance are adopted:

- 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.



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

2021, welfare reliance among single men was 17.2%, compared with 15.5% for single women. Overall, the gap between couples (with or without dependent children) and single people (without dependent children) has 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 3.11 examines contact with the system over a 10-year period, presenting the proportion of people who at some stage in the 10-year period personally received an income support payment (personal contact), and the proportion who at some stage were living in a household in which at least one member received an income support payment (household contact).



Table 3.11: Income support receipt over 10	years, by gender and ag	ge group at	the start o	f the 10-yea	ar period (%)
	Age gro	up at the star	t of the 10-ye	ar period	All aged - 18-55 in initial year
	18-24	25-34	35-44	45-55	
2001-2010					
Men					
Personal receipt	47.5	26.6	30.2	36.2	33.5
Household receipt	79.6	57.3	60.5	61.1	62.7
Women					
Personal receipt	61.1	50.8	46.6	41.9	48.3
Household receipt	75.1	60.4	64.7	67	65.7
People					
Personal receipt	54.0	38.6	38.6	39.1	41.0
Household receipt	77.4	58.8	62.6	64.2	64.2
2012-2021					
Men					
Personal receipt	50.1	22.6	25.3	30.2	30.4
Household receipt	71.8	49.4	47.1	58.0	55.3
Women					
Personal receipt	60.0	35.6	36.4	32.7	39.0
Household receipt	72.1	47.9	53.9	66.2	58.8
People					
Personal receipt	55.0	29.2	31.2	31.5	34.8
Household receipt	71.9	48.6	50.7	62.2	57.1

The population examined is restricted to people who were aged 18 to 64 for the entire 10year 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 gender 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 2012 to 2021.

The bottom-right cell of the top panel of the table shows that 64.2% of the working-age population had direct (personal) or indirect (household) contact with the income support payment 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 of this period (see Figure 3.14), this indicates that the income support system was indeed

Table 3.12: Welfare benefit receipt over 10 years—People aged 18 to 55 at the beginning of the 10-year period (%)

	2001	-2010	2012	-2021					
_	Men	Women	Men	Women					
Number of years of household income support receipt									
0	37.5	34.3	44.7	41.2					
1-3	32.2	29.2	26.8	26.8					
4-6	12.8	14.0	10.1	11.3					
7-9	8.4	11.2	7.6	9.1					
10	9.1	11.3	10.8	11.6					
Total	100.0	100.0	100.0	100.0					
Mean proportion of household income from welfare benefits —All people	11.4	15.0	10.4	12.9					
Proportion obtaining more than 50% of 10-year household income from welfare benefits	6.9	10.4	6.1	8.9					

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

providing temporary rather than long-term support for many recipients, and was potentially playing a very important safetynet role. Contact with the income support system was lower over the 10 years from 2012 to 2021 (lower panel of Table 3.11), but still substantial, with 57.1% having household contact and 34.8% having personal contact. Rates of household contact with the income support system are high across all age groups. Personal contact with the income support system varies more by gender, age group and indeed time period than does household contact.

For men, over the 2001 to 2010 period, personal contact was



highest for those initially (in 2001) aged 18 to 24 and lowest among those initially aged 25 to 34. The rate of personal contact then increases as we move up the age distribution, rising from 26.6% of the 25 to 34 age group to 36.2% of the 45 to 55 age group. In the 2012 to 2021 period, rates of personal contact show a similar pattern by age.

In both of the 10-year periods, rates of personal contact with the income support system are higher for women than men in all age groups, but particularly among those aged under 45. This is 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 2012 to 2021 period than in the earlier period due to greater declines in women's 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 3.12. 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, 69.7% of men and 63.5% of women had contact with the system in three or fewer of the 10 years, while over the 2012 to 2021 period, 71.5% of men and 68.0% of women had contact with the system in three or fewer of the 10 years.

The bottom panel of Table 3.12 examines the extent of welfare reliance over a 10-year period, presenting the mean proportion of household income deriving from welfare over the 10 years for all people, and the proportion of the population who were reliant on welfare over the 10-year period as a whole (defined as obtaining more than 50% of household income over the 10 years from welfare). On average, working-age men derived 11.4% of household income from welfare payments between 2001 and 2010, while working-age women on average derived 15.0% of household income from welfare. These figures dropped to 10.4% and 12.9%, respectively, in the 2012 to 2021 period. Comparing the same two 10-year periods, the proportion who were welfarereliant over the 10-year period as a whole fell from 10.4% to 8.9% for women, and from 6.9% to 6.1% for men.

### Income support receipt and reliance among people aged 65 and over

While many people continue to work in paid employment beyond 65 years of age (and the Age Pension age increased to 67 as of 1 July 2023), as shown in Figure 3.17, even in recent years most people aged 65 and over were retired. We would



Figure 3.18: Reliance on welfare among people aged 65 and over





Notes: A person is defined to be welfare-reliant if more than 50% of their household annual income comes from welfare. Age groups are based on age at the beginning of the financial year.

correspondingly expect welfare reliance to be relatively high among this age group.

Figures 3.17 and 3.18 show that income support receipt and welfare reliance is, as expected, considerably higher among people aged 65 and over than among people aged 18 to 64 (Figures 3.14 and 3.15). For example, the proportion of people aged 65 and over obtaining more than half of household income from welfare is greater than 45% across the entire 2001 to 2021 period, compared with less than 15% of people aged 18 to 64. There has, however, been a decline in income support receipt, particularly since 2014, while welfare reliance has also declined. In 2003, 58.9% of older people relied on welfare for more than 50% of their income, and 34.9% relied on welfare for more than 90% of their income; by 2021, these figures had respectively fallen to 46.9% and 29.3%. Later retirement and increases in superannuation holdings are likely to be important contributors to this decline.

Figure 3.19 examines welfare reliance among older people

disaggregated into four age groups. Welfare reliance tends to be more prevalent in older age groups, although between 2004 and 2010 it was higher for the 75 to 79 age group than for the 80 and over age group. Reliance decreased for the three youngest age groups between 2001 and 2021. For the 80 and over age group, there has been a net increase in the proportion reliant on welfare over the period as a whole from 64.0% to 67.6%, following a decline between 2003 and 2008 and a sharp rise between 2008 and 2010.



### New welfare recipients during the COVID-19 pandemic

The onset of the COVID-19 pandemic saw a rise in welfare receipt among working-age people (Figure 3.14) and potentially an influx of people to the income support system who had not previously (at least recently) had contact with the system. In Table 3.13, this potential development is considered by comparing the characteristics of recipients in 2020 and 2021 who had not received income support in the preceding 10 years with income support recipients in 2018 and 2019 who likewise had not received income support payments in the preceding 10 years.

The table indeed shows notable, albeit mostly subtle, changes in the composition of new income support recipients between the period immediately preceding the COVID-19 pandemic and the first two years of the pandemic. This is consistent with the pandemic causing different groups of people to enter the income support system than would otherwise have entered. In general, it appears that the pandemic caused an increase in receipt by people typically less disadvantaged, although some exceptions are evident.

Specifically, compared with new recipients prior to the pandemic, new recipients after the onset of the pandemic were more likely to be male, less likely to be aged 18 to 24, more likely to be aged 35 to 44 and less likely to be aged 55 to 64. They were also more likely to be in a couple with dependent children and the proportion holding a university degree increased substantially, by 4.4 percentage points. The proportion of new recipients who lived in major urban areas was

slightly higher after the onset of the pandemic, while the proportion who were in poor general health decreased slightly.

Perhaps at odds with the pandemic leading to more advantaged people entering income support receipt is that new recipients in 2020 and 2021 were considerably more likely to be immigrants than new recipients in 2018 and 2019. Similarly, the proportion with a disability increased slightly with the arrival of the pandemic. There was also a substantial 3.8 percentage-point increase in the proportion of new recipients who were in poor mental health, although this increase could reflect the effects of the pandemic on mental health rather than the pre-existing mental health of the new recipients. Finally, there was a slight increase in the proportion of new recipients who were renters in the private market, mainly at the expense of home owners.

People aged 18 to 64 (%)			
	New income support recipient in 2018 or 2019	New income support recipient in 2020 or 2021	Difference
Male	52.7	53.5	0.8
Age group			
18-24	24.8	23.3	-1.5
25-34	10.6	10.7	0.2
35-44	17.4	19.6	2.2
45-54	23.0	23.2	0.3
55-64	24.2	23.1	-1.1
Total	100.0	100.0	-
Family type			
Non-elderly couple	27.2	25.8	-1.4
Couple with dependent children	44.5	47.6	3.1
Single parent	5.1	4.6	-0.5
Single non-elderly male	14.5	13.5	-1.0
Single non-elderly female	8.8	8.6	-0.2
Total	100.0	100.0	-
Partnered	59.8	61.2	1.4
Educational attainment			
Bachelor's degree or higher	28.7	33.1	4.4
Other post-school qualification	29.9	29.2	-0.7
High-school completion	19.8	18.1	-1.7
Less than high-school completion	21.6	19.6	-2.0
Total	100.0	100.0	-
Immigrant status and First Nations identity			
Non-First Nations Australian-born	81.9	76.7	-5.3
First Nations	1.5	1.3	-0.2
Immigrant, main English-speaking countries	6.5	8.2	1.7
Immigrant, other countries	10.1	13.8	3.7
Total	100.0	100.0	-
Region of residence			
Major urban area	71.1	71.7	0.7
Other urban area	16.6	16.2	-0.4
Non-urban area	12.3	12.1	-0.2
Total	100.0	100.0	-
Moderate or severe disability	9.6	10.3	0.7
In poor mental health	19.4	23.2	3.8
In poor general health	14.3	13.4	-0.8
Housing tenure type			
Home-owner	81.2	80.5	-0.7
Renter in private market	18.0	18.9	0.9
Renter of social housing	0.8	0.6	-0.2
Total	100.0	100.0	_

Table 3.13: Characteristics of new income support recipients before and after the onset of the pandemic— People aged 18 to 64 (%)

Note: An income support is classified as 'new' if the person had not received income support in the preceding 10 years.

### The changing characteristics of unemployment benefit recipients

Taking a longer view than in Table 3.13, in Table 3.14 we consider how the characteristics of unemployment benefit recipients have changed since the beginning of this century.<sup>4</sup> This period has seen the closure of several payment types, including Partner Allowance and Sickness Allowance, as well as tightening of access to Parenting Payment and the Disability Support Pension and increases in the female age of eligibility for the Age Pension, creating significant potential for the characteristics of recipients to change. Moreover, the broader context is a trend decline in welfare receipt (up to 2019; see Figure 3.14), creating further potential for compositional change.

Up until 2018–2019, clear trends are evident: recipients are increasingly female and older and more likely to be single parents. They are also increasingly likely to have a disability, be in poor general health and be in poor mental health. These trends are consistent with the policy changes discussed above. Not explained by the policy changes is that unemployment benefit recipients increasingly hold postschool qualifications, but this is likely to reflect increased educational attainment in the community more broadly.

During the COVID-19 pandemic, some of these trends have to some extent reversed, reflecting the large influx of new recipients caused by lockdowns and other public health measures.



<sup>4</sup> Since the commencement of the HILDA Survey in 2001, the 'adult' unemployment benefit (applying to people aged 21 and over up until 30 June 2012 and to people aged 22 and over since then) was called Newstart Allowance until early 2020, since when it has been called JobSeeker Payment. For younger people, the unemployment benefit has been called Youth Allowance (other) over the entire HILDA Survey period. Note that unemployment benefit recipients may not actually be unemployed, either because they have part-time work or because they are not actively searching for work as a result of exemption from the requirement to do so.

Table 3.14: Characteristics of unemployment benefit recipients, 2001 to 2021 (%)						
	2001-2002	2011-2012	2018-2019	2020-2021		
Male	64.4	56.1	54.3	51.6		
Age group						
18-24	32.5	28.8	11.6	15.2		
25-34	19.3	19.7	21.8	25.8		
35-44	20.8	16.9	20.0	17.7		
45-54	15.6	17.3	20.8	16.7		
55-64	11.8	17.2	24.7	22.7		
65 and over	0.0	0.0	1.1	2.0		
Total	100.0	100.0	100.0	100.0		
Family type						
Non-elderly couple	17.2	16.5	20.3	19.7		
Couple with dependent children	16.6	16.7	12.0	15.7		
Single parent	5.0	11.0	14.7	10.9		
Single non-elderly male	40.0	33.9	33.5	31.8		
Single non-elderly female	21.3	21.8	18.7	20.5		
Older couple	0.0	0.0	0.1	0.7		
Single older male	0.0	0.0	0.5	0.2		
Single older female	0.0	0.0	0.4	0.5		
Total	100.0	100.0	100.0	100.0		
Partnered	33.2	31.6	31.7	34.6		
Educational attainment						
Bachelor's degree or higher	7.2	7.6	11.0	16.4		
Other post-school qualification	22.7	31.3	41.1	38.9		
High-school completion	19.8	20.6	13.4	18.3		
Less than high-school completion	50.3	40.5	34.6	26.3		
Total	100.0	100.0	100.0	100.0		
Immigrant status and First Nations identity						
Non-First Nations Australian-born	66.5	65.5	67.1	71.1		
First Nations	3.5	12.2	10.1	7.6		
Immigrant, main English-speaking countries	7.5	6.7	7.0	6.4		
Immigrant, other countries	22.5	15.6	15.8	14.9		
Total	100.0	100.0	100.0	100.0		
Region of residence						
Major urban area	66.1	64.8	63.6	66.1		
Other urban area	23.5	22.8	26.4	23.2		
Non-urban area	10.4	12.4	10.0	10.7		
Total	100.0	100.0	100.0	100.0		
Moderate or severe disability	23.9	31.8	48.1	38.6		
In poor mental health	37.7	43.8	49.1	45.0		
In poor general health	28.4	37.3	39.3	29.9		
Housing tenure type						
Home-owner	44.6	42.3	35.4	41.1		
Renter in private market	43.0	42.6	49.5	49.8		
Renter of social housing	12.4	15.1	15.1	9.0		
Total	100.0	100.0	100.0	100.0		

## Household expenditure

The HILDA Survey has, from its inception, collected information on household expenditure. Most of the information is collected in the self-completion questionnaire. The items measured have changed over time, but in all waves since 2006 they have included expenditure on: groceries; alcohol; tobacco; meals eaten out; taxis and public transport; motor vehicle fuel; motor vehicle repairs and maintenance; clothing; telephone and internet services; health insurance; other insurance; fees paid to health practitioners; medicines; electricity and gas bills; education fees; child care; home repairs and renovations; rent on primary residence; and mortgage repayments.



#### Table 3.15: Mean household expenditure on various items, 2006 to 2021 (\$, December 2021 prices)

						Change 2006-	Change 2019-
	2006	2013	2019	2020	2021	2019 (%)	2021 (%)
Groceries	11,444	11,012	10,261	10,661	10,607	-10.3	3.4
Alcohol	1,824	1,772	1,607	1,718	1,738	-11.9	8.2
Tobacco products	943	975	937	1,089	1,057	-0.6	12.8
Public transport, taxis and ride-sharing services	490	661	701	529	462	43.1	-34.1
Meals eaten out	3,040	3,425	3,627	3,253	3,420	19.3	-5.7
Motor vehicle fuel	3,251	2,616	2,279	2,019	2,060	-29.9	-9.6
Men's clothing and footwear	678	616	535	509	468	-21.1	-12.5
Women's clothing and footwear	1,077	1,004	835	801	789	-22.5	-5.5
Children's clothing and footwear	516	476	386	356	368	-25.2	-4.7
Telephone and internet charges	2,383	2,150	2,182	2,170	1,993	-8.4	-8.7
Private health insurance	1,100	1,369	1,619	1,554	1,584	47.2	-2.2
Other insurance	1,532	1,748	1,849	1,812	1,823	20.7	-1.4
Fees paid to health practitioners	1,026	1,049	956	853	977	-6.8	2.2
Medicines	567	512	487	466	467	-14.1	-4.1
Electricity, gas and other heating fuels	1,619	2,022	1,855	1,788	1,688	14.6	-9.0
Home repairs, renovations and maintenance	3,262	2,939	3,055	2,808	3,790	-6.3	24.1
Motor vehicle repairs and maintenance	1,171	1,042	1,003	960	969	-14.3	-3.4
Education fees	1,123	1,569	1,761	1,575	1,599	56.8	-9.2
Home rent	4,128	5,835	6,079	5,931	5,937	47.3	-2.3
Home mortgage repayments	8,814	9,810	9,956	9,751	9,362	13.0	-6.0
Child care	413	479	669	689	739	62.0	10.5
All expenditure items	50,401	53,081	52,639	51,292	51,897	4.4	-1.4

As long as this list is, the HILDA Survey does not attempt to measure all components of household expenditure and therefore does not provide a comprehensive picture of household expenditure decisions. Expenditure on entertainment and sport, council rates, personal and household services such as haircuts and cleaning, health and beauty products, cars, computers and related devices, home audiovisual equipment, household appliances and household furniture are among the items not captured.5

These limitations notwithstanding, it is likely the household expenditure data collected by the HILDA Survey can provide insights into economic circumstances and behaviour.

Table 3.15 presents mean household expenditure on each of 21 expenditure items in 2006, 2013, 2019, 2020 and 2021 expressed at December 2021 prices. The average for each item is measured across all households, including those households with no expenditure on the item. Strikingly, real expenditure on groceries and

90

alcohol on average decreased between 2006 and 2019, before rising during the COVID-19 pandemic. Expenditure on tobacco remained broadly unchanged to 2019, but surged in 2020, and in 2021 was still 12.8% higher than in 2019. Average expenditure on meals eaten out increased by 19.3% between 2006 and 2019, declined substantially in 2020 and only partly recovered in 2021.

Up until 2019, there was a trend decline in expenditure on fuel and motor vehicle repairs and maintenance, and a trend rise in expenditure on public transport and taxis. With the onset of the pandemic, all three components of transport expenditure declined substantially. Since 2006 there have been sustained trend declines in average expenditure on clothing and footwear and on telephone and internet charges, despite the growing ubiquity of smart phones and the internet. Perhaps surprisingly, average expenditures on health practitioners and medicines have also trended downwards.

Average expenditure on private health insurance and on other

insurance rose substantially between 2006 and 2019, declining only slightly in 2020 and 2021. Spending on education fees likewise rose to 2019, by 56.8%, before falling by approximately 10% in 2020 and remaining little changed in 2021. Expenditure on home repairs. renovations and maintenance declined up until 2020, but surged in 2021 due to factors such as the Australian Government's Homebuilder scheme and rising material costs due to pandemic-related supplychain issues.

Average expenditure on mortgage repayments rose by 13.0% to 2019, while expenditure on home rent rose 47.3%. The greater increase for home rent is likely to, at least in part, reflect a growth in the proportion of households that are renting and a decline in the proportion who are paying off a mortgage. Expenditure on both mortgage repayments and rent declined during the first two years of the pandemic. Expenditure on child care has risen strongly since 2006 and continued to rise during the pandemic.6



- <sup>5</sup> Expenditure on infrequently purchased items, such as motor vehicles, holidays and consumer durables, is not amenable to accurate measurement via an annual self-completion questionnaire. Wilkins and Sun (2010) show that, when the HILDA Survey attempted to measure some of these expenditure items (between 2006 and 2010), it produced considerable underestimates of expenditure compared with the Australian Bureau of Statistics Household Expenditure Survey. Expenditure on entertainment was also found to be under-reported. In 2022, the HILDA Survey began collecting expenditure on council rates and owners' corporation/body corporate fees.
- <sup>6</sup> Note, however, that expenditure on child care is likely to be overestimated in 2020 and 2021 because respondents are asked about *usual* child-care costs. Periods when child-care centres were closed and the period in 2020 when child care was free would not be captured in most respondents' reports of usual child-care costs. This may also apply, to a lesser extent, to mortgage repayments and rent payments in 2020, when some households were able to temporarily suspend or reduce their payments.





## The labour market

Roger Wilkins

A major 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 other work-related information. 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, 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, for many people 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.

In this chapter, labour force status and earnings levels and dynamics are examined, before turning to how job separations and perceptions of job security have evolved over time and, in particular, have been affected by the onset of the COVID-19 pandemic. Analysis is then presented of working from home, followed by an analysis of new questions included in Wave 21 on working while unwell.

### Labour force status

Standard statistical summaries of the labour force, such as those produced by the Australian Bureau of Statistics (ABS) in its monthly labour force statistics, divide the population aged 15 and over into 'employed'. 'unemployed' and 'not in the labour force' (see Box 4.1, page 92). 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 crosssectional 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 2021 period. From 2001 until 2008, employment steadily rose and unemployment fell. Following the onset of the Global Financial Crisis (GFC) in late 2008, the labour market was subsequently more mixed.

For women, the employment rate was relatively stagnant, at approximately 69% to 70%, between 2009 and 2016, but then grew strongly, reaching a record high of 74.1% in 2019. For men, however, the proportion employed remained below the 2008 peak of 83.6% between 2009 and 2019, fluctuating between 81.0% and 83.2%, while the proportion of men unemployed remained above the 2008 trough.

With the onset of the COVID-19 pandemic in early 2020, employment of men and women fell sharply, to 78.4% for men and 71.6% for women. The proportion unemployed rose from 4.0% to 6.2% for men and from 2.9% to 4.1% for women. Significantly, the 2020 employment rate for men was the lowest observed this century and the proportion unemployed was the highest observed this century. Employment recovered considerably in 2021 but remained somewhat below the 2019 level.

The proportion of men aged 18 to 64 employed part-time trended upwards between 2008 and 2015, but was edging lower up until 2019, before rising sharply to 15.8% in 2020, its highest level in the HILDA Survey period. The rate of part-time employment among men fell again in 2021, down to 13.6%. The proportion of men employed full-time peaked at 73.4% in 2008, then trended



92

downwards until 2016 before bouncing back to 68.1% in 2017, where it remained until 2019. Full-time employment of men aged 18 to 64 plummeted to 62.5% in 2020, before recovering to 67.4% in 2021.

For women aged 18 to 64, the proportion employed full-time peaked at 40.4% in 2019 before falling back to 38.4% in 2020 and then recovering to 40.2% in 2021. Part-time employment of women has trended upwards over this century, reaching 33.7% in 2019 before falling back to 33.2% in 2020 and 32.6% in 2021.

Figure 4.1 examines one-year transitions between employment and non-employment of people aged 18 to 64 over the 2001 to 2021 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 generally have lower transition rates out of employment, in large part because of the effects of childrearing on women's employment participation. The effects of the COVID-19 pandemic are evident, with a rise in the exit rate for both men and women and a fall in the rate of entry to employment for women in 2020.

The entry rate did not decline in 2020 for men, although it had declined substantially in 2018 and 2019, and it remained low compared with the rest of the HILDA Survey period in 2020. In 2021 there was a dramatic rise in the rate of movement into employment, from 20% to 33% for men, and from 19% to 27% for women.

Figure 4.2 probes more deeply into labour market transitions by distinguishing between full-time and part-time employment. The top panel presents transitions from non-employment, showing that men have higher rates of

#### 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.<sup>a</sup> A person employed part-time who would prefer to work more hours and is available to work additional hours is additionally classified as underemployed.
- 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).

<sup>a</sup> 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; otherwise, a person is classified as employed full-time.

Table 4.1: Labour force status of the population aged 18 to 64, 2001 to 2021 (%)						
	Employed	Unemployed	Not in the labour force	Total	Employed full-time	Employed part-time
Men						
2001	79.7	5.8	14.5	100.0	68.7	11.0
2002	80.3	4.9	14.8	100.0	69.3	11.0
2003	80.6	4.0	15.4	100.0	69.2	11.4
2004	82.0	3.3	14.6	100.0	70.4	11.7
2005	82.3	3.6	14.1	100.0	71.4	10.9
2006	82.5	3.2	14.3	100.0	70.6	11.8
2007	83.0	2.9	14.2	100.0	71.7	11.3
2008	83.6	3.0	13.4	100.0	73.4	10.2
2009	81.7	4.7	13.6	100.0	70.2	11.5
2010	83.2	3.8	13.0	100.0	71.8	11.4
2011	83.1	3.6	13.3	100.0	69.9	13.2
2012	82.5	4.3	13.2	100.0	68.8	13.7
2013	81.4	4.2	14.4	100.0	67.6	13.7
2014	81.6	4.8	13.6	100.0	67.0	14.6
2015	82.1	4.7	13.2	100.0	67.4	14.7
2016	81.0	4.4	14.6	100.0	66.9	14.1
2017	81.8	4.2	13.9	100.0	68.1	13.7
2018	82.3	3.9	13.8	100.0	68.2	14.1
2019	81.5	4.0	14.5	100.0	68.2	13.3
2020	78.4	6.2	15.4	100.0	62.5	15.8
2021	81.0	3.7	15.3	100.0	67.4	13.6
Women						
2001	64.3	3.7	32.0	100.0	35.3	28.9
2002	64.0	3.7	32.3	100.0	34.6	29.4
2003	64.4	3.0	32.6	100.0	34.6	29.8
2004	65.5	3.4	31.0	100.0	35.2	30.4
2005	66.7	3.1	30.1	100.0	35.7	31.1
2006	68.7	2.6	28.7	100.0	37.9	30.8
2007	69.8	2.8	27.5	100.0	39.0	30.8
2008	70.3	3.1	26.7	100.0	39.9	30.4
2009	69.8	3.0	27.3	100.0	38.1	31.6
2010	69.5	3.1	27.4	100.0	38.5	31.0
2011	68.5	3.8	27.8	100.0	37.0	31.5
2012	68.5	3.2	28.4	100.0	36.4	32.0
2013	68.6	3.9	27.5	100.0	37.1	31.5
2014	68.6	3.9	27.5	100.0	36.8	31.8
2015	70.0	3.9	26.1	100.0	37.6	32.4
2016	69.6	3.7	26.7	100.0	38.3	31.2
2017	71.3	3.5	25.2	100.0	39.1	32.2
2018	72.4	3.1	24.5	100.0	39.2	33.3
2019	74.1	2.9	23.0	100.0	40.4	33.7
2020	71.6	4.1	24.4	100.0	38.4	33.2
2021	72.8	3.3	23.9	100.0	40.2	32.6

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

transition to full-time employment, while, in most years, women have a higher rate of transition into part-time employment.

Between 2009 and 2014, there was a large increase in the male rate of transition from nonemployment to part-time employment. However, it subsequently declined, reaching its lowest observed level of 7.9% in 2019 before surging strongly in 2020 and 2021.

While there is considerable volatility in the proportion of non-employed men moving into full-time employment from one year to the next, there was a trend decline in this transition rate between 2001 and 2020. However, in 2021 the proportion of non-employed men moving into full-time employment rose sharply, reaching a record high of 17.1%.

For women, the top panel of Figure 4.2 shows that the increase in the rate of transition from non-employment into employment between 2016 and 2018 that is evident in Figure 4.1 involved increases in transitions into both part-time employment and full-time employment. Similarly, the decline in the rate of transitions from non-employment to employment between 2018 and 2020 involved decreases in movements into both part-time and full-time employment. As with men, there was a sharp rise in movements into full-time and part-time employment in 2021, but of a smaller magnitude.

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

For both men and women, the rate of transition from part-time employment to non-employment increased in 2020 and decreased



*Notes:* Years on the horizontal axis refer to the second year of the two-year transition period. For example, 2002 refers to transitions between 2001 and 2002. The rate of movement into employment is the proportion of those not employed in the first year who are employed in the second year. The rate of movement out of employment is the proportion of those employed in the first year who are not employed in the second year.





*Note:* Years on the horizontal axis refer to the second year of the two-year transition period. For example, 2002 refers to transitions between 2001 and 2002.

in 2021, and the rate of transition from part-time employment to full-time employment decreased in 2020 and increased in 2021. The magnitudes of these changes were considerably larger for men, particularly for movements into full-time employment: in 2020 the rate fell to a record low of 18.7% and in 2021 it rose to a record high of 38.9%.

The bottom panel of Figure 4.2 examines transitions out of fulltime employment. Women have higher rates of transition out of full-time employment, to both non-employment and part-time employment. For both men and women, in 2020 there was a large increase in the rate of movement from full-time to part-time employment as well as an increase in the rate of movement into non-employment. These increases were reversed in 2021.

### 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 their labour is rewarded in the labour market, and thus provides a measure of the market 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 to 4.5 provide an overall picture of earnings outcomes and changes over the period spanned by the HILDA Survey. They present graphs of

#### 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.



summary measures of the male and female real earnings distributions over the 2001 to 2021 period, plotting the mean, median and Gini coefficient. Figure 4.3 examines weekly earnings in the main job of fulltime employees, Figure 4.4 examines weekly earnings in all jobs of all employees and Figure 4.5 examines hourly earnings in all jobs of all employees.<sup>1</sup>

Over the full 2001 to 2021 period, the figures show that mean weekly earnings of full-time employees (expressed at December-guarter 2021 prices) increased from \$1,521 to \$1,900 (a 24.9% increase) for males and from \$1,200 to \$1,633 (a 36,1%) increase) for females. The Gini coefficient, which provides a measure of inequality of earnings among employees (see Box 3.3, page 54), increased by 0.7% for males and 5.3% for females. The Gini coefficient for males actually increased by 6.1% between 2001 and 2011, but has since been trending downwards, falling from 0.297 in 2011 to 0.282 in 2021. For female full-time employees, the Gini coefficient peaked at 0.258 in 2019, and has since fallen by 7.5%.

While there is considerable growth in mean and median weekly earnings of male full-time employees over the period as a whole, the rate of growth has varied over time. Indeed, there was no increase at all in the mean between 2014 and 2018. Mean and median earnings of female full-time employees, by contrast, have had reasonably sustained growth over the whole 2001 to 2021 period.

Collectively, the recent movements in both average levels and inequality of male and female full-time employee earnings distributions imply that there has been some convergence between

<sup>1</sup> See Box 4.2, above, for an explanation of the earnings measures. Note further that Figures 4.3 to 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.



Note: Weekly earnings less than \$100 at December 2021 prices have been excluded.



full-time employee male and female earnings distributions in recent years. That said, both wage levels and wage inequality remain considerably higher among male full-time employees.

Figure 4.4 provides a sense of the total distribution of weekly 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.

The growth in mean weekly earnings between 2001 and 2021 is 24.7% for males (rising from \$1,367 to \$1,704) and 41.0% for females (rising from \$902 to \$1,272). The Gini coefficient for weekly earnings of all male employees rose sharply between 2007 and 2011, but has been trending downwards since 2013. The sharp rise in the Gini coefficient is not evident for female employees, and indeed the Gini coefficient hovered at approximately 0.35 for the entire period up until 2019. However, since the onset of the pandemic, the Gini coefficient has been markedly lower, at approximately 0.33.





98

Figure 4.5 provides an overall picture of hourly rates of pay of all employees. Both males and females have sustained consistent growth in mean hourly wages. Inequality in hourly earnings has been broadly unchanged for female employees, notwithstanding declines in 2020 and 2021, while for males there was a substantial increase between 2007 and 2009, since when there has been a gradual trend decline.

### Employment participation of people aged 65 and over

Analysis of employment participation presented in this report each year focuses on people aged 18 to 64, which corresponds to a notion of 'working age'.<sup>2</sup> However, people aged 15 to 17 and 65 and over may also be employed. In particular, with the age of eligibility for the Age Pension progressively increased from 65 to 67 between 1 July 2017 and

<sup>2</sup> Note, however, that the analysis of employee earnings in the preceding section includes all employees, regardless of age.



1 July 2023, it is likely we will see increased employment participation among people aged over 65.

Figure 4.6 presents employment rates of people aged 65 and over, disaggregated by gender and age group. It shows that employment participation has increased considerably over the course of this century, particularly among those aged 65 to 69. For men aged 65 to 69, the increase occurred between 2005 and 2013, when the employment rate reached 32.6%. Between 2013 and 2020 there was, in fact, a slight downward trend in employment participation of men aged 65 to 69, but there was a substantial upward spike in 2021. For women aged 65 to 69, most of the increase in employment participation has occurred since 2009.

Employment participation of women aged 70 to 74 has risen, albeit unevenly. For men aged 70 to 74 there has been a net increase in the employment rate between 2001 and 2021, but since 2017 it has trended downwards. Employment participation of men aged 75 and over has increased slightly and has remained broadly unchanged for women aged 75 and over. In all age categories, men continue to have considerably higher employment participation than women, but the gap has narrowed for the 65 to 69 and 70 to 74 age groups. For the 65 to 69 age group, in 2001, the employment rate for men was 21%, compared with 10.6% for women: in 2021 the respective rates were 31.3% and 26.3%. For the 70 to 74 age group, in 2001, the employment rate for men was 10.5%, compared with 3.0% for women; in 2021 the respective rates were 14.0% and 9.4%.

### Job separations

Integral to understanding labour market dynamics is knowledge of the extent and nature of job separations and job changes, including how often people separate from jobs, why they leave jobs and, for those who move into another job, how their new job compares with the job they left. By its nature, the HILDA Survey is well placed to contribute useful insights into this aspect of the labour market. Separations from jobs can occur for a wide variety of reasons, but it is useful to distinguish between those initiated by the employer and those initiated by the employee (see Box 4.3, page 100).

Figure 4.7 shows the proportion of employees separating from their job each year in total and for each of the two reasons. In total, approximately 20% of employees experience a job separation each year. There has been some fluctuation in the rate of job separations over the period to 2021, but the composition has fluctuated considerably more. Around the time of the GFC, dismissals spiked from 2.9% in 2008 to 5.7% in 2009, but this was largely offset by the decline in guits from 18.2% to 15.9%.

Similarly, the arrival of the COVID-19 pandemic in 2020 saw the rate

#### Box 4.3: Classification of job separations

In each year, individuals who had left the job they were employed in at the time of the last interview are asked the main reason for leaving the job or business. For employees, responses are assigned to one of the following categories:

- 1. Job was temporary or seasonal
- 2. Holiday job
- 3. Got laid off/No work available/Retrenched/Made redundant/Employer went out of business/Dismissed, etc.
- 4. Not satisfied with job (for example, unhappy with hours, pay, working conditions, boss, other workers)
- 5. To obtain a better job/Just wanted a change/To start a new business
- 6. Retired/Did not want to work any longer
- 7. Own sickness, disability or injury
- 8. Pregnancy/To have children
- 9. To stay at home to look after children, house or someone else
- 10. Travel/Have a holidav
- 11. Returned to study/Started study/Needed more time to study
- 12. Spouse/partner transferred
- 13. Too much travel time/Too far from public transport
- 14. Migrated to a new country
- 15. Change of lifestyle

16. Other reason

- In this report, these reasons are classified into two categories:
- 1. Dismissed or made redundant (Category 3)
- 2. Quit (all other categories)



*Note:* Figure refers only to separation from the job held at the time of the previouswave interview. It does not include any separations from jobs obtained after the previous-wave interview (that is, jobs obtained and left within the approximately one year between interviews). of job dismissal rise from 3.3% in 2019 to 5.9% in 2020, while job quits declined from 17.7% to 14.7%, meaning job separations actually declined by 0.4 percentage points between 2019 and 2020. Despite the pandemic still being very much with us and constraining economic and social activity in 2021, the rate of job dismissals fell back to approximately its 2019 level, while quits likewise rose back to prepandemic levels.

Significantly, the rate of job quits has never returned to the levels reached in the lead up to the GFC, and the 2020 quit rate was the lowest ever observed over the 21 years spanned by the HILDA Survey. Conversely, the dismissal rate has remained slightly elevated in the post-GFC period compared with the years immediately prior to the GFC and reached its highest level of the 21-year period in 2020.

In Figure 4.8 our attention shifts to how employees fare in the aftermath of job dismissal, examining the proportion of employees dismissed within the last year who were, at the time of interview, employed, unemployed and not in the labour force. Outcomes in 2020 stand in stark contrast to other years, with the proportion employed, at 44.8%, lower than at any other time this century. Correspondingly, the proportion unemployed and not in the labour force, respectively at 28.8% and 26.4%, were at their highest levels observed over the HILDA Survey period. In 2021, the proportion of those dismissed in the past year who were employed was higher than in 2020 (57.2%) but still lower than in the prepandemic period.





