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Families, Incomes and Jobs, Volume 5

A Statistical Report on Waves 1 to 7 of the Household, Income and Labour Dynamics in Australia Survey

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Introduction

This is the fifth volume of the Household, Income and Labour Dynamics in Australia (HILDA) Survey Annual Statistical Report, and examines data from the first seven waves of the HILDA Survey, which were conducted between 2001 and 2007. As in Volume 4, the report contains two parts. Part A contains short articles providing an annual update on changes in key aspects of life in Australia that are measured by the HILDA Survey every year. Four broad and very much overlapping 'life domains' are covered: household and family life; incomes and economic wellbeing; labour market outcomes; and life satisfaction, health and wellbeing. The second part of the report, Part B, contains articles on irregular topics, to a significant extent influenced by wave-specific questions included in the survey.

The HILDA Survey seeks to provide nationally representative longitudinal data on Australian residents describing the ways in which people's lives are changing. The Australian social statistics with which we are all familiar are cross-sectional. They provide snapshots of the Australian community at a point in time—for example, the percentages of Australians who, at that point in time, are married or single, income rich or income poor, employed or unemployed, healthy or sick. Repeated cross-sections of the kind provided by the Australian Bureau of Statistics' (ABS) regular household surveys inform us about aggregate economic and social trends, about whether and by how much the percentages who are married, poor, unemployed, have a disability, and so on, are changing.

The HILDA Survey, by contrast, is a panel survey which follows people's lives over time. The same households and individuals are interviewed every year, allowing us to see how their lives are changing over time. To understand economic and social behaviour and outcomes, longitudinal data provide a much more complete picture because we can see the life course a person takes. We can examine how they respond to life events, at the time of the event and down the track, we can examine how long they persist in certain modes of behaviour or activities and how persistently the outcomes are experienced.

Panel data tell us about *dynamics*—family, income and labour dynamics—rather than *statics*. They tell us about *persistence and recurrence*, for example about how long people remain poor, unemployed, or on welfare, and how often people enter and re-enter these states. Perhaps most importantly, panel data can tell us about the causes and consequences of life outcomes, such as poverty, unemployment, marital breakdown and poor health, because we can see the paths that individuals' lives took to those outcomes and the paths they take subsequent to them. 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, the implications of health for risk of poor economic outcomes.

While in principle a cross-sectional survey can ask respondents to recall their life histories, in practice this is not viable. Health, subjective wellbeing, perceptions, attitudes, income, wealth, labour market activity—indeed most things of interest to researchers and policy-makers—are very difficult for respondents to recall from previous periods in their life. Respondents even have trouble recalling seemingly unforgettable life events such as marital separations. The only way to reliably obtain information over the life course is to obtain it as people actually take that course.

For these reasons, panel data are vital for government and public policy analysis. Understanding the persistence and recurrence of life outcomes and their consequences is critical to appropriate targeting of policy, and of course understanding the causes of outcomes is critical to the form those policies take. For example, it is important to distinguish between short-term, medium-term and long-term poverty because it is likely that for each issue there are different implications for policy: the nature of the policy, the priority it is accorded, and the target group of the policy.

This annual HILDA Statistical Report has been prepared by a small team at the Melbourne Institute of Applied Economic and Social Research of the University of Melbourne. The report is not intended to be comprehensive. It focuses mainly on panel results rather than cross-sectional results of the kind well covered by ABS surveys, and it seeks just to give a flavour of what the HILDA Survey is finding. Much more detailed analysis of every topic covered by this volume could be, should be (and in many cases, is being) undertaken. It is hoped that some readers will conduct their own analyses, and in this context it should be mentioned that the HILDA Survey data are available at nominal cost to approved users.

The HILDA Survey sample

The HILDA Survey is commissioned and funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) and is managed by the Melbourne Institute at the University of Melbourne. The Project Director is Professor Mark Wooden.