Figure 4.9 compares annual dismissal rates during the pandemic across states and territories, with average rates over the 2015 to 2019 period serving as a benchmark within each jurisdiction. The dismissal rate in 2020 was highest, and the increase was greatest, in Victoria: in 2020 the dismissal rate was 7.5%, up from an average of 4.1% over the 2015 to 2019 period. New South Wales also had a large increase in the dismissal rate, rising from an average of 3.2% over the 2015 to 2019 period to 6.3% in 2020. South Australia and Tasmania also experienced substantial increases in the dismissal rate, while Queensland and the Northern Territory experienced little change. Western Australia and the Australian Capital Territory actually experienced declines in the dismissal rate in 2020.

In 2021, dismissal rates decreased in all jurisdictions other than the Australian Capital Territory. Of the jurisdictions experiencing a decrease in the dismissal rate in 2021, only New South Wales had an elevated dismissal rate in 2021 compared with the pre-pandemic period. Indeed, the dismissal rate was below its pre-pandemic level in all regions other than New South Wales and the Australian Capital Territory. That the dismissal rate was elevated in 2021 in these two jurisdictions is likely to be attributable to their experience of extended lockdowns in 2021. While Victoria also experienced extended lockdowns in 2021, it seems that it had already 'purged' the jobs vulnerable to extended lockdowns in 2020.

Figure 4.8: Current labour force status of employees dismissed from their job in the last year





# Perceptions of job security

Each year, the HILDA Survey asks employees the percentage chance they will lose their current job (by being retrenched, fired or not having their contract renewed) over the next 12 months. Figure 4.10 shows how the average response of employees to this question has evolved between 2001 and 2021. Based on this measure, job insecurity increased considerably in 2020, the mean perceived probability of dismissal rising from 11.1% in 2019 to 13.4% in 2020. This represented the sharpest one-year increase in this measure observed over the life of the study. However, 2021 saw an even larger decline in job fears with the mean perceived probability of dismissal falling to 10.8%. This is consistent with the decline in actual job dismissals shown in Figure 4.7.

Figure 4.11 considers differences in the average perceived probability of job loss across industries (see Box 4.4, opposite), for each industry comparing the average of this measure between 2015 and 2019 with its level in 2020 and its level in 2021. Perceived job insecurity varies across industries even in the absence of a pandemic, being notably high in mining, information media and telecommunications, and agriculture, forestry and fishing. However, mining and agriculture, forestry and fishing were the only two industries to show a decline in perceived insecurity in 2020. In all other industries, insecurity rose.

The biggest increases were in administrative and support services and information media and telecommunications, which in 2020 stood out as having the highest perceived insecurity, with the mean perceived probability of job loss just under 25%. Manufacturing, arts Figure 4.10: Employees' mean perceived probability of job loss over the next 12 months



### Box 4.4: Australian Bureau of Statistics' 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 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. In this report, only the 1-digit level classification is used, which distinguishes the following categories: managers; professionals; technicians and trades workers; community and personal service workers; clerical and administrative workers; sales workers; machinery operators and drivers; and labourers. The largest occupation group is professionals, accounting for approximately 25% of employed people. See ABS (2006) for details.

Industry variables in this report are based on the ABS Australia and New Zealand Standard Industry Classification (ANZSIC) classification system. ANZSIC 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, 19 industry categories are distinguished: agriculture, forestry and fishing; mining; manufacturing; electricity, gas, water and waste services; construction; wholesale trade; retail trade; accommodation and food services; transport, postal and warehousing; information media and telecommunications; financial and insurance services; rental, hiring and real estate services; professional, scientific and technical services; administrative and support services; public administration and safety; education and training; health care and social assistance; arts and recreation services; and other services (such as hair and beauty services, funeral services, religious services and repair and maintenance of equipment and machinery). The largest industry by employment is health care and social assistance, followed by education and training and retail trade. See ABS (2008) for details.

and recreation services, wholesale trade, and other services also had relatively large increases in perceived job insecurity in 2020. Somewhat surprising is the relatively muted increase in perceived job insecurity in accommodation and food services, since this industry was profoundly impacted by lockdowns.

Consistent with the overall picture presented in Figure 4.10, perceived job insecurity fell in most industries in 2021. The declines were biggest in the two



industries that experienced the biggest increase in 2020 administrative and support services, and information media and telecommunications. Bucking this trend were employees in financial and insurance services, for whom the mean perceived probability of job loss increased from 14.7% to 16.2%.

# Working from home

As shown in last year's report, the onset of the COVID-19 pandemic saw a substantial rise in employed people working from home. In this year's report, we examine the extent to which this persisted into 2021. We also consider the extent to which people have the 'right' to work



from home and how this varies across workers.

Table 4.2 draws on responses to a question included in the selfcompletion questionnaire each year on whether an employee has an entitlement to 'home-based work', presenting the proportion reporting they have this entitlement in 2019, 2020 and 2021, in total and disaggregated by region, industry and occupation. In 2019, 34.8% reported this entitlement, rising to 42.9% in 2020 and 45.0% in 2021. This increase could be because of changes in employer policy—especially given the presence of the pandemic—but could also be in part due to increased awareness of

Table 4.2: Proportion of employees reporting they have an entitlement to home-based work, 2019 to 2021 (%)						
	2019	2020	2021	Change 2019 to 2021		
All employees	34.8	42.9	45.0	10.2		
State or territory						
New South Wales	36.6	44.2	47.9	11.3		
Victoria	38.0	50.3	49.6	11.6		
Queensland	31.3	37.4	39.9	8.6		
South Australia	30.8	36.4	37.2	6.4		
Western Australia	29.1	35.4	39.3	10.2		
Tasmania	26.0	30.3	35.5	9.5		
Northern Territory	27.3	33.4	18.9	-8.4		
Australian Capital Territory	52.5	63.9	69.1	16.6		
Industry						
Agriculture, Forestry and Fishing	36.0	30.2	31.4	-4.6		
Mining	28.8	51.4	46.0	17.2		
Manufacturing	35.3	41.2	45.9	10.6		
Electricity, Gas, Water and Waste Services	47.5	72.5	69.6	22.1		
Construction	27.8	29.1	31.4	3.6		
Wholesale Trade	38.2	56.3	61.0	22.8		
Retail Trade	15.2	17.4	20.5	5.3		
Accommodation and Food Services	9.6	12.1	10.5	0.9		
Transport, Postal and Warehousing	19.6	25.7	23.2	3.6		
Information Media and Telecommunications	69.1	85.2	88.2	19.1		
Financial and Insurance Services	76.9	88.9	95.1	18.2		
Rental, Hiring and Real Estate Services	52.7	54.4	69.9	17.2		
Professional, Scientific and Technical Services	71.6	81.6	86.6	15.0		
Administrative and Support Services	33.3	36.8	43.3	10.0		
Public Administration and Safety	61.4	73.5	73.0	11.6		
Education and Training	27.6	34.7	38.6	11.0		
Health Care and Social Assistance	20.3	32.8	34.5	14.2		
Arts and Recreation Services	30.5	44.1	47.0	16.5		
Other Services	37.7	37.4	40.2	2.5		
Occupation						
Managers	57.4	64.9	67.1	9.7		
Professionals	46.8	59.1	63.0	16.2		
Technicians and trades workers	23.5	29.6	31.1	7.6		
Community and personal service workers	15.0	20.2	22.8	7.8		
Clerical and administrative workers	49.4	62.9	65.4	16.0		
Sales workers	16.4	18.4	21.2	4.8		
Machinery operators and drivers	8.7	15.3	14.8	6.1		
Labourers	12.2	11.9	9.5	-2.7		

104

employees of this entitlement because of the pandemic.

Between 2019 and 2020, in all states and territories, the proportion of employees reporting an entitlement to home-based work rose. In 2021, this proportion further rose in all jurisdictions other than Victoria and the Northern Territory. In 2021, employees in the Australian Capital Territory had the highest proportion with an entitlement to work from home, followed by Victoria and then New South Wales.

Comparing across industries, an entitlement to home-based work is highest in financial and insurance services, information media and telecommunications, and professional, scientific and technical services. Perhaps somewhat surprising is that workers in electricity, gas, water and waste services are also relatively likely to report an entitlement to work from home; 69.6% reported having this entitlement in 2021, up from

#### Box 4.5: Measuring working from home in the HILDA Survey

In the HILDA Survey all employed people are asked how many hours they usually work in a week, both in their main job and in all jobs. This same group is subsequently asked whether, in their main job, any of their usual hours are worked at home and, if yes, how many.

From this we constructed measures of the proportions of employed people that, in their main job, worked any hours at home, most hours at home (defined as 50% or more of their usual weekly work hours) and all hours at home. People reporting working from home but who then do not provide the number of hours worked from home are treated as missing.



#### Table 4.3: Working from home, 2019 to 2021–Employed people

	2019	2020	2021	Change 2019 to 2021
All employed people				
Any work from home (%)	25.1	34.7	37.3	12.2
Mean weekly hours worked at home	11.4	22.8	24.4	13.0
Work entirely from home (%)	3.5	16.2	17.7	14.2
Work at least 50% of the time from home (%)	6.5	23.0	24.3	17.8
Full-time employed people				
Work the equivalent of at least one day per week from home (%)	13.6	31.1	35.4	21.8

Table 4.4: Proportion of employed people working at home by state and territory, 2019 to 2021 (%)

	Worked from home			Worked only from home		
	2019	2020	2021	2019	2020	2021
New South Wales	27.6	37.8	44.7	4.0	16.6	27.4
Victoria	25.9	40.3	42.6	3.2	30.0	24.6
Queensland	21.4	29.3	28.8	3.7	7.8	5.8
South Australia	26.2	27.5	27.5	2.5	6.9	4.7
Western Australia	23.6	27.8	26.8	3.7	6.6	4.8
Tasmania	19.3	21.4	21.9	2.4	2.7	2.5
Northern Territory	21.7	13.6	18.1	1.7	2.4	5.8
Australian Capital Territory	23.4	52.7	54.0	2.2	18.4	30.1

Table 4.5: Factors associated with working mainly from50% of the time) in 2020 and 2021	n home (at least
In lockdown	0.175
Male	-0.037
Male parent of dependent children	0.022
Female parent of dependent children	0.022
Region of residence (Reference category: Major urban)	
Other urban	-0.098
Other region	-0.039
Type of dwelling (Reference category: Detached house)	
Semi-detached house	0.051
Flat	0.035
Other type of dwelling	0.142
Number of bedrooms per person	0.014
Employed full-time	-0.047
Industry (Reference category: Agriculture, forestry and fishing)	
Mining	ns
Manufacturing	-0.194
Electricity, Gas, Water and Waste Services	-0.080
Construction	-0.206
Wholesale Trade	-0.084
Retail Trade	-0.275
Accommodation and Food Services	-0.301
Transport, Postal and Warehousing	-0.211
Information Media and Telecommunications	0.078
Financial and Insurance Services	0.114
Rental, Hiring and Real Estate Services	ns
Professional, Scientific and Technical Services	ns
Administrative and Support Services	-0.098
Public Administration and Safety	-0.104
Education and Training	-0.197
Health Care and Social Assistance	-0.297
Arts and Recreation Services	-0.228
Other Services	-0.104
Occupation (Reference category: Managers)	
Professionals	ns
Technicians and trades workers	-0.211
Community and personal service workers	-0.154
Clerical and administrative workers	-0.053
Sales workers	-0.192
Machinery operators and drivers	-0.299
Labourers	-0.280
Year is 2021	-0.047
Number of observations	20,587

Notes: Estimates are mean marginal effects from a Probit model of the probability of working mainly from home. See the Technical Appendix for further explanation of Probit models. ns indicates the estimate is not significantly different from 0 at the 10% level.

47.5% in 2019. Workers in accommodation and food services and retail trade had the lowest proportions with an entitlement to home-based work. Among occupations (see Box 4.4, page 102), managers, clerical and administrative workers and professionals have the highest proportions with an entitlement to work from home. Unsurprisingly, labourers and machinery operators and drivers

have the lowest proportions. Table 4.3 considers the amount of time workers actually work from home (see Box 4.5, page 105), again focusing on the 2019 to 2021 period. In 2019, 25.1% of employed people did some work from home. This rose to 34.7% in 2020 and again rose in 2021 to be 37.3%. Correspondingly, mean weekly hours worked at home increased from 11.4% in 2019 to 22.8% in 2020 and 24.4% in 2021.



Only 3.5% of people worked entirely from home in 2019, whereas 17.7% worked entirely from home in 2021. Similarly, 6.5% of people worked at least 50% of the time from home in 2019, compared with 24.3% in 2021. The final row of Table 4.3 further shows that the proportion of full-time workers working at least 20% of the time from home—essentially the equivalent of at least one day per week rose from 13.6% in 2019 to 35.4% in 2021.

Comparisons across the states and territories presented in Table 4.4 show, unsurprisingly, that growth in working from home was strongest in locations and time periods of lockdowns. Victoria had strong growth between 2020 and 2021 and maintained a high rate of working from home in 2021, while New South Wales had growth in both 2020 and 2021.

Notably, the Australian Capital Territory had the strongest growth in working from home, and this mostly occurred between 2019 and 2020, despite lockdowns in the Australian Capital Territory mostly occurring in 2021. This probably reflects the composition of employment, with a higher proportion of jobs amenable to working from home in the Australian capital than in other regions.

Table 4.5 presents estimates from a Probit regression model of the factors associated with working from home during the pandemic, considering the roles of lockdowns, sex, parenting responsibilities, dwelling characteristics, full-time/part-time status, industry and occupation.

Unsurprisingly, being in lockdown (specifically, living in Victoria during Wave 20 fieldwork or Victoria, New South Wales or the Australian Capital Territory during the Wave 21 fieldwork) substantially increases the likelihood of mainly working from



home: holding other factors constant, being in lockdown on average increases the probability of working from home by 0.175, or 17.5 percentage points.

Males are less likely than females to be primarily working from home, despite controlling for industry and occupation. However, being a parent of dependent children is associated with the same 2.2 percentagepoint increase in the probability of mainly working from home for men and women.

Residents of regions outside the major urban centres (see Box 2.11, page 40) are less likely to mainly work from home, which in part probably reflects fewer lockdown restrictions in those regions even when the state as a whole had restrictions in place. Perhaps surprising is that living in a detached house is associated with a lower probability of mainly working from home than living in a semi-detached house or flat, since detached houses are likely to be larger and better able to accommodate working from home. That said, the greater the number of bedrooms per household member, the more likely is an employed person to mainly work from home.

Turning to job characteristics, fulltime workers on average have a 4.7 percentage-point lower probability of mainly working from home than part-time workers, all else held constant.

Estimates of differences by industry and occupation are not surprising. The industries with the highest likelihood of mainly
working from home are financial and insurance services and information media and telecommunications. The industries in which mainly working from home is least likely are accommodation and food services, health care and social assistance, and retail trade, while it is also relatively unlikely in arts and recreation services, transport, postal and warehousing, construction, education and training, and manufacturing. Managers and professionals are the most likely to mainly work from home, followed by clerical and administrative workers. Machinery operators and drivers and labourers are the least likely to mainly work from home.

The estimate for 'year is 2021' in Table 4.5 shows that working mainly from home was on average 4.7 percentage points lower in 2021 than in 2020, all else held constant, perhaps reflecting reduced fears of COVID-19 as vaccination became more widespread.

## Working when unwell

In Wave 21, new questions were introduced into the HILDA Survey on whether employed people had worked while unwell. Concerns about working when unwell include potential adverse consequences for unwell workers' health over the longer term, as well as potential effects on the wellbeing and health of coworkers, particularly if workers are attending the workplace with an infectious disease.

The questions asked respondents whether, in the last four weeks, they had worked when physically unwell or mentally unwell. For those reporting working when unwell, further questions were asked about the number of days they worked when unwell and the number of these days where they only worked from home, allowing us to ascertain whether they undertook work away from home when unwell.

Table 4.6: Proportion of employed people working when unwell in the last four weeks. 2021

	Males	Females
Worked when physically unwell (%)	16.8	19.8
Worked when mentally unwell (%)	11.1	19.1
Worked when (physically or mentally) unwell (%)	22.5	29.6
Days worked when unwell	5.6	5.1
Worked when unwell away from home (%)	15.8	18.4

Table 4.6 summarises responses to these questions, showing that 16.8% of employed males and 19.8% of employed females reported working when physically unwell in the preceding four weeks. It also shows that 11.1% of employed males and 19.1% of employed females reported working when mentally unwell. In total, 22.5% of employed males and 29.6% of employed females reported working when physically and/or mentally unwell in the preceding four weeks.

For those who worked when unwell, the mean number of days worked when unwell in the fourweek period was 5.6 for males and 5.1 for females. In total, 15.8% of employed males and 18.4% of employed females reported undertaking at least some work away from their home when unwell. In most cases, this would mean undertaking work when unwell at their workplace.

The personal and job characteristics associated with working while unwell, and with working away from home when unwell, are examined in Table 4.7, which presents estimates from Probit regression models.

Consistent with the statistics presented in Table 4.6, males are less likely to report working when unwell, and working while unwell away from home, than females. People aged 55 and over are less



	Worked unwell	Worked when unwel away from home
Male	-0.078	-0.033
Age group (Reference category: 35-44)		
15-24	ns	ns
25-34	ns	0.034
45-54	ns	ns
55 and over	-0.038	ns
Partnered	ns	ns
Immigrant status and First Nations identity (Reference category: Non-First Natio	ons Australian-born)	
First Nations	0.097	0.058
Immigrant, main English-speaking countries	ns	ns
Immigrant, other countries	-0.054	-0.061
Moderate or severe disability	0.184	0.119
In poor mental health	0.203	0.143
In poor general health	0.071	ns
Region of residence (Reference category: Major urban)		
Other urban	ns	0.037
Other region	ns	ns
Industry (Reference category: Agriculture, Forestry and Fishing)		
Mining	ns	ns
Manufacturing	-0.100	ns
Electricity Gas Water and Waste Services	ns	ns
Construction	ns	ns
Wholesale Trade	ns	ns
Retail Trade	-0.089	ns
Accommodation and Food Services	ns	ns
Transport Postal and Warehousing	ns	ns
Information Media and Telecommunications	-0.201	-0.131
Financial and Insurance Services	ns	-0.082
Rental Hiring and Real Estate Services	ns	ns
Professional Scientific and Technical Services	ns	-0.065
Administrative and Support Services	ns	ns
Public Administration and Safety	ns	ns
Education and Training	ns	ns
Health Care and Social Assistance	-0.083	ns
Arts and Recreation Services	ns	ns
Other Services	-0.108	ns
Occupation (Reference category: Managers)		
Professionals	-0.053	ns
Technicians and trades workers	-0.076	0.054
Community and personal service workers	-0.080	ns
Clerical and administrative workers	-0.082	ns
Salas workers	-0.088	ns
Machinery operators and drivers	-0.105	ns
	-0.105	ns
	-0.095	-0.042
Employed part-time	-0.001	-0.042
	20	20
	IIS	115
Fixed-term employee	ns	ns
Calf americana		

Notes: Estimates are mean marginal effects from a Probit model of the probability of working when unwell. See the Technical Appendix for further explanation of Probit models. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

likely to work when unwell, but they are not significantly less likely to work while unwell away from home. People aged 25 to 34, by contrast, are more likely to work when unwell away from home, but are not significantly more likely to work while unwell.

Immigrants from countries other than the main English-speaking countries are less likely to report working when unwell than other immigrants and non-First Nations Australian-born people, while First Nations people are more likely to report working when unwell, and working when unwell away from home, than non-First Nations people.

People with a moderate or severe disability (see Box 2.7, page 24) are much more likely to work when unwell, and work while unwell away from home, as are people in poor mental health (see Box 2.4, page 20). People in poor general health (see Box 2.4, page 20) are also more likely to work when unwell, but are not more likely to work while unwell away from home than people not in poor general health.

Comparing across regions based on population density (see Box 2.11, page 40), there are no significant differences across the three region groups in likelihood of working while unwell, but people living in urban areas outside of major urban areas are more likely to work when unwell away from home than people living elsewhere.

Few significant differences across industries are evident. All else held constant, workers in information media and telecommunications are the least likely to report working when unwell, followed by workers in other services, manufacturing, retail trade, and health care and social assistance, but there are otherwise no significant differences across industries. Workers in information media and telecommunications are also

### Box 4.6: Classification of type of employment contract

Three types of employment contract are distinguished in this report:

- 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 has long been recognised in industrial awards. despite ambiguity about the legal definition of casual employment up until 22 March 2021, when an amendment to the Fair Work Act 2009 was passed providing a statutory definition. The amendment essentially gave legal standing to what casual employment was commonly understood to be (for example, Creighton and Stewart, 2010), defining it as employment with no firm advance commitment from the employer to continuing and indefinite work according to an agreed pattern of work for the employee. However, casual employment is often identified on the basis of the absence of entitlement to paid leave and/or payment of a casual 'loading', which are common features of casual employment (for example, ABS, 2018a), From an employee perspective, the payment of a casual loading, the absence of paid leave entitlements and/or irregularity of hours are all indicators of employment on a casual basis. In the HILDA Survey, casual employment status is determined based on employee self-reports of employment contract type. In 2021, 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) Permanent/ongoing employment, whereby permanent employees typically have leave and other entitlements, and usually have a guaranteed minimum number of hours per week.



the least likely to work while unwell away from home, with workers in financial and insurance industries and professional, scientific and technical services are also relatively less likely to work while unwell away from home. Note, however, that these are industries with relatively high proportions mainly working from home in 2021.

Comparing across occupations, managers are the most likely to report working when unwell, although it is technicians and trades workers who are the most likely to work while unwell away from home. Part-time workers on average have a 6.1 percentagepoint lower probability of working when unwell, and a 4.2 percentage-point lower probability of working while unwell away from home, than full-time workers. Perhaps surprising, however, is that casual employees and the self-employed are not significantly more likely to report working when unwell, despite typically not having access to paid sick leave (see Box 4.6, above).

### Life during the COVID-19 pandemic in 2020 and 2021

Roger Wilkins

The COVID-19 pandemic and governments' public health responses to it profoundly affected the lives of Australians in 2020 and 2021. All Australians were subject to severe restrictions on their travel, and at various times there were restrictions on the economic and social lives of the general population that have no precedent in Australia's history, even in war time.

In 2020, residents of Victoria were subject to the most constraining and long-lasting legal restrictions, but in 2021 similar extended restrictions were experienced by residents of New South Wales and the Australian Capital Territory. All Australian residents experienced legal restraints on their behaviour in both years that for most would have been unthinkable prior to the pandemic (see Box 5.2, page 112, for a brief timeline of the pandemic and public health measures). In both 2020 and 2021, a range of new questions were introduced into the HILDA Survey aimed at understanding the impact of the pandemic on people's lives. This chapter examines responses to these questions, as well as considering how time use and measures of health and wellbeing were impacted by the pandemic. Note, however, that all chapters in this year's report have something to say about the impact of the pandemic because they include analysis of outcomes and

### Box 5.1: When were the HILDA Survey interviews conducted in Waves 20 and 21?

The timing of HILDA Survey interviews has never been more important to the interpretation of the findings of the survey than in Waves 20 and 21. Figure B5.1 shows the distribution of the timing of interviews. In both waves, the vast majority (over 85%) were conducted in August and September. In 2020, this was a period in which only Victoria was in 'lockdown', while in 2021, this was a period in which Victoria, New South Wales and the Australian Capital Territory were all in lockdown. Note, though, that some restrictions still applied in all states and territories in these periods.



#### Figure B5.1: Distribution of month of personal interviews

### Box 5.2: The timeline of the pandemic and the public health measures over 2020 and 2021

The first documented cases of COVID-19 were in Wuhan, China in December 2019, and by March 2020 the World Health Organization had declared COVID-19 a pandemic. The first reported case in Australia was in late January 2020, while public health measures to reduce the spread of the virus in Australia were initiated in March 2020, beginning with the closure of the Australian border to non-residents from 20 March. Subsequent measures were largely introduced by individual state and territory governments and included restrictions on movements across state and territory borders, as well as social distancing requirements and restrictions on social and economic activity. All jurisdictions maintained at least some restrictions throughout 2020, but there was considerable variation, with Victoria experiencing the most severe and long-running restrictions.

There were broadly two waves of virus spread in 2020, the first in March and April directly affecting the entire country, and the second running from June to October and only directly affecting Victoria. It was during the second wave that people in Victoria experienced severe restrictions on their activity and this corresponded to the period in which most people were interviewed (Box 5.1, page 111).

In the first half of 2021, restrictions were relatively limited, albeit with short periods of lockdowns in several jurisdictions. However, from late June 2021, Sydney and other parts of New South Wales were subject to lockdown restrictions that persisted into October. The rest of New South Wales also went into lockdown in August 2021. Victorians were subject to short lockdowns in June and July of 2021 before going into an extended lockdown in August that lasted until late October. The Australian Capital Territory introduced increased restrictions from June of 2021, and from August until October 2021 its population was subject to lockdown conditions similar to those of Sydney. Lockdowns also occurred in the other states in the second half of 2021, but these were all short-term—typically no more than a week or two.

The vaccine roll-out commenced Australia-wide in February 2021, but it was not until October 2021 that vaccination rates reached 80% of the eligible population in any of the states or territories. By December of 2021, all states and territories had achieved 80% vaccination rates. Most jurisdictions used the 80% vaccination rate as a trigger for removal of most restrictions, including on interstate and international travel.



experiences in 2020 and 2021. This chapter therefore seeks to supplement the other chapters.

## COVID-19 testing and exposure

Table 5.1 shows the proportion of people reporting having been tested for COVID-19 as of the time of interview in Wave 21. Rapid antigen tests were not widely available in Australia until November 2021, so most tests at the time of the Wave 21 interviews were 'polymerase chain reaction' (PCR) tests that required a sample from a nasal swab be sent to a pathology laboratory.

In total, 53.7% of people aged 15 and over had been tested for COVID-19 at least once. Females were somewhat more likely to have been tested than males, while people in the 25 to 44 age range were the most likely to have been tested. Indeed, there is a strong negative association between age and likelihood of being tested beyond this age range. Only 34.9% of people aged 75 and over had been tested for COVID-19 as of the Wave 21 interviews.

Considerable variation in testing rates across regions is evident, with nearly two-thirds of people in Sydney and Melbourne having been tested, compared with only 31.9% of Perth residents and 27.4% of other Western Australian residents. Within each state, the proportion tested is highest in the capital city.

Rates of COVID-19 infection in Australia were very low in 2020 and 2021. It was only with relaxation of public health measures towards the end of 2021 and in early 2022 that infection became widespread. Reports of infection by HILDA Survey respondents, presented in Table 5.2, are correspondingly low in both 2020 and 2021. In 2020, one in every 200 people reported having been infected, which rose to 2.4 in every 200 in 2021.

In 2020, infection rates were similar for males and females and across age groups, but in 2021 they were slightly higher for females than males, perhaps because females were more likely to get tested (Table 5.1). Reported infection rates were similar across age groups in 2020 but were considerably lower among people aged 55 and over than among younger people in 2021. The rate of infection was highest in New South Wales in both 2020 and 2021, although Victoria was not far behind in 2021.

### Vaccination

Vaccinations first became available to the Australian community in February 2021. Supply constraints, particularly in the first half of 2021, meant there was a staged roll-out with people prioritised based on factors such as age, medical conditions and job type. Indeed, it was only from 30 August 2021 that all people aged 16 to 39 became eligible to receive their first vaccine dose.

It is therefore unsurprising to see that, as of the Wave 21 interviews, rates of vaccination were considerably lower among young people than older people (Figure 5.1). Nonetheless, it is also clear that younger people were more likely to be unsure whether they would get vaccinated and also more likely to intend not to get vaccinated.

Table 5.3 considers in more depth the characteristics associated with vaccination and intention to get vaccinated. It presents estimates from two Probit models, the first of the probability an individual has already been vaccinated, and the second of the probability they have been vaccinated *or* intend to get vaccinated. Differences in estimates between these two Table 5.1: Proportion of people aged 15 and over who had been tested for COVID-19, 2021 (%)

	Males	Females	All people
Sex and age group			
15-24	52.4	58.8	55.5
25-34	58.3	66.3	62.3
35-44	60.9	63.7	62.3
45-54	47.5	58.5	53.1
55-64	49.4	51.3	50.4
65-74	40.1	47.6	44.0
75 and over	36.0	34.0	34.9
Total	51.0	56.4	53.7
Regions			
Sydney			66.0
Other urban New South Wales			51.0
Non-urban New South Wales			51.4
Melbourne			65.3
Other urban Victoria			52.0
Non-urban Victoria			60.5
Brisbane			55.4
Other urban Queensland			40.5
Non-urban Queensland			38.2
Adelaide			51.0
Other South Australia			37.2
Perth			31.9
Other Western Australia			27.4
Tasmania			42.9
Northern Territory			56.3

### Table 5.2: Reported rates of infection with COVID-19—People aged 15 and over, 2020 and 2021 (%)

	2020	2021
All people aged 15 and over	0.5	1.2
Gender		
Males	0.6	1.0
Females	0.5	1.3
Age group		
15-34	0.4	1.6
35-54	0.6	1.5
55 and over	0.5	0.4
State or territory		
New South Wales	1.2	1.7
Victoria	*0.3	1.4
Queensland	*0.2	0.5
South Australia	*0.1	*0.7
Western Australia	*0.0	*0.6
Tasmania	*0.0	*0.8
Northern Territory	*0.0	*0.0
Australian Capital Territory	*1.5	*1.9

Note: \* Estimate not reliable.



models reflect differences in access to vaccination as of the time of the Wave 21 fieldwork, as well as differences in motivation or effort to get vaccinated. In the following discussion, we refer to the second model as identifying characteristics associated with the *intention* to get vaccinated (since it is implicit that an individual who has already been vaccinated had that intention).

The estimates show no statistically significant differences between males and females in vaccination and vaccination intentions. The likelihood of being vaccinated is strongly ordered by age, reflecting the staged nature of the roll-out. However, there are also differences by age group evident in intention to get vaccinated, with people aged 25 to 34 the least likely to intend to get vaccinated, and a positive association between intentions and age evident at ages 55 and above.

All else being equal, partnered people were more likely to be

vaccinated, but not more likely to intend getting vaccinated, suggesting some positive 'spillover' effects, such as from one partner scheduling appointments for both members of the couple.

There are no significant differences in vaccination rates based on immigrant status and First Nations identity, but First Nations people on average had a 4.6 percentage-point lower probability of intending to get vaccinated than non-First Nations Australian-born people. Immigrants from countries other than the main English-speaking countries on average had a 1.8 percentage-point higher probability of intending to get vaccinated than non-First Nations Australian-born people.

Comparing across the states and territories, all else being equal, vaccination rates were lowest in the Australian Capital Territory, Queensland and Western Australia. Queensland and



Table 5.3: Characteristics associated with vaccination and vaccination intentio	ons, 2021	
	Vaccinated	Vaccinated or intend to get vaccinated
Male	ns	ns
<i>Age group</i> (Reference category: 15–24)		
25-34	ns	-0.026
35-44	0.065	ns
45-54	0.202	ns
55-64	0.261	0.041
65-74	0.369	0.069
75 and over	0.379	0.075
Partnered	0.026	ns
Immigrant status and First Nations identity (Reference category: Non-First Nations Australian	-born)	
First Nations	ns	-0.046
Immigrant, main English-speaking countries	ns	ns
Immigrant, other countries	ns	0.018
State or territory of residence (Reference category: New South Wales)		
Victoria	ns	-0.016
Queensland	-0.110	-0.064
South Australia or Northern Territory	ns	ns
Western Australia	-0.063	-0.032
Tasmania	ns	ns
Australian Capital Territory	-0.135	0.047
Pegion of residence (Deference category: Major urban)	0.100	0.041
Other urban	-0.022	-0.016
Other region	ns	-0.016
	0.012	0.006
SLIFA declie	0.012	0.000
Pachalar's degree or higher	0.077	0.049
Other post-school qualification	0.011	0:049
Income guintile (Peference estegery: Bettem guintile)	115	115
Second	0.021	20
Middle	0.051	0.028
Fourth	0.052	0.028
Fourth	0.073	0.050
iop	0.130	0.050
Labour force status (Reference category: Not in the labour force)		
Employed	ns	ns
	ns	ns
Industry (Reference category: Not employed in these industries)		0.000
Retail Trade and Accommodation and Food Services	ns	0.022
Health Care and Social Assistance	0.211	0.051
Public Administration and Safety	0.109	0.057
Education and Training	0.048	0.034
Professional, Scientific and Technical Services	0.059	0.049
In poor general health	-0.035	ns
In poor mental health	ns	ns
Moderate or severe disability	ns	-0.024
Serious illness conditions		
Asthma	ns	0.018
Any type of cancer	0.052	ns
Chronic bronchitis or emphysema	ns	ns
Type 1 diabetes	ns	ns
Type 2 diabetes	0.059	0.045
Heart disease	0.047	ns
High blood pressure or hypertension	0.043	0.022
Body mass index (Reference category: Normal weight)		
Obese	ns	0.015
Overweight	0.029	ns
Underweight	-0.060	ns
Smoker	-0.058	-0.028
Regularly drink alcohol	0.055	0.027
Regularly consume illicit drugs	ns	-0.025
Number of observations	13,608	13,622

*Notes*: Estimates are mean marginal effects from a Probit model of the probability of being vaccinated (or intending to get vaccinated). See the Technical Appendix for further explanation of Probit models. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

Western Australia also had lower proportions intending to get vaccinated than other parts of the country, but the Australian Capital Territory had the highest proportion intending to get vaccinated, holding other factors constant.

Estimates for population density of the region of residence (see Box 2.11, page 40) show that those living in urban areas outside the major urban areas were less likely to be vaccinated than people in other regions, while all people living outside major urban areas were less likely to intend getting vaccinated than people living in major urban areas. Vaccination and intention to get vaccinated were also higher in more socioeconomically advantaged regions. Each one-decile increase in the Socio-Economic Index for

Areas (SEIFA) Index of Relative Socio-Economic Advantage and Disadvantage (see Box 5.3, below) was associated with a 1.2 percentage-point increase in the probability of being vaccinated and a 0.6 percentagepoint increase in the probability of intending to get vaccinated.

Holding a university qualification is associated with a 7.7 percentage-point increase in likelihood of being vaccinated and a 4.9 percentage-point increase in likelihood of intending to get vaccinated, holding other factors constant. The greater the household income, the higher are rates of vaccination and intention to get vaccinated. No significant differences are evident by labour force status; however, people employed in health care and social assistance industries were

### Box 5.3: Socio-Economic Index for Areas (SEIFA)

Constructed by the Australian Bureau of Statistics (ABS) using Census data, SEIFA is a suite of four indexes that can be used to explore different aspects of socioeconomic conditions by geographic areas. For each index, every geographic area in Australia is given a SEIFA number, which shows how disadvantaged that area is compared with other areas in Australia. In analysis presented in this report, the SEIFA measure used is the decile of the *Index of Relative Socio-Economic Advantage and Disadvantage*, which is derived from Census variables such as low income, low educational attainment, unemployment and dwellings without motor vehicles. For more information, see ABS (2009). more likely to be vaccinated than people employed in other industries. People employed in public administration and safety also had a relatively high probability of being vaccinated, all else being equal.

Given the prioritisation of immuno-compromised people in the vaccine roll-out, as well as their potentially greater concerns about contracting the virus, Table 5.3 considers various indicators or measures of health. Somewhat surprisingly, people in poor general health were less likely to be vaccinated than people not in poor general health, all else being equal, although they do not have a significant difference in their *intention* to get vaccinated. Similarly surprising is that people with a moderate or severe disability have a 2.4 percentage-point lower probability of intending to get vaccinated than other people, all else being equal.

A number of serious illness conditions identified in Wave 21 of the HILDA Survey (see Chapter 6 for more details) are also considered in Table 5.3. Rates of



vaccination were indeed approximately 5 percentage points higher, all else being equal, for people with any type of cancer, Type 2 diabetes, heart disease or high blood pressure or hypertension. However, vaccination rates were not statistically significantly higher for people with asthma, chronic bronchitis or emphysema, or Type 1 diabetes, although people with asthma on average had a 1.8 percentagepoint higher probability of intending to get vaccinated than other people, all else being equal.

The estimates for categories of body mass index (see Box 6.2, page 130) show vaccination rates were highest for people in the overweight category and lowest for people in the underweight category, while vaccination intentions were highest for those in the obese category and not significantly different across the other three categories.

Finally, Table 5.3 considers associations with smoking, drinking and illicit drug consumption. Smokers were less likely to be vaccinated and less likely to intend to get vaccinated, while regular drinkers of alcohol were more likely to be vaccinated and intend to get vaccinated. People who regularly (every few months or more frequently) consume illicit drugs (see Box 7.2, page 151), while no less likely to have been vaccinated, were less likely to intend to get vaccinated.

### Reported effects of the pandemic on people's lives

Respondents were asked in both 2020 and 2021 how much their life had changed because of the 'coronavirus crisis'. Figure 5.2 considers regional variation in the perceived extent of the impact of COVID-19, presenting the proportion reporting their life had been made much worse. There are 16 regions distinguished: three regions in each of the three eastern mainland states (capital city, other urban areas and nonurban areas), two regions in the other two mainland states (capital city and rest of state) and



Notes: NSW - New South Wales; SA - South Australia; WA - Western Australia; NT - Northern Territory; ACT - Australian Capital Territory.

People aged 15 and over, 2020 and 2021		Interactions with
		ʻin lockdown'
In lockdown		0.308
Male	ns	ns
Age group (Reference category: 35–44)		
15-24	ns	ns
25-34	ns	-0.059
45-54	0.038	-0.047
55-64	0.052	ns
65 and over	ns	ns
Partnered	ns	ns
Age of youngest child (Reference category: No dependent children)		
Under 5	ns	ns
5-9	ns	ns
10-14	ns	ns
15-24	ns	ns
Immigrant status and First Nations identity (Reference category: Non-First Nations A	Australian-born)	
First Nations	0.062	-0.072
Immigrant, main English-speaking countries	0.120	-0.094
Immigrant, other countries	0.039	ns
Educational attainment (Reference category: No post-school qualifications)		
Bachelor's degree or higher	0.028	ns
Other post-school qualification	0.026	-0.030
SEIFA decile	0.004	ns
Income quintile (Reference category: Middle quintile)		
Bottom	-0.035	0.037
Second	ns	ns
Fourth	-0.037	ns
σρ	ns	0.037
Type of dwelling (Reference category: Detached house)		
Semi-detached house	0.051	ns
Flat	ns	ns
Other type of dwelling	0.069	ns
Number of bedrooms per person	ns	-0.022
Moderate or severe disability	0.033	ns
	0.015	ns
Labour force status (Reference category: Employed)		
	0.122	ns
Not in the labour force	0.035	ns
2021	_0.038	0.022
Number of observations	0.000	7 701

Table 5.4: Characteristics associated with feeling life was much worse because of the coronavirus crisis—

Note: Estimates are mean marginal effects from a Probit model of the probability of feeling life was much worse because of the 'coronavirus crisis'. See the Technical Appendix for further explanation of Probit models. ns indicates the estimate is not significantly different from 0 at the 10% level.



one region for Tasmania and each of the two territories.

Australia-wide, there was an increase in the proportion of people reporting their life was much worse because of the COVID-19 pandemic between 2020 and 2021, rising from 16.8% to 20.5%. However, the increase was largely driven by residents of New South Wales. Despite further extended lockdowns in Victoria in 2021, the proportion reporting life was much worse due to the pandemic actually fell slightly in 2021. Sydney experienced the biggest increase in the proportion feeling life was much worse due to the pandemic, and indeed was the region with the highest proportion feeling this way in 2021.

In 2020, residents of Western Australia were the least likely to report life was much worse due to the pandemic. In 2021, this remained the case, although Tasmanian residents had a similarly low proportion feeling life was much worse due to the pandemic in that year.

Table 5.4 examines how perceived major worsening of one's life is associated with the characteristics of individuals. The table presents estimates from a Probit model of the probability of feeling life was much worse because of the pandemic. The first column considers the effects of individual characteristics, while the second column considers the impact of being in lockdown and how this varies with characteristics (by including interactions between the 'in lockdown' variable and the variables capturing characteristics).

All else being equal, there is no significant difference by gender, partner status or parenting status, but people aged 45 to 64 were more likely to report life being much worse than people of other ages. Examining difference by immigrant status and First



Nations identity reveals immigrants from the main English-speaking countries were most likely to report life was much worse, followed by First Nations people and then immigrants from other countries.

People with post-school qualifications were more likely to report life was much worse than people without post-school qualifications, while there is a positive association between socio-economic advantage and feeling life was much worse, each one-decile increase in the SEIFA index increasing the probability of reporting life was much worse because of the pandemic by 0.4 percentage points. However, there is no clear relationship with household income evident.

People with a moderate or severe disability were, all else being equal, 3.3 percentage points more likely to feel much worse because of the pandemic. More extroverted people (as measured by the HILDA Survey; see Box 2.5, page 20) were also more likely to feel much worse off, which is consistent with greater adverse effects of reduced social interaction for more extroverted people.

Comparisons across labour force status show the unemployed on average had a 12.2 percentagepoint higher probability of feeling life was much worse because of the pandemic. People not in the labour force also had an elevated probability compared with the employed. Interestingly, all else being equal, people had a 3.8 percentage-point lower probability of feeling much worse off in 2021 than in 2020. This could reflect people becoming accustomed to the pandemic and may also reflect fewer fears of the virus in the context of the roll-out of the vaccines.

Unsurprisingly, living in a region under lockdown is associated with a much higher probability of feeling life was much worse because of the pandemic: all else being equal, being in lockdown increased this probability by 30.8 percentage points. There is relatively little evidence of differences in the effects of lockdowns across individuals based on their characteristics. People aged 25 to 34 and 45 to 54 had an approximately 5 percentage-point lower adverse effect of lockdowns than people in other age groups. Adverse effects were also smaller for immigrants from the main English-speaking countries and First Nations people and for those with non-university postschool qualifications. Interestingly, comparing across income guintiles, we find that adverse effects of lockdowns were worse for those in the bottom or top quintiles.

No significant differences in the effects of lockdowns by type of dwelling are evident, but there is evidence that the larger the dwelling relative to the number of occupants, as measured by the number of bedrooms per person, the lower were the adverse



effects of lockdowns. Finally, we see that the adverse effects of lockdowns were on average worse in 2021 than in 2020: all else being equal, a person in lockdown in 2021 had a 2.2 percentage-point higher probability of feeling much worse off than a person in lockdown in 2020. This may reflect 'lockdown fatigue'.

### Early access to superannuation

Public health measures introduced in 2020 and 2021 resulted in a forced cessation of much economic activity, raising concerns about the financial impacts on households. As a result, in 2020 the Australian Government introduced a number of income supports over the course of the year. It also introduced a 'COVID-19 early release of super' scheme, whereby people not yet retired were able to access up to \$20,000 of their superannuation in 2020 (up to \$10,000 in the 2019-20 financial year and up to \$10,000 in the 2020-21 financial year) tax free and without penalty.

Table 5.5 examines the extent of use of this scheme and shows that 10.1% of the population aged 18 to 64 took advantage of the scheme in the first round and 9.6% took advantage of it in the second round, on average withdrawing

### Table 5.5: Early access to superannuation in 2020 by people aged 18 to 64

	Round 1 (2019–20 financial year)	Round 2 (2020-21 financial year)	Rounds 1 and 2 combined
Took advantage of the scheme (%)	10.1	9.6	12.7
Withdrew maximum (%)	7.3	7.1	4.9
Mean amount withdrawn (\$, December 2021 prices)	8,544	8,607	13,218

### Box 5.4: Measurement of household wealth in the HILDA Survey

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

The questions employed to measure wealth have remained very similar across the five waves that have specifically collected wealth data, ensuring a high degree of comparability of wealth estimates. In all five waves, the following financial asset components were measured: bank accounts; superannuation; cash investments; equity investments (shares): trust funds: and the cash-in value of life insurance policies. In respect of non-financial assets, wealth data were sought for: the home; other property; business assets; collectables; and vehicles. In Wave 2, the debt components measured comprised: home debt; other property debt; unpaid credit card debt; HECS-HELP debt; other personal debt (including car loans, investment loans, hire purchase agreements and loans from friends or relatives not living in the household); and business debt. Very similar information on debts was collected in 2006, 2010, 2014 and 2018, but in these four waves, the value of overdue household bills was also collected, and 'other personal debt' was disaggregated into six components: car loans; hire-purchase loans or agreements; investment loans; other personal loans from financial institutions; loans from other types of lenders such as solicitors, pawn brokers and welfare agencies; and loans from friends and relatives not living in the household.

The only significant component omitted from the HILDA Survey measure of household wealth is 'dwelling contents' (other than collectables), such as furniture and appliances. Estimates from the Australian Bureau of Statistics (ABS) Survey of Income and Housing presented in ABS (2019) indicate that the mean value of household contents, including collectables, was \$70,512 in 2017-18 (at December 2018 prices). The mean value of collectables in Wave 18 of the HILDA Survey was \$4,189, implying dwelling contents not measured by the HILDA Survey in 2018 averaged \$66,323 across all households. However, measuring the value of household contents is inherently difficult and it is not clear how much store should be placed in the ABS estimates.

\$8,544 in the first round and \$8,607 in the second round. In total, across the two rounds, 12.7% of people reported accessing the scheme, on average withdrawing \$13,218, and with 4.9% of all people withdrawing the \$20,000 maximum. Table 5.6 shows who accessed the early release of super scheme across the two rounds combined. It shows that 14.2% of men and 11.3% of women accessed the scheme. Single parents, followed by single people and couples with dependent children, had the highest take-up rates, while couples without children and non-dependent children had the lowest rates. The proportion accessing the scheme was 16.6% for those aged 35 to 44 and 16.5% for those aged 25 to 34, compared with 13.1% of those

### Table 5.6: Access to superannuation as part of the early release scheme, both rounds combined, by characteristics—People aged 18 to 64 (%)

	Accessed (%)	Withdrew maximum amount of \$20,000 (%)	Mean amount accessed (\$)
Gender			
Male	14.2	6.3	13,875
Female	11.3	3.6	12,412
Family type			
Couple	10.4	4.7	13,935
Couple with dependent children	13.7	5.6	13,794
Single parent	21.4	5.1	11,464
Single	15.0	5.9	12,952
Non-dependent child	7.8	1.6	10,730
Age group			
18-24	6.7	0.3	6,378
25-34	16.5	6.1	12,826
35-44	16.6	6.8	13,912
45-54	13.1	5.8	14,349
55-64	7.5	3.8	14,931
Labour force status			
Employed full-time	11.5	5.0	14,165
Employed part-time	13.9	4.7	12,450
Unemployed	22.5	9.4	12,761
Not in the labour force	11.8	3.8	12,206
Housing tenure type			
Social housing	13.5	2.6	9,019
Private rental	20.2	7.8	13,104
Owner with mortgage	10.8	4.5	14,024
Owner outright	6.4	2.3	12,281
Income quintile			
Bottom	13.1	3.8	11,737
Second	19.3	7.5	13,446
Middle	15.9	6.2	13,409
Fourth	9.6	4.2	13,586
Тор	7.8	3.2	13,519
Wealth quintile in 2018			
Bottom	19.9	5.4	11,658
Second	20.4	8.8	13,725
Middle	10.6	5.2	15,300
Fourth	8.2	2.9	12,561
Тор	4.6	1.7	12,319

Note: Characteristics are as measured in Wave 20.

aged 45 to 54, 7.5% of those aged 55 to 64 and 6.7% of those aged 18 to 24. Over one in five (22.5%) of the unemployed accessed the scheme, while 13.9% of the part-time employed, 11.5% of the full-time employed and 11.8% of those not in the labour force accessed the scheme.

Renters of private housing were considerably more likely to access the scheme than homeowners-especially home-owners without a mortgage—and also more likely to do so than renters of social housing. Comparing across guintiles of the distribution of household income (see Box 3.2, page 54), those in the second quintile had the highest proportion accessing the scheme; there is then a pattern of a decreasing proportion accessing the scheme as we move up the income distribution. This is likely to reflect the fact that many of

122

those in the bottom quintile have little or no superannuation. The relationship between wealth (see Box 5.4, page 120) and accessing the scheme is somewhat stronger, with those in the bottom quintile almost as likely to access the scheme as those in the second quintile, and those in the top quintile the least likely to access the scheme.

Among those accessing the scheme, the last two columns, presenting the proportion withdrawing the full \$20,000 permitted and the mean amount accessed, both show a pattern of those likely to have lower superannuation balances tending to withdraw less. This includes young people (aged 18 to 24), single parents and non-dependent children, those not employed fulltime, those living in social housing and those with low-tomoderate income or wealth.

### Impacts on time spent on components of paid and unpaid work

Time use was undoubtedly impacted by the pandemic in both 2020 and 2021, and this included the amount and composition of time spent on paid and unpaid work. Figure 5.3 examines how time spent on paid and various components of unpaid work changed between 2019 and 2020 and between 2020 and 2021 for males and females aged 15 and over (see Box 5.5, page 123).

In 2020, time spent in paid employment decreased, more so for males than females, and time spent commuting also declined



substantially. Time spent on household chores increased very slightly, while, for reasons that are not clear, time spent playing with and caring for one's own children declined for both males and females. Strikingly, time spent on volunteer or charity work also declined.

Between 2020 and 2021, there was a partial recovery in average hours of paid work, but essentially no change in time spent travelling to and from work. Time spent on household chores again increased, while there was some increase in time spent playing with and caring for one's own children for males, but a further slight decline for females. There was only a slight recovery in time spent on volunteer or charity work in 2021.

Figure 5.4 focuses on time use of parents with dependent children,

examining time spent on paid work, commuting, household chores and child care. Patterns for male parents are broadly consistent with patterns for all males, but with the changes on time spent on caring for and playing with one's children accentuated compared with the general population of males aged

### Box 5.5: 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:

- a. Paid employment
- b. Travelling to and from the place of paid employment
- c. 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
- e. 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
- g. Looking after other people's children (aged under 12 years) on a regular, unpaid basis
- h. Volunteer or charity work (for example, canteen work at the local school, unpaid work for a community club or organisation)
- i. 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 are only comparable from 2002 on.



15 and over. For female parents, we see changes in time spent on caring for one's own children broadly aligned with the changes evident for male parents, although the increase in 2021 is larger for males than females. Notably, in contrast to all females, female parents actually increased their hours of paid work between 2019 and 2020.

### Impacts of the pandemic on measures of subjective wellbeing and health

In every wave of the HILDA Survey respondents have been asked how satisfied they are with various aspects of their life and with their life overall (see Box 10.2, page 181). The upper panel of Table 5.7 presents the mean values of responses to these questions in 2019, 2020 and 2021. (Note that higher values correspond to higher satisfaction.) Strikingly, mean satisfaction increased between 2019 and 2020 for all life aspects other than 'employment opportunities'. However, despite this, mean overall life satisfaction did not change, remaining at 7.9 on the O-10 scale.

Between 2020 and 2021, satisfaction with employment opportunities on average increased to above the prepandemic level, while average satisfaction with one's financial situation again increased (after having increased between 2019 and 2020). However, average satisfaction with feeling part of the local community, one's health and the amount of free time all Table 5.7: Measures of subjective wellbeing, health and health behaviours—People aged 15 and over, 2019 to 2021

	2019	2020	2021
Mean satisfaction (0-10 scale)			
Home	8.1	8.2	8.2
Employment opportunities	7.2	7.1	7.4
Financial situation	6.7	7.1	7.2
How safe feel	8.3	8.4	8.4
Feeling part of local community	6.8	6.9	6.7
Health	7.2	7.4	7.3
Neighbourhood	7.9	8.0	8.0
Amount of free time	6.9	7.2	7.1
Life overall	7.9	7.9	7.9
Health measures			
General health (SF-36 measure, 0-100 scale)	65.2	65.6	65.1
Mental health (SF-36 measure, 0-100 scale)	71.5	70.0	69.4
Body mass index (%)			
Underweight	2.6	2.3	2.4
Normal weight	38.5	37.7	37.3
Overweight	33.6	33.1	33.3
Obese	25.4	26.8	27.0
Total	100.0	100.0	100.0
Smoker	14.8	14.2	13.9
Regular drinker	11.2	12.0	11.8
Exercise regularly	48.2	48.8	49.0

declined slightly between 2020 and 2021. Again, overall life satisfaction did not change between 2020 and 2021.

The second and third panels of Table 5.7 provide summary statistics for a small number of health measures, presenting the means of SF-36 general health and mental health measures (see Box 2.4, page 20), as well as the proportion of people in each of four categories for body mass index (see Box 6.2, page 130).

The mean of the general health measure actually increased in 2020, but then declined in 2021 to be slightly below the 2019 level. The mean of the mental health measure declined between 2019 and 2020 and further declined between 2020 and 2021. There is also some evidence of deterioration in health as captured by body weight, with the proportion in the obese category increasing from 25.4% in 2019 to 26.8% in 2020 and 27.0% in 2021.

The bottom panel of Table 5.7 examines health behaviours. In general, little change is evident. Rates of smoking declined between 2019 and 2021, while the proportion drinking alcohol at least five days per week increased from 11.2% to 12.0% between 2019 and 2020, and then declined to 11.8% in 2021. The proportion of people engaging in exercise (of at least 30 minutes a time) three or more times per week edged upwards from 48.2% in 2019 to 48.8% in 2020 and 49.0% in 2021.



# 6



## Health and health care

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 and 2021, respondents were asked about their consumption of illicit drugs via a battery of questions in the self-completion questionnaire.

This chapter briefly examines several aspects of the additional health-related information collected in Waves 9, 13, 17 and 21, including looking at serious illness conditions, private health insurance cover, access to dental care and out-of-pocket costs incurred for seeing general practitioners. In addition, predictors of mortality are examined. Note further that there are several other chapters in this year's report on health-related topics. Chapter 7 examines illicit and legal drug consumption, Chapter 8 examines psychological distress in the Australian community, and Chapter 10 examines individuals' quantity and quality of sleep.

### Serious illness conditions

Beginning in 2009, the HILDA Survey has collected information every four years on whether individuals have been diagnosed with various serious illness conditions that they currently still have, and that have lasted or are expected to last for six months or more. Table 6.1 lists the conditions and provides estimates of the prevalence of each condition in 2009 and 2021 disaggregated by gender and age group.

In both 2009 and 2021, conditions tend to be most prevalent in the oldest age group and least prevalent in the youngest age group. However, this pattern is not evident for asthma, which is more evenly distributed across age groups. Even more striking, depression or anxiety and other mental illness tend to be more common among the younger age groups.<sup>1</sup> Indeed, in 2021, females aged 15 to 34 had by far the highest proportion-29.3%-diagnosed with depression or anxiety. In terms of changes between 2009 and 2021, most alarming is the rise in diagnosed depression and anxiety, which increased for males and females in all age groups but was especially pronounced among females aged 15 to 34, among whom it rose from 12.7% to 29.3%.

Among people aged 55 and over, there were also rises in Type 2 diabetes, asthma and, for men, heart disease and high blood pressure. However, these increases are likely to reflect improved rates of diagnosis

Since 2017, depression and anxiety have been separately identified, but in 2009 and 2013 were combined into a single category. They are therefore combined in this report to allow examination of changes over the full 2009 to 2021 period.

rather than increased prevalence of these conditions. Interestingly, slight declines in diagnosed arthritis or osteoporosis are evident for both men and women aged 35 and over.

Table 6.2 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 that had the condition four years later. The 2009 to 2013, 2013 to 2017 and 2017 to 2021 periods are examined collectively.

The table shows that rates of onset vary considerably across the 11 conditions examined and also vary considerably by age group. For example, 20.7% 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 older the age group, the higher the rate of onset. The exceptions are the same as for the prevalence rates presented in Table 6.1: asthma, depression or anxiety and other mental illness. Also consistent with the evidence in Table 6.1 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 generallybut 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 14.4% of those aged 15 to 34, 24.2% of those aged 35

Table 6.1: Prevalence of serious illness co	onditions, 2009	and 2021,	by gender a	nd age gro	oup (%)	
	15-	15-34		35-54		d over
	2009	2021	2009	2021	2009	2021
Males						
Arthritis or osteoporosis	1.3	1.6	9.2	8.4	30.0	29.0
Asthma	11.7	10.4	7.1	8.6	7.6	10.6
Any type of cancer	0.3	0.1	1.6	1.1	8.7	9.3
Chronic bronchitis or emphysema	0.2	0.6	0.9	1.3	5.7	5.1
Type 1 diabetes	0.7	0.5	0.9	0.8	1.9	1.9
Type 2 diabetes	0.7	0.6	3.2	3.7	14.9	16.4
Depression or anxiety	6.1	14.4	9.0	14.5	8.2	11.8
Other mental illness	1.6	4.4	1.3	3.4	2.0	1.7
Heart disease	0.3	0.4	2.1	1.9	13.8	16.9
High blood pressure or hypertension	2.1	1.2	11.9	9.5	36.4	41.5
Any other serious circulatory condition	0.1	0.2	1.5	1.4	7.0	7.4
Any of these serious illness conditions	20.1	25.6	34.1	35.8	69.7	72.8
Females						
Arthritis or osteoporosis	1.6	2.0	12.7	10.8	48.3	46.1
Asthma	14.0	14.0	11.3	13.3	12.6	14.4
Any type of cancer	0.5	0.4	2.2	2.0	5.9	5.4
Chronic bronchitis or emphysema	0.6	0.3	1.7	1.1	4.4	4.4
Type 1 diabetes	0.7	0.4	0.8	0.9	1.0	0.9
Type 2 diabetes	0.6	0.3	3.5	4.3	9.1	10.6
Depression or anxiety	12.7	29.3	13.5	22.0	11.8	18.2
Other mental illness	1.3	6.3	1.5	3.8	1.0	1.8
Heart disease	0.2	0.7	1.6	1.0	10.9	10.8
High blood pressure or hypertension	1.9	1.2	11.1	11.2	43.1	42.4
Any other serious circulatory condition	0.5	0.3	1.4	1.3	5.7	6.2
Any of these serious illness conditions	27.3	39.2	39.0	43.7	75.7	75.7

by age group (%)	Rate of acquisition of conditions over a 4-year period			Persistence of conditions over a 4-year period		
	15-34	35-54	55 and over	15-34	35-54	55 and over
Arthritis or osteoporosis	1.9	7.5	20.7	46.3	64.1	74.9
Asthma	4.1	3.5	3.6	66.0	72.3	74.3
Any type of cancer	0.4	1.9	5.2	7.2	28.7	43.2
Chronic bronchitis or emphysema	0.3	1.0	2.5	10.6	50.4	61.4
Type 1 diabetes	0.2	0.4	0.8	85.6	75.8	56.8
Type 2 diabetes	0.4	2.1	4.0	77.3	78.5	85.5
Depression or anxiety	10.2	8.1	6.6	64.5	69.5	63.7
Other mental illness	2.3	1.6	0.8	54.0	59.4	34.1
Heart disease	0.2	1.5	8.0	33.0	62.3	68.7
High blood pressure or hypertension	1.6	7.1	18.0	49.0	76.8	85.0
Any other serious circulatory condition	0.5	1.8	5.8	15.1	27.6	38.0

Table 6.2: Rates of acquisition and persistence of serious illness conditions over a four-year timeframe, by age group (%)

to 54, and 43.2% of those aged 55 and over who reported having Type 1 diabetes did not report having it four years later.

The estimates presented in Table 6.2 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 it will have relatively high mortality. Associations between the conditions and mortality are therefore examined in Table 6.3, over both a four-year period and an eight-year period. (See Box 6.1 for explanation of how deaths are identified in the HILDA Survey.)

Note that four-year mortality is based on 2009, 2013 and 2017 data on serious illness conditions, whereas eight-year mortality is based only on 2009 and 2013 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 was possible to include eight-year mortality for 2017 data (but which will not be possible until 2025 data are available). It should also be acknowledged that the mortality rates presented in the table

### Box 6.1: 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, moving 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 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 dead, so that deaths will be underestimated for the 2013 to 2021 period.



Table 6.3: Mortality rates of people with serious illness conditions (%)						
	Within 4 years			Within 8 years		
	15-34	35-54	55 and over	15-34	35-54	55 and over
Arthritis or osteoporosis	0.5	1.0	8.5	1.2	2.6	16.7
Asthma	0.4	1.1	8.5	0.8	2.4	17.6
Any type of cancer	8.0	7.4	18.1	7.9	12.3	29.3
Chronic bronchitis or emphysema	0.0	1.4	18.1	0.0	1.4	33.9
Type 1 diabetes	1.7	11.0	12.9	3.0	21.6	29.7
Type 2 diabetes	0.3	3.1	11.1	0.5	5.1	21.3
Depression or anxiety	0.3	1.2	9.0	1.0	3.1	18.0
Other mental illness	0.9	2.5	13.0	2.9	4.5	21.1
Heart disease	1.8	8.8	15.8	0.0	15.1	29.6
High blood pressure or hypertension	0.1	1.7	8.3	0.3	3.2	17.5
Any other serious circulatory condition	3.6	5.1	16.7	5.3	10.5	31.3
All people	0.2	0.8	7.4	0.4	1.6	16.0

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 11.0% for Type 1 diabetes and 8.8% for heart disease, compared with 7.4% for cancer; among those aged 55 and over, cancer has the equal highest four-year mortality rate alongside chronic bronchitis or emphysema, 18.1%, but 'other



serious circulatory condition' and heart disease are not far behind, at 16.7% and 15.8%, respectively.

Over an eight-year period, Type 1 diabetes has the highest mortality rate for people aged 35 to 54 (21.6%) and also a relatively high mortality rate for people aged 55 and over (29.7%). Among those aged 55 and over, the highest mortality rate is found for chronic bronchitis or emphysema (33.9%), followed by 'other serious circulatory condition' (31.3%), heart disease (29.6%), Type 1 diabetes and any type of cancer (29.3%). Among those aged 35 to 54, mortality rates are also relatively high for heart disease (15.1%) and any type of

cancer (12.3%). By comparison, for the general population, the eight-year mortality rate is 1.6% for those aged 35 to 54 and 16.0% for those aged 55 and over.

## Treatment of serious illness conditions

For people with one or more of the serious illness conditions, the HILDA Survey also obtains information on treatment received for these conditions, including whether a doctor is regularly consulted. Table 6.4 shows, for each serious illness

Table 6.4: Proportion of people with a serious illness condition who see a doctor about their condition at least annually, 2009 and 2021

	Ma	les	Fem	ales
	2009	2021	2009	2021
Arthritis or osteoporosis	72.5	75.2	76.1	77.9
Asthma	46.7	57.5	63.3	69.9
Any type of cancer	92.2	92.2	93.3	91.0
Chronic bronchitis or emphysema	85.3	85.8	87.5	87.7
Type 1 diabetes	96.3	93.5	95.5	98.5
Type 2 diabetes	93.2	95.8	93.7	97.6
Depression or anxiety	76.4	72.2	76.5	74.0
Other mental illness	83.9	80.0	87.2	84.7
Heart disease	93.9	94.2	95.0	96.4
High blood pressure or hypertension	89.9	90.8	92.6	92.4
Any other serious circulatory condition	94.2	92.9	89.4	95.3



condition, the proportion seeing a medical practitioner about their condition at least annually. The table compares 2009 with 2021 and shows results for males and females separately.

Most people with these conditions regularly (at least annually) see a doctor. People with asthma are the least likely to see a doctor about the condition annually, although the proportion doing so increased between 2009 and 2021, from 46.7% to 57.5% for males and from 63.3% to 69.9% for females. In 2021, people with Type 1 diabetes, Type 2 diabetes, heart disease, any type of cancer, high blood pressure or any other serious circulatory condition in almost all cases (90% or more) see a doctor at least annually.

The proportion seeing a doctor annually increased from most conditions, the notable exception being depression or anxiety and other mental illness. The proportion of males diagnosed with depression or anxiety who saw a doctor at least annually fell from 76.4% in 2009 to 72.2% in

Table 6.5: Mean change in SF-36 general health over four years of people with a serious illness condition, by whether regularly sees a doctor or other medical practitioner about the condition, 2009 to 2021 (0-100 scale)

	Ma	ales	Females		
	Do not see a doctor	Do see a doctor	Do not see a doctor	Do see a doctor	
Arthritis or osteoporosis	-2.30	-1.68	-2.66	-1.74	
Asthma	-1.03	-0.85	-3.49	-1.40	
Any type of cancer	-7.47	-0.76	1.66	0.67	
Chronic bronchitis or emphysema	-3.81	-2.08	-2.23	-1.43	
Type 1 diabetes	*-3.16	-3.81	*2.16	-1.84	
Type 2 diabetes	-3.08	-2.90	-5.03	-1.58	
Depression or anxiety	-0.78	0.85	-1.82	0.07	
Other mental illness	0.98	1.38	2.32	-0.78	
Heart disease	-2.26	-2.08	-2.23	-0.70	
High blood pressure or hypertension	-0.79	-2.22	-4.26	-2.36	
Any other serious circulatory condition	-0.62	0.51	1.42	0.44	
All with a condition	-1.73	-1.70	-2.46	-1.57	

Note: \* Estimate not reliable.

2021, while for females the fall was from 76.5% in 2009 to 74.0%. Similar falls are evident for other mental illnesses.

Associations between receiving treatment, defined as regularly seeing a doctor, and general health of people with serious illness conditions, are examined in Table 6.5. For each of the 11 conditions, as well as for all conditions combined, the mean four-year change in the SF-36 health measure is presented, disaggregated by whether regularly seeing a doctor. It should be noted that these findings are conditional on remaining alive for the entire four-year period. Moreover, it is possible that people with more severe illnesses are more likely to seek regular treatment, which would tend to reduce the apparent benefits of regularly seeing a doctor obtained from comparing with those not regularly seeing a doctor.

The bottom row of the table shows that, overall, the mean change in self-assessed health over a four-year period was similar for males irrespective of whether they were regular seeing a medical practitioner, while for females there is a considerably smaller average drop in general health for those regularly seeing a medical practitioner.

Despite the overall finding for males, for most conditions, and for both males and females, we see the change in general health is higher (often via being a smaller negative) for those regularly seeing a doctor. The only exceptions are high blood pressure for males and cancer, 'other mental illness' and 'any other serious circulatory condition' for females. Note, however, that we cannot infer from these findings whether treatment is beneficial. For example, it seems likely that people experiencing more severe symptoms and therefore having a poorer prognosis will be more likely to seek treatment.

### Factors associated with onset of serious illness conditions

Table 6.6 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 often first arise in childhood, are excluded from the table, as are 'any other mental

### Box 6.2: Body mass index (BMI)

Body mass index (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 is regarded as a useful measure for population groups.

illness' and 'other serious circulatory condition', 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 and health behaviours. In addition, for depression or anxiety, measures of general health and disability and experience of various major life events are also considered

All factors are measured at the start of the four-year period,

before (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, chronic bronchitis or emphysema 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 6.1, a clear age-gradient is evident for all conditions other than depression and anxietv—the older the age group, the higher the probability of reporting onset of the condition. For depression and anxiety, the likelihood of onset actually decreases in age up to the 65 to 74 age category.



Table 6.6: Factors associated with onset of selected serious illness conditions over the subsequent four years, 2009 to 2021

			Chronic				
	Arthritis or osteoporosis	Any type of cancer	or emphysema	Type 2 diabetes	Heart disease	pressure or hypertension	Depression or anxiety
Male	-0.030	0.004	-0.003	0.006	0.015	ns	-0.033
Age group (Reference category: 55-64)							
15-24	-0.182	-0.064	-0.016	-0.049	-0.078	-0.149	0.058
25-34	-0.141	-0.033	-0.017	-0.031	-0.070	-0.109	0.047
35-44	-0.097	-0.019	-0.010	-0.016	-0.040	-0.063	0.046
45-54	-0.040	-0.007	-0.004	-0.012	-0.021	-0.020	0.027
65-74	ns	0.011	0.005	ns	0.016	0.030	-0.025
75 and over	0.030	0.016	0.005	ns	0.034	0.050	-0.024
Immigrant status and First Nations identity (	Reference cate	egory: Non	-First Nations /	Australian-b	orn and ME	S country imm	nigrants)
First Nations	ns	ns	ns	0.017	0.026	ns	-0.031
Immigrant, non-MES countries	ns	-0.017	-0.006	0.013	ns	-0.022	-0.026
Region of residence (Reference category: Ma	ijor urban)						
Other urban	0.009	ns	0.005	ns	ns	-0.026	ns
Other region	0.009	ns	0.004	ns	ns	ns	-0.013
Family type (Reference category: Single pers	ion)						
Couple without dependent children	ns	0.005	ns	ns	ns	0.017	ns
Couple with dependent children	-0.019	ns	ns	ns	ns	0.008	-0.024
Single parent with dependent children	ns	ns	ns	ns	ns	ns	ns
Labour force status (Reference category: No	t in the labour	force)					
Employed	-0.025	ns	-0.011	ns	-0.006	ns	-0.023
Unemployed	ns	ns	ns	ns	0.023	ns	ns
Work long hours	ns	ns	0.005	ns	ns	ns	ns
Income quintile (Reference category: Middle	quintile)						
Bottom	ns	ns	ns	ns	ns	0.012	0.025
Second	ns	ns	ns	ns	ns	ns	ns
Fourth	ns	ns	0.005	ns	ns	ns	ns
Тор	ns	ns	ns	ns	ns	-0.013	ns
In financial stress	0.015	0.010	0.006	ns	ns	ns	0.019
Body mass index (Reference category: Norm	al weight)						
Obese	0.020	0.005	ns	0.039	0.014	0.069	ns
Overweight	ns	ns	ns	0.019	0.007	0.027	ns
Underweight	ns	0.022	ns	ns	ns	ns	ns
Smoker	ns	ns	ns	ns	ns	ns	ns
Have been a smoker in the last 8 years	0.017	ns	0.012	0.008	ns	0.017	0.020
Regular drinker	ns	ns	ns	-0.012	-0.007	ns	ns
Drink at least 42 standard drinks per week	ns	ns	ns	ns	ns	ns	ns
Have been a regular drinker in all of the last							
8 years	ns	ns	ns	ns	ns	ns	ns
Do not regularly exercise	ns	ns	ns	ns	ns	ns	0.008
Has not regularly exercised in the last 8 years	0.013	ns	0.005	0.008	ns	ns	ns
Diet							
Usually drinks full cream milk	-0.010	ns	ns	ns	ns	ns	ns
Eats vegetables on 3 or fewer days per week	ns	ns	ns	ns	ns	ns	ns
Eats fruit on 3 or fewer days per week	ns	ns	ns	ns	ns	ns	ns
Eats breakfast on 3 or fewer days per week	ns	ns	ns	ns	ns	ns	ns
Usually adds salt to food	ns	ns	ns	ns	ns	ns	ns
In poor general health							0.036
Moderate or severe disability							0.040
Life events over the previous 4 years							
Separated from spouse or long-term partne	er						0.055
Death of spouse or child							0.017
Serious personal injury or illness of a close relative / family member							0.010
Victim of physical violence (e.g., assault)							0.045
Fired or made redundant by an employer							0.029
Number of observations	25.989	30.604	30.961	29.971	30.227	25.717	27.240

*Notes*: Estimates are mean marginal effects from Probit models of the probability of acquiring the indicated serious illness condition over the subsequent four years. See the Technical Appendix for further explanation of Probit models. *ns* indicates the estimate is not significantly different from 0 at the 10% level. MES, main English-speaking countries.