The HILDA Survey is a nation-wide household panel survey with a focus on issues relating to families, income, employment and wellbeing. It began in 2001 with a large national probability

sample of Australian households occupying private dwellings. All members of those households form the basis of the panel to be interviewed in each subsequent wave. Note that, like virtually all sample surveys, the homeless are excluded from the scope of the HILDA Survey. Also excluded from the initial sample were persons living in institutions, but people who move into institutions in subsequent years remain in the sample.[1]

Table 0.1 summarises key aspects of the HILDA sample: the number of households, respondents and children under 15 years of age in each wave, wave-on-wave sample retention and Wave 1 sample retention.[2]

After adjusting for out-of-scope dwellings (e.g. unoccupied, non-residential) and households (e.g. all occupants were overseas visitors) and for multiple households within dwellings, the total number of households identified as in-scope in Wave 1 was 11,693. Interviews were completed with all eligible members (i.e. persons aged 15 and over) at 6,872 of these households and with at least one eligible member at a further 810 households. The total household response rate was, therefore, 66 per cent. Within the 7,682 households at which interviews were conducted, there were 19,917 people, 4,787 of whom were under 15 years of age on 30 June 2001 and hence ineligible for interview. This left 15,127 persons, of whom 13,969 were successfully interviewed. Of this group, 11,993 were re-interviewed in Wave 2, 11,190 in Wave 3, 10,565 in Wave 4, 10,392 in Wave 5, 10,085 in Wave 6 in 2006 and 9,628 in Wave 7.

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

Despite these additions to the HILDA sample, *sample attrition*—that is, people dropping out due to refusal, death, or our inability to locate them—is a major issue in all panel surveys. Because of attrition, panels may slowly become less representative of the populations from which they are drawn, although due to the 'split-off' method, this does not necessarily occur.

To overcome the effects of survey non-response (including attrition), the HILDA Survey data managers analyse the sample each year and produce *weights* to adjust for differences between the characteristics of the panel sample and the characteristics of the Australian population; that is, adjustments are made for non-randomness in the sample selection process that cause some groups to be relatively under-represented and others to be relatively over-represented.[3] For example, non-response to Wave 1 of the survey was slightly higher in Sydney than in the rest of Australia, so that slightly greater weight needs to be given to Sydney-siders in data analysis in order for estimates to be representative of the Australian population.

The population weights provided with the data allow us to make inferences about the Australian population from the HILDA 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

Table 0.1: HILDA Survey sample sizes and retention

	Sample sizes			*Sample retention*	
	Households	*Persons interviewed*	*Children under 15*	*Previous-wave retention (%)*	*Number of Wave 1 respondents*
Wave 1	7,682	13,969	4,787	–	13,969
Wave 2	7,245	13,041	4,802	86.8	11,993
Wave 3	7,096	12,728	4,774	90.4	11,190
Wave 4	6,987	12,408	4,660	91.6	10,565
Wave 5	7,125	12,759	4,647	94.4	10,392
Wave 6	7,139	12,905	4,525	94.8	10,085
Wave 7	7,063	12,789	4,463	94.7	9,628

Note: 'Previous-wave retention': the percentage of respondents in the previous wave in-scope in the current wave who were interviewed.

and B, we would multiply Household A's income by 1,000, multiply Household B's income by 1,200, add the two together, and then divide by 2,200.

The sum of the population weights is equal to the estimated population of Australia that is 'in-scope', by which is meant 'they had a chance of being selected into the HILDA sample' and which therefore excludes those that HILDA explicitly has not attempted to sample—namely, some persons in very remote regions, persons resident in non-private dwellings in 2001 and non-resident visitors. The weights in 2007 sum to 20.4 million.

As the length of the panel grows, the variety of weights that might be needed also grows, and this increasingly complicates analysis. For cross-sectional analysis, matters are more straightforward. We simply use the supplied cross-sectional weights. More complicated is longitudinal analysis, where to retain representativeness weights need to account for lack of representativeness in all of the waves being analysed. In principle, a set of weights will exist for every combination of waves that could be examined—Waves 1 and 2, Waves 2, 5 and 7, and so on. The longitudinal (multi-year) weights supplied with the Release 7 data allow population inferences for analysis using any two waves (i.e. any pair of waves) and analysis of any 'balanced panel' (i.e. for analysis of any contiguous set of waves, such as Waves 4 to 7). However, weights for other combinations of waves (such as for analysis of Waves 2, 6 and 7) can be supplied by the Melbourne Institute on request. 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.

The population weights allow inferences to be made from the HILDA Survey about the characteristics and outcomes of the Australian population who were resident in Australia in 2001 and is still resident in Australia. 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 for cross-sectional analysis and for longitudinal analysis of a balanced panel of all seven waves are supplied with the unit record files available to the public. For other longitudinal analyses, the appropriate replicate weights can be obtained from the Melbourne Institute on request. Full details on the sampling method for the HILDA Survey are available in Watson and Wooden (2002), while details on the construction, use and interpretation of the replicate weights are available in Hayes (2008).