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

Onset of both arthritis or osteoporosis and chronic bronchitis or emphysema appear to be significantly higher for people living outside the major urban areas, while people living in urban areas outside the major urban centres are significantly less likely to be diagnosed with high blood pressure than people in major urban or non-urban areas. People in non-urban areas are less likely than people in urban areas to report onset of diagnosed depression or anxiety.

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 experience onset of arthritis or osteoporosis and depression or anxiety, and couples, with or without dependent children, are more likely to be diagnosed with high blood pressure than single people. People in a couple without dependent children are also slightly more likely to be diagnosed with cancer than people in other family types.

Compared with being out of the labour force, employment is associated with reduced rates of onset of arthritis or osteoporosis, chronic bronchitis or emphysema, heart disease and depression or anxiety. Unemployment is associated with a higher probability of onset of heart disease. Long hours of work, defined here as usually working more than 50 hours per week, are associated with a slightly elevated rate of onset of chronic bronchitis or emphysema, but no effects are evident for the other conditions.

The effects of economic wellbeing are captured by household equivalised income (see Box 3.2, page 54) and experience of financial stress (see Box 3.8, page 74). There are few significant associations between quintile of the distribution of household income and onset of conditions. The main findings are that people in the bottom quintile have higher probabilities of onset of high blood pressure and depression or anxiety. Experience of financial stress is, however, associated with a higher risk of arthritis or osteoporosis, cancer, chronic bronchitis or emphysema and depression or anxiety.

Weight categories based on body mass index (see Box 6.2, page 130) show that being obese appears to increase the risk of arthritis or osteoporosis, cancer, 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. Being underweight is associated with an increased probability of onset of cancer.

Having been a smoker in the last eight years is associated with an increased risk of onset of most conditions, but surprisingly not cancer or heart disease. For the five conditions for which there is a positive association with a history of smoking in the last eight years, there is no evidence of additional adverse effects of continuing to be a smoker at the start of the four-year period. That is, the estimates for the 'smoker' variable are in all cases statistically insignificant.

The surprising absence of apparent effects of smoking on cancer and heart disease is likely to in part reflect the long lags often involved between smoking and subsequent onset of illness conditions. It should also be noted that the HILDA Survey will fail to capture diagnoses of people who are diagnosed and then die in the same four-year window between 'health' waves. For example, HILDA will not capture the cancer diagnosis of a respondent who is diagnosed in 2018 and dies in 2020. Finally, Table 6.6 only captures diagnosed conditions, missing the potentially many people with these conditions who have not obtained a diagnosis. Thus, the HILDA Survey will necessarily underestimate the adverse health effects of smoking.

Regular alcohol consumption (at least five days per week) 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 and heart disease. Moreover, high total alcohol consumption—42 or more standard drinks per week—is not associated with a higher probability of onset of any of the conditions.

There is of course considerable medical evidence of adverse health effects of alcohol. As with smoking, long lags between drinking activity and subsequent onset of serious illness conditions, failure to observe onset because the period between diagnosis and death is short, and the existence of undiagnosed conditions, are likely to be factors. It is also possible that innately healthier people are more likely to drink alcohol regularly—that is, people in poorer health, and hence more prone to serious illness conditions, may be more likely to avoid alcohol. Note. moreover. that adverse health effects of alcohol extend beyond the conditions examined in Table 6.6.

Not regularly exercising—at least three times per week—is associated with a higher likelihood of depression or anxiety, but no other effects on onset of serious illness conditions. However, not having been a regular exerciser in any of the preceding eight years is associated with an elevated risk of onset of arthritis or osteoporosis, chronic bronchitis or emphysema and Type 2 diabetes.

Information was collected in Waves 7, 9, 13, 17 and 21 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 vegetables are usually consumed no more than three times per week. whether fruit is 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. Indeed, the only significant effect is for that of consumption of full fat milk on

arthritis or osteoporosis, and this effect is negative.

Measures of health, disability and various major life events experienced over the preceding four years are also included as potentially having an impact on the onset of depression or anxiety. The estimates show that both poor general health (see Box 2.4, page 20) and disability (see Box 2.7, page 24) are associated with an increased risk of subsequent onset of diagnosed depression or anxiety.

All of the life events considered separation from one's partner, death of one's spouse or child, serious injury or illness of a close family member, being a victim of physical violence and being dismissed by one's employer—are also associated with an increased risk of depression or anxiety. The effect is particularly large for being a victim of violence, which acts to increase the probability of onset of depression or anxiety by 4.5 percentage points.



## Private health insurance

The private health insurance market in Australia is heavily influenced by government policy. Insurance providers are not permitted to offer insurance for certain types of health care, such as GP consultations, restricting the insurance market to essentially hospital expenses (excluding fees incurred from medical practitioners for treatment received in hospital) and certain 'extras', largely comprising dental care and a variety of allied and alternative health-care services (delivered outside of hospital).

Prices are heavily regulated, as are the 'inclusions' and 'exclusions' of insurance policies. The maintenance of a public hospital system with few user charges alongside a private hospital system funded through private health insurance also profoundly impacts the nature of the health insurance market. Finally, there are various 'carrots' and 'sticks' to encourage people to take up private health insurance, including a subsidy of health insurance premiums (Private Health Insurance Rebate), an income tax surcharge for high income earners without hospital cover (Medicare Levy Surcharge) and a mandated 2% increase in insurance premiums for every year after age 30 that a person did not hold hospital cover, up to a maximum of 70% (Lifetime Health Cover).

Given the complex context within which the private health insurance market operates in Australia and the major role of

government policy, it is important for policy-makers to understand who holds private health insurance and the determinants of households' health insurance decisions. Information on the members of the household covered by private health insurance and the type of health insurance held has been collected in Waves 4, 9, 13, 17 and 21, while private health insurance hospital cover has been ascertained for every respondent aged 15 and over in each year since 2012 (specifically, whether covered for the entire previous financial year). Combined with the detailed information on household members' circumstances, the



Figure 6.1: Proportion of people with private health insurance hospital cover, by age group



information on health insurance makes the HILDA Survey a valuable resource for policy in respect of the private health insurance market.

In this year's report, we examine how the extent of hospital cover has changed over time, who in Australia holds cover and the life experiences associated with taking up and dropping cover.

Figure 6.1 shows the proportion of people with private health insurance hospital cover in 2004, 2009, 2013, 2017 and 2021 disaggregated by age group. Overall, the proportion of people aged 15 and over with cover increased between 2004 and 2013 from 46.6% to 51.3% but declined after 2013 to 48.6%. The proportion covered tends to be highest among people in the 45 to 74 age ranges and lowest for people aged under 35. The proportion covered has increased most among people aged 75 and over, while the 25 to 34, 45 to 54 and 55 to 64 age groups have experienced net declines in the proportion covered between 2004 and 2021.

Table 6.7 shows the personal characteristics associated with holding hospital cover, presenting mean marginal effects estimates from a Probit model of the probability of having cover for people aged 18 and over. For this analysis, the annually reported information on insurance cover is used to increase the sample size. All else being equal, men on average have a 2.5 percentage-point lower probability of holding cover.

There is a clear positive association between age and the probability of holding cover, with the exception that people aged 18 to 24 have a relatively high probability of cover. This is likely to reflect the fact that many people in this age group are dependent children and will be covered by health insurance taken out by their parents.

### Table 6.7: Characteristics associated with holding private healthinsurance hospital cover, 2012 to 2021—People aged 18 and over

	0101
Men	-0.025
Age group (Reference category: 55–64)	
18-24	-0.128
25-29	-0.241
30-34	-0.154
35-44	-0.102
45-54	-0.089
65-74	0.085
75 and over	0.119
Family type (Reference category: Single person)	
Couple without dependent children	0.062
Couple with dependent children	0.142
Single parent with dependent children	ns
Immigrant status and First Nations identity (Reference category: Non-First Nations Australian-born)	0.470
First Nations	-0.173
Immigrant, main English-speaking countries	-0.079
Immigrant, other countries	-0.106
State or territory of residence (Reference category: New South Wales)	0.010
Victoria	0.018
Queensland	-0.031
South Australia or Northern Territory	0.058
Western Australia	0.111
Iasmania	0.017
Australian Capital Territory	0.111
Other where	0.066
Other urban	-0.066
Other region	-0.080
Labour force status (Reference category: Not in the labour force)	0.015
Employed full-time	0.015
	0.024
Income quintile (Deference estagenu: Middle quintile)	-0.023
Rettor	_0 170
Second	0.009
Second	-0.098
	0.107
In noor general health	_0.017
	-0.017
Moderate or severe disability	-0.046
Body mass index (Reference category: Normal weight)	0.040
Obece	-0.030
	0.008
	ns
Smoker	-0.162
Regularly drink alcohol	0.041
Regularly exercise	0.014
Year (Reference category: 2012-2014)	
2015-2017	0.012
2018-2019	-0.010
2020-2021	-0.022
Number of observations	137 140

*Notes*: Estimates are mean marginal effects from a Probit model of the probability of being covered by private health insurance hospital cover. See the Technical Appendix for further explanation of Probit models. *ns* indicates the estimate is not significantly different from 0 at the 10% level.



Comparing across family types, all else being equal, couples with children are the most likely to hold cover, followed by couples without children. First Nations people have a 17.3 percentagepoint lower probability of holding cover than non-First Nations Australian-born people.

Comparing across the states and territories, residents of Western Australia and the Australian Capital Territory are the most likely to hold cover, while Queensland residents are the least likely. People living outside major urban areas are less likely to hold cover than those living in the major urban areas.

Looking at labour force status, employed people are more likely to have cover than the nonemployed, all else being equal, while we also see that the unemployed are less likely to have cover than those not in the labour force. Household income (see Box 3.2, page 54) is strongly predictive of holding hospital cover.

Holding other factors constant, poor general health, poor mental

health and disability are all associated with a lower probability of having hospital cover (see Box 2.4, page 20, and Box 2.7, page 24). Continuing the theme that those perhaps more likely to need access to hospital services do not have hospital cover is that people in the obese category for body mass index and smokers are both less likely to have cover. Conversely, people who exercise regularly are more likely to have hospital cover than those who do not. However, people who regularly drink alcohol (at least five days per week) are more likely to have cover than those who do not regularly drink alcohol.

The estimates for 'year effects' show that, between 2012 and 2021, the probability of having hospital cover was highest in the 2015 to 2017 period and lowest in 2020 and 2021.

Figure 6.2 probes further into the dynamics of private health insurance hospital cover since 2012, showing the proportion of people aged 18 and over dropping and taking up cover each year. It shows the proportion taking up cover in a given year declined from 4.3% in 2013 to 2.5% in 2018, before rebounding slightly to be 3.2% in 2020 and 3.1% in 2021. The proportion of adults taking up cover each year remained relatively stable at between 3% and 3.3% up until 2017, but then rose over the next two years, to be 4.1% in 2019. The proportion dropping cover subsequently declined but remained above the proportion taking up cover.

## Predictors of mortality

Following on from the descriptive evidence on mortality presented in Table 6.3, Table 6.8 offers a broader perspective on the characteristics and behaviours associated with an increased risk of death. The table presents mean marginal effects estimates of the probability of death over both four-year and eight-year timeframes. Analysis is restricted to the period from 2006 onwards

### Table 6.8: Predictors of mortality over four years and over eight years

	Using all wav	ves from 2006	Using only waves in which diet information collected <sup>a</sup>		
	4 years	8 years	4 years	8 years	
Male	0.013	0.023	0.011	0.019	
Age group (Reference category: 15-24)					
25-34	ns	ns	ns	ns	
35-44	0.020	0.034	0.013	0.034	
45-54	0.029	0.054	0.023	0.055	
55-64	0.035	0.074	0.030	0.076	
65-74	0.054	0.115	0.050	0.115	
75-84	0.073	0.158	0.067	0.154	
85 and over	0.096	0.213	0.089	0.213	
Immigrant status and First Nations identity (Reference category:	Non-First Natior	ns Australian-born	)		
First Nations	0.008	0.015	ns	0.015	
Immigrant, main English-speaking countries	ns	ns	ns	ns	
Immigrant, other countries	-0.007	-0.015	-0.008	-0.014	
Region of residence (Reference category: Major urban)					
Other urban	-0.003	-0.006	ns	-0.007	
Other region	-0.004	-0.014	-0.005	-0.012	
Labour force status (Reference category: Not in the labour force)					
Employed full-time	-0.004	ns	ns	ns	
Employed part-time	-0.006	-0.007	-0.005	-0.007	
	ns	0.012	ns	ns	
Usually working bours are 50 or more per week	ns	ns	ns	ns	
Income quintile (Reference category: Middle quintile)	110			110	
Bottom	ns	0.004	ns	ns	
Second	ns	ns	ns	0.008	
Fourth	ns	ns	ns	ns	
Top	ns	ns	ns	ns	
In financial stress	ns	ns	ns	ns	
In mancial stress	0.014	0.026	0.017	0.028	
In poor mental health	0.014 ne	ns	ne	ne 0.020	
Disability status (Reference category: No disability)	115	113	113	115	
Source disability	0.023	0.036	0.022	0.037	
Moderate disability	0.025	0.030	0.022	0.037	
Mild disability	0.010	0.010	0.004	0.009	
Pady Mass Index (Poferance sategory: Normal weight)	0.000	0.010	0.004	0.005	
Obece	0.002	0.004	20	20	
Overweight	-0.002	-0.004	-0.004	-0.007	
	-0.005	-0.008	-0.004	-0.007	
Smaller	0.011	0.014	115	0.018	
Silloker	0.012	0.010	0.012	0.019	
Dripk algebol at least 5 days per week	0.012	0.019	0.013	0.018	
Drink alcohol at least 5 days per week	115	115	115	115	
Drink 42 of more drinks per week	ns	115	115	ns	
Regular driftker in each of the last 6 years	0.005	0.007	0.004	0.008	
Do not exercise regularly (at least 3 times per week)	0.005	0.007	0.004	0.008	
Have not exercised regularly in the last 6 years	-0.002	-0.009	115	-0.010	
			0.000	0.007	
Usually drink full cream milk			0.006	0.007	
Eat vegetables on 5 or fewer days per Week			0.006	0.011	
Eat truit on 5 or rewer days per Week			ns	ns	
Eat preakfast on 3 or fewer days per week			-0.005	ns	
Usually add salt to food	0.0004	0.004.4	ns	0.005	
Year the second	-0.0004	-0.0014	-0.0004	-0.0010	
Number of observations	139,994	82,893	49,036	34,508	

*Notes*: Estimates are mean marginal effects from a Probit model of the probability of dying in the subsequent four (or eight) years. Analysis over the four-year timeframe is based on characteristics and behaviours observed up to 2017, while analysis over the eight-year timeframe is based on characteristics and behaviours observed up to 2013. See the Technical Appendix for further explanation of Probit models. *ns* indicates the estimate is not significantly different from 0 at the 10% level. <sup>a</sup> Diet information was only collected in Waves 7, 9, 13, 17 and 21.

to allow study of the effects of (six-year) history of health behaviours—smoking, drinking and exercise. The left panel draws on all waves of data collected from 2006, while the right panel uses only waves in which information was collected on diet (Waves 7, 9, 13 and 17).

Examining first the estimates from the models using all waves from 2006, we see that males have a higher rate of mortality than females, on average having a 1.3 percentage-point higher risk of dying over four years and a 2.3 percentage-point higher risk over eight years. Unsurprisingly, the probability of death is strongly ordered by age: compared with an individual aged 15 to 24, over an eight-year period, the probability of death over an eight-year period (holding all else constant) is 3.4 percentage points higher for an individual aged 35 to 44, 5.4 percentage points higher for an individual aged 45 to 54, 7.4 percentage points higher for an individual aged 55 to 64, 11.5 percentage points higher for an individual aged 65 to 74, 15.8 percentage points higher for an individual aged 75 to 84 and 21.3 percentage points higher for an individual aged 85 and over.

First Nations people have a higher probability of death than non-First Nations Australian-born people, while immigrants from countries other than the main English-speaking countries have a lower probability of death. All else being equal, people living outside the major urban areas have a slightly lower probability of death over both timeframes.



Employment is associated with lower subsequent mortality, while working long hours—50 or more per week—is not associated with any significant effects on mortality. There is no evidence of income affecting mortality over a fouryear timeframe, but the probability of death over an eight-year timeframe is 0.4 percentage points higher for those initially in the bottom income quintile compared with those in the middle quintile. No significant effects of financial stress are evident.

Those initially in poor general health have a 1.4 percentage-point higher probability of death over a four-year period and a 2.6 percentage-point higher probability of death over an eightyear period than those not in poor general health, other things being equal. No effects are evident for poor mental health. The presence of a disability is associated with an elevated probability of death over both four-year and eight-year timeframes, with the magnitude of the effects greater the more severe the disability.

Compared with people in the normal category for body mass index, people in the underweight category have an elevated probability of death, but people in the overweight and obese categories actually have a slightly lower probability of death, over both the four-year and eight-year timeframes.

Having been a smoker at any stage in the preceding six years increases the probability of death by 1.2 percentage points over four years and by 1.9 percentage points over eight years. However, there is no evidence of an additional adverse effect of still being a smoker at the start of the four- or eight-year period. There are no significant effects of current or past alcohol consumption evident. Note that these findings do not imply that smoking and drinking do not have adverse health effects; more likely

is that people initially in better health are more likely to continue engaging in these behaviours.

People not engaging in regular exercise (at least three times per week) at the beginning of the period have a higher probability of death over the subsequent four or eight years, but this adverse effect is lower over four years, and non-existent over eight years, if they had never regularly exercised over the preceding six years (as evidenced by adding together the estimates for current and six-year history of exercise). It therefore appears to be people who have stopped exercising regularly, perhaps because of a health problem, who have a higher risk of death.

Finally, the estimates for the 'year' variable show a downward trend in the probability of death over the 2006 to 2021 period, likely reflecting improvements in medical treatment and perhaps improvements in health behaviours not measured by the HILDA Survey.

The estimates obtained when using only waves in which information on diet has been collected (right panel of Table 6.8) are broadly similar to those obtained (for the variables in common) when using all waves. The estimates for the variables capturing measures of the healthiness of one's diet show increases in the probability of death associated with drinking full cream milk (as opposed to other types of milk or no milk) and failing to eat vegetables regularly (at least four days per week). Usually adding salt to food (after it is cooked) is also associated with a 0.5 percentagepoint increase in the probability of death over an eight-year timeframe. Eating breakfast on three or fewer days per week is associated with a 0.5 percentagepoint lower probability of death over four years, but no significant effects over eight years.





# Legal and illegal drug use

Esperanza Vera-Toscano

### Smoking and vaping in Australia

Over the years, the harmful health effects of smoking tobacco products have been extensively researched and acknowledged worldwide. Australia, like many other countries, has taken various measures to reduce smoking rates in the population. These measures include advertising restrictions, excise taxes, public awareness campaigns and restrictions on smoking in public areas.

Although debate is ongoing about the effectiveness of these measures, it is evident that smoking rates in Australia have declined significantly in recent decades. According to the Australian Institute of Health and Welfare (AIHW), in 2022 the proportion of adults who were current daily smokers dropped from approximately 16.1% in 2011-12 to 10.1% in 2021-22.

These figures demonstrate significant progress in decreasing smoking rates. However, despite this progress, smoking is still responsible for nearly 20,500 deaths per year in Australia, which accounts for 13% of all deaths. Additionally, smokingrelated illnesses, including lung cancer, heart disease and stroke, accounted for 8.6% of Australia's total burden of disease in 2018.<sup>1</sup>

Vaping, or the use of electronic cigarettes (e-cigarettes) and

vaping devices, arrived in Australia around 2007, and its popularity has steadily grown in recent years. According to a 2022 report by the AIHW, approximately 11% of Australian adults have tried vaping, with 2.3% using e-cigarettes in the past month. However, while some people may view vaping as a safer alternative to smoking, it is not without risks.

The Australian Government has banned the sale of nicotinecontaining e-cigarettes without a prescription, citing concerns about their potential harm to public health. Additionally, some studies (e.g., Scully et al., 2023) suggest that vaping may serve as a gateway to traditional smoking, particularly for young people. It is therefore crucial to continue to monitor the use of e-cigarettes in Australia and assess their impact on public health, including their potential role in reducing or exacerbating smoking rates. Wave 21 of the HILDA Survey introduced a guestion about how often, if at all, individuals currently use e-cigarettes.

This section examines HILDA Survey data about tobacco smoking in Australia over the past two decades, presenting smoking rates in each year and identifying the demographic groups in which the greatest progress has been made in reducing smoking rates. The longitudinal structure of the data is used to provide insights into the dynamics underpinning

<sup>&</sup>lt;sup>1</sup> Australian Institute of Health and Welfare, *Australian Burden of Disease Study* 2018: Interactive data on risk factor burden, <https://www.aihw.gov.au/reports /burden-of-disease/abds-2018-interactive-data-risk-factors/contents/tobacco -use>.



the trends in smoking rates evident from cross-sectional data—specifically, quit rates, take-up rates and rates of 'relapse' among those who quit. Moreover, the report includes the latest data for 2021 concerning the prevalence of e-cigarettes and vaping device use, as well as the relationship between smoking tobacco and/or e-cigarettes.

### Tobacco smoking rates in Australia, 2002 to 2021

Table 7.1 presents the proportion of males and females aged 15 years and over who identify as smokers in each year over the period 2003 to 2021 (with results reported every other year). Panel A captures all people who identify as smokers, including those who smoke less frequently than daily, while Panel B captures only those who report that they smoke daily.<sup>2</sup>

The HILDA Survey data confirm the trend decline in smoking rates reported by the AIHW. The table shows the proportion of males aged 15 years and over who were smokers declined from 25.0% in 2001 to 16.1% in 2021, and the proportion of females aged 15 years and over who were smokers declined from 19.8% to 12.0%. These are substantial declines of around 36% for males and 39% for females over 20 years.

The declines in the daily smoking rates are slightly larger. The proportion of males smoking daily declined from 21.4% in 2003 to 12.4% in 2021, and the proportion of females smoking daily declined from 15.8% in 2003 to 9.5% in 2021. We also note that the HILDA Survey estimates of daily smoking rates are very similar to those reported by the AIHW, suggesting the HILDA Survey is no less reliable a source of data on smoking in the Australian population than that used by the AIHW.

Figures 7.1 and 7.2 examine smoking rates by age group over the 2001 to 2021 period (biennially). Smoking rates have declined for most age groups, but the most progress has been made in the younger age groups. Drops in the proportion of people smoking have been substantial for the 15 to 19, 20 to 24, 25 to 29 and 30 to 39 years age groups, but minimal for the older age groups. This might suggest there has been more success in preventing people from taking up smoking than there has in getting people to give up smoking.

Figure 7.2 shows that, for women, the smoking rate has risen slightly since 2009 for the age group 60

Table 7.1: Smoking rates in Australia—People aged 15 years and over, 2003 to 2021 (%)												
	2001	2003	2005	2007	2009	2011	2013	2015	2017	2019	2021	
Smoker												Percentage change 2001 to 2021
Males	25.0	25.7	25.2	24.8	22.7	22.5	21.1	19.3	18.8	17.5	16.1	-35.6
Females	19.8	19.4	19.5	18.4	16.9	16.3	14.9	13.2	13.3	12.5	12.0	-39.4
Daily smoker												Percentage change 2003 to 2021
Males	-	21.4	20.1	20.6	18.5	17.5	16.8	15.4	14.4	13.1	12.4	-42.1
Females	-	15.8	15.7	15.2	13.7	13.3	11.8	10.8	10.7	10.1	9.5	-39.9

<sup>2</sup> In 2001, respondents were asked 'Do you smoke cigarettes or any other tobacco products?' and were provided with the response options 'No, I have never smoked', 'No, I have given up smoking' and 'Yes'. From 2002, the 'Yes' response option was disaggregated into the response options 'Yes, I smoke daily', 'Yes, I smoke at least weekly (but not daily)' and 'Yes, I smoke less often than weekly'. Consequently, the proportion of people who smoke daily is not available in 2001. The consistent survey question was used from 2002 to 2021.





and over, and the rate in 2021 was higher than 2001. Moreover, the smoking rate increased between 2019 and 2021 for the 15 to 19 years age group, and between 2015 and 2021 for the 20 to 24 years age group.

### Which groups in the community experienced the biggest declines in smoking rates?

Table 7.2 investigates the demographic groups in the community that have experienced the biggest declines in smoking rates. It reports mean marginal effects estimates from a Probit model of the probability of being a smoker.

The model includes a variety of demographic characteristics, all of which are interacted with a 'year' variable to identify the extent to which the probability of smoking associated with the characteristic has changed over the 2001 to 2021 period. For example, the estimate for the 15 to 19 age group of -0.155 indicates that, all else being equal, being aged 15 to 19 years on average decreases the probability of being a smoker in 2001 by 0.155, or 15.5 percentage points, compared with being aged 30 to 39 years (the reference category).

The estimate for this variable interacted with year, -0.003, indicates that the annual rate of change in the probability of smoking is on average



0.3 percentage points less than for the 30 to 39 years age group—that is, holding other characteristics constant, the probability of a 15- to 19-year-old being a smoker decreased over the 2001 to 2021 period by 6 (20 times 0.3) percentage points more than the decrease for the 30 to 39 age group. Thus, the model results show that those aged 15 to 19 years experienced a greater decline in smoking rates than those aged 30 to 39 years.

While interpretation of the estimates in Table 7.2 is somewhat difficult, our focus is on whether the interaction term is negative, indicating relatively greater decline in smoking among the demographic group, or positive, indicating relatively less decline (or even increase) in smoking among the group.

Note that the average annual rate of decline in the probability of smoking for the reference group-female, in a couple with dependent children, aged 30 to 39 years, non-First Nations Australian-born, residing in New South Wales, outside of a major urban area, in the bottom SEIFA decile, with less than high school completion and in the top income quintile—is 0.5 percentage points (bottom of first column). This translates to an average decline in the probability of a reference group member being a smoker of 10 percentage points over the full 2001 to 2021 period.

The table shows that there are no significant differences in rates of decline in the probability of smoking by family type, with the exception of non-dependent children, who have a slower rate of decrease in the smoking rate (annual rate of decline that is 0.1 percentage points lower) than couples with no children. Likewise, First Nations people have had a slower rate of decrease in the smoking rates than non-First Nations Australianborn people.

### Table 7.2: Characteristics associated with the biggest declines in smoking, 2001 to 2021

	Characteristics	Characteristics interacted with year
Male (Reference category: Female)	0.056	-0.001
Family situation (Reference category: Coup	le no children)	
Couple with dependent children	-0.055	ns
Single parent	0.065	ns
Single person	0.072	ns
Non-dependent children	0.027	0.001
Age group (Reference category: 30-39)		
15-19	-0.155	-0.003
20-24	-0.014	-0.002
25-29	0.019	-0.002
40-49	-0.063	0.003
50-59	-0.159	0.005
60 and over	-0.258	0.004
<i>Immigrant status and First Nations identity</i> (Reference category: Non-First Nations Aus	stralian-born)	
First Nations	0.097	0.001
Immigrant, main English-speaking countries	0.011	ns
Immigrant, other countries	-0.024	ns
<i>State or territory of residence</i> (Reference category: New South Wales)		
Victoria		
Queensland	0.012	ns
South Australia	ns	-0.001
Western Australia	-0.017	ns
Tasmania	0.027	ns
Northern Territory	0.114	-0.006
Australian Capital Territory	ns	ns
Major urban area (Reference category: Outside of a major urban area)	0.010	-0.001
SEIFA index decile <sup>1</sup>	-0.009	0.000
Educational attainment (Reference category Less than high school completion)	y:	
Bachelor's degree or higher	-0.127	0.002
Other post-school qualification	-0.044	0.001
Completed high school	-0.051	0.002
Household equivalised income quintile (Reference category: Top quintile)		
Bottom	0.049	0.002
Second	0.024	0.002
Third	0.017	0.002
Fourth	0.020	ns
Year	-0.005	
Number of observations	28	34,532

*Notes*: Table presents mean marginal effects estimates from a Probit model of the probability of being a smoker. See Technical Appendix for details. *ns* indicates the estimate is not significantly different from 0 at the 10% level. <sup>1</sup> SEIFA index decile indicates how disadvantaged an area is compared with other areas in Australia. Lowest decile indicates greater disadvantage while higher decile indicates more economic prosperity (for more information see Box 5.3, page 116).
There are no significant differences by state or territory, with the exception that, holding other traits constant, people living in the Northern Territory had a much greater rate of decrease in the smoking rate than people living in other jurisdictions: the annual rate of decrease was 0.6 percentage points greater, which translates to a 12 percentage-point greater decrease in the smoking rate. Note, however, that, in 2001, the Northern Territory had a 11.4 percentage-point higher smoking rate than New South Wales (holding other characteristics constant), so given this decline, in 2021 smoking in the Northern Territory is predicted to be only slightly lower than in New South Wales.

Consistent with the graphs presented in Figures 7.1 and 7.2, significant differences in rates of decline in smoking rates by age are evident. Holding other traits constant, the predicted annual rate of decline in the smoking rate (obtained by adding the estimate for the age dummy interacted with the 'year' variable to the estimate for the 'year' variable) is 0.8 percentage points for the 15 to 19 age group (-0.005 + -0.003), 0.7 percentage points for the 20 to 24 and 25 to 29 age groups, 0.2 percentage points for the 40 to 49 age group, zero for the 50 to 59 age group, and 0.2 percentage points for the 60 and over age group.

There are also statistically significant differences in rates of decline in smoking rates by level of household income. Compared with the top income quintile, the rate of decline is significantly smaller for the bottom three quintiles. The decline in smoking rates is 0.2 percentage points greater for these three quintiles compared to the top quintile.

#### Quitting and starting smoking

In addition to examining smoking prevalence in each year, the HILDA Survey data offer insight into the individual-level patterns of smoking behaviour over time. This allows us to investigate the number of individuals who cease smoking between one year and the next, referred to as quitting, as well as the number of individuals who transition from being non-smokers in one year to smokers in the following year, referred to as starting or resuming smoking. By analysing these transitions, we can gain a deeper understanding of the dynamics of smoking behaviour.

Table 7.3 reports the percentage of people aged 15 years and over who stop smoking in each year and the percentage who start smoking in each year. The table shows that, contradicting the steady and gradual decline in smoking rates, large numbers of people stop and start smoking each year. Between 2.1% and 3.5% of all people quit smoking each year, but only slightly fewer take up smoking each year. There is consequently quite a high degree of 'fluidity' in smoking status. As

Table 7.3: Proportion of people aged 15 years and over quitting and taking up smoking each year, 2003 to 2021 (%)								3 to		
	2003	2005	2007	2009	2011	2013	2015	2017	2019	2021
Quitting										
Male	3.4	2.9	2.8	2.9	3.1	3.0	3.1	3.2	2.8	3.5
Female	3.4	2.9	2.2	2.6	2.4	2.5	2.2	2.1	2.2	2.1
Starting										
Male	3.0	3.1	3.1	2.5	2.3	2.8	2.7	2.8	2.4	2.6
Female	2.4	2.1	2.3	1.6	2.2	1.8	1.9	1.7	1.7	2.1



144

Table 7.4: People taking up smoking again within three years of quitting, by sex and age group (%)							
	Males	Females	All people				
15–19	*96.9	*74.1	*90.0				
20-24	82.4	61.2	73.1				
25-29	71.2	64.2	68.3				
30-39	62.9	55.6	59.3				
40-49	59.8	56.5	58.1				
50-59	54.4	62.4	58.1				
60 and over	53.9	58.5	55.9				

*Notes*: Age groups are for age at time of quitting smoking. Population comprises people who quit smoking in the 2002 to 2018 period. \* Estimate not reliable.

59.0

61.5

63.6

Total

a result, reducing smoking rates is not only about encouraging individuals to quit smoking, but also preventing the uptake or resumption of smoking. Table 7.3 shows that the decrease in the proportion of men taking up smoking each year is a larger factor driving the decline in men's smoking rates, rather than any increase in the proportion of individuals quitting.

The data on quitting rates among males from 2003 to 2021 show a fluctuating trend with varying percentages of male smokers who quit smoking each year. There is no consistent upward or downward trend over the years. The quitting rates among males range from 2.8% to 3.5% during this period, indicating some variability in the number of male smokers who successfully quit smoking over the years, but without a clear linear trend. Lastly, it is noteworthy that male take-up rates have decreased on average towards the end of the decade

compared to the start of the century (2.5% compared to 3.0%).

For women, the data suggest that fewer women are quitting smoking, with a declining trend observed between 2003 and 2021. However, it is important to note that female take-up rates have also experienced a downward trend during this period.

To further emphasise the importance of take-up of smoking as a driver of smoking rates, Table 7.4 examines 'relapse' into smoking of people who quit smoking. For people who quit smoking between 2002 and 2018, it presents the proportion who reported being smokers within the three years after quitting. For example, a person who quit smoking in 2002 (was a smoker in 2001 and not a smoker in 2002) is defined to relapse if observed to be a smoker in 2003, 2004 or 2005.

The table shows that rates of relapse are indeed very high. Over all age groups, the rate of relapse is 59% for females and 63.6% for males. For males, the rate of relapse is particularly high for young people, at 82.4% per cent of males aged 20 to 24 years who quit smoking. As high as these relapse rates are, it should be noted that they will understate relapse. This is because many people who quit for less than one year will appear to have never stopped smoking, since we only identify smoking status at the time of the annual interview.

#### Use of e-cigarettes and vaping devices in 2021

Information on use of e-cigarettes and vaping devices was collected by the HILDA Survey for the first time in 2021. The 2021 data show that 14.1% of individuals aged 15 and above had tried e-cigarettes or vaping devices. Figure 7.3 shows that, among those who have tried them, approximately 16% of both men and women reported using them daily. However, a larger percentage of



women (52.6%) than men (47%) reported only trying them once or twice.

#### Characteristics associated with the use of electronic cigarettes and vaping devices

Table 7.5 summarises the factors that influence the use of e-cigarettes and vaping devices based on Probit regression model estimates of the probability of usage (at least monthly) in 2021. Each estimate indicates the impact of a one-unit increase in an explanatory variable on the probability of using e-cigarettes or vaping devices.

The results reveal that men are 2.2 percentage points more likely to use these products compared to women. Individuals who smoke tobacco also have a 19.3 percentage-point higher probability of using e-cigarettes or vaping devices than those who do not smoke. Additionally, couples with dependent children are 3.3 percentage points less likely to use e-cigarettes or vaping devices than couples without children.

Age is another significant factor in e-cigarette and vaping device usage. For instance, individuals between the ages of 15 and 19 are predicted to have a 13.8 percentage-point higher probability of using these products than those aged 30 to 39. However, individuals aged 60 and over have a 15.2 percentagepoint lower probability of using e-cigarettes or vaping devices than the same reference group.

All else being equal, First Nations people and immigrants from those born in countries other than one of the main Englishspeaking countries are less likely to use e-cigarettes and vaping devices compared to non-First Nations Australian-born individuals. However, there is no significant difference observed Table 7.5: Factors associated with vaping or smoking e-cigarettes, 2021

	All people
Male	0.022
Smoker	0.193
Family type (Reference category: Couple no children)	
Couple with dependent children	-0.033
Single parent	ns
Single person	ns
Non-dependent child	ns
Age group (Reference category: 30-39)	
15-19	0.138
20-24	0.129
25-29	0.055
40-49	-0.079
50-59	-0.116
60 and over	-0.152
<i>Immigrant status and First Nations identity</i> (Reference category: Non-First Nations Australian-born)	
First Nations	-0.040
Immigrant, main English-speaking countries	ns
Immigrant, other countries	-0.025
State (Reference category: New South Wales)	
Victoria	-0.026
Queensland	-0.037
South Australia	-0.039
Western Australia	-0.019
Tasmania	-0.025
Northern Territory	ns
Australian Capital Territory	-0.032
Major urban area	0.027
SEIFA index decile	0.002
<i>Educational attainment</i> (Reference category: Bachelor's degree or higher)	
Other post-school qualification	0.036
Completed high school	0.020
Less than high school completion	0.021
<i>Household equivalised income quintile</i> (Reference category: Top quintile)	
Bottom	ns
Second	ns
Middle	ns
Fourth	ns
Labour force status (Reference category: Employed)	
Unemployed	ns
Not in the labour force	-0.015
Number of observations	14,843

*Notes*: Estimates are mean marginal effects obtained from Probit models of the probability of vaping or smoking e-cigarettes at least monthly. See the Technical Appendix for details. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

Table 7.6: Distribution of individuals by tobacco smoking status and frequency of e-cigarettes/vaping device use, by gender (%)

	Use of o	Total		
Use of tobacco	Never e-smoked	Less than monthly	Regular e-smoker (At least monthly)	
Men				
Never smoked	92.8	6.2	1.1	100.0
No longer smokes	82.0	12.7	5.3	100.0
Smokes	57.0	29.6	13.4	100.0
Total	83.8	11.9	4.3	100.0
Women				
Never smoked	94.4	4.6	1.0	100.0
No longer smokes	84.2	11.6	4.2	100.0
Smokes	59.2	27.4	13.4	100.0
Total	87.8	8.9	3.2	100.0

in the usage of e-cigarettes and vaping devices between MES country immigrants and non-First Nations Australianborn individuals.