In this volume, rather than report the standard errors for all statistics in this volume, we have adopted an ABS convention and marked with an asterisk (*) tabulated results which have a standard error more than 25 per cent of the size of the result itself. Note that a relative standard error that is less than 25 per cent implies there is a greater than 95 per cent probability the true quantity lies within 50 per cent of the estimated value. For example, if the estimate for the proportion of a population group that is poor is 10 per cent and the relative standard error of the estimate is 25 per cent (i.e. the standard error is 2.5 per cent), then there is a greater than 95 per cent probability that the true proportion that is poor lies in the range of 5 per cent to 15 per cent.

For regression model parameter estimates presented in this report, a similar approach is taken to that with respect to the descriptive statistics, with estimates that are not statistically significantly different from zero at the 10 per cent level marked with a 'plus' superscript ($^{+}$). Estimates that are statistically significant at the 10 per cent level have a probability of not being zero that is greater than 90 per cent.

Overview of contents

Part A of the report contains the Annual Update, consisting of five or six articles in each of the four broad topics covered by the HILDA Survey:

(i) Households and Family Life, which incorporates description of changes in individuals' family structures over time, changes in marital status and marital satisfaction, child care issues and major life events experienced by respondents in the year leading up to the interview.

(ii) Incomes and Economic Wellbeing, which includes examination of the income distribution and income mobility over time, description of the extent and nature of poverty, welfare reliance and financial stress, including their persistence and recurrence, and examination of the distribution of consumption expenditure.

(iii) Labour Market Outcomes, in which we examine labour force status mobility and job mobility, and the evolution over time of wages, hours preferences, household joblessness and job satisfaction.

(iv) Life Satisfaction, Health and Wellbeing, which includes examination of respondent assessments of their psychological wellbeing, physical health and mental health, as well as examination of satisfaction with family relationships and aspects of family life, social capital and economic participation.

Part B contains eleven articles, three of which have been contributed by other researchers.[4] Dean Lillard from Cornell University draws on data obtained in Wave 7 on the smoking histories of individuals. He examines differences across birth cohorts in smoking rates at each age and compares the Australian experience with the United States and the United Kingdom. Alison Goode and Markus Hahn draw on a series of questions on respondents' diets included in the HILDA Survey for the first time in Wave 7 to examine the association between socio-economic characteristics and healthiness of diet. On a related topic, Mark Wooden examines differences in health by body mass index. A further health-related article examines interactions between health, disability and specific medical conditions.

Chapter 25 contains an article which makes use of longitudinal data in HILDA on 'self-efficacy'—broadly speaking, the extent to which an individual feels in control of his or her own life—to examine its variability over time and its determinants. Chapter 26 similarly makes use of new longitudinal information on religious belief and practice that became available in Wave 7 to examine changes over time in religious belief and practice and some potential influences on these changes. A further five articles then examine various aspects related to the labour market, including literacy and numeracy, work-related training, differences in public sector and private sector earnings, and retirement plans and behaviour.

Acknowledgements

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Disclaimer

This report has been written by the HILDA Survey team at the Melbourne Institute, which takes responsibility for any errors of fact or interpretation. Its contents should not be seen as reflecting the views of either the Australian Government or the Melbourne Institute of Applied Economic and Social Research.

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HILDA Survey Deputy Director (Research)

Endnotes

1 See Watson and Wooden (2002) for full details of the sample design, including a description of the reference population, sampling units and how the sample was selected.

2 More detailed data on the sample make-up and in particular response rates can be found in the *HILDA User Manual*, available online at <http://www.melbourneinstitute.com/hilda/doc/doc_hildamanual.htm>.

3 Further details on how the weights are derived are provided in Watson and Fry (2002), Watson (2004) and the *HILDA User Manual*.

4 All other articles have been written by the editors.

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ANNUAL UPDATE A

Households and Family Life

Every year, the HILDA Survey collects information on a variety of aspects of family life. These aspects include 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. Periodically, information is also obtained on other aspects of family life, such as fertility plans, relationships with parents, siblings, non-resident children, grandchildren and non-resident partners, marital relationship quality and use of domestic help.

In this section of the report, we present analyses for the 2001 to 2007 period of five aspects of family life: family structure dynamics; changes in marital status and satisfaction with marriage; family-related stresses and strains; child care issues and their persistence; and major life events in the last 12 months.

1. Family dynamics: Changes in household structure, 2001 to 2007

Long-term trends in household structures in Australia are reasonably well understood. As de Vaus (2004), Australian Bureau of Statistics (2004) and others have shown, the average household size has declined over the last century and is projected to continue declining, and household types have in recent decades become increasingly diverse, with the traditional nuclear family accounting for an ever-decreasing proportion of households. The HILDA Survey data provide the opportunity to examine, within this broader context, the experiences at the individual level of household structure changes over time.

We begin by showing in Table 1.1 the proportion of individuals, including children, in each household type, from 2001 to 2007. Looking at household type on an individual level, the proportion of people living in couple only households rose only slightly—from 21 per cent in 2001 to 22 per cent in 2007. Approximately 51 per cent of all Australians were living in a 'couple with children' household each year, while around 12 per cent were in lone-parent households and 10 per cent lived alone. It seems that group households have become less popular, with only 1 per cent of all individuals living in a group household in 2007, compared to 3 per cent in 2001.[1]

Changes in household structure

While the proportion of households of each type, and the proportion of individuals in each household type remained quite stable over this seven-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

Table 1.1: Household type of individuals (%)

	2001	*2003*	*2005*	*2006*	*2007*
Couple family without children	21.3	21.4	22.0	22.0	21.7
Couple family with children	51.2	51.0	51.2	50.7	51.3
Couple family with children under 15	37.1	36.6	35.9	36.0	35.9
Couple family with children aged 15 or older	14.1	14.4	15.3	14.7	15.4
Lone parent household	11.6	12.1	12.4	11.9	12.4
Lone parent with children under 15	7.3	7.3	7.4	6.7	6.7
Lone parent with children 15 or older	4.3	4.8	5.0	5.2	5.7
Lone person	9.8	10.1	10.1	10.3	10.3
Group household	2.6	1.5	1.2	1.2	1.1
Other related family	1.2	1.4	1.1	1.1	0.9
Multi-family household	2.3	2.4	2.1	2.7	2.2
Total	100.0	100.0	100.0	100.0	100.0

Notes: Population weighted results. Couple families and lone parent households with children under 15 may also have children aged 15 or older in the household, while couple families and lone parent households with children aged 15 or older only have children aged 15 or older. Percentages may not add up to 100 due to rounding.

changed as new members join the household, for example, due to the birth of a baby, the adoption of a child, or a couple moving in together. The proportion of individuals whose 'household type' changed between 2006 and 2007 was 9.8 per cent. Table 1.2 shows the changes in the household type of individuals, including children, between 2006 and 2007.

Table 1.2 shows that couple families are the most stable, with 90 per cent of individuals who were in a couple only household in 2006 remaining in that category in 2007, and 94 per cent of individuals in couple with children households in 2006 still in that household type in 2007. Of those who were no longer in couple only households, the most common reason for the change was the addition of a child, with 6 per cent of individuals who were in couple only households in 2006 changing to couple with children households in 2007. Only 2 per cent of individuals who were in couple only households in 2006 were living alone in 2007. The most common reason for change in couple with children households was children leaving home, with 3 per cent of individuals who were living in a couple with children household in 2006 living in a couple only household in 2007.

Lone parent households are also quite stable, with 86 per cent of individuals who were living in lone-parent households in 2006 still living in a lone-parent household in 2007. For 7 per cent of individuals who were living in lone-parent households in 2006, their household structure had changed because the lone-parent had re-partnered; and, for a further 6 per cent the child (or children) was no longer living with that parent.

While 90 per cent of people who were living alone in 2006 were still doing so in 2007, 7 per cent had moved in with a partner; and of that 7 per cent, 36 per cent had either had a new baby or moved in with a partner who already had at least one child, thereby creating a 'couple with children' household.

More than 70 per cent of individuals who were living in multi-family households in 2006 were still in a multi-family household in 2007. Among those who were living in a multi-family household in 2006, 12 per cent were in a couple with children household by 2007 and a further 6 per cent were living in couple only households.

Of all the household types, group households are the least static, with 62 per cent of individuals who were living in group households in 2006 remaining in a group household in 2007, while 14 per cent were now living on their own and 19 per cent had changed to couple only households.