Residents of all Australian states and territories, except for the Northern Territory, have a lower probability of using e-cigarettes and vaping devices compared to their counterparts in New South Wales. Additionally, living in a major urban area (see Box 2.11, page 40) and in a higher SEIFA index decile of relative socioeconomic advantage/ disadvantage (see Box 5.3, page 116) is associated with a higher likelihood of e-cigarette and vaping device usage.

Lastly, the probability of using e-cigarettes and vaping devices increases with a lower level of education, particularly among those who have some postschool qualifications. On the other hand, individuals who are not in the labour force have a 1.5 percentage-point lower probability of using e-cigarettes and vaping devices compared to those who are employed.



No significant differences in e-cigarette and vaping device usage have been found between unemployed and employed individuals, nor by household income.

#### Tobacco smoking and e-smoking

Table 7.6 shows the distribution of individuals by their smoking status and their frequency of using e-cigarettes or vaping devices, disaggregated by gender.

Overall, the table shows that the proportion of individuals who use e-cigarettes and vaping devices varies by smoking status and gender, with the highest proportion of e-cigarette and vaping device use being among current smokers. Thus, slightly over 13% of those who currently smoke are also regular e-smokers while only around 1% of those who never smoked are regular e-smokers. There are some small gender differences in e-cigarette and vaping device use, with women overall having a lower proportion of e-cigarette and vaping device use compared to men.

#### Alcohol consumption in Australia

The consumption of alcohol is widespread within Australia, and is associated with many social and cultural activities. Provided compliance with certain conditions, consuming and selling alcohol is legal and widely accepted in Australia. According to the National Health Survey (NHS), in 2017-18, 79% of Australians aged 18 and over had consumed alcohol in the past year (ABS, 2018b). However, when consumed, alcohol produces some central nervous system depressant effects and its excessive use is associated with

numerous negative health outcomes, including liver disease, cancer and mental health issues.

In this section, we examine alcohol consumption rates in Australia, focusing on the volume of alcohol consumed and the frequency of drinking, as well as exploring how drinking patterns vary across different demographic groups.

The HILDA Survey has collected information on drinking frequency and amount since 2002. Table 7.7 displays the percentage of males and females aged 15 years and over who have reported ever drinking alcohol annually between 2003 to 2021 (with results presented every other year). Panel A captures all people who report ever drinking alcohol, even if only rarely. The table shows the proportion of males aged 15 years and over who have ever drunk alcohol declined from 84.4% in 2003 to 78.6% in 2021, and the proportion of females aged 15 years and over who have ever drunk alcohol declined from 76.3% to 72.8%. This decrease in alcohol consumption rates over a span of two decades is relatively modest, with a reduction of approximately 6 percentage points for both males and females.

Panel B presents the proportion of individuals who consume alcohol on five or more days per week. Analysis of HILDA Survey data indicates that approximately one in five males aged 15 years and above reported usually drinking on five days or more per week in 2003 (19.3%). However, this proportion decreased to around one in seven males in 2021 (14.8%). For females, there is no significant upward or downward trend over the years, suggesting a consistent but

Table 7.7: Drinking rates in Australia, 2003 to 2021—People aged 15 years and over (%)										
	2003	2005	2007	2009	2011	2013	2015	2017	2019	2021
All people aged 15 and over										
A. Ever drink										
Males	84.4	83.4	84.7	83.3	82.5	81.1	79.0	79.2	79.4	78.6
Females	76.3	76.2	75.4	74.3	74.0	72.7	71.8	71.8	72.0	72.8
B. Drink on 5 or more days per week										
Males	19.3	19.3	19.2	19.5	16.7	16.3	15.5	15.1	13.9	14.8
Females	10.0	10.2	10.6	10.1	9.4	9.0	9.1	8.4	8.5	9.0
People who drink alcohol										
C. Risky drinking (usually consume 5 or more stand	ard drin	ks on one	e occasio	on)						
Males	23.2	23.6	24.5	25.6	24.2	22.6	22.7	23.4	22.4	21.1
Females	9.4	10.2	10.4	10.5	10.2	9.4	9.9	9.3	10.2	9.5
D. Excessive binge drinker (At least 5 (if female) or 7 (if male) standard drinks on one occasion at least 2 or 3 times per month)										
Males	-	-	31.0	30.8	29.5	26.1	25.8	26.0	25.9	24.3
Females	-	-	19.6	17.6	16.5	15.7	16.0	15.6	16.4	14.8

Table 7.8: Drinking rates by age groups, gender and drinking behaviour, 2002 to 2021 (%)								
	Males				Females			
	Drink on 5 or more days per week	Risky drinking (5 or more standard drinks on one occasion) <sup>\$</sup>	Excessive binge drinker* (7 or more standard drinks at least 2 or 3 times per month)\$	Drink on 5 or more days per week	Risky drinking (5 or more standard drinks on one occasion) <sup>\$</sup>	Excessive binge drinker* (7 or more standard drinks at least 2 or 3 times per month)\$		
15-19	1.2	28.8	30.5	0.4	21.2	27.7		
20-24	5.2	42.0	38.9	1.5	27.7	28.8		
25-29	7.5	32.2	32.4	3.0	16.4	19.9		
30-39	12.1	24.2	30.1	5.9	9.5	16.0		
40-49	17.8	21.4	29.1	10.4	7.6	17.7		
50-59	21.8	17.8	26.3	12.7	4.2	13.7		
60 and over	28.6	10.1	16.7	15.4	1.7	8.4		
Total	16.3	22.3	27.3	9.0	9.5	16.5		

Notes: \* Only 2007 to 2021. \$ Among those who drink.



modest decreasing trend among females, with approximately one in 10 females (9-10%) reporting drinking on five or more days per week.

In addition to the number of drinking days, it is also essential to examine the volume of alcohol consumption to gain a comprehensive understanding of drinking patterns. The HILDA Survey asks individuals how many standard drinks they usually have on a day on which they have an alcoholic drink. In Panel C, the data present the percentage of individuals who reported consuming five or more standard drinks on a single occasion. The results show that men are twice as likely as women to engage in this behaviour. In 2021, 21.1% of males and 9.5% of females reported consuming five or more standard drinks on one occasion, and these rates have remained relatively stable since 2003.

In every two years since 2007, the HILDA Survey has collected information on 'binge' drinking, defined as having five or more standard drinks (for women) or seven or more standard drinks (for men) on a single occasion of drinking. Thus, a binge drinker is someone who consumes a large amount of alcohol within a short period of time, typically with the intention of getting drunk. Panel D shows the proportion of individuals who report binge drinking at least two or three times a month. In 2007, 31% of males and 19.6% of females reported binge drinking at this frequency. However, the rates have declined to 24.3% for males and 14.8% for females in 2021.

Table 7.8 examines the frequency and extent of alcohol consumption disaggregated by gender and age group. As shown earlier, males are more likely than females to drink frequently and engage in risky drinking behaviours, although the gap alarmingly narrows for excessive binge drinking. By age groups, results show that, for males, the highest rate of risky drinking behaviour (drinking five or more standard drinks on one occasion) was reported among males aged 20 to 24, with 42.0% reporting such behaviour. This was followed by males aged 25 to 29 with 32.2%, males aged 15 to 19 with 28.8%, and males aged 30 to 39 with 24.2%. For women, the highest proportion of risky drinkers is in the 15 to 19 and 20 to 24 age groups, with 21.2% and 27.7% respectively.

The percentage of both males and females reporting risky drinking behaviour decreased with increasing age, with only 10.1% of males and 1.7% of females aged 60 and over reporting such behaviour. As with risky drinking, excessive binge drinking is also more likely among young people (particularly those aged 20 to 24 and 25 to 29 years old). Particularly worrying is the number of excessive binge drinkers for the 15 to 19 age group with 30.5% of males and 27.7% of females reporting they binge drink at least two or three times a month.

#### Factors associated with alcohol consumption

Table 7.9 presents Probit regression model estimates for the factors that impact alcohol consumption in terms of both volume and frequency. The table includes the probability of risky drinking (five or more standard drinks on one occasion) in the first column, and the probability of drinking five or more days per week in the second column. The estimates are based on data from 2002 to 2021. Each estimate indicates the impact of a one-unit increase in an explanatory variable on the probability of drinking more quantity or more often respectively.

The results reveal that, other factors held constant, men have a 12.8 percentage-point higher probability of risky drinking, and a 7.2 percentage-point higher

#### Table 7.9: Factors associated with high alcohol consumption, 2002 to 2021

	Risky drinking (5 or more standard drinks on one occasion)	Drink on 5 or more days per week
Male	0.128	0.072
Daily smoker	0.114	0.075
Family situation (Reference category: Couple	no children)	
Couple with dependent children	-0.021	-0.015
Single parent	0.031	-0.021
Single person	0.042	-0.025
Non-dependent children	0.025	-0.037
Age group (Reference category: 30–39)		
15-19	0.079	-0.080
20-24	0.129	-0.053
25-29	0.052	-0.039
40-49	-0.024	0.055
50-59	-0.062	0.095
60 and over	-0.101	0.164
<i>Immigrant status and First Nations identity</i> (R Australian-born)	eference category: N	Ion-First Nations
First Nations	0.067	-0.044
Immigrant, main English-speaking countries	ns	0.014
Immigrant, other countries	-0.085	-0.074
State and territories (Reference category: New	v South Wales)	
Victoria	ns	-0.023
Queensland	0.019	ns
South Australia	0.018	-0.012
Western Australia	ns	ns
Tasmania	0.026	-0.042
Northern Territory	0.066	0.048
Australian Capital Territory	ns	ns
Major urban area	ns	-0.018
SEIFA index decile	-0.002	0.006
Educational attainment (Reference category:	Bachelor's degree or	higher)
Other post-school qualification	-0.029	0.027
Completed high school	0.018	0.024
Less than high school completion	0.033	0.027
Household equivalised income quintile (Refere	ence category: Top q	uintile)
Bottom	-0.033	-0.046
Second	-0.027	-0.032
Third	-0.019	-0.021
Fourth	-0.014	-0.009
Labour force status (Reference category: Not	in the labour force)	
Employed	0.039	-0.005
Unemployed	0.027	-0.017
Events in past 12 months		
Victim of physical violence (e.g., assault)	0.022	ns
Fired or made redundant by an employer	0.020	ns
Imprisoned	ns	ns
Finances worsened	ns	0.010
Psychological distress (K10)	0.002	ns
Year	-0.001	-0.003
Number of observations	112,	349

*Notes*: Table presents mean marginal effects estimates from a Probit model of the probability of high alcohol consumption. See Technical Appendix for details. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

probability of drinking at least five times per week than women. Individuals who smoke tobacco also have a higher probability of both risky drinking (11.4 percentage points) and highfrequency drinking (7.5 percentage points) than those who do not smoke.

The study shows that couples with dependent children are less likely to consume alcohol frequently (2.1 percentage points) or in large quantities (1.5 percentage points) compared to couples without children. On the other hand, single parents and single individuals are more likely to consume larger volumes of alcohol (3.1 and 4.2 percentage points, respectively) but less frequently (2.1 and 2.5 percentage points, respectively) compared to couples without dependent children.



150

Drinking behaviour is also heavily influenced by age. Results show that the younger age groups are more likely to engage in risky drinking (particularly those aged 20 to 24), while the older age groups are more likely to consume alcohol highly frequently than those between 30 and 39 years old.

All else being equal, First Nations people are more likely to engage in risky drinking and less likely to consume alcohol highly frequently compared to non-First Nations Australian-born individuals, while immigrants from non-MES countries are less likely both to engage in risky drinking and drink highly frequently. On the other hand, immigrants from MES countries are more likely to drink highly frequently than non-First Nations Australian-born individuals.

Individuals residing in Queensland, South Australia, Tasmania and the Northern Territory have a higher likelihood of high-volume drinking compared to their counterparts in New South Wales. Additionally, individuals residing in the Northern Territory are also more likely to consume alcohol highly frequently, while those in Victoria, South Australia and Tasmania are less likely to consume alcohol more frequently than those in New South Wales.

Residing in major urban areas is associated with a lower probability of consuming alcohol frequently compared with residing elsewhere. Further, individuals residing in areas with a higher SEIFA index decile, indicating relative socioeconomic advantage/ disadvantage, have a higher probability of consuming alcohol more frequently and a lower probability of high singleoccasion consumption of alcohol.

Individuals with lower levels of education, especially those



without school qualifications, are more likely to engage in risky drinking episodes and to consume alcohol highly frequently. On the other hand, those with lower income are less likely to engage in risky drinking episodes and less likely to consume alcohol highly frequently compared to those with higher income levels. On the other hand, individuals who are employed or unemployed have a higher likelihood of risky drinking and a lower likelihood of consuming alcohol highly frequently, in comparison to those who are not in the labour force

Individuals who have experienced physical violence or job loss in the

past 12 months, and those who report higher levels of psychological distress, have a higher probability of risky drinking episodes, while no significant difference was found regarding the frequency of drinking. Conversely, those who reported a decline in their financial situation in the past 12 months are more likely to consume alcohol highly frequently.

#### Illicit drug consumption

Illicit drug use is a significant concern for both public health and social wellbeing in Australia. The negative outcomes of drug use are closely tied to the frequency and amount of consumption and are especially prevalent among those with drug addiction (see Box 7.1, below, for a definition of illicit drug use). The detrimental effects on individuals' health can result from overdose, long-term use and increased risk of accidents or injuries. The ramifications of drug use can potentially lead to early mortality, disability and functional impairment, affecting physical, mental and cognitive wellbeing. The societal costs of drug use include those associated with criminal behaviour, violence and social disruption.

#### Box 7.1: What is meant by 'illicit drug use'?

The term 'illicit drug use' is used to reflect two types of drug use: 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).

#### Box 7.2: Types of illicit drugs examined by the HILDA Survey

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, ecci, 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
- Any other illicit drug (e.g., heroin, GHB, ketamine, K2, synthetics).

Waves 17 and 21 in the HILDA Survey included a set of questions assessing illicit drug use. These questions were asked in the self-completion questionnaire and assessed the frequency of use of major types of illicit drugs (see Box 7.2, page 151). The data enable classification of whether each respondent had ever used drugs and differentiate between past and recent (12-month) use. Additionally, the questions recorded the age of first (and last) use for each respondent.<sup>3</sup>

These questions in the HILDA Survey complement 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, using a cross-sectional design with a new sample of participants. Although the coverage of illicit drug use in the HILDA Survey is comparatively limited, the collection of data from the same individuals repeatedly over time provides unique insights that cannot be obtained through the NDSHS.

This section primarily examines illicit drug use trends over the past 12 months in 2017 and 2021, both in terms of overall usage and usage of specific drug types, as well as polydrug use, which involves using multiple types of drugs simultaneously. The longitudinal nature of the data allows for analysis of the underlying dynamics driving trends in illicit drug use between these two years, such as quit rates and take-up rates. Taking advantage of the economic, family, social and health data available in the HILDA Survey, results are presented on the factors associated with illicit drug use.

#### Recent use of illicit drugs in Australia

Figure 7.4 provides estimates of recent (12-month) usage of any illicit drug in 2017 and 2021. Results show a rising trend in the prevalence of illicit drug consumption rates. Specifically, the results reveal that while 12.1% of Australians aged 15 years or older had used at least one illegal drug in the past 12 months in 2017, this figure had increased by 2.1 percentage points to 14.2% in 2021. The figure shows that, in







<sup>3</sup> 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.

2017, males were almost twice as likely to have recently used illicit drugs than females (15.7% versus 8.6%). It is worth noting that males experienced a 1.8 percentage-point rise in 2021 (reaching 17.6%), whereas females saw a 2.4 percentagepoint increase, bringing the figure up to 11.0%.

Figure 7.5 presents data on the percentage of Australians in different age groups who reported illicit drug use in the years 2017 and 2021. The age group with the highest reported drug use prevalence in 2021 was 20 to 24 years old, with 28.3% reporting drug use, which represented a slight increase of 0.8 percentage points from 2017. A substantial increase in reported drug use prevalence was also reported for those aged 25 to 29 years old, with a rise of 4.6 percentage points from 23.1% to 27.7%. However, the most significant percentage-point increase in drug use prevalence between 2017 and 2021 was for that of the 30 to 34 year age group, with an increase of 6.6 percentage points, from 16.0% to 22.6%.

Contrarily, the 15-to-19-year-old age group showed the largest percentage-point decrease in drug use prevalence from 2017 to 2021, with a decrease of 0.6 percentage points from 15.3% to 14.7%. Among those over 50 years old, there was an increase in drug use for all age groups, with the most substantial increase observed in the 60-to-64-year-old age group, with an increase of 3.1 percentage points. However, the sample size for individuals aged 65 and over was small in 2017, and hence the results are not reliable for this age group.

#### Quitting and starting illicit drug use

Taking advantage of the longitudinal structure of the HILDA Survey data, we can examine not only the prevalence of illicit drug use in each year but also the number of individuals who quit using illicit drugs between 2017 and 2021, as well as those who started or resumed illicit drug use during this period. This analysis provides insights into the dynamics of drug use and helps us better understand trends in drug use over time.





Note: \* Estimate not reliable.

Table 7.10: Proportion of people aged 15 years and over quitting and taking up drug use between 2017 and 2021, by gender and age group (%)

	Quitting	Starting
Gender		
Males	4.8	7.3
Females	3.6	5.8
Age groups		
15-19	*2.7	*15.5
20-24	6.8	19.0
25-29	9.5	10.9
30-39	6.4	8.0
40-49	4.7	6.1
50-59	2.9	3.8
60 and over	1.3	2.4
All people aged 15 and over	4.2	6.5

Note: \* Estimate not reliable.

Table 7.10 reports the percentage of people aged 15 years and over who quit using illicit drugs between 2017 and 2021 and the percentage who started (or resumed) illicit drug use between 2017 and 2021. The evidence provided in the table supports the previously observed increase in illicit drug use prevalence between 2017 and 2021. Additionally, results indicate that while some individuals started or resumed illicit drug use during this period, there were also a non-negligible number of people who ceased illicit drug use between 2017 and 2021. Thus, 4.8% of males aged 15 years and over and 3.6% of females quit



illicit drug use, while significantly more took up illicit drug use (7.3% of males and 5.8% of females).

When looking at age groups, the data show that the highest percentage of individuals who reported quitting drug use were in the 25 to 29 age group, at 9.5%, followed by the 20 to 24 age group at 6.8%. However, the highest percentage of individuals who reported starting drug use were in the 20 to 24 age group, at 19.0%, followed by the 25 to 29 age group at 10.9%.

Table 7.10 reveals that there is a considerable amount of fluctuation in drug use among the population. It shows that the rise in drug use prevalence between 2017 and 2021 is mainly attributed to an increase in the number of individuals initiating drug use, rather than a greater number guitting drug use. This trend is especially noticeable among people aged 20 to 24. The findings emphasise that drug use behaviour is a dynamic process that changes over time, and thus it is crucial to comprehend the factors that contribute to such changes.

#### Polydrug use: Combined use of illicit drugs, alcohol and tobacco

The use of multiple types of illicit and legal drugs, also known as polydrug use, is prevalent and poses significant personal and social risks. Polydrug use has been associated with an increased risk of drug misuse, overdose and negative physical or mental health outcomes, and also reduces the effectiveness of treatment. Studying the combined use of drugs can provide insights into the patterns and natural history of drug use over a person's life, such as identifying risk trajectories and common sequences of drug use. Table 7.11 presents data from the HILDA Survey on risky alcohol consumption and daily tobacco

smoking (see Box 7.3) among those identified as having recently used illicit drugs.

The results in Table 7.11 show that in 2017, 39.6% of those who reported using illicit drugs did not report using any other substances, while in 2021, this percentage increased to 47.3%. Yet, over 60% of those using illicit drugs in 2017 also smoke tobacco and/or drink alcohol at risky levels (this percentage results from adding up 16.1+28.8+15.5) while this percentage was slightly smaller (52.7%) in 2021. The combination of illicit drug use with risky drinking (44.3% in 2017 and 38.0% in 2021) is more common than the combination with smoking (31.6% in 2017 and 28.4% in 2021). Overall, the table highlights the common cooccurrence of illicit drug use with other substance use, and the need to consider these combinations when assessing potential risks and harms.

Figure 7.6 shows the changes in the proportion of individuals who reported using specific illicit drugs (marijuana/cannabis, meth/ amphetamine, cocaine and ecstasy) alone versus in combination with other illicit drugs between 2017 and 2021. 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 (62.3% in 2017). In comparison, only a small minority of those using meth/ amphetamines, cocaine or ecstasy only use this single drug. For example, only 4.6% of those who had recently used ecstasy in 2017 had not also used other illicit drugs in the past year.

However, for marijuana/cannabis, the percentage of individuals who reported using it alone decreased from 62.3% in 2017 to 57.5% in 2021, while single drug use of meth/amphetamine, cocaine and ecstasy increased between 2017 and 2021.



#### Box 7.3: 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 is also considered.

Table 7.11: Concurrent daily smoking and risky alcohol consumption among those who recently used illicit drugs (in the past 12 months) People aged 15 and over, 2017 and 2021

	2017	2021	Iotal
Illicit drug use only	39.6	47.3	43.8
Illicit drug use + daily smoking	16.1	14.7	15.3
Illicit drug use + risky alcohol consumption	28.8	24.3	26.3
Illicit drug use + risky alcohol consumption + daily smoking	15.5	13.7	14.5
Total	100.0	100.0	100.0

Figure 7.6: Multiple (poly-) drug use versus single recent illicit drug use within the four most common drug types—People aged 15 and over, 2017 and 2021



Overall, the data show that a significant proportion of individuals reported using multiple types of illicit drugs simultaneously, and that there were changes in the patterns of drug use between 2017 and 2021. These findings suggest that there may be complex interactions between different types of drugs, which may have implications for health outcomes and treatment approaches.

#### Factors associated with illicit drug use

Next, we utilise the wealth of data available in the HILDA Survey on economic, family, social and health factors to gain a better understanding of the characteristics of those who use illicit drugs in Australia. To explore these characteristics, a regression model has been constructed and presented in Table 7.12.

This model examines a range of variables that may be associated with recent (12-month) illicit drug use, including age, sex, relationship status, parental status, employment status, income, education level, residential remoteness, psychological distress, long-term health conditions and experiences of physical violence, unemployment, incarceration, or financial hardship in the past year. Additionally, the model includes indicators of daily smoking and risky alcohol consumption.

It is important to note that this model does not establish a causal relationship between these variables and illicit drug use. Rather, it aims to identify whether these factors differ between those who do and do not use illicit drugs. For instance, the model explores whether high levels of psychological distress are more common among individuals who use illicit drugs compared to those who do not.

Table 7.12 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. The regression model reveals that individuals in their early 20s and late 20s have higher rates of recent illicit drug use compared to those aged 15 to 19, with a difference of 5.7 percentage points and 2.83 percentage points, respectively. This finding confirms the pattern observed in

Figure 7.5. In contrast, individuals aged 60 or older are less likely to use illicit drugs, with a difference of 17.9 percentage points.

Moreover, the model highlights that men are more likely to use illicit drugs than women, with a difference of 5.9 percentage points. Additionally, being in a couple with dependent children or being a single parent, or being a non-dependent child is associated with a lower risk of illicit drug use compared to couples without children. On the other hand, single individuals are more likely to use illicit drugs than couples without children, with a difference of 2.7 percentage points.

The regression model reveals significant associations between illicit drug use, daily smoking (13.1 percentage points) and risky alcohol consumption (5.9 percentage points). Moreover, individuals who have experienced negative events such as imprisonment or being a victim of physical violence in the past 12 months are more likely to use illicit drugs, with differences of 12 and 6.6 percentage points, respectively, compared to those who have not experienced these events.



Table 7.12: Factors associated with recent (12-month) illicit drug use of people aged 15 years and over, 2017				
and 2021				
	Estimate			
Male	0.059			
Age group (Reference category: 15-19)				
20-24	0.057			
25-29	0.028			
30-39	ns			
40-49	-0.070			
50-59	-0.118			
60 and over	-0.179			
Family type (Reference category: Couple no children)				
Couple with dependent children	-0.067			
Single parent	-0.018			
Single person	0.027			
Non-dependent children	-0.026			
Labour force status (Reference category: Employed)				
Unemployed	ns			
Not in the labour force	-0.030			
Immigrant status and First Nations identity (Reference category: Non-First Nations Australian-born)				
First Nations	ns			
Immigrant, main English-speaking countries	ns			
Immigrant, other countries	-0.065			
Educational attainment (Reference category: Less than high school completion)				
Bachelor's degree or higher	ns			
Other post-school qualification	0.011			
Completed high school	ns			
Household equivalised income quintile (Reference category: Top quintile)				
Bottom	0.018			
Second	ns			
Third	ns			
Fourth	ns			
State (Reference category: New South Wales)				
Victoria	ns			
Queensland	ns			
South Australia	ns			
Western Australia	ns			
Tasmania	ns			
Northern Territory	0.048			
Australian Capital Territory	-0.021			
Major urban area	0.018			
SEIFA index decile	0.003			
Long-term health condition	ns			
Psychological distress (K10)	0.003			
Daily smoker	0.131			
Drinks 5 or more days a week	0.059			
Events in past 12 months				
Victim of physical violence (e.g., assault)	0.066			
Fired or made redundant by an employer	0.023			
Imprisoned	0.120			
Finances worsened	0.025			
Year 2021	0.019			
Number of observations	30,220			

*Notes*: Table presents mean marginal effects estimates from a Probit model of the probability of having used illicit drugs in the last 12 months. See Technical Appendix for details. *ns* indicates the estimate is not significantly different from 0 at the 10% level.



#### Use of prescription drugs in Australia

Amidst the COVID-19 pandemic, in 2021, the HILDA Survey included in the self-completion questionnaire a question about the frequency of prescription drug use in the last 12 months for different types of drugs, namely strong painkillers, pain-relievers with opioids in them (e.g., Tramadol, Fentanyl, Oxycodone, morphine, codeine products such as Panadeine Forte) and tranquiliser and sleeping pills (e.g., Serepax, Stilnox, Temzepam, Valium/Diazepam, Xanax).

Results revealed that, in 2021, 29% of women and 26% of men reported using strong painkillers or pain-relievers with opioids in them, while 14% of women and 11% of men used tranquilisers and/or sleeping pills.

Figure 7.7 shows the frequency of use of both strong painkillers/

pain-relievers with opioids and tranquilisers and/or sleeping pills. The data suggest, among those who have used these drugs in the past 12 months, 42.1% of respondents report having used strong painkillers/pain-relievers with opioids once or twice a year, and 28.7% report having tranquilisers/sleeping pills once or twice a year. At the other end of the distribution, the data also reveal that a relatively small percentage of respondents use these drugs every day (12.2% for strong painkillers/pain-relievers with opioids and 17.1% for tranquilisers/sleeping pills).

Most respondents report using strong painkillers, pain-relievers with opioids, and tranquilisers/ sleeping pills only infrequently, suggesting they are primarily used for temporary relief from pain, anxiety or sleep issues. However, it is crucial to acknowledge that these drugs have potential negative consequences, such as addiction, overdose and harmful interactions





with other medications. This section aims to offer deeper insights into the use of prescription drugs to comprehend the reasons behind their use.

Figure 7.8 shows the prevalence of prescription drug use among males and females. The majority of both males and females (70.2% and 65.7%, respectively) reported not using any prescription drugs. The usage of strong painkillers/ pain-relievers with opioids was similar for both genders, with 19.1% of males and 20.3% of females reporting use of these drugs. The usage of tranquilisers/ sleeping pills was slightly higher among females (5.6%) compared to males (4.2%). Finally, the use of both types of prescription drugs (strong painkillers/painrelievers with opioids and tranquilisers/sleeping pills) was more common among females (8.4%) compared to males (6.6%).



#### 'Regular use' of prescription drugs

Definitions of 'regular users' of prescription drugs can vary depending on the context and purpose of the study. However, in general, a 'regular' prescription drug user is someone who takes pain medication on a frequent and ongoing basis, often daily or several times a week, to manage chronic discomfort. Regular use of prescription drugs can be defined by considering both frequency and duration of use. As the HILDA Survey does not capture information on duration of use, we will rely solely on frequency of use. In this section, we define 'regular users' of prescription drugs as individuals who report taking them daily, once a week or more, or two to three times per month.

Figure 7.9 presents data on the percentage of Australians in different age groups and by sex who reported 'regular use' of prescription drugs in 2021. Among all people, 9% reported using strong painkillers/ pain-relievers with opioids, while 5.5% reported using tranquilisers/sleeping pills. Women had a slightly higher usage rate for both types of drugs compared to men.

The usage of both types of prescription drugs generally increases with age (except for the group aged 65 to 69), with the highest usage rates seen among those aged 70 and over. Interestingly, individuals aged 70 and over are five times more likely to use strong painkillers/ pain-relievers with opioids than those aged 15 to 19, and are almost three times more likely to consume tranquilisers/ sleeping pills.

These results suggest that use of these drugs, particularly strong painkillers/pain-relievers with opioids, may increase as people age and experience more health



Figure 7.9: Estimated proportion of people who are 'regular users' of prescription drugs, by sex and age group, 2021

Note: \* Estimate not reliable.

issues that require medication. Given the ageing population in Australia, as in many other countries, it is crucial to ensure that health-care providers are prescribing these drugs appropriately and monitoring their use to minimise potential harm.

It is also important to note that the regular usage (in percentage) of both types of prescription drugs is quite similar among the youngest age group. In fact, among individuals aged 15 to 19, the usage of strong painkillers/ pain-relievers with opioids and tranquilisers/sleeping pills was 3.3% and 3.8% respectively. Although this percentage is relatively low compared to older age groups, the use of tranquilisers/sleeping pills among the youngest cohorts (from 15 to 19 years old up to 30 to 34 years old) is still a matter of concern. This could indicate that some young individuals are experiencing mental health issues such as anxiety or sleep disorders that require medical attention. Alternatively, it could suggest that some individuals in this age group are using prescription drugs for non-medical reasons, such as coping with stress or selfmedication. Therefore, it is important to investigate further the reasons behind this trend.

#### Predictors of prescription drugs used among people aged 15 and over

As we have done previously with the factors linked to legal and illicit drug use, we now examine

	Strong painkillers / pain-	Tranquilisers/
	relievers with opioids	sleeping pills
Male	-0.020	-0.027
Age group (Reference category: 15–19)		
20-24	0.045	ns
25-29	0.079	0.033
30-39	0.132	0.068
40-49	0.138	0.086
50-59	0.173	0.085
60 and over	0.164	0.128
Family type (Reference category: Couple no children)		
Couple with dependent children	ns	-0.019
Single parent	ns	ns
Single person	-0.022	0.016
Non-dependent child	ns	ns
Labour force status (Reference category: Employed)		
	ns	ns
Not in the labour force	115	0.034
Immigrant status and First Nations identity (Deference estadory) Nen First Nat	ions Australian born)	0.034
First Nations	lons Australian-born)	20
First Nations	115	115
Immigrant, main English-speaking countries	ns 0.067	ns 0.022
Immigrant, other countries	-0.067	-0.023
Educational attainment (Reference category: Less than high school completion	ר)	
Bachelor's degree or higher	-0.041	ns
Other post-school qualification	ns	ns
Completed high school	-0.026	ns
Household equivalised income quintile (Reference category: Top quintile)		
Bottom	ns	-0.018
Second	ns	-0.025
Middle	ns	ns
Fourth	ns	ns
State (Reference category: New South Wales)		
Victoria	ns	0.023
Queensland	ns	0.024
South Australia	ns	ns
Western Australia	0.029	0.033
Tasmania	ns	0.028
Northern Territory	ns	ns
Australian Capital Territory	ns	ns
Major urban area	ns	ns
SEIFA index decile	ns	0.006
Long-term health condition	0.132	0.056
Psychological distress (K10)	0.008	0.006
Daily smoker	0.020	ns
Drinks 5 or more days a week	ns	0.018
Life events in past 12 months		
Victim of physical violence (e.g. assault)	ns	0.039
Fired or made redundant by an employer	ns	ns
	ne	ne
Finances wereened	115	115
	115	115
	0.070	0.094
in poor mental health	-0.038	ns
	A 4 6 6	///////////////////////////////////////

*Notes*: Table presents mean marginal effects estimates from a Probit model of the probability of using the prescription drugs indicated by column heading. See Technical Appendix for details. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

the socio-economic and demographic factors associated with the use of prescription drugs. Table 7.13 presents the results of the Probit regression analyses in the form of mean marginal effects. The numbers presented in Table 7.13 represent the increased or decreased probability of using strong painkillers/painrelievers with opioids (first column) and tranquilisers/ sleeping pills (second column), associated with each of the characteristics examined.

For the use of strong painkillers/ pain-relievers with opioids, the mean marginal effects generally increase with age, indicating that older age groups are more likely to use these drugs. For example, the mean marginal effect for individuals aged 60 and over is 0.164, which means they are 16.4 percentage points more likely to use strong painkillers/pain-relievers with opioids than those in the reference category (aged 15 to 19).

For the use of tranquilisers/ sleeping pills, the mean marginal effects are more varied. The mean marginal effects for individuals aged 25 to 29 and 30 to 39 are positive but relatively small, while those for the older age groups (40 to 49, 50 to 59 and 60 and over) are larger and statistically significant. This suggests that older individuals are more likely to use tranguilisers/sleeping pills than younger individuals, with the strongest effect seen among those aged 60 and over. Moreover, as already observed, men are less likely to use both types of prescription drugs compared to women, with a difference of 2 percentage points for strong painkillers/pain-



relievers with opioids, and 2.7 percentage points for tranquilisers/sleeping pills.

Regarding family type, the results show that individuals in a family with dependent children are not significantly more likely to use strong painkillers/pain-relievers with opioids, but they are 1.9 percentage points less likely to use tranquilisers/sleeping pills compared to those in a couple with no children. The results show no significant difference in the use of prescription drugs between single parents and those in a couple with no children. However, single people are 2.2 percentage points less likely to use strong painkillers/painrelievers with opioids, but 1.6% more likely to use tranquilisers/ sleeping pills compared to couples with no children.

Individuals who are not in the labour force (e.g., retired, students, homemakers) have a significantly higher probability of using tranquilisers/sleeping pills compared to those who are employed. Immigrants from non-MES countries have a lower probability of using strong painkillers/pain-relievers with opioids and tranquilisers/sleeping pills, with decreases of 6.7 and 2.3 percentage points, respectively, compared to non-First Nations Australian-born individuals.

There is no statistically significant association between household equivalised income (see Box 3.2, page 54) and the use of strong painkillers/pain-relievers with opioids. However, there is a small negative association between household equivalised income and the use of tranquilisers/ sleeping pills, with those in the bottom two quintiles having a lower probability of using these drugs compared to those in the top quintile.

Some heterogeneity is found by place of residence with residents of Victoria, Queensland, Western



Australia and Tasmania more likely to use tranquilisers/sleeping pills compared to those living in New South Wales.

Particularly relevant is the result showing that individuals with a long-term health condition have a significantly higher probability of using strong painkillers/ pain-relievers with opioids and tranquilisers/sleeping pills compared to those without a long-term health condition. Individuals with a long-term health condition are 13.2 percentage points more likely to use strong painkillers/painrelievers with opioids and 5.6 percentage points more likely to use tranquilisers/sleeping pills compared to those without a long-term health condition.

This highlights the importance of addressing the needs of individuals with long-term health conditions and providing appropriate medical care and pain management strategies.

The regression model further reveals significant associations between strong painkillers/painrelievers and daily smoking (2 percentage points), between tranquilisers/sleeping pills and risky alcohol consumption (1.8 percentage points) and between the use of strong painkillers/ pain-relievers and tranquilisers/ sleeping pills and illicit drug use (7.5 percentage points and 9.4 percentage points respectively). Moreover, individuals who have experienced negative events such as being a victim of physical

violence in the past 12 months are 3.9 percentage points more likely to use tranquilisers/sleeping pills compared to those who have not experienced this event.

While having poor general health increases the probability of using both types of prescription drugs (10.6 percentage points for strong painkillers/pain-relievers with opioids and 2.4 percentage points for tranquilisers/sleeping pills), no significant differences are found for the association between having poor mental health and the likelihood of using tranguilisers/sleeping pills. There is only a weak negative association between having poor mental health and the use of strong painkillers/pain-relievers with opioids.

# 8



### Psychological distress

Ferdi Botha

The HILDA Survey has included questions on psychological distress every two years since 2007, with such information again being collected in 2021. Given the immense policy interest in forming a better understanding of mental ill-health in Australia and within the context of the recent COVID-19 pandemic, this chapter examines the trends in psychological distress over time. The chapter also examines various individual characteristics associated with psychological distress, and reports on the factors that jointly determine an individual's probability of being at risk of serious mental illness.

#### Changes in psychological distress since 2007

Figure 8.1 shows the proportion of Australians classified as being in psychological distress in the 15 years between 2007 and 2021. In all years, the percentage of females who are psychologically distressed is higher than the percentage of males who are psychologically distressed. Initially the incidence of distress remained relatively constant until 2011. Since around 2013, however, there has been a consistent upward trend in the proportion of Australians experiencing psychological distress, and in 2021 28.9% of females and 22.7% of males were in distress.

Compare these numbers to 2007, when 17.7% of females and 15.0% of males were distressed. For males, the prevalence of psychological distress increased by roughly 51% between 2007

#### Box 8.1: Measure of psychological distress

The psychological distress measure is based on the Kessler-10 (K10) scale, developed by Kessler et al. (2002). Included in the SCQ, respondents are asked the following: In the last four weeks, about how often did you feel ...

- a. tired out for no good reasons?
  - b. nervous?
  - c. so nervous that nothing could calm you down?
  - d. hopeless?
  - e. restless or fidgety?
  - f. so restless that you could not sit still?
  - g. depressed?
  - h. that everything was an effort?
  - i. so sad that nothing could cheer you up?
  - worthless?

j.

For each question, possible responses include '(5) all the time', '(4) most of the time', '(3) some of the time', '(2) a little of the time', and '(1) none of the time'. In the interviewer-administered version of the K10, items (c) and (f) are not asked when responses to items (b) and (e) are 'none of the time'. In the HILDA SCQ, this is not possible. Therefore, responses to items (c) and (f) are set to a value of 1 if responses to items (b) and (e) were 'none of the time' (also see Wooden, 2009). The overall K10 score is then obtained by summing the responses to all items to get a score ranging from 10 (low psychological distress) to 50 (high psychological distress). The K10 can also divide the population into four distinct groups based on the level of psychological distress that describe the risk of serious mental illness, namely 'low' (K10 score: 10–15), 'moderate' (K10 score: 16–21), 'high' (K10 score: 22–29), and 'very high' (K10 score: 30–50). In this chapter, a person is deemed to be in psychological distress.

and 2021, whereas among females the prevalence of distress increased by about 63% over the same period.

Considering the proportion of Australians in psychological distress over time by age group (Figure 8.2) reveals a broadly similar pattern to that in Figure 8.1. Across all age groups there has been a general rising trend in the percentage of people in psychological distress, although the overall incidence of distress tends to be lower among older age groups.

Despite a continued decline in distress prevalence between

2007 and 2011 for the 15 to 24 age group, the subsequent increase in distress has been most severe for this youngest age group, rising from 18.4% in 2011 to 42.3% in 2021. By 2021 the prevalence of distress for the age group 25 to 34 was also very high at 32.7%. For most age groups,





but for the 15 to 24 and 25 to 34 age groups especially, there were sharp rises in distress prevalence between 2019 and 2021, undoubtedly in part reflecting the impact of the COVID-19 pandemic.

To gain more insight into how the profile of psychological distress changed over time, Figure 8.3 plots the proportion of females and males within each K10 risk category. The increase in psychological distress over time has not only been characterised by a general upward shift in the distribution of psychological distress but has also coincided with a movement of a greater proportion of people into the 'high' and 'very high' risk categories. This suggests that the observed increasing trend in psychological distress scores has been significant, to the extent that an increasing greater proportion of Australians are at high or very high risk of developing serious mental illness.

#### Who has low and high levels of psychological distress?

Table 8.1 reports average psychological distress scores on the 10–50 scale, by gender in the 2021 survey year, with higher psychological distress scores implying a greater likelihood of developing a mental illness. Mean psychological distress levels decline with age, with the youngest age groups reporting the highest average distress scores. For instance, females aged 15 to 24 report an average score of 23.2 compared to 18.4 and 15.7, respectively, among females aged 35 to 54 and 65 and over. Males aged 15 to 24 report a distress score of 19.6, whereas males in the 35 to 44 and 65 and over age groups report average scores of 17.7 and 15.2, respectively.

Mean psychological distress scores tend to be higher among the lowest educated. Unemployed people have much





higher average distress scores than people who are employed or not in the labour force. Unemployed females, for example, report a mean score of 23.9 compared to a score of 18.4 for employed females.

Average distress scores generally decrease as household equivalised annual disposable income increases. Income support recipients, however, report higher mean psychological distress than individuals who are not on income support, in part reflecting the fact that income support recipients have lower levels of income.

Australians in poor general health report much higher average psychological distress scores than those who are not in a poor general health state. Females with a disability that moderately or severely restricts work report a mean distress score of 21.7 as compared to a score of 17.9 among females without a disability. Similarly, among males the mean distress score is higher for people with a disability that moderately or severely restricts work (20.2) relative to people without such a disability (16.7).

As expected, mean psychological distress is substantially greater among Australians who have ever been diagnosed with depression, anxiety or other mental illness (see Box 8.2, page 168). Females and males with a diagnosis have distress scores of 25.2 and 24.1, respectively, whereas those who have never been diagnosed with such conditions have scores of 16.2 (females) and 15.7 (males), respectively. Similarly, for both females and males, the average psychological distress score is greater among those who report taking prescription medication for depression, anxiety or other mental illness (see Box 8.2, page 168) than among people who do not take any such prescription medication.

Table 8.1: Mean psychological distress score (10-50 scale) of people aged 15 and over 2021

aged 15 and over, 2021	Females	Males
Age		
15-24	23.2	19.6
25-34	20.2	19.0
35-44	18.4	17.7
45-54	18.4	16.4
55-64	17.2	16.3
65 and over	15.7	15.2
Educational attainment		
Year 11 and below	19.3	18.4
Year 12	19.7	18.5
Certificate III or IV. or Diploma	18.8	16.9
Bachelor's degree or higher	17.5	16.2
Employment status		
Employed	18.4	17.0
Unemployed	23.9	21.5
Not in the labour force	18.7	17.7
Household equivalised annual disposable income quinti	ile (December 20	)21 prices)
Bottom	19.1	18.4
Second	19.7	18.3
Third	19.2	17.6
Fourth	18.5	17.0
Тор	17.6	16.3
Income support recipient		
No	18.3	17.0
Yes	19.8	18.4
SF-36 general health measure		
Not in poor general health	17.8	16.6
In poor general health	25.5	23.7
Disability with moderate or severe work restriction		
No	17.9	16.7
Yes	21.7	20.2
Ever diagnosed with depression, anxiety or other menta	al illness	
No	16.2	15.7
Yes	25.2	24.1
Taking prescription medication for depression, anxiety	or other mental i	llness
No	17.6	16.4
Yes	26.3	25.2
Partnered		
No	20.8	19.2
Yes	17.3	16.2
Children		
No children	18.5	17.4
Children	19.0	17.1
Region of residence		
Major urban	18.8	17.5
Other urban	18.5	16.9
Non-urban	18.2	16.8
First Nations identity		
Non-First Nations	18.9	17.4
First Nations	22.5	18.8

#### Box 8.2: HILDA Survey information on the taking of prescription medications for mental health conditions

As described in Chapter 6, beginning in 2009, the HILDA Survey has collected information every four years on whether individuals have been diagnosed with various serious illness conditions that they currently still have, and that have lasted or are expected to last for six months or more. Among the conditions identified are depression, anxiety and 'other' mental illness. For each diagnosed serious illness condition of the respondent, the HILDA Survey identifies whether they are currently taking prescription medication for the condition.

In this report, an individual is deemed to be taking prescription medication for a mental health condition if they report having a diagnosis of anxiety, depression or other mental illness, and they report currently taking a prescribed medication for at least one of these conditions.

Partnered individuals have lower average psychological distress scores than nonpartnered individuals. Females with any children report slightly higher distress than females without children, whereas males with any children report slightly lower distress than males without children.

People living in major urban areas report higher mean psychological distress scores than people living in other urban and non-urban areas. When not adjusting for any other factors, average distress scores among First Nations people are greater than those of non-First Nations Australian-born people.

#### Determinants of psychological distress

This section examines the factors that jointly determine the likelihood of reporting being in psychological distress, that is, being at 'high' or 'very high' risk of psychological distress on the K10 scale. Table 8.2 reports the results from Probit regressions in the form of mean marginal effects, by gender. For indicator variables (such as educational attainment or labour force status), the estimates are interpreted as the change in the probability of psychological distress if the characteristic is present compared to the reference category. In the case of continuous variables (such as household equivalised disposable income or general health), the estimates reflect the effect of a one-unit increase in this variable on the probability of being in psychological distress.

The likelihood of psychological distress declines with age. For example, females in the 45 to 54 age group are on average 14.5 percentage points less likely to be in distress as compared to females aged 15 to 24, whereas distress is 9.7 percentage points less likely for males aged 45 to 54 relative to males aged 15 to 24. Among females, those aged 65 and over are 26.2 percentage points less likely than those aged 15 to 24 to be in psychological distress.

Higher levels of educational attainment tend to be related to a lower probability of being psychologically distressed. Unemployed people are more likely to be distressed relative to those who are employed or not in the labour force.

For each additional \$10,000 increase in household equivalised annual disposable income (see Box 3.2, page 54), the likelihood of psychological distress declines on average by 0.1 and 0.2 percentage points for females and males, respectively. Income support recipients are significantly more likely than non-recipients to report psychological distress.

An improvement in the SF-36 general health score (see Box 2.4, page 20) is associated with a lower probability of psychological



distress. Females and males with a disability that moderately or severely restricts work are 2.9 and 2.0 percentage points, respectively, more likely to be in psychological distress than people without such disability.

Psychological distress is less likely among partnered individuals than among non-partnered individuals. Whereas for males there is no significant relationship between distress and having children aged 4 or younger, females with children aged 0 to 4 are on average 2.9 percentage points less likely to be in psychological distress compared to females with no children or with children aged over 4. There is no relationship between the likelihood of distress and having children aged 5 to 9 or 10 to 14.

There is a strong association between psychological distress and loneliness. Females and males who are lonely (see Box 9.1, page 170) are on average 19.6 and 16.1 percentage points, respectively, more likely to be in psychological distress compared to those who are not lonely.

There are no differences in distress between owners with a mortgage and those who own their homes outright. However, psychological distress is more likely among people in social housing and private rentals relative to outright homeowners. For females there is no association between psychological distress and housing stress (see Box 3.10, page 79). Among males, however, those in housing affordability stress are about 2.7 percentage points more likely to be in psychological distress than those who are not in housing affordability stress. There are no significant differences in distress according to dwelling type.

First Nations people and non-First Nations Australian-born individuals do not differ significantly in terms of their probability of being in psychological distress once controlling for other factors. Male immigrants from the main English-speaking countries are 1.4 percentage points less likely than Australian-born males to be in distress. In contrast, both female and male immigrants from countries other than the main English-speaking countries are more likely to be in psychological distress compared to Australianborn individuals.

Psychological distress is more likely (3.7 and 4.1 percentage points for females and males, respectively) among people residing in Victoria during the 2021 COVID-19 lockdown than among people who did not live in Victoria during that period. There is no association between psychological distress and the NSW/ACT lockdown in 2021. Australians residing in non-urban areas are less likely to be in psychological distress as compared to those living in major urban and other urban areas.

The survey year estimates suggest that the likelihood of psychological distress has tended to be greater during roughly the past seven years than in 2007. For instance, in 2017 females and males were 4.2 and 1.8 percentage points, respectively, more likely to be distressed than in 2007. Compared to 2007, in 2021 the probability of psychological distress was 10.4 percentage points greater for females and 6.8 percentage points greater for males.

Table 8.2: Determinants of psychological dis	stress, by geno	der
	Females	Males
Age group (Reference category: 15-24)		
25-34	-0.048	ns
35-44	-0.111	-0.051
45-54	-0.145	-0.097
55-64	-0.207	-0.134
65 and over	-0.262	-0.169
Educational attainment (Reference category: Year 11 a	and below)	
Year 12	-0.016	ns
Certificate III or IV, or Diploma	-0.011	-0.010
Bachelor's degree or higher	-0.053	-0.023
Labour force status (Reference category: Unemploye	d)	
Employed	-0.056	-0.044
Not in the labour force	-0.043	-0.021
Household equivalised annual disposable income		
(\$'0,000, December 2021 prices)	-0.001	-0.002
Income support recipient	0.030	0.015
SF-36 general health measure (0-100 scale)	-0.006	-0.005
Disability with moderate or severe work restriction	0.029	0.020
Partnered	-0.026	-0.015
Has children aged 0-4	-0.029	ns
Has children aged 5-9	ns	ns
Has children aged 10-14	ns	ns
Lonely	0.196	0.161
Home tenure group (Reference category: Owner with	nout mortgage)	
Social housing	0.023	0.057
Private rental	0.011	0.021
Owner with mortgage	ns	ns
In housing affordability stress	ns	0.027
<i>Dwelling type</i> (Reference category: Separate house)		
Semi-detached house	ns	ns
Flat	ns	ns
Other	ns	ns
Immigrant status and First Nations identity (Referenc category: Non-First Nations Australian-born)	e	
First Nations	ns	ns
Immigrant, main English-speaking countries	ns	-0.014
Immigrant, other countries	0.064	0.056
VIC lockdown in 2021	0.037	0.041
NSW/ACT lockdown in 2021	ns	ns
Region of residence (Reference category: Non-urban	)	
Major urban	0.022	0.023
Other urban	0.014	0.021
Survey year (Reference category: 2007)		
2009	ns	ns
2011	ns	ns
2013	0.022	ns
2015	0.026	0.015
2017	0.042	0.018
2019	0.048	0.040
2021	0.104	0.068
Number of observations	59,671	52,414

*Notes*: The table presents mean marginal effects from Probit regression models of the determinants of being in psychological distress among people aged 15 and over. See the Technical Appendix for an explanation of these models. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

## 9



### Loneliness

Ferdi Botha

The HILDA Survey has included a unique item on feelings of loneliness since 2001, which makes it possible to provide a long-term overview of loneliness among Australians. Given compelling evidence that loneliness is strongly linked to important outcomes such as poor mental health (Kung et al., 2021), a better understanding of loneliness can inform initiatives aimed at supporting people in need and fostering stronger social relationships. This chapter explores the changes in loneliness prevalence over the past 21 years and considers the individual characteristics that are related to high and low levels of reported loneliness. Finally, the chapter investigates the determinants of loneliness within a multivariate framework.

#### Trends in loneliness over time

Figure 9.1 shows the average prevalence of loneliness in Australia by gender since 2001, reporting the proportion of people who were lonely (that is, reporting a score of 5 or higher on the 1-7 scale; see Box 9.1). Loneliness is consistently more prevalent among females than males in all years. For both groups, mean loneliness prevalence has declined slightly over the 20-year period. In 2001, about 22.6% of females were categorised as lonely compared to 21.0% in 2021. Among males, 19.6% were lonely in 2001 compared to 17.3% in 2021.

Depicting average loneliness prevalence by age group, Figure 9.2 reveals somewhat different trends, with the general decline in the proportion of lonely people not observed across all age groups. Between 2001 and 2009, the greatest proportion of lonely people was among those aged 65 and older. Since 2001, however, the trend in loneliness among this age group has steadily declined, and in 2021 the 65 and over age group had the lowest proportion of lonely individuals as compared to younger age groups.

With the exception of the 15 to 24 age group, all other age groups have a lower proportion of lonely people in 2021 than in 2001. Prior to 2008, those aged 15 to 24 tended to have amongst the lowest rates of Ioneliness. Since around 2008, however, the proportion of those aged 15 to 24 who are lonely has steadily increased over time, accelerating further in 2015. Between 2019 and 2020 loneliness increased sharply, arguably in part because of the pandemic. In 2001 about 18.5% of the 15 to 24 age group were classified as being lonely; in 2020

#### Box 9.1: HILDA Survey measure of loneliness

In every wave of the HILDA Survey, a question has been included in the selfcompletion questionnaire asking respondents the extent of agreement with the following statement: 'I often feel very lonely'. Response options range from I (strongly disagree) to 7 (strongly agree), with a higher score implying higher levels of loneliness. In this chapter, a person is categorised as 'lonely' if they provide a response of 5 or higher (also see Kung et al., 2021).







and 2021 this proportion was 26.6% and 24.8%, respectively.

#### Characteristics associated with low and high loneliness scores

Table 9.1 shows average loneliness scores in 2021, on the 1-7 scale, by selected personal characteristics and gender. Mean loneliness is highest among younger Australians aged 15 to 24, with a score of 3.3 among females and 3.0 among males. Likewise, average loneliness is lowest among the 65 and older group, with females reporting a score of 2.6 and males reporting a score of 2.4.

Loneliness scores tend to be higher among those with higher educational attainment. Females with at least a bachelor's degree have a mean score of 2.6 relative to a score of 2.9 for those with Year 12. Males with at least a bachelor's degree have a mean score of 2.4 as compared to a score of 2.9 for those with Year 12. Loneliness is greatest among unemployed individuals and lowest among employed people. Higher levels of income tend to be associated with lower loneliness scores, especially among males.

Loneliness is higher for people in poor general health than those not in poor general health. Australians with a disability report on average greater loneliness than Australians without a disability. There are substantial differences in mean loneliness score between those in poor mental health and those not in poor mental health. For example, for females, the mean score is 4.2 for those in poor mental health, compared with 2.5 for those not in poor mental health.

Partnered people report lower loneliness scores than

Table 9.1: Mean loneliness score by individual characteristics, by gender, 2021—People aged 15 and over (1–7 scale)

	Females	Males
Age		
15-24	3.3	3.0
25-34	3.0	2.7
35-44	2.8	
45-54	2.9	2.6
55-64	2.7	2.7
65 and over	2.6	2.4
Educational attainment		
Year 11 and below	3.0	2.9
Year 12	2.9	2.9
Certificate III or IV, or Diploma	3.0	2.7
Bachelor's degree or higher	2.6	2.4
Labour force status		
Employed	2.7	2.6
Unemployed	3.8	3.5
Not in the labour force	3.0	2.8
Household equivalised annual disposable income	quintile (Decembe	r 2021 prices)
Bottom	3.0	3.0
Second	3.0	2.9
Third	3.0	2.8
Fourth	2.9	2.6
Тор	2.6	2.4
SF-36 general health measure		
Not in poor general health	2.7	2.6
In poor general health	3.8	3.8
Disability with moderate or severe work restriction	<b>n</b>	
No	2.7	2.6
Yes	3.3	3.1
SF-36 mental health measure		
Not in poor mental health	2.5	2.4
In poor mental health	4.2	4.3
Partnered		
No	3.3	3.3
Yes	2.6	2.3
Children		
No children	2.8	2.7
Children	2.9	2.6
Region of residence		
Major urban	2.8	2.7
Other urban	3.0	2.7
Non-urban	2.9	2.7
Immigrant status and First Nations identity		
Non-First Nations Australian-born	2.9	2.7
First Nations	3.6	3.0
Immigrant, main English-speaking countries	2.5	2.8
Immigrant, other countries	2.8	2.6

unpartnered people, and there are few differences in loneliness between those with and without children. For males, loneliness levels are similar across regions of residence, whereas among females, those living in major urban areas are the least lonely (2.8).

First Nations females (3.6) and males (3.0) report greater average loneliness scores compared to non-First Nations Australian-born people and immigrants. In terms of birth country, among females, mean loneliness is lowest among immigrants from the main English-speaking countries (2.5). Among males, average loneliness is lowest among immigrants from countries other than the main English-speaking countries (2.6).



#### Determinants of loneliness

Table 9.2 moves beyond average associations and reports the regression results showing the predictors of loneliness, while controlling for a range of other factors.

Females aged 25 to 44 and males aged 25 to 54 are lonelier than people in the 15 to 24 age range. Although Figure 9.1 shows that loneliness has been increasing substantially among the 15 to 24 group in recent years relative to older age groups, on average loneliness levels among the 15 to 24 group are not higher than some older age groups over the period under consideration.

Australians with an educational attainment of Year 11 and below are less lonely, on average, than those with higher levels of completed education. Males with Year 12, for example, are 0.345 points lonelier than males with Year 11 or below.

Females who are employed and not in the labour force are on average 0.238 and 0.175 points, respectively, less lonely than unemployed females. The relationship between loneliness and labour force status is weaker for males, with only the employed being slightly less lonely than unemployed males. There is no significant association between loneliness and household equivalised annual disposable income.

Not surprisingly, Australians who live alone are on average 0.222 to 0.226 points lonelier than those who do not live alone. Compared to couples without children, loneliness is greater among couples with children as well as single parents. Among males, those in other household types are on average also lonelier than couples without children.

#### Box 9.2: HILDA Survey measure of frequency of social contact

In every wave of the HILDA Survey, a question has been included in the selfcompletion questionnaire ascertaining the frequency of in-person contact with friends or relatives not living with the respondent. The question reads:

'In general, about how often do you get together socially with friends or relatives not living with you?'

Response options are 'every day', 'several times a week', 'about once a week', '2 or 3 times a month', 'about once a month', 'once or twice every 3 months', or 'less often than once every 3 months'.

In this report, the measure of frequency of social contact is set equal to 1 if frequency of contact is less often than once every 3 months, 2 if frequency of contact is at least once or twice every 3 months but less than once a week, and 3 if contact is at least once a week). Thus, higher values of this measure correspond to greater frequency of social contact.



Each additional one-point improvement in general health (on the 0-100 scale; see Box 2.4, page 20) is associated with about 0.015 points less loneliness. For females there is no significant relationship between disability status and loneliness. For males, however, people with a disability that moderately or severely restricts work (see Box 2.7, page 24) are on average 0.071 points lonelier than people without a disability.

Consistent with the descriptive results in Table 9.1, having a partner is related to lower levels of reported loneliness. Partnered females are about 0.328 points less lonely than non-partnered females, while partnered males are 0.454 points less lonely than non-partnered males

Interestingly, females with children aged four or younger are on average 0.066 points lonelier than females without children or with children older than four. In contrast, males with children aged four or younger are on average 0.097 points less lonely than males without children or with children older than four. There is no significant association between loneliness and having children older than four.

Being a member of a club or association is not significantly related to loneliness for either females or males. As expected, loneliness is significantly lower among people with higher frequencies of social contact with family or friends (see Box 9.2, page 173). Among females, for example, people who engage in social contact at least once a week are on average less lonely (by 0.370 points) than those who only see family or friends every three months or longer.

For females, there was no relationship between any of the COVID-19 lockdowns and reported loneliness. For males, there is no significant association between the 2020 Victorian lockdown and loneliness. However, loneliness was on average lower for males during the Victorian and NSW/ACT lockdowns in 2021 compared to other states and periods. Finally, for males there is no significant relationship between loneliness and region of residence, but females living in non-urban areas are on average lonelier than females living in major urban and other urban areas.

Table 9.2: Predictors of loneliness among people aged 15 and over, by gender

	Females	Males
Age group (Reference category: 15–24)		
25-34	0.114	0.167
35-44	0.120	0.171
45-54	ns	0.136
55-64	ns	ns
65 and over	ns	ns
Educational attainment (Reference category: Year 11 a	nd below)	
Year 12	0.209	0.345
Certificate III or IV, or Diploma	0.190	0.273
Bachelor's degree or higher	0.116	0.298
Labour force status (Reference category: Unemployed	(b	
Employed	-0.238	-0.066
Not in the labour force	-0.175	ns
Household equivalised annual disposable income (\$'0,000, December 2021 prices)	ns	ns
Lives alone	0.222	0.226
Household type (Reference category: Couple without	children)	
Couple with children	0.069	0.132
Single parent with children	0.284	0.301
Other household type	ns	0.239
SF-36 general health measure (0–100 scale)	-0.014	-0.015
Disability with moderate or severe work restriction	ns	0.071
Partnered	-0.328	-0.454
Has children aged 0-4	0.066	-0.097
Has children aged 5-9	ns	ns
Has children aged 10-14	ns	ns
Member of a club or association	ns	ns
Frequency of social contact (Reference category: One	ce every 3 month	s or longer)
At least once a month	-0.190	-0.160
At least once a week	-0.370	-0.301
VIC lockdown in 2020	ns	ns
VIC lockdown in 2021	ns	-0.111
NSW/ACT lockdown in 2021	ns	-0.144
Region of residence (Reference category: Non-urban)	)	
Major urban	-0.158	ns
Other urban	-0.103	ns
Number of observations	101,924	83,860

*Notes*: The table presents estimates from a fixed effects regression model of the predictors of loneliness on the 1–7 scale. See the Technical Appendix for an explanation of these models. Year indicators are included but not shown. *ns* indicates the estimate is not significantly different from 0 at the 10% level.



# 10



### Quantity and quality of sleep

Ferdi Botha

Adequate and good-quality sleep is crucial for overall health and wellbeing. Waves 13, 17 and 21 of the HILDA Survey asked questions on respondents' quantity and quality of sleep. This provides an opportunity to gain a better understanding of Australians' sleep patterns and how their sleep is associated with health and wellbeing. This chapter reports changes in quantity and quality of sleep over time, examines the determinants of sleep quantity and sleep quality, and provides insight into the effects of adequate and inadequate sleep on selected health and wellbeing outcomes.

#### Quantity of sleep

Figure 10.1 shows the average daily hours of sleep by gender and age between 2013 and 2021. Sleep hours are substantially higher among those aged 15 to 24, averaging just under 7.8 hours per day in 2021. Mean hours of sleep are lowest between ages 35 and 64. Among Australians aged 65 and over, males sleep on average more than females.

Table 10.1 reports average reported daily hours of sleep in 2021 for females and males, by selected personal characteristics. People aged 15 to 24 sleep on average 7.8 hours per day, whereas daily sleep hours are lower among older age groups. Among those aged 65 and over, mean hours of sleep are higher for males (7.5) than for females (7.1). Mean sleep hours are relatively constant across levels of educational attainment.

Employed males and females both report 7.3 hours of sleep, but unemployed males (7.8) and males not in the labour force (7.5) report more hours of sleep than unemployed females (7.3) and females not in the labour force (7.2). There are no clear differences in mean hours of sleep across household equivalised annual disposable income quintiles. Both females and males in poor general health report fewer hours of sleep than those not in poor general health. Mean sleep hours are slightly lower among people with a disability that moderately or severely restricts work compared to those with no such disability, and people in poor mental health report fewer hours of sleep than those not in a state of poor mental health.

Partnered females (7.2) and males (7.3) report fewer hours of sleep than females (7.4) and males (7.5) who are not partnered. Both males and females with children report roughly 0.1 hours (or 6 minutes) less hours of sleep than those without any children.

There are no apparent differences in sleep hours across regions of residence. There are also no clear differences by country of birth and First Nations identity, though male First Nations people report the lowest average sleep hours.

Using reported daily hours of sleep together with the Australian Sleep Health Foundation recommendations (see Box 10.1, page 176), Table 10.2 shows the prevalence of insufficient and sufficient sleep in 2021, by gender and age.

About 13.9% of females and 10.1% of males get too little sleep,



#### Box 10.1: HILDA Survey measures of quantity and quality of sleep

In waves 13, 17 and 21 of the HILDA Survey, respondents were asked questions related to their quantity and quality of sleep.

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

This report also draws on estimates of insufficient, sufficient and excessive sleep as recommended by the Australian Sleep Health Foundation (ASHF) (www. sleephealthfoundation.org.au). The ASHF recommends daily hours of sleep of 8-10 for people aged 14 to 17, 7-9 hours for people aged 18 to 64, and 7-8 hours for people aged 65 and over. There is also a recommendation against sleep hours less than 7 for people aged 14 to 17, less than 6 hours for people aged 18 to 64, and less than 5 hours for people aged 65 and over; and a recommendation against sleep hours greater than 11 hours for people aged 14 to 25, greater than 10 hours for people aged 26 to 64, and greater than 9 hours for people aged 65 and over.

To measure quality of sleep, respondents are asked to rate their sleep quality based on the following question in the self-completion questionnaire: 'During the past month, how would you rate your sleep quality overall?' Response options include 'very bad', 'fairly bad', 'fairly good' and 'very good'. whereas 82.7% of females and 85.8% of males are deemed to get adequate sleep. Across all age groups, females also get too little sleep when compared to males. Among Australians aged 65 and over, about 13.4% of females sleep too much, whereas for males this proportion is 18.9%

#### Quality of sleep

Figure 10.2 shows sleep quality by gender over the three waves in which data on sleep were collected. Patterns in reported sleep quality over time are very similar between females and males. The proportion of Australians rating their daily sleep as 'fairly bad' has increased





slightly from 21.8% in 2013 to 24.6% in 2021 for females, and from 17.7% in 2013 to 21.7% in 2021 for males. Though the proportion of respondents with 'very bad' and 'fairly good' sleep has remained relatively stable over time, the proportion of people reporting 'very good' sleep has fallen from 19.2% in 2013 to 15.4% in 2021 for females, and from 20.7% in 2013 to 17.3% in 2021 for males.

Table 10.3 shows the prevalence of reported sleep quality as rated by respondents, by gender and age. About 30.3% of females and 25.6% of males rate their sleep as 'fairly bad' or 'very bad'. Among those in the 25 to 34 age group, 27.1% and 12.2% of females rate their sleep as 'fairly bad' or 'very good', respectively. For males within the same 25 to 34 age group, 22.0% and 17.0% rate their sleep as 'fairly bad' or 'very good', respectively. Sleep quality is also rated as 'very bad' among 6.6% of females aged 35 to 44, whereas for males in the same age group the proportion is 3.5%. Among

Table 10.1: Mean daily hours of sleep by individual characteristics, by gender, 2021–People aged 15 and over

gender, 2021 - People aged 13 and over	Females	Males	
Age group			
15-24	7.8	7.8	
25-34	7.4	7.4	
35-44	7.1		
45-54	7.2	7.2	
55-64	7.1	7.1	
65 and over	7.1	7.5	
Educational attainment			
Year 11 and below	7.3	7.5	
Year 12	7.4	7.4	
Certificate III or IV, or Diploma	7.2	7.3	
Bachelor's degree or higher	7.3	7.4	
Labour force status			
Employed	7.3	7.3	
Unemployed	7.3	7.8	
Not in the labour force	7.2	7.5	
Household equivalised annual disposable income quint	ile (Decemb	er 2021 prices)	
Bottom	7.1	7.4	
Second	7.2	7.3	
Middle	7.3	7.4	
Fourth	7.4	7.4	
Тор	7.3	7.3	
SF-36 general health measure			
Not in poor general health	7.4	7.3	
In poor general health	7.2	7.1	
Disability with moderate or severe work restriction			
No	7.3	7.4	
Yes	7.1	7.3	
SF-36 mental health measure			
Not in poor mental health	7.4	7.3	
In poor mental health	7.3	7.1	
Partnered			
No	7.4	7.5	
Yes	7.2	7.3	
Children			
No children	7.3	7.4	
Children	7.2	7.3	
Region of residence			
Major urban	7.3	7.4	
Other urban	7.3	7.3	
Non-urban	7.2	7.3	
Immigrant status and First Nations identity			
Non-First Nations Australian-born	7.3	7.4	
First Nations	7.3	7.1	
Immigrant, main English-speaking countries	7.2	7.2	
Immigrant, other countries	7.2	7.4	

age group, 2021 (%)				
	Too little sleep	Adequate sleep	Too much sleep	Total
Females				
15-24	12.6	85.2	2.1	100.0
25-34	11.2	87.4	1.4	100.0
35-44	14.5	85.0	0.5	100.0
45-54	16.0	82.9	1.1	100.0
55-64	17.0	80.5	2.5	100.0
65 and over	12.3	74.3	13.4	100.0
Total	13.9	82.7	3.4	100.0
Males				
15-24	9.3	89.4	1.3	100.0
25-34	7.4	91.2	1.4	100.0
35-44	9.1	90.0	0.9	100.0
45-54	12.9	84.1	3.0	100.0
55-64	16.4	82.7	0.9	100.0
65 and over	6.3	74.8	18.9	100.0
Total	10.1	85.8	4.1	100.0

Table 10.2: Prevalence of insufficient and sufficient sleep, by gender and

those aged 65 and over, 19.7% of females and 22.2% of males rate their sleep as 'very good'.

#### Determinants of sleep quantity and sleep quality

This section considers the factors that jointly determine hours of sleep and subjective sleep quality. Table 10.4 reports the regression results of the determinants of sleep quality and sleep quantity for females and males. Whereas for males there is no significant relationship between age and sleep quantity, older females tend to report significantly fewer hours of sleep than younger females. For example, females aged 45 to





Table 10.3: Sleep quality, by gender and age group, 2021 (%)					
	Very bad	Fairly bad	Fairly good	Very good	Total
Females					
15-24	4.6	21.1	56.0	18.4	100.0
25-34	4.2	27.1	56.5	12.2	100.0
35-44	6.6	24.8	55.6	13.1	100.0
45-54	6.3	27.6	50.4	15.7	100.0
55-64	6.3	25.0	54.5	14.3	100.0
65 and over	4.6	23.4	52.3	19.7	100.0
Total	5.4	24.9	54.1	15.6	100.0
Males					
15-24	2.6	21.9	59.4	16.1	100.0
25-34	3.0	22.0	58.1	17.0	100.0
35-44	3.5	23.9	59.2	13.3	100.0
45-54	4.5	22.2	56.5	16.8	100.0
55-64	3.7	25.7	54.0	16.6	100.0
65 and over	2.3	19.4	56.2	22.2	100.0
Total	3.2	22.4	57.3	17.1	100.0

54 report on average 0.415 hours less sleep per day than females aged 15 to 24.

Employed females sleep about 0.235 hours (or 14.1 minutes) per day more than females who are not employed, and for both males and females, working more weekly hours in paid work is related to slightly less sleep. Among females, an additional hour of unpaid work each week leads to about 0.006 hours less sleep per day, which equates to roughly 36 seconds—in practical terms a very small amount.

Females employed as labourers sleep on average 0.26 hours less per day than female managers. Compared to single parents with children, among both males and females couples without children report more hours of daily sleep.

Hours of sleep are not affected by general health (see Box 2.4, page 20), disability status (see Box 2.7, page 24), or partnership status. However, females with children aged four or younger report on average 0.291 hours per day less sleep than females without children in that age range. There are no significant differences in sleep quantity among females with children aged five to nine or 10 to 14, relative to females who do not have children in those age groups. For males there is no evidence that having children of any age is related to hours of sleep.