Table 1.2 has shown the changes in household structure from one year to the next, but how much do households change over a longer period of time, say five years? A reasonable proportion (26 per cent) of individuals were living in different household types in 2007 compared to 2002. Table 1.3 shows changes in household structures for individuals between 2002 and 2007.

After five years, 75 per cent of individuals who were in couple only households in 2002 remained in the same household structure in 2007, while 17 per cent were in couple with children households and 7 per cent were living alone. Almost 80 per cent of individuals who were part of a nuclear family (couple with a child or children) in 2002 were still living in a nuclear family in 2007—9 per cent were living in a couple only household (either because all the children had left home or they had separated from their former partner and re-partnered); 6 per cent were living in lone-parent households; and 4 per cent were living alone.

Of those who were living in lone-parent households in 2002, almost 70 per cent were in the same situation in 2007; while 11 per cent were now

Table 1.2: Changes in household structure, 2006–2007 (%)

	Household type in 2007							
Household type in 2006	*Couple family without children*	*Couple family with children*	*Lone parent household*	*Lone person*	*Group household*	*Other related family*	*Multi-family household*	*Total*
Couple family without children	90.1	6.3	*0.3	1.9	*0.3	*0.3	0.8	100.0
Couple family with children	2.6	93.5	1.8	1.3	*0.1	*0.1	0.7	100.0
Lone parent household	1.6	6.8	85.7	3.9	*0.6	*0.4	*1.0	100.0
Lone person	4.6	2.6	1.3	89.9	*0.8	*0.4	*0.4	100.0
Group household	19.2	*2.9	*2.0	14.1	61.8	*0.0	*0.0	100.0
Other related family[a]	*3.5	*3.7	*1.3	22.6	*1.6	67.3	*0.0	100.0
Multi-family household	5.5	11.9	8.7	*1.5	*0.3	*0.0	72.1	100.0
Total	22.2	50.1	11.8	11.3	0.9	1.0	2.8	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding. [a] 'Other related' families are households where there are relatives living in the same household, but no couple or parent–child relationships. This category most commonly includes adult siblings living in the same household without a parent. It should also be noted that in some cases, couple families and lone parent households may also include other unrelated adults (e.g. an adult boarder or housemate).

Table 1.3: Changes in household structure, 2002–2007 (%)

	Household type in 2007							
Household type in 2002	*Couple family without children*	*Couple family with children*	*Lone parent house-hold*	*Lone person*	*Group house-hold*	*Other related family*	*Multi-family house-hold*	*Total*
Couple family without children	74.5	17.0	0.9	6.8	*0.5	*0.2	*0.3	100.0
Couple family with children	8.7	78.4	6.3	4.0	0.4	*0.2	2.0	100.0
Lone parent household	4.6	11.9	69.3	10.8	*0.5	1.8	*1.2	100.0
Lone person	9.5	6.8	2.9	79.5	1.1	*0.3	*0.0	100.0
Group household	29.2	*8.5	*0.8	33.2	25.0	*2.3	*0.9	100.0
Other related family	11.7	*11.4	*7.3	29.0	*6.1	33.6	*0.9	100.0
Multi-family household	11.0	13.0	20.1	*5.9	*0.1	*10.2	39.7	100.0
Total	23.1	48.3	11.9	12.6	0.9	1.0	2.2	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

living alone, 12 per cent were living in a couple with children household and 5 per cent were living in couple only households. Almost 80 per cent of people who were living alone in 2002 were still living alone in 2007. By 2007, 10 per cent of those who were living alone in 2002 had moved into a couple only household, 7 per cent were in couple with children households and 3 per cent were in lone-parent households. One possible explanation for lone-person households being the most stable household structure is that this group consists of a high proportion of older people (42 per cent were over the age of 55 in 2002), who had no desire to change their living situation.

For most people in group households it is a temporary situation, possibly only while studying at university or until they move in with a partner or can afford to live alone. Only 25 per cent of people who were living in a group household in 2002 were still in a group household in 2007. Multi-family households also seem to be a temporary situation, with 40 per cent of individuals who were living in a multi-family household in 2002 still in a multi-family household in 2007.

Discussion

While the overall proportion of households of each type, and the proportion of individuals living in each type of household, changes very little from year to year, 10 per cent of individuals were living in a different household structure in 2007 compared with 2006, and 26 per cent had a different household arrangement in 2007 compared with 2002.