Females who resided in Victoria, New South Wales or the Australian Capital Territory in 2021 during the pandemic lockdown report significantly more daily sleep than those who lived elsewhere. Among males, those living in New South Wales or the Australian Capital Territory in 2021 reported significantly more daily sleep than those living elsewhere. There is no significant effect of region of residence (see Box 2.11, page 40) on sleep quantity for females but among males, those who live in non-major urban areas report higher sleep hours than those living in non-urban areas. Results with respect to the survey year indicators suggest that, compared to 2013, females slept significantly fewer hours per day in 2017 and 2021, whereas males slept significantly less in 2017 but not in 2021.

Although some determinants of sleep quantity are similar to the



determinants of sleep quality, there are several differences as well. Whereas for females there are significant age differences in sleep quantity, there are no age differences in terms of subjective sleep quality (on the 1-4 scale). Males aged 25 to 44 report significantly worse sleep quality than males aged 15 to 24. Being employed and weekly hours of paid work are not associated with sleep quality, and for females there is a small negative impact on sleep quality for each additional hour of unpaid work.

Among males there are no differences in sleep quality across occupation groups. For females, however, reported sleep quality is significantly better among professionals, community and personal service workers, clerical and administrative workers, and sales workers as compared to managers.

Females living in couple households without children report better sleep quality and higher sleep quantity as compared to other females with children; for males, this association holds for sleep quantity, but not sleep quality.
	Fem	ales	Males	
	Quantity	Quality	Quantity	Quality
Age group (Reference category: 15–24)				
25-34	-0.147	ns	ns	-0.085
35-44	-0.388	ns	ns	-0.114
45-54	-0.415	ns	ns	ns
55-64	-0.424	ns	ns	ns
65 and over	-0.390	ns	ns	ns
Employed	0.235	ns	ns	ns
Hours of paid work per week	-0.007	ns	-0.006	ns
Hours of unpaid work per week	-0.006	-0.002	ns	ns
Occupation (Reference category: Managers)				
Professionals	ns	0.085	ns	ns
Technicians and trades workers	ns	ns	ns	ns
Community and personal service workers	ns	0.109	ns	ns
Clerical and administrative workers	ns	0.094	ns	ns
Sales workers	ns	0.130	ns	ns
Machinery operators and drivers	ns	ns	ns	ns
Labourers	-0.260	ns	ns	ns
Household type (Reference category: Single parent with child	ren)			
Couple without children	0.429	0.150	0.204	ns
Couple with children	ns	ns	ns	ns
Other household type	ns	ns	ns	ns
SF-36 general health measure (0-100 scale)	ns	0.008	ns	0.009
Disability with moderate or severe work restriction	ns	ns	ns	ns
Partnered	ns	ns	ns	ns
Has children aged 0-4	-0.291	-0.158	ns	ns
Has children aged 5-9	ns	0.070	ns	ns
Has children aged 10–14	ns	ns	ns	ns
Victoria in 2021	0.078	ns	ns	ns
New South Wales or Australian Capital Territory in 2021	0.135	ns	0.121	ns
Region of residence (Reference category: non-urban)				
Major urban	ns	ns	ns	ns
Other urban	ns	ns	0.201	ns
Survey year (Reference category: 2013)				
2017	-0.076	-0.043	-0.056	-0.031
2021	-0.101	-0.063	ns	ns
Number of observations	18,880	18,836	15,721	15,655

*Notes*: The table presents estimates from fixed effects regression models of the determinants of sleep quantity, measured in hours per day, and sleep quality, measured from 1 (very bad) to 4 (very good). See the Technical Appendix for an explanation of these models. *ns* indicates the estimate is not significantly different from 0 at the 10% level.





A better general health score (see Box 2.4, page 20) is related to slightly better reported sleep quality among both males and females. Sleep quality is not affected by having a disability with moderate or severe work restriction (see Box 2.7, page 24) or by partnership status.

Among females, sleep quality is worse among those with children aged 0 to 4 relative to those with no children in this age group, whereas sleep quality is slightly better for those with children aged 5 to 9 than those who do not have children in this age group. For males, similar as for sleep quantity, there is no significant effect of children on sleep quality.

Sleep quality did not differ between respondents residing in regions that were in lockdown in 2021 relative to those who were not in lockdown. There are no regional differences in sleep quality. As with hours of sleep, females' sleep quality was significantly worse in 2017 and 2021 than in 2013. For males, sleep quality was worse in 2017, but not in 2021, as compared to 2013.

## Effects of sleep on health and wellbeing

Given the crucial importance of adequate sleep for our health and wellbeing, Table 10.5 presents regression results for the associations of sleep quantity and sleep quality with general health, psychological distress and life satisfaction.

Panel A reports the results for sleep quantity, using the Australian Sleep Health Foundation groupings of what constitutes adequate, too little and too much sleep (see Box 10.1, page 176). The results show that inadequate amounts of sleep are associated with poorer health and wellbeing, with some differences across the outcome considered.

Compared to people with adequate sleeping hours, those

sleeping too little and too much, respectively, report general health scores of 3.354 and 3.890 points lower on the 0-100 scale. It should be noted, however, that poor health can be both a cause and a consequence of too little or too much sleep. As such, the direction of causation is not clear. Relative to those with adequate sleep, among Australians who sleep too little, their psychological distress (see Box 8.1, page 164) score is 1.506 points higher (on the 10-50 scale). There are no significant differences in psychological distress between people with adequate and too much sleep. Life satisfaction is significantly lower among people



#### Box 10.2: Life satisfaction

The HILDA Survey asks respondents to report on their overall life satisfaction using the question 'All things considered, how satisfied are you with your life overall?', with response options ranging from 0 (completely dissatisfied) to 10 (completely satisfied).

who sleep too little or too much, as compared to people who sleep an adequate number of hours each day.

Panel B in Table 10.5 reports how perceived sleep quality is related to the selected health and wellbeing outcomes, while controlling for a range of other individual characteristics. Health and wellbeing improve as a person's sleep quality rating improves. For instance, compared to people rating their sleep as 'fairly good', those who rate their sleep as 'very bad' have on average 7.922 points worse general health, 4.822 points greater psychological distress and 0.534 points lower life satisfaction. These results underscore the importance of sufficient quantity and quality of sleep for the wellbeing of Australians.

# Table 10.5: Effects of sleep quantity and sleep quality on health and wellbeing of people aged 15 and over

membering of people agea			
	General health (0-100 scale)	Psychological distress (10-50 scale)	Life satisfaction (0-10 scale)
Panel A: Sleep quantity			
Sleep quantity (Reference cates	gory: Adequate)		
Too little	-3.354	1.506	-0.254
Too much	-3.890	ns	-0.210
Number of observations	25,096	25,199	25,299
Panel B: Sleep quality			
Sleep quality (Reference catego	ory: Fairly good)		
Very bad	-7.922	4.822	-0.534
Fairly bad	-3.835	2.086	-0.225
Very good	3.149	-1.220	0.105
Number of observations	35,138	35,349	35,389

*Notes*: The table presents estimates from a fixed effects regression model of the effects of sleep quantity (based on the ASHF recommendations) and self-reported sleep quality (see Box 10.1, page 176) on SF-36 general health (0-100 scale), psychological distress from the Kessler-10 scale (10-50 scale), and life satisfaction (0-10 scale). See the Technical Appendix for an explanation of these models. All models also control for age, education, labour force status, real household equivalised disposable income, partnership status, children, area of residence and survey year. *ns* indicates the estimate is not significantly different from 0 at the 10% level.



# 11



# The wellbeing of people receiving National Disability Insurance Scheme supports

Roger Wilkins

The National Disability Insurance Scheme (NDIS) is designed to provide funding to people with disability to '... gain more time with family and friends, greater independence, access to new skills, jobs, or volunteering in their community, and an improved quality of life' (NDIA, 2023). The scheme was legislated in 2013, but it was not until 1 July 2016 that it moved beyond the trial stage to full rollout, and it was only in 2020 that this rollout was completed across all of Australia.

The HILDA Survey has identified people in receipt of an NDIS 'package of support' (hereafter referred to as NDIS participants) since 2017. Thus, the study has been collecting data since the early days of the scheme. HILDA's longitudinal structure means that we can examine the characteristics and outcomes of participants both in the period leading up to receipt of NDIS supports and in the subsequent years.

Table 11.1 summarises information on receipt of supports under the NDIS identified by the HILDA Survey. The HILDA Survey data indicate that the proportion of the population aged under 67 receiving NDIS supports rose from 0.7% in 2017 to 1.9% in 2020 and 2021.1 It also shows that 3.0% of this population had at some stage received NDIS supports between 2017 and 2021, implying a considerable number of people who had at some stage received supports were no longer receiving it in 2021.

Table 11.1 further shows the distribution of the first year observed in receipt of NDIS supports. The first year was 2017 for 22.5% of participants, 2018 for 24.8% of participants, 2019 for 21.6% of participants, 2020 for 17.3% of participants and 2021 for 13.9% of participants. The bottom panel of Table 11.1 shows that 48.4% of those who commenced receiving supports in 2017 received supports in all five years to 2021, 32.2% of those who commenced receiving supports in 2018 received supports in all four years to 2021, 45.8% of those who commenced receiving supports in 2019 received supports in all three years to 2021, and 54.9% of those who commenced receiving supports in 2020 continued to receive supports in 2021.

Of those observed receiving NDIS supports at any stage of the 2017 to 2021 period, 46.6% were observed receiving supports in only one year, 21.6% in two years,

Entry to the NDIS is restricted to people under 65, but people already receiving NDIS supports before turning 65 can choose to remain on the NDIS. However, all recipients in the HILDA Survey data to 2021 are under 67; hence, we present our comparative desciptive statistics for people aged under 67. However, when examining outcomes for NDIS participants by number of years to and from first receipt of NDIS supports we continue following them irrespective of their age.

Table 11.1: People with a NDIS package, 2017	to 2021 (%)					
		2017	2018	2019	2020	2021
Proportion of people aged under 67 with a NDIS pac at time of interview	kage	0.7	1.3	1.5	1.9	1.9
Proportion of people aged under 67 ever observed to a NDIS package at the time of interview	o have	0.7	1.5	2.2	2.6	3.0
	F	irst year obs	erved with a	NDIS packag	e	
	2017	2018	2019	2020	2021	Total
Distribution of first year observed with a NDIS package	22.5	24.8	21.6	17.3	13.9	100.0
Number of years of NDIS participation, by year first	participated					
1	22.3	29.8	28.9	45.1	100.0	46.6
2	8.1	10.4	25.3	54.9	-	21.6
3	7.2	27.7	45.8	-	-	15.5
4	14.0	32.2	-	-	-	8.8
5	48.4	-	-	-	-	7.5
Total	100.0	100.0	100.0	100.0	100.0	100.0



15.5% in three years, 8.8% in four years and only 7.5% were observed receiving supports in all five years.

The characteristics of NDIS participants are compared with non-participants (aged under 67) in Table 11.2, which pools together all years in which NDIS receipt has been identified by the HILDA Survey. NDIS participants are more likely to be male and more likely to be aged under 25 than non-participants, while they are less likely to be aged 25 to 54. Indeed, nearly one-third of participants are aged under 15, compared with 22.1% of non-participants.

Compared with non-participants, NDIS participants are less likely to live in major urban areas and more likely to live in other urban areas; they are similarly as likely to live in non-urban areas as non-participants.

Examining economic circumstances, we see that NDIS participants are much more likely to have low incomes and to be in poverty, financial stress and housing stress (see Chapter 3 for details on these measures), while 76% live in a household receiving income supports, compared with 29% of non-participants aged under 67.

Table 11.2: Characteristics of NDIS participants, 2017 to 2021 (pooled) (%)	NDIS participants	Non-participants
All people aged under 67		
Male	59.5	49.8
Age group		
Under 15	32.8	22.1
15-24	22.1	14.4
25-34	10.4	17.1
35-44	9.5	15.7
45-54	10.2	14.9
55 and over	15.0	15.8
Total	100.0	100.0
Region of residence	10010	10010
Major urban	58 4	71.0
	29.2	17.2
	12.4	11.2
	100.0	100.0
	100.0	100.0
Detter:	25 5	15.0
Bottom	35.5	15.9
Second	20.1	19.7
	18.2	21.0
Fourth	13.2	21.7
lop	7.0	21.7
Total	100.0	100.0
In poverty	19.8	8.3
In after-housing poverty	25.4	11.8
In financial stress	20.3	11.7
In housing stress	14.9	9.6
Household received income support in the last financial year	76.0	29.0
People aged 15-66		
Immigrant status and First Nations identity		
Non-First Nations Australian-born	79.4	69.3
First Nations	5.3	2.8
Immigrant, main English-speaking countries	7.2	9.2
Immigrant, other countries	8.1	18.7
Total	100.0	100.0
Partnered	23.0	59.0
Educational attainment		
Bachelor's degree or higher	9.1	31.3
Other post-school qualification	25.6	31.7
High-school completion	29.3	17.6
Less than high-school completion	36.1	19.4
Total	100.0	100.0
Labour force status		
Employed part-time	16.2	24.2
Employed full-time	10.2	49.5
Unemployed	5.5	4.1
Not in the labour force	68.1	22.2
Total	100.0	100.0
Full-time student	13.1	12.5
Moderate or severe disability	75.5	14.5
In receipt of Disability Support Pension	61.0	3.5

# Table 11.3: Subjective wellbeing, health and health behaviours of NDIS participants aged 15 to 66

	NDIS participants	Non-participants
Satisfaction with life domains (0–10 scale)		
Life overall	7.2	7.8
Employment opportunities	5.7	7.2
Financial situation	6.2	6.8
Feeling part of local community	6.2	6.7
Home	8.0	8.0
Health	5.8	7.3
Free time	7.6	6.7
SF-36 Mental Health (0-100 scale)	58.0	70.2
SF-36 General Health (0-100 scale)	49.7	67.1
In poor mental health (%)	38.5	19.1
In poor general health (%)	35.1	10.1
Exercise regularly (%)	32.8	49.2
Smoker (%)	22.0	16.5
Regularly drink alcohol (%)	3.6	9.8

NDIS participants aged 15 and over (noting that only people aged 15 and over are interviewed and complete the self-completion questionnaire) are more likely to be Australian-born than nonparticipants, and much less likely to be immigrants from countries other than the main Englishspeaking countries. They are also much less likely to live with a partner and to have post-school educational qualifications.

Perhaps unsurprisingly, given the employment barriers people with disability face, 68.1% of NDIS participants aged 15 and over are not in the labour force, compared with 22.2% of non-participants. While 75.5% of NDIS participants report having a moderate or severe disability, it is perhaps surprising that it is not closer to 100%. However, it bears noting that the HILDA Survey definition of moderate or severe disability (see Box 2.7, page 24) does not necessarily align with eligibility criteria for NDIS supports.

The wellbeing, health and health behaviours of NDIS participants are examined in Table 11.3. NDIS participants are on average less satisfied with life overall and with their employment opportunities, financial situation, feeling part of their local community and their health than non-participants. On measures of subjective wellbeing, they on average have the same level of satisfaction with their home as non-participants, and higher satisfaction with the amount of free time they have.

On both general health and mental health measures, NDIS participants have much poorer outcomes than non-participants. Their mean score on the SF-36 mental health measure is 58.0, compared with 70.2 for nonparticipants, and their mean score on the SF-36 general health measure is 49.7, compared with 67.1 for non-participants. NDIS participants are less likely to exercise regularly and are more likely to be smokers, although they are less likely to regularly drink alcohol (at least five times per week) than non-participants.

In Table 11.4, mean values of various measures of wellbeing are presented for NDIS participants in each of the two years leading up to first receipt of NDIS supports, in the year NDIS supports were first received and in each of the subsequent four years. This provides some indication of whether positive effects of the NDIS on the lives of participants can be discerned. It



should be noted, however, that the two most recent of the five vears in which the NDIS has been operating and identified in the HILDA Survey have been when Australia was in the midst of the COVID-19 pandemic. This is likely to have had effects on the wellbeing of NDIS participants that impact on the estimates presented in Table 11.4. Also note that we do not observe all participants in each year after first receipt. For example, only people who first received NDIS supports prior to 2018 are observed four years after first receiving supports, and only people who first received supports prior to 2019 are observed three years after first receiving supports.<sup>2</sup>

Considering first economic outcomes, there are some hints of positive impacts of the NDIS, with rates of poverty (see Box 3.8, page 74; note that the measure of poverty for income after housing costs uses the modified OECD scale to adjust income for household need), financial stress (Box 3.9, page 76) and housing stress (Box 3.10, page 79) tending to decline after first receipt of NDIS supportsalthough in the case of poverty, there is actually an increase in the year after commencing receipt of NDIS supports before it declines.

Among those aged 18 and over, there are no indications of a positive employment effect in the first three years after first receipt



#### Table 11.4: Wellbeing by years to and from first receipt of NDIS supports

	Years to/from first receipt of NDIS supports						
	-2	-1	0	1	2	3	4
All ages							
In receipt of NDIS (%)	0.0	0.0	100.0	58.0	57.3	56.0	60.5
In relative poverty (%)	20.4	19.9	21.6	23.4	17.4	18.4	18.8
In relative poverty after housing (%)	25.7	28.5	25.6	26.8	22.2	23.8	25.0
In financial stress (%)	25.4	26.4	26.0	21.0	23.4	14.5	15.4
In housing stress (%)	20.4	20.9	15.9	14.8	13.4	10.9	11.4
Aged 18 and over							
In receipt of NDIS (%)	0.0	0.0	100.0	47.8	46.6	44.1	41.3
Employed (%)	31.4	30.9	30.8	27.8	26.9	30.2	34.1
Full-time student (%)	4.2	3.9	9.0	9.1	3.3	3.9	2.1
Satisfaction with life domains (0-10 scale)							
Life overall	7.1	7.1	7.1	7.1	7.2	7.4	7.9
Employment opportunities	5.3	5.2	5.7	5.5	5.9	5.9	5.9
Financial situation	5.3	5.7	6.1	5.9	6.1	6.7	6.7
Feeling part of local community	5.9	5.9	5.9	6.3	6.4	6.4	6.4
Home	7.8	7.8	7.7	8.1	8.1	8.2	8.3
Health	5.4	5.3	5.6	5.4	5.9	6.1	6.5
Free time	7.3	7.2	7.3	7.3	7.6	7.7	7.8
SF-36 Mental Health (0-100 scale)	60.1	58.3	57.0	57.6	60.3	61.4	61.9
SF-36 General Health (0-100 scale)	45.3	44.7	47.1	46.2	49.4	53.2	53.0
In poor mental health (%)	37.1	38.8	39.6	39.0	37.0	38.1	33.2
In poor general health (%)	41.3	40.1	37.1	42.0	34.5	22.4	30.4

<sup>2</sup> As a check on whether results were affected by the changing composition of the sample as the number of years after first receipt of NDIS supports increases, estimates were produced for 'balanced' groups over the timeframes—that is, in each year examining only those who were observed for four years after first receipt, then examining only the first three years after receipt for those who were observed in at least three years after first receipt, and so on. Patterns were robust to these sample restrictions.

of NDIS supports, but there is an increase in employment in the fourth year. Moreover, there is an increase in the proportion engaged in full-time study in the year of first receipt and the following year.

In terms of subjective wellbeing, there is much clearer evidence of positive impacts of NDIS receipt. In the lead-up to first receipt of NDIS supports, and in the first two years after commencing receipt, average life satisfaction is 7.1, but then subsequently rises to 7.2 two years after first receipt, 7.4 three years after first receipt and 7.9 four years after first receipt. Average satisfaction with employment opportunities, financial situation, health and free time similarly start rising two years after commencing NDIS receipt, with health satisfaction

Table 11.5: Regression estimates of the effect of years to/from first year of NDIS participation on wellbeing outcomes

	Estimate	Number of observations
Life satisfaction	0.067	2,127
Satisfaction with health	ns	2,126
Satisfaction with home	0.090	2,128
Satisfaction with employment opportunities	ns	1,404
Satisfaction with finances	ns	2,113
Equivalised income	ns	2,131
In poverty	-0.021	2,131
Employed	ns	2,131
Poor mental health	ns	1,883

*Notes*: Estimates are coefficient estimates from OLS models (satisfaction measures and income) or mean marginal effects estimates from Probit models (poverty, employed, poor mental health). Controls are included for gender, age, year and whether in lockdown. See the Technical Appendix for further explanation of OLS and Probit models. *ns* indicates the estimate is not significantly different from 0 at the 10% level. particularly notable for its sustained and sizeable increase. Average satisfaction with one's home and with feeling part of the local community rise one year after commencing NDIS receipt and remain elevated thereafter.

For mental health and general health we also see evidence of improvement subsequent to first receiving NDIS supports, with effects most clear from two years after first receiving supports.

In Table 11.5, a regression approach is taken to ascertaining the effects of NDIS receipt on measures of wellbeing. The key 'explanatory variable' is 'years to/from first receipt of NDIS supports', with controls included for the potentially confounding effects of gender, age, year and whether the location of residence was in lockdown. Despite these controls, the COVID-19 pandemic is still likely to have impacted on the effects of the NDIS on outcomes. Nonetheless, this approach obtains statistically significant positive effects of NDIS receipt on life satisfaction and home satisfaction, and significant effects in reducing poverty.



# People who have served in the Australian Defence Force

Esperanza Vera-Toscano

## Prevalence of service in the Australian Defence Force

The Australian Defence Force (ADF) is the military organisation responsible for the defence of Australia and its national interests. It comprises three branches: the Royal Australian Navy, the Australian Army and the Royal Australian Air Force. The ADF provides military support to the Government's foreign policy objectives, including humanitarian and peacekeeping missions, as well as combat operations in support of Australia's allies and interests.

In 2021, the HILDA Survey included a set of questions specifically aimed at examining those who have served in the ADF. The Survey aimed to enhance understanding of the socio-economic and demographic features of these individuals compared to those who have never served in the ADF. The inclusion of these questions provides valuable insights into the unique experiences and characteristics of the ADF cohort, which can inform policy and support services targeted at this population.

Figure 12.1 shows the proportion of individuals who have served in the ADF by gender. Results indicate that a higher percentage of men (6.7%) than women (0.7%) reported having ever served in the ADF. This is not surprising, as traditionally the defence force worldwide has been a male-dominated institution and men may be more likely to consider or pursue a career in the military due to cultural or societal factors.

Results in Table 12.1 confirm this reasoning as they show that for men, 49.3% were younger than 65 years old at the time of the interview, while for women, the corresponding percentage was higher at 65.5%. Nonetheless, when looking at individuals aged



Figure 12.1: Proportion of individuals who have served in the ADF by gender

Table 12.1: Age at time of interview if ever served in the ADF, by gender				
	Men	Women	All	
17-64	49.3	65.5	51.0	
65 years of age or older	50.7	*34.5	49.0	
Total	100.0	100.0	100.0	
Note: * Estimate not reliable				

Figure 12.2: Estimated proportion of male Australians who have ever served in the ADF, by age groups, 2021



65 years or older, a higher percentage of men who ever served in the ADF (50.7%) compared to a non-reliable estimate for women (34.5%). Overall, the table indicates a younger female population who ever served in the ADF. However, due to the limited number of female participants who ever served in the ADF in our sample, we will focus our analysis solely on the male population.

Figure 12.2 presents further details on the age composition of male Australians who report having served in the ADF. Overall, the likelihood of serving in the ADF appears to increase with age, with the highest percentage of men who have served being in the 75 and over age group (21.9%). The data also show that the percentage of men who have served in the ADF increases steadily from the 17 to 24 age group (1%) to the 55 to 64 age group (6.6%), before seeing a significant increase in the 65 to 74 age group (13.1%) and another sharp increase in the 75 and over age group (21.9%).

Note: \*Estimate not reliable.





Table 12.2: Type of service if ever served in the ADF and age (%)				
	All males	Males aged 17 to 64 or less currently active in the ADF		
Regular	56.6	63.5		
Reserves	34.5	*12.6		
Both	8.9	*23.9		
Total	100.0	100.0		



Note: \*Estimate not reliable.

Notably, among those men 64 years old or younger, Figure 12.3 indicates that 80.8% are no longer active in the ADF service.

HILDA Survey participants were also asked about the type of service (whether 'regular service' or 'reserves service') in which they were enrolled if they had ever served in the ADF. Table 12.2 shows that the majority (56.6%) of males reported serving in the regular forces. The second most common type of service reported was in the reserves, with 34.5% reporting this, while 8.9% of respondents reported having served in both types of service.

#### Describing the Australian Defence Force population: Socio-economic and demographic characteristics

Table 12.3 compares a group of socio-economic and demographic characteristics of Australian males in 2021, distinguishing between whether or not they had ever served in the ADF. Not surprisingly, the proportion of males not in the labour force is highest among those who have served in the ADF. This is related to the older age group present in the sample of those ever having served in the ADF.

Non-First Nations Australian-born individuals are more likely to have served in the ADF than First Nations people or immigrants, especially those born in countries other than the main Englishspeaking countries. Household Table 12.3: Socio-economic and demographic characteristics of males by whether or not they have served in the ADF, 2021 (%)

	the ADF	Never served in the ADF
Labour force status		
Employed	44.2	67.9
Unemployed	*2.3	3.3
Not in the labour force	53.6	28.8
Immigrant status and First Nations identity		
Overseas-born, main English-speaking country	9.1	10.1
Overseas born, country other than main English-speaking countries	*5.9	17.5
First Nations	*1.9	2.5
Non-First Nations Australian-born	83.1	70.0
Household equivalised disposable income (\$, December 2021 prices)	60,659	65,735.2
Region of residence		
Major urban	52.7	67.9
Other urban	28.6	23.1
Non-urban	18.7	8.91
Housing tenure type		
Social housing	*2.4	2.5
Private rental	20.4	27.6
Owner with mortgage	28.2	37.5
Owner outright	48.8	32.2
Welfare recipient (Australian government income support payments)	50.5	23.3
Employment characteristics of (only those employed aged 65 and below)	and self-empl	oyed in 2021
Type of contract		
Permanent full-time/part-time	72.7	61.5
Fixed-term	*7.2	5.5
Casual	*5.6	16.5
Self-employed	14.5	16.3
Full-time/Part-time		
Full-time	92.4	80.5
Part-time	*7.6	19.5
Hours worked		
Hours main job	41.8	38.6
Hourly wage		
Hourly earnings main job (\$, December 2021 prices)	49.0	41.8

Note: \*Estimate not reliable.

# Table 12.4: Association between characteristics and having ever served in the ADF, 2021 (males)

Age group (Reference category: 17-24)25-340.02935-440.02745-540.03255-640.06065-740.09075 and over0.1957amily type (Reference category: Couple no children)nsSingle parentnsSingle parentnsSingle parentnsSingle personnsNon-dependent children-0.077Partnered0.028Labour force status (Reference category: Employed)nsNot in the labour force0.028Immigrant status and First Nations identity (Non-First Nations Australian-born)First NationsnsImmigrant, main English-speaking countries-0.045Immigrant, dther countries-0.058Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOther post-school qualification0.028Third.0.028FourthnsTop0.031Gour urban area-0.022Type of housing tenure (Reference category: Home with mortgage)Social housingnsPersonalitynsPersonalitynsPersonalitynsOpenness0.0018Conceletions.0.013Gozientiousness.0.013Gozientiousness.0.013Conscientiousness.0.013Conscientiousness.0.013Openness to experience.0.006Traditional attitudes towards marriage and c		Estimate
25-340.02935-440.02745-540.03055-640.06065-740.09675 and over0.095Single parentnsSingle parentnsSingle parentnsNon-dependent children-0.077Partnered0.068Labour force status (Reference category: Employed)nsUnemployednsNot in the labour force0.028Immigrant, main English-speaking countries-0.045Immigrant, dher countries-0.058Eductional attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOther post-school qualification0.028FourthnsTop0.031FourthnsTop0.031PartnerdnsOuther post-school qualificationnsTop0.031FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)Social housingnsPrivate rentalnsOwner outrightnsPrivate rentalnsOutriegt tenutalnsPrivate rentalnsOutriegt tenutalnsOutriegt tenutalnsTop0.010FourthnsOpenness to experience-0.013Consplete stabilitynsOutriegt tenutal0.007Private rental <td>Age group (Reference category: 17–24)</td> <td></td>	Age group (Reference category: 17–24)	
35-440.02745-540.03255-640.06065-740.09675 and over0.195Family type (Reference category: Couple no children)nsSingle parentnsSingle parentnsSingle parentnsNon-dependent children-0.077Partnered0.068Labour force status (Reference category: Employed)nsNot in the labour force0.028Immigrant status and First Nations identity (Non-First Nations Australian-born)First NationsnsImmigrant, other countries-0.045Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOther post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Top0.031Major urban area-0.023Tope of housing tenure (Reference category: Home with mortgage)Private rentalnsOwner outrightnsPrivate rentalnsOurie routrightnsAgreeableness-0.013Conscientiousness-0.013Openness to experience0.006Traditional attiludes towards marriage and children0.007Traditional attiludes towards parenting and worknsNot or observations5,759	25-34	0.029
45-540.03255-640.06065-740.09675 and over0.195Family type (Reference category: Couple no children)nsSingle parentnsSingle parentnsNon-dependent children-0.077Partnered0.068Labour force status (Reference category: Employed)nsImmigrant status and First Nations identity (Non-First Nations Australian-born)First NationsnsImmigrant, main English-speaking countries-0.058Educational attainment (Reference category: Less than high school completed high schoolnsYoure post-school qualification0.020Other post-school qualification0.028Top0.031Major urban area-0.028Top0.031Mojor urban area-0.028PersonalitynsTop0.031Mojor urban area-0.028Private rentalnsOwner outrightnsPrivate rentalnsOurie of housing tenure (Reference category: Home with mortgage)Private rentalnsOurie outrightnsPrivate rentalnsOurie outrightnsAgreeableness-0.013Conscientiousness0.0010Emotional attiludes towards marriage and children0.007Traditional attiludes towards parenting and worknsNourie observations5,759	35-44	0.027
55-640.06065-740.09675 and over0.195Family type (Reference category: Couple no children)nsSingle parentnsSingle parentnsNon-dependent children-0.077Partnered0.028Labour force status (Reference category: Employed)nsUnemployednsImmigrant status and First Nations identity (Non-First Nations Australian-born)First NationsnsImmigrant, main English-speaking countries-0.045Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOuter post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028ThirdnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)Private rentalnsOwner outrightnsPrivate rentalnsAgreeableness-0.013Conscientiousness-0.013Conscientiousness-0.013Conscientiousness-0.013Conscientiousness-0.013Conscientiousness-0.013Conscientiousness-0.013Conscientiousness-0.013Conscientiousness-0.013Conscientiousness-0.013Conscientiousness-0.013Conscientiousness-0.013C	45-54	0.032
65-740.09675 and over0.195Family type (Reference category: Couple no children)nsSingle parentnsSingle parentnsNon-dependent children-0.077Partnered0.068Labour force status (Reference category: Employed)unmigrant status and First Nations identity (Non-First Nations Australian-born)First NationsnsImmigrant, main English-speaking countries-0.045Immigrant, other countries-0.058Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028ThirdnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)Private rentalnsQuere outrightnsPrivate rentalnsQuere outrightnsAgreeableness-0.013Conscientiousness0.010Frivaterional stabilitynsAgreeableness-0.013Conscientiousness0.010Frivational stabilitynsAgreeableness-0.013Conscientiousness0.010Fraditional attitudes towards parenting and worknsNot in the abour force0.000Fraditional attitudes towards parenting and workns	55-64	0.060
75 and over0.195Family type (Reference category: Couple no children)nsSingle parentnsSingle parsonnsNon-dependent children-0.077Partnered0.068Labour force status (Reference category: Employed)nsNot in the labour force0.028Immigrant status and First Nations identity (Non-First Nations Australian-born)First NationsnsImmigrant, other countries-0.058Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOther post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Top0.031Major urban area-0.022Top fousing tenure (Reference category: Home with mortgage)Social housingnsPrivate rentalnsOwner outrightnsPresonalitynsPersonalitynsAgreeableness-0.013Conscientiousness0.010Finditional stabilitynsOpenness to experience0.006Traditional attitudes towards parenting and worknsNoter ontspleet towards parenting and work5,759	65-74	0.096
Family type (Reference category: Couple no children)nsCouple with dependent childrennsSingle parsonnsNon-dependent children-0.077Partnered0.068Labour force status (Reference category: Employed)nsUnemployednsNot in the labour force0.028Immigrant status and First Nations identity (Non-First Nations Australian-born)First NationsnsImmigrant, main English-speaking countries-0.045Immigrant, other countries-0.058Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOther post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quittile)Second0.028Third0.031Major urban area-0.021Type of housing tenure (Reference category: Home with mortgage)Private rentalnsOwner outrightnsPrivate rentalnsOuter cost outrightnsPrivate rentalnsOuter outrightnsPrivate rentalnsOuter outrightnsPrivate rentalnsOuter outrightnsOpenness to experience0.006Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and workns	75 and over	0.195
Couple with dependent childrennsSingle parentnsSingle parentnsNon-dependent children-0.077Partnered0.068Labour force status (Reference category: Employed)nsUnemployednsNot in the labour force0.028Immigrant status and First Nations identity (Non-First Nations Australian-born)nsFirst NationsnsImmigrant, main English-speaking countries-0.045Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOther post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quittile)Second0.028Third0.031Major urban area-0.021Top0.031Major urban areansOurer outrightnsPrivate rentalnsOurer outrightnsPrivate rental.0101ExtroversionnsAgreeableness-0.033Conscientiousness.0101Emotional stabilitynsOpenness to experience.0006Traditional attitudes towards parenting and worknsNumber of observations5,759	Family type (Reference category: Couple no children)	
Single parentnsSingle parsonnsNon-dependent children-0.077Partnered0.068Labour force status (Reference category: Employed)nsLabour force status (Reference category: Employed)nsNot in the labour force0.028Immigrant status and First Nations identity (Non-First Nations Australian-born)First NationsnsImmigrant, main English-speaking countries-0.045Immigrant, other countries-0.058Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOther post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)Social housingnsPrivate rentalnsOwner outrightnsAgreeableness-0.013Conscientiousness0.0101Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and worknsNumber of observations5.759	Couple with dependent children	ns
Single personnsNon-dependent children-0.077Partnered0.068Labour force status (Reference category: Employed)nsLomployednsNot in the labour force0.028Immigrant status and First Nations identity (Non-First Nations Australian-born)First NationsnsImmigrant, main English-speaking countries-0.045Immigrant, other countries-0.058Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOther post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)Social housingnsPrivate rentalnsOwner outrightnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards parenting and worknsNumber of observations5.759	Single parent	ns
Non-dependent children-0.077Partnered0.068Labour force status (Reference category: Employed)nsLot in the labour force0.028Immigrant status and First Nations identity (Non-First Nations Australian-born)First NationsFirst NationsnsImmigrant, main English-speaking countries-0.045Bachelor's degree or highernsBachelor's degree or highernsOther post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)nsPrivate rentalnsOwner outrightnsPersonalitynsExtroversionnsAgreeableness-0.013Conscientiousness0.010Findtional stabilitynsOpenness to experience0.006Traditional attitudes towards parenting and worknsNumber of observations5,759	Single person	ns
Partnered0.068Labour force status (Reference category: Employed)nsNot in the labour force0.028Immigrant status and First Nations identity (Non-First Nations Australian-born)First NationsFirst NationsnsImmigrant, main English-speaking countries-0.045Immigrant, other countries-0.058Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOther post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)Private rentalnsOwner outrightnsPrivate rentalnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and worknsNumber of observations5,759	Non-dependent children	-0.077
Labour force status (Reference category: Employed)nsNot in the labour force0.028Immigrant status and First Nations identity (Non-First Nations Australian-born)First NationsnsImmigrant, main English-speaking countries-0.045Immigrant, other countries-0.058Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOther post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)nsPrivate rentalnsOwner outrightnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards parenting and worknsNumber of observations5,759	Partnered	0.068
UnemployednsNot in the labour force0.028Immigrant status and First Nations identity (Non-First Nations Australian-born)First NationsnsImmigrant, main English-speaking countries-0.045Immigrant, other countries-0.058Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOther post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)nsPrivate rentalnsOwner outrightnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards parenting and worknsNumber of observations5,759	Labour force status (Reference category: Employed)	
Not in the labour force0.028Immigrant status and First Nations identity (Non-First Nations Australian-born)First NationsnsImmigrant, main English-speaking countries-0.045Immigrant, other countries-0.058Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOther post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)Social housingnsPrivate rentalnsOwner outrightnsPresonalitynsConscientiousness-0.013Conscientiousness0.0100Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards parenting and worknsNumber of observations5,759	Unemployed	ns
Immigrant status and First Nations identity (Non-First Nations Australian-born)First NationsnsImmigrant, main English-speaking countries-0.045Immigrant, other countries-0.058Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOther post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)Social housingnsPrivate rentalnsOwner outrightnsPersonalitysExtroversionnsOpenness to experience0.006Traditional stabilitynsOpenness to experience0.006Traditional attitudes towards parenting and worknsNumber of observations5,759	Not in the labour force	0.028
First NationsnsImmigrant, main English-speaking countries-0.045Immigrant, other countries-0.058Educational attainment (Reference category: Less than high school ompletion)Bachelor's degree or higherBachelor's degree or highernsOther post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)nsSocial housingnsPrivate rentalnsOwner outrightnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and worknsNumber of observations5,759	Immigrant status and First Nations identity (Non-First Nations Au	stralian-born)
Immigrant, main English-speaking countries-0.045Immigrant, other countries-0.058Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOther post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)Social housingnsPrivate rentalnsOwner outrightnsPersonality	First Nations	ns
Immigrant, other countries-0.058Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOther post-school qualification0.0200.020Completed high schoolnsNHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Second0.0280.018Fourthns0.018Fourthns0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)nsPrivate rentalnsOwner outrightnsPersonalitysExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and worknsNumber of observations5,759	Immigrant, main English-speaking countries	-0.045
Educational attainment (Reference category: Less than high school completion)Bachelor's degree or highernsOther post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)Social housingnsPrivate rentalnsOwner outrightnsPersonality1ExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and worknsNumber of observations5,759	Immigrant, other countries	-0.058
Bachelor's degree or highernsOther post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)Social housingnsPrivate rentalnsOwner outrightnsPersonality1ExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and worknsNumber of observations5,759	Educational attainment (Reference category: Less than high scho	ol completion)
Other post-school qualification0.020Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)Social housingnsPrivate rentalnsOwner outrightnsPersonality1ExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards parenting and worknsNumber of observations5,759	Bachelor's degree or higher	ns
Completed high schoolnsHousehold equivalised income quintile (Reference category: Bottom quintile)Second0.028Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)nsSocial housingnsPrivate rentalnsOwner outrightnsPersonalitynsExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards parenting and worknsNumber of observations5,759	Other post-school qualification	0.020
Household equivalised income quintile (Reference category: Bottom quintile)Second0.028Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)0.031Social housingnsPrivate rentalnsOwner outrightnsPersonalitynsExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards parenting and worknsNumber of observations5,759	Completed high school	ns
Second0.028Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)nsSocial housingnsPrivate rentalnsOwner outrightnsPersonalitysExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards parenting and worknsNumber of observations5,759	Household equivalised income quintile (Reference category: Bott	om quintile)
Third0.018FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)-0.022Social housingnsPrivate rentalnsOwner outrightnsPersonalitynsExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards parenting and worknsNumber of observations5,759	Second	0.028
FourthnsTop0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)nsSocial housingnsPrivate rentalnsOwner outrightnsPersonalitynsExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards marriage and children0.007Mumber of observations5,759	Third	0.018
Top0.031Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)nsSocial housingnsPrivate rentalnsOwner outrightnsPersonalitysExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards parenting and worknsNumber of observations5,759	Fourth	ns
Major urban area-0.022Type of housing tenure (Reference category: Home with mortgage)nsSocial housingnsPrivate rentalnsOwner outrightnsPersonalitysExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards parenting and worknsNumber of observations5,759	Тор	0.031
Type of housing tenure (Reference category: Home with mortgage)Social housingnsPrivate rentalnsOwner outrightnsPersonalitysExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards parenting and worknsNumber of observations5,759	Major urban area	-0.022
Social housingnsPrivate rentalnsOwner outrightnsPersonalitynsExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and worknsNumber of observations5,759	Type of housing tenure (Reference category: Home with mortgag	ie)
Private rentalnsOwner outrightnsPersonalityExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and worknsNumber of observations5,759	Social housing	ns
Owner outrightnsPersonalitynsExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and worknsNumber of observations5,759	Private rental	ns
PersonalityExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and worknsNumber of observations5,759	Owner outright	ns
ExtroversionnsAgreeableness-0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and worknsNumber of observations5,759	Personality	
Agreeableness0.013Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and worknsNumber of observations5,759	Extroversion	ns
Conscientiousness0.010Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and worknsNumber of observations5,759	Agreeableness	-0.013
Emotional stabilitynsOpenness to experience0.006Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and worknsNumber of observations5,759	Conscientiousness	0.010
Openness to experience0.006Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and worknsNumber of observations5,759	Emotional stability	ns
Traditional attitudes towards marriage and children0.007Traditional attitudes towards parenting and worknsNumber of observations5,759	Openness to experience	0.006
Traditional attitudes towards parenting and worknsNumber of observations5,759	Traditional attitudes towards marriage and children	0.007
Number of observations 5,759	Traditional attitudes towards parenting and work	ns
	Number of observations	5,759