In couple households, the most common changes in household structure are a result of adult children leaving home—resulting in a change from a couple with children household to a couple only household—and new children entering the household, which changes a couple only household into a couple with children household. Separation, divorce and being widowed are also common causes of change in couple households, with 8 per cent of individuals who were in a couple only household in 2002 and 10 per cent of those who were living in a couple with children household in 2002 living in either a lone-person or a lone-parent household by 2007. On the other hand, compared to other household types, lone-person households are very stable, with 80 per cent of those who were in lone-person households in 2002 still living alone in 2007.

There is some evidence that for most people who live in a group household that it is only a temporary situation, with only 25 per cent of individuals who were living in a group household in 2002 still in this type of household in 2007. It is also relatively uncommon for multi-family households to continue for several years, with only 40 per cent of individuals who were living in a multi-family household in 2002 still in a multi-family household in 2007.

Endnote

1 ABS data indicate a smaller decline in group households, the proportion of persons in these households falling from 4 per cent in 2003 to 3 per cent in 2007.

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2. Changes in marital status and marriage satisfaction

The HILDA Survey data show that in 2007 just over 60 per cent of Australians aged 15 and over were legally or de facto married, around a quarter had never been married and were not living with a partner, 8 per cent were separated or divorced and had not re-partnered and the remaining 5 per cent were widows or widowers.[1]

In 2007, there were 116,322 registered marriages—an increase of 1.8 per cent from 2006 (ABS, 2008b). The number of divorces in 2007 in Australia was 47,963—a decrease of 6.6 per cent from 2006, and the sixth annual decrease since a high of 55,330 divorces in 2001 (ABS, 2008a). Table 2.1 summarises the changes in marital status among HILDA Survey respondents who were interviewed in both 2006 and 2007.

Most people (98 per cent) who were married in 2006 were still married in 2007. Of those who were in a de facto relationship in 2006, 11 per cent had married and 6.5 per cent were no longer living with a partner by 2007. A small proportion, 4 per cent, of people who were divorced in 2006 were now in a de facto relationship, as were 7 per cent of those who had never married and were not in a de facto relationship in 2006.[2] While things remained relatively stable during this 12-month period, a lot more happened over the five years from 2002 to 2007, as shown in Table 2.2.

In the five years from 2002 to 2007, the most stable group was the widowed, with 96 per cent retaining that status in 2007. Of those who were married in 2002, 92 per cent were married in 2007—to the same person in 99 per cent of cases. Of those whose marital status in 2002 was divorced, 8 per cent had re-married by 2007 and a further 8 per cent were cohabiting with a partner. Just over one-quarter of people who were never married and not living with a partner in 2002 had a partner by 2007; 15 per cent had moved into a de facto relationship; and 12 per cent were married.

The most volatile groups seem to be separated people and those in de facto relationships. However, most of the separated people who had changed marital status after 2002 had proceeded with a divorce, and a large proportion (67 per cent) of the 50 per cent of de factos who changed

Table 2.1: Changes in marital status, 2006–2007 (%)

	Marital status in 2007						
Marital status in 2006	*Legally married*	*De facto*	*Separated*	*Divorced*	*Widowed*	*Never married and not de facto*	*Total*
Legally married	98.1	*0.3	1.1	*0.0	0.5	–	100.0
De facto	11.0	82.5	*0.9	*0.9	*0.1	4.7	100.0
Separated	*5.0	*4.5	75.6	13.4	*1.6	–	100.0
Divorced	*1.6	4.0	*0.9	91.5	*1.9	–	100.0
Widowed	*0.5	*0.4	*0.1	*1.3	97.8	–	100.0
Never married and not de facto	1.1	6.7	*0.2	*0.0	*0.1	91.8	100.0
Total	52.9	10.0	2.6	5.7	5.4	23.4	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

Table 2.2: Changes in marital status, 2002–2007 (%)

	Marital status in 2007						
Marital status in 2002	*Legally married*	*De facto*	*Separated*	*Divorced*	*Widowed*	*Never married and not de facto*	*Total*
Legally married	91.9	1.0	2.6	1.3	3.2	–	100.0
De facto	31.6	49.6	2.5	4.6	*0.6	11.1	100.0
Separated	11.2	12.6	40.1	31.9	*4.3	–	100.0
Divorced	7.8	8.2	*1.1	79.4	3.6	–	100.0
Widowed	*0.9	*2.1	*0.1	*0.5	96.3	–	100.0
Never married and not de facto	11.7	15.5	*0.3	*0.3	*0.1	72.1	100.0
Total	56.0	9.7	3.0	6.6	6.4	18.2	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

status after 2002 got married, 82 per cent of them marrying the person they were living with in 2002. Furthermore, among those who were in de facto relationships in both 2002 and 2007, 75 per cent were still living with the same partner.