*Notes*: Table presents mean marginal effects estimates obtained from a Probit model of the probability of having ever served in the ADF. See the Technical Appendix for more explanation of these models. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

equivalised disposable income is slightly lower for those who have served in the ADF compared to those who have never served. Individuals who have ever served in the ADF are less likely to live in major urban areas than individuals who have never served and are much more likely to live in non-urban areas. A higher percentage of ADF veterans (48.8%) own their homes outright compared to those who have never served in the ADF (32.2%). However, this result may be age related as those ever having served in the ADF tend to be older and, therefore, more likely to own their house.

Lastly, results indicate that those ever having served in the ADF are twice more likely to have received Australian Government income support payments in the last financial year (50.5% versus 23.3%) than those who have never served.

Comparing the employment characteristics of those under 65 years of age who were employed, results indicate that those ever having served in the ADF are more likely to have a permanent contract, work full-time, work longer hours in their main job and have higher hourly earnings compared to those who have never served in the ADF.

Next, we simultaneously examine a range of socio-economic and demographic characteristics potentially associated with serving in the ADF, presenting mean marginal effects estimates from a Probit model of the probability of an individual ever serving in the ADF as a function of these characteristics. Each estimate in Table 12.4 can be interpreted as the change in the probability of ever serving in the ADF if the characteristic is present compared to the reference category. In the case of an indicator (or dummy) variable, this is simply the effect of changing the variable from 0 to 1.



As expected, given the results presented earlier in this section, age is an important factor. For example, men aged 75 and over are, all else being equal, predicted to have a 0.20 (or 20 percentagepoint) higher probability of ever having served in the ADF than a male aged 17 to 24. Moreover. non-dependent children have an 8 percentage-point lower probability of serving in the ADF than males in couples with no children, and those who are married or in a de facto relationship also have a 7 percentage-point higher probability of serving in the ADF.

People outside the labour force have a 0.028 higher chance of serving in the ADF. This likelihood is slightly lower for immigrants compared to non-First Nations people. Interestingly, individuals with post-school education have, all else being equal, a 2 percentage-point higher probability of ever having served in the ADF than those having completed high school. Living in a major urban area, all else being equal, decreases the likelihood of ever having served in the ADF.

The personality traits of agreeableness, conscientiousness and openness to experience (see Box 2.5, page 20) are found to have a significant impact on the likelihood of ever serving in the ADF. Higher scores on conscientiousness and openness to experience were associated with a greater likelihood of having served in the ADF, while higher scores on agreeableness were associated with a lower likelihood. Additionally, having a traditional attitude towards marriage and children is found to slightly increase the probability of ever serving in the ADF.

## Association between serving in the ADF and individuals' health and wellbeing

After examining the patterns observed among those who have served in the ADF compared to those who have not, as well as the demographic and socioeconomic factors that influence the likelihood of serving, our next focus is to investigate whether ADF service is associated with the health and wellbeing of individuals. Our analysis focuses on various health measures, including psychological distress, mental health, general health and satisfaction with one's health. Additionally, we explore health behaviours such as drinking, illicit drug use and prescription drug use, as well as sleep quantity and quality. Furthermore, we consider measures of wellbeing related to social interaction, overall life satisfaction and financial satisfaction.

Table 12.5 presents the results of regression models that examine the potential associations between ever serving in the ADF and various measures of individual health and wellbeing, as described previously. The quantity of sleep is measured as hours of sleep per week, and the results are obtained from OLS models. For the remaining health and wellbeing measures, the results are mean marginal effects from Probit models, which report the probability of reporting any of the indicated outcomes. Further information on these models is provided in the Technical Appendix.

By additionally controlling for other factors such as age, educational attainment, immigrant status, region of residence, labour force status, income quintiles, family type and presence of disability, we can isolate the unique effect of serving in the ADF on these outcomes. This approach will allow us to gain valuable insights into the health and wellbeing implications of military service.

Focusing on the first panel of Table 12.5, there are no statistically significant differences in the health-related measures between those who have ever served in the ADF and those who have never done so. This remains the case for health behaviours related to drinking. There are no differences in number of drinking days nor volume between those who have served in the ADF and other males. However, the findings suggest differences in illicit drug use: those who have ever served in the ADF are 16.2 percentage points less likely to report having used illicit drugs in the past 12 months.

The third panel of Table 12.5 reports the link between ever serving in the ADF and the use of prescription drugs. The results indicate that while there are no significant differences observed for the use of tranquilisers/ sleeping pills within the past 12 months, individuals who have served in the ADF are 11.9 percentage points more likely to have used strong painkillers and/ or pain-relievers with opioids within the same period.

The fourth panel of Table 12.5 focuses on the quantity and quality of sleep. Interestingly, the results demonstrate that individuals who have ever served in the ADF report 0.9 hours less of sleep per week relative to those who did not serve in the ADF. This finding is closely related to the quality of sleep, as those who have ever served in the ADF are also 5.6 percentage points less likely to report having good or fairly good sleep. When asked about the types of problems they encountered when sleeping, those who have ever served in the ADF were more likely to report having trouble

# Table 12.5: The effect of ever having served in the ADF on a set of health, health behaviours and wellbeing measures

Outcome variables	'ever served in the ADF' covariate
Health measures	
High or very high psychological distress (K10)	ns
Poor mental health (SF-36 $\leq$ 52)	ns
Poor general health (SF-36 $\leq$ 37)	ns
High levels of satisfaction with own health (scored 7-10 on the 0-10 scale)	ns
Health behaviours	
Drink alcohol on 5 or more days per week	ns
Recent (12-month) illicit drug user	-0.162
Prescription drugs	
Use of strong painkillers/pain-relievers with opioids (past 12 months)	0.119
Use of tranquilisers/sleeping pills (past 12 months)	ns
Quantity and quality of sleep	
Sleep quantity (hours slept per week)	-0.892
Very good or fairly good sleep quality	-0.056
Had trouble sleeping (more than once or twice a week) because:	
Cannot get to sleep within 30 minutes	0.122
Wake up in the middle of the night or early in the morning	ns
Cough or snore loudly	ns
Takes medicine (prescribed or 'over the counter') to help sleep	0.182
Trouble staying awake while driving, eating meals or engaging with others	ns
Other wellbeing measures	
Active socially	ns
High levels of overall life satisfaction (scored 7-10 on the 0-10 scale)	ns
High levels of satisfaction with your finances (scored 7-10 on the 0-10 scale)	0.144

*Notes*: All models additionally control for age, educational attainment, immigrant status, region of residence (major urban dummy), labour force status, income quintiles, family type and presence of disability. *ns* indicates the estimate is not significantly different from 0 at the 10% level.

sleeping because they cannot fall asleep within the first 30 minutes more than once a week (12.2 percentage points), or they take medicine (prescribed or 'over the counter') to help sleep (18.2 percentage points), compared to individuals not associated with the ADF.

The last panel in Table 12.5 reveals that individuals who have ever served in the ADF are more likely to report being highly satisfied with their finances (14.4 percentage points) than those who have no association with the ADF.



# References

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

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

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

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

Australian Bureau of Statistics (ABS) (2011) *Australian Standard Geographical Classification (ASGC), July 2011*, Catalogue No. 1216.0, ABS, Canberra.

Australian Bureau of Statistics (ABS) (2017) *Household Expenditure Survey and Survey of Income and Housing, User Guide, Australia, 2015-16,* Catalogue No. 6503.0, ABS, Canberra.

Australian Bureau of Statistics (ABS) (2018a) *Labour Statistics: Concepts, Sources and Methods, Feb 2018,* Catalogue No. 6102.0.55.001, ABS, Canberra.

Australian Bureau of Statistics (ABS) (2018b) *National Health Survey, First Results, 2017-18,* Catalogue No. 4364.0.55.001, ABS, Canberra.

Australian Bureau of Statistics (ABS) (2019) *Household Income and Wealth, Australia*, https://www. abs.gov.au/statistics/economy/ finance/household-income-andwealth-australia/2017-18. Creighton, B. and Stewart, A. (2010) *Labour Law*, Federation Press, Annandale.

Davidson, P., Bradbury, B., Hill, T. and Wong, M. (2020) 'Poverty in Australia 2020: Part 1, Overview', ACOSS/UNSW Poverty and Inequality Partnership Report No. 3, ACOSS, Sydney.

Greenhaus, J. and Beutell, N. (1985) 'Sources of Conflict Between Work and Family Roles', *The Academy of Management Review*, vol. 10, no. 1, pp. 76–88.

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

Hayes, C. (2009) 'HILDA Standard Errors: Users' Guide', HILDA Project Technical Paper Series No. 2/08, Melbourne Institute: Applied Economic & Social Research, the University of Melbourne.

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

Hosking, A. and Western, M. (2008) 'The Effects of Non-standard Employment on Work-Family Conflict', *Journal of Sociology*, vol. 44, no. 1, pp. 5–27.

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

Kessler, R.C., Andrews, G., Colpe, L.J., Hiripi, E., Mroczek, D.K., Normand, S.L.T., Walters, E.E. and Zaslavsky, A.M. (2002) 'Short Screening Scales to Monitor Population Prevalences and Trends in Non-specific Psychological Distress', *Psychological Medicine*, vol. 32, pp. 959–76.

Kung, C.S.J., Kunz, J.S. and Shields, M.A. (2021) 'Economic Aspects of



Loneliness in Australia', *Australian Economic Review*, vol. 54, no. 1, pp. 147-63.

Marshall, N. and Barnett, R. (1993) 'Work-Family Strains and Gains Among Two-earner Couples', *Journal of Community Psychology*, vol. 21. No. 1, pp. 64–78.

National Disability Insurance Agency (NDIA) (2023) 'What is the NDIS?', https://www.ndis.gov.au/ understanding/what-ndis.

OECD (2019) 'Income Poverty of households in Australia: Evidence from the HILDA Survey', Economics Department Working Papers No. 1539, OECD Publishing, Paris.

Rowley, S. and Ong, R. (2012) Housing Affordability, Housing Stress and Household Wellbeing in Australia, Final Report No. 192, Australian Housing and Urban Research Institute, Melbourne.

Saucier, G. (1994) 'Mini-markers: A Brief Version of Goldberg's Unipolar Big-five Markers', *Journal* of Personality Assessment, vol. 63, no. 3, pp. 506–16.

Scully, M., Greenhalgh, E., Bain, E., Wakefield, M., Durkin, S. and White, V. (2023) 'E-cigarette Use and Other Risk Factors associated with Tobacco Smoking Susceptibility among Australian adolescents', *Australian and New Zealand Journal of Public Health*, vol. 47, no. 5, 100076. doi.org/https://doi. org/10.1016/j.anzjph.2023.10007

Summerfield, M., Garrard, B., Hahn, M., Jin, Y., Kamath, R., Macalalad, N., Watson, N., Wilkins, R. and Wooden, M. (2022) 'HILDA User manual – Release 21', Melbourne Institute: Applied Economic & Social Research, the University of Melbourne.

Sun, C. (2010) 'HILDA Expenditure Imputation', HILDA Project Technical Paper Series No. 1/10,

195

Melbourne Institute: Applied Economic & Social Research, the University of Melbourne.

Treasury (2020) The JobKeeper Payment: Three-month Review, Australian Government, Canberra, <https://treasury.gov.au/ publication/jobkeeper>.

Treasury (2021) *Insights from the First Six Months of JobKeeper*, Australian Government, Canberra, <https://treasury.gov.au/ publication/p2021-211978>.

United Nations (2011) *Canberra Group Handbook on Household Income Statistics*, 2nd ed., United Nations, New York and Geneva.

Ware, J.E., Snow, K.K., Kosinski, M. and Gandek, B. (2000) *SF-36 Health Survey: Manual and Interpretation Guide*, QualityMetric Inc., Lincoln, RI.

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

Watson, N. (2004b) 'Wave 2 Weighting', HILDA Project Technical Paper Series No. 4/04, Melbourne Institute: Applied Economic & Social Research, the University of Melbourne. Watson, N. and Fry, T. (2002) 'The Household, Income and Labour Dynamics in Australia (HILDA) Survey: Wave 1 Weighting', HILDA Project Technical Paper Series No. 3/02, Melbourne Institute: Applied Economic & Social Research, the University of Melbourne.

Watson, N. and Summerfield, M. (2014) 'Outcomes from Matching the HILDA Survey Sample to the Death Register', HILDA Project Technical Paper Series No. 2/14, Melbourne Institute: Applied Economic & Social Research, the University of Melbourne.

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

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

Wilkins, R. (2016) The Household, Income and Labour Dynamics in Australia Survey: Selected Findings *from Waves 1 to 14*, Melbourne Institute: Applied Economic & Social Research, the University of Melbourne.

Wilkins, R. and Sun, C. (2010) 'Assessing the Quality of the Expenditure Data Collected in the Self-completion Questionnaire', HILDA Discussion Paper No. 1/10, Melbourne Institute: Applied Economic & Social Research, the University of Melbourne.

Wilkins, R., Vera-Toscano, E. and Botha, F. (2020) *The Household, Income and Labour Dynamics in Australia Survey: Selected Findings from Waves 1 to 18,* Melbourne Institute: Applied Economic & Social Research, the University of Melbourne.

Wooden, M. (2009) 'Use of the Kessler Psychological Distress Scale in the HILDA Survey', HILDA Project Discussion Paper Series No. 2/09, February 2009, Melbourne Institute: Applied Economic & Social Research, the University of Melbourne.

Wooden, M., La, N., Macalalad, N., Summerfield, M. and Watson, N. (2018) 'The Measurement of Illicit Drug Use in Wave 17 of the HILDA Survey', HILDA Project Technical Paper Series No. 1/18, Melbourne Institute: Applied Economic & Social Research, the University of Melbourne.





# **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 2021 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 2021 prices, the value is multiplied by the ratio of the CPI for the December quarter of 2021 (121.3) 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 2021 prices, the wage is multiplied by 1.62 (121.3/74.7). The interpretation of this adjustment is that prices on average rose by 62% between the September quarter of 2001 and the December quarter of 2021, which means that the amount of money required to buy a given bundle of goods and services had on average increased by 62%. We therefore need to increase the wage measured in the September quarter of 2001 by 62% to make it comparable with a wage measured in the December quarter of 2001 by 62% to make it comparable with a wage measured in the December quarter of 2021. Note that for dollar values measured over an annual timeframe, such as 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, the correlation coefficient 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).

#### Indicator variable

Used in regression analysis, an indicator (or dummy) variable is equal to 1 if a particular characteristic or event is present, and equal to 0 otherwise. In ordinary least squares (OLS) 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 of experiencing psychological distress presented in Chapter 8, 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 equivalised income (see Box 3.2, page 54) measured in units of \$10,000, is the mean effect on the probability of experiencing psychological distress, evaluated over all members of the sample, of increasing equivalised income by \$10,000.

#### 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.

#### Percentiles, deciles, quintiles and terciles

Percentiles, deciles, quintiles and terciles all identify 'locations' in the distribution of a variable, such as income, when it is ordered from lowest to highest. There are 100 percentiles, 10 deciles, five quintiles and three terciles 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, the first quintile identifies the income below which are the lowest 20% of incomes, and the first tercile identifies the income below which are the lowest third of incomes. It is also common to refer to the percentile, decile, quintile or tercile 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, the first quintile and the first tercile.)

#### **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). Multinomial Probit and Logit models examine variables that take on more than two distinct values, such as the models of the method of setting pay estimated in Chapter 3. The interpretation of estimates in these models is the same as in the binary models.
- **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 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 gender). 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).
- **Hazard** models are used to investigate the determinants of duration in a particular state, such as unemployment. They estimate the probability of leaving that state as a function of duration of the 'spell' and other factors. A commonly used model is the Cox proportional hazards model.

#### 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 of the 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. Nonetheless, immigrants arriving after 2011 are under-represented in the HILDA Survey sample from Wave 12 onwards.

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.<sup>1</sup> 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 people in very remote regions in Wave 1, people resident in non-private dwellings

Further details on how the weights are derived are provided in Watson and Fry (2002), Watson (2004b) and Summerfield et al. (2022).

in 2001 and non-resident visitors. 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 20 excludes most immigrants arriving after 2011. For example, in 2021, based on visa grants and migration flows data, it is estimated that immigrants arriving after 2011 (when the last sample top-up was conducted) accounted for between 4.5% and 6% of the Australian population, translating to between approximately 1.1 million and 1.5 million people. These individuals are largely not represented in the HILDA Survey sample. 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. In Wave 21, the household population weights sum to 9.8 million and the 'person' population weights sum to 25.0 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, 14 and 18. 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 are 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 are missing and an imputed value is available. This largely applies only to income, expenditure and wealth variables.

The population weights and imputations allow inferences to be made from the HILDA Survey about the characteristics and outcomes of the Australian population. However, estimates based on the HILDA Survey, like all sample survey estimates, are subject to sampling error. Because of the complex sample design of the HILDA Survey, the reliability of inferences cannot be determined by constructing standard errors on the basis of random sampling, even allowing for differences in probability of selection into the sample reflected by the population weights. The original sample was selected via a process that involved stratification by region and geographic 'ordering' and 'clustering' of selection into the sample within each stratum. Standard errors (measures of reliability of estimates) need to take into account these non-random features of sample selection, which can be achieved by using *replicate weights*. Replicate weights are supplied with the unit record files available to approved researchers for cross-sectional analysis and for longitudinal analysis of all balanced panels that commence with Wave 1 (for example, Waves 1 to 4 or Waves 1 to 8). Full details on the sampling method for the HILDA Survey are available in Watson and Wooden (2002), while details on the construction, use and interpretation of the replicate weights are available in Hayes (2009).

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

## C. Fieldwork process and outcomes

#### Sample

The HILDA Survey commenced, in 2001, with a nationally representative sample of Australian households (residing in private dwellings). Of the 11,693 households selected for inclusion in the sample in 2001, 7,682 households agreed to participate, resulting in a household response rate of 66%. The 19,914 residents of those households form the basis of the 'main sample' that is interviewed in each subsequent year (or survey wave), but with interviews only conducted with people 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. People who are known to have died are removed from the sample (but their existing data are retained). We also do not pursue interviews with people who have moved overseas, people who have requested to no longer be contacted or people 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 people (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 139 interviewers in Wave 21, 116 of whom were faceto-face interviewers. The remaining 23 were dedicated telephone interviewers. In 2021, some states were still under restrictions imposed by state and territory governments due to COVID-19. Therefore, in these states, interviews were largely conducted by telephone. In Wave 21, 12,524 interviews (or 75.7% 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 21).<sup>2</sup> Table A1 presents the number of households, respondents and children under 15 years of age in each wave. In Wave 21, interviews were obtained with a total of 16,549 people, of which 13,048 were from the original sample and 3,501 were from the top-up sample. Of the original 13,969 respondents in 2001, 6,519, or 56.1% of those still in scope (that is, alive and in Australia), were still participating at Wave 21.

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 people in sample households who turn 15 years of age. Third, additional people are added to the panel as a result of changes in household composition. For example, if a household member 'splits off' from their 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 'splitoffs' 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

#### Table A1: HILDA Survey sample sizes

	Households	People interviewed	Children under 15
Wave 1	7,682	13,969	4,787
Wave 2	7,245	13,041	4,276
Wave 3	7,096	12,728	4,089
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	13,608	3,680
Wave 14 (original sample)	7,441	13,633	3,625
Wave 15 (original sample)	7,546	13,753	3,653
Wave 16 (original sample)	7,635	13,834	3,765
Wave 17 (original sample)	7,659	13,791	3,822
Wave 18 (original sample)	7,615	13,723	3,834
Wave 19 (original sample)	7,633	13,748	3,863
Wave 20 (original sample)	7,552	13,467	3,846
Wave 21 (original sample)	7,395	13,048	3,708
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	1,025
Wave 18 (top-up sample)	2,023	3,711	1,011
Wave 19 (top-up sample)	2,031	3,714	995
Wave 20 (top-up sample)	2,003	3,603	964
Wave 21 (top-up sample)	1,963	3,501	949



<sup>2</sup> More detailed data on the sample make-up, and in particular response rates, can be found in Summerfield et al. (2022).

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, however response rates have dropped during the pandemic years. In Wave 21, the re-interview rate was 94.0% for the original sample and 94.0% for the top-up sample. 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. However, in Wave 21, the rate dropped to 68.7% for the original sample and 60.9% for the top-up sample.

Within the top-up sample, the reinterview rate in Wave 21 was 94.0%. The comparable rate within the original sample is the rate recorded in Wave 5, which was 94.4%.

All people who are interviewed are also asked to complete a separate paper-based questionnaire. Of the 16,549 people who were interviewed in Wave 21, 15,321 (92.6%) 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 21 waves and the proportion responding in Wave 21, disaggregated by characteristics in Wave 1 (that is, in 2001). Table A3 presents analogous information for the Wave 11 top-up sample.





Table A2: Percentage of Wave 1 respondents re-interviewed by selected Wave 1 characteristics (%)							
Wave 1 characteristics	Interviewed in all waves	Interviewed in Wave 21	Wave 1 characteristics	Interviewed in all waves	Interviewed in Wave 21		
Area			First Nations identity				
Sydney	43.7	53.7	First Nations	33.0	56.8		
Rest of New South Wales	46.9	56.0	Non-First Nations	46.2	56.1		
Melbourne	44.9	56.5	Education attainment				
Rest of Victoria	44.1	53.9	Year 11 or below	40.0	50.4		
Brisbane	50.6	59.4	Year 12	45.2	55.8		
Rest of Queensland	47.1	55.2	Certificate III or IV	45.2	55.4		
Adelaide	48.9	58.5	Diploma	51.7	61.1		
Rest of South Australia	44.0	55.9	Degree or higher	58.3	67.2		
Perth	43.6	53.4	Dwelling type				
Rest of Western Australia	39.1	53.5	House	46.7	56.9		
Tasmania	51.2	63.8	Semi-detached	43.6	54.0		
Northern Territory	57.4	73.0	Flat, unit, apartment	41.2	50.7		
Australian Capital Territory	52.7	64.8	Other	41.9	52.3		
Gender			Labour force status				
Male	44.2	54.7	Employed full-time	48.1	58.2		
Female	47.5	57.4	Employed part-time	50.6	61.3		
Age (years)			Unemployed	35.7	48.6		
15–19	34.2	51.1	Not in the labour force	40.8	50.1		
20-24	35.5	49.6	Employment status in main job <sup>a</sup>				
25-34	43.7	55.4	Employee	49.2	59.6		
35-44	50.2	59.5	Employer	46.8	55.2		
45-54	54.3	62.9	Own account worker	47.6	56.3		
55-64	53.2	61.1	Contributing family worker	44.1	57.1		
65-74	36.3	40.5	Occupation <sup>a</sup>				
75 and over	7.5	9.9	Managers/administrators	50.9	61.4		
Marital status			Professionals	58.1	67.5		
Married	48.7	57.4	Associate professionals	49.1	58.4		
De facto	43.8	54.4	Tradespersons	40.8	52.8		
Separated	47.2	57.8	Advanced clerical/service	48.4	56.4		
Divorced	53.3	62.7	Intermediate clerical/sales/service	49.3	59.7		
Widowed	42.5	46.2	Intermediate production/transport	43.7	52.1		
Single	39.1	53.3	Elementary clerical/sales/service	48.5	61.0		
Country of birth			Labourers	40.1	50.6		
Australia	47.7	57.9					
Overseas			All Wave 1 respondents	46.0	56.1		
Main English-speaking	47.6	55.3	Total number responding	5,136	6,519		
Other	35.5	47.0					

Notes: Estimates are for the sample and are therefore not population-weighted. <sup>a</sup> Employed people only.



Table A3: Percentage of Wave 11 top-up respondents re-interviewed by selected Wave 11 characteristics (%)							
Wave 11 characteristics	Interviewed in all waves	Interviewed in Wave 20	Wave 11 characteristics	Interviewed in all waves	Interviewed in Wave 20		
Area			First Nations identity				
Sydney	59.7	64.7	First Nations	62.2	65.9		
Rest of New South Wales	64.8	69.6	Non-First Nations	62.5	67.6		
Melbourne	66.2	70.2	Education attainment				
Rest of Victoria	62.7	67.3	Year 11 or below	55.9	62.3		
Brisbane	63.6	72.6	Year 12	62.7	67.9		
Rest of Queensland	62.8	69.0	Certificate III or IV	65.0	71.2		
Adelaide	65.8	66.6	Diploma	65.6	72.2		
Rest of South Australia	62.8	62.8	Degree or higher	66.1	68.5		
Perth	52.3	60.7	Dwelling type				
Rest of Western Australia	50.0	62.0	House	62.6	67.9		
Tasmania	71.3	74.0	Semi-detached	58.5	64.2		
Northern Territory	54.2	62.5	Flat, unit, apartment	64.6	68.3		
Australian Capital Territory	58.0	59.6	Other	100.0	100.0		
Gender			Labour force status				
Male	61.0	66.6	Employed full-time	63.2	69.3		
Female	63.7	68.4	Employed part-time	63.0	67.6		
Age (years)			Unemployed	66.2	71.2		
15–19	55.7	61.9	Not in the labour force	60.6	64.9		
20-24	58.9	66.8	Employment status in main job <sup>a</sup>				
25-34	67.5	72.6	Employee	63.4	69.0		
35-44	61.2	65.9	Employer	57.1	64.0		
45-54	64.1	69.3	Own account worker	62.5	66.1		
55-64	67.4	72.7	Contributing family worker	60.0	70.0		
65-74	68.2	71.6	<b>Occupation</b> <sup>a</sup>				
75 and over	35.3	38.7	Managers	61.7	69.9		
Marital status			Professionals	66.8	71.4		
Married	64.4	68.8	Technicians and trades workers	58.6	63.7		
De facto	61.0	67.9	Community and personal	63.1	67.6		
Separated	74.2	76.5	service workers	03.1	07.0		
Divorced	64.7	69.7	Clerical and administrative workers	61.4	68.4		
Widowed	49.6	52.6	Sales workers	63.0	68.3		
Single	59.2	65.7	Machinery operators and drivers	64.8	70.6		
Country of birth			Labourers	65.3	69.0		
Australia	64.0	69.5					
Overseas			All Wave 11 top-up respondents	62.5	67.6		
Main English-speaking	60.2	66.1	Total number responding	2,205	2,451		
Other	58.0	61.5					

Notes: Estimates are for the sample and are therefore not population-weighted. <sup>a</sup> Employed people only.



# HILDA Survey Personnel

#### Melbourne Institute survey management team

**Co-Directors** Professor Roger Wilkins Associate Professor Nicole Watson

Deputy Director, Survey Management Ms Michelle Summerfield

Database Manager

Ms Ninette Macalalad Survey Methodologist

Dr Mossamet Kamrun Nessa Database Support Officers

Ms Roopa Kamath Ms Brooke Garrard

#### External Reference Group

Professor Ann Evans, Australian National University (Chair) Professor Garry Barrett, The University of Sydney Professor Peter Butterworth, Australian National University Professor Belinda Hewitt, The University of Melbourne Professor David Johnston, Monash University Professor Rachel Ong ViforJ, Curtin University Dr Jennifer Baxter, Australian Institute of Family Studies Professor Peter Siminski, University of Technology Sydney

#### Technical Reference Group

Professor Robert Breunig, Australian National University Dr John Henstridge, Data Analysis Australia Mr Bruce Fraser, Australian Bureau of Statistics

#### Roy Morgan Research

HILDA project team Rayoul Borges Joshua Button Antonina De Maria Kieran Dong Davina Heng Danielle Jenner Louisa Katerelos Paige Klonaris Yen Lai Tania Mackenzie Christine Maddern Vivek Malpani Jodi Norton Mary-Ann Patterson Shane Pickard Patrick Scott Tania Sperti Evan Strouss Jayme Verhagen Cynthia Vein

#### HILDA Team 1800

Blaise Adamson Jane Baird Alexander Blight Rinata Buccheri Angela Connell Fiona Crockett Tansy Fisher Karleon Gonzalez Kelly Herbison William Hollingsworth Darren Huynh Rebecca Jarvis Joanna Kelly Yuna Lau Tim MacPherson Jacinda Matthews Antony Mellino Sakinah Munday Ambrose O`Riain Muneib Rauf



Lia Sharard Jack Smith Jade Smith Daniel Stojkovich Samantha Tait Josie Tang Mia Traviato Cynthia Vein Oliver Wicks George Wood Thomas Woodman

## HILDA face-to-face field interviewing team

Jan Alcock Cathy Andrew Farah Aslankoohi Jo Avery Robbie Baldock Stephen Beattie Robyn Bishop Pam Bowtell Christopher Bremner-Macdonald Christine Brennan Rinata Buccheri Linda Buttel Gordon Caldwell Cil Carden Asanda Carnie Naiara Carrillo Jav Clark Samantha Cole Andrew Craker Anne Croft David Cummins Wendy Cuthbert Melanie Davidson Pauline Davies Nickolas Davis Delwyn Dix Beth Donnelly Almari Edwards Michele Elms Sandra Essex

Kristin Farmer Lana Fitt Anthony Foley Charmaine Foley Ali Ghanei Elizabeth Griffiths Garry Grooms Timothy Haddad Robyn Hefferan Jackie Hendriksen Stephen Hogarty Josie Holland lan Hosking Jan Houghton Ben Huisman Heather Humphreys Marianne Hunter Dylan Hyde Kim Jackson Linda Jones Patricia Kempster John Kenney Stephanie Kent Julia Lawson Janis Layer Christine Leece Ross Lewis Jayne Malan Claire Marlow Linda Martin Priscilla Martinus Gaynor Martyn Kaleil Merren Colleen Moore Denise Mortlock Peter Mulholland Robert Neal Gwen Nickolls Vicky Nowak Scott O'Dea Elaine O'Gorman Lyn Olsen Sally O'Neal Melina Pandelides Dianne Paterson George Patniotis Andie Pearson Cheryl Perrett Zoe Perrett Jan Pianta Sarah Ponton Sandra Potter **Beverley Price** Amanda Pritchard Glen Randall David Reed

Paul Reed Margaret Reid Karen Reid-Smith Marg Reynolds Lynndal Richards Aaron Rinder Beth Ritters Frank Sanna Marija Savic Debbie Schreurs Roma Sirc Karen Steele Helen Szuty Bridgitte Tadrosse Lynda Taylor Suzanne Torok Kerrie Townley-Jones Maree Trezise Robin Trotter Sunita Waghmode Tim Walker Karen West Sue Whiteley Dennis Williams Marlene Wills Wendy Woodland Bev Worrall Jayne Wymer Karen Yaxley Thea Zeilinga





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.