Relationship satisfaction

Each year, individuals living with a spouse or partner at the time of their interview are asked to rate their satisfaction with their relationship with their partner, on a scale of 0 (completely dissatisfied) to 10 (completely satisfied). Average levels of relationship satisfaction by sex and marital status are shown in Figure 2.1. Compared to people in de facto relationships, relationship satisfaction was higher, on average, among married persons. In 2007, the average level of relationship satisfaction for married men was 8.5 out of 10, compared to 8.2 out of 10 for men in de facto relationships. For females, the average level of relationship satisfaction was also higher for those who were married—8.2 out of 10 compared to 7.9 out of 10 for women in a de facto relationship.

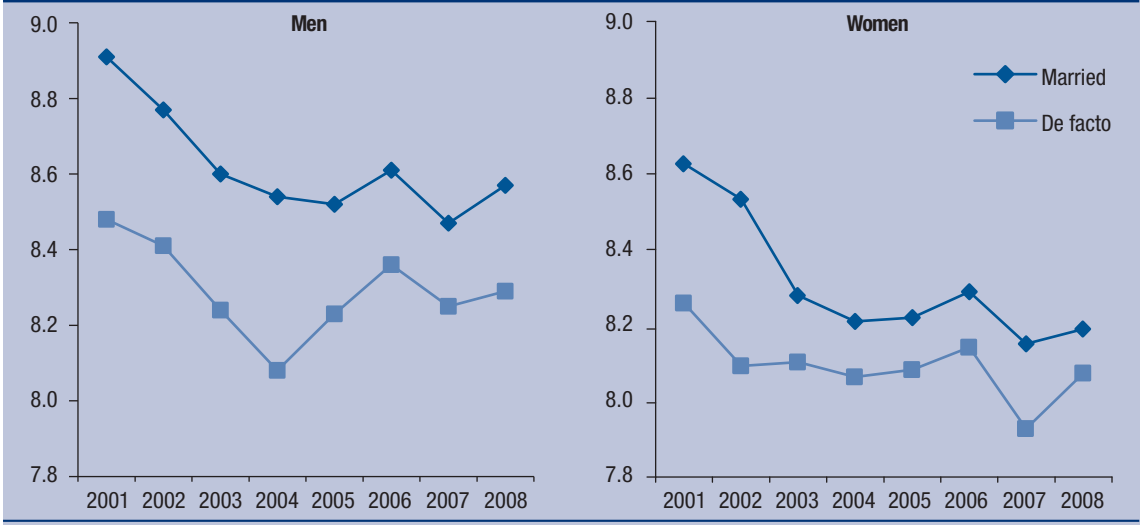
Using the 2005 HILDA Survey data, Headey and Warren (2008) found that, on average, individuals married for less than two years report the highest levels of relationship satisfaction—8.8 out of 10 for men and 9 out of 10 for women. For men, average relationship satisfaction dropped to 8.5 out of 10 after two years of marriage and for women, average relationship satisfaction also dropped to 8.5 out of 10 for those who had been married for between two and five years, and down to 8.1 out of 10 for women who had been married for five years or longer. But how much does relationship satisfaction change in a year? Table 2.3 compares relationship satisfaction in 2006 and 2007 for individuals who were married or in a de facto relationship in 2006.[3]

Most married people—89 per cent in the case of men and 86 per cent in the case of women—who reported high levels of relationship satisfaction in 2006 also reported high levels of satisfaction in 2007. Of those married persons who reported medium levels of relationship satisfaction—4 to 7 out of 10—in 2006, 33 per cent of men and 28 per cent of women reported high levels of satisfaction with their relationship in 2007. For a substantial proportion of married people, it seems that low levels of relationship satisfaction were temporary, with 52 per cent of married men and 41 per cent of married women who reported low levels of relationship satisfaction—3 out of 10 or lower—in 2006 reporting an improvement in relationship satisfaction by 2007.

Compared to married couples, de facto relationships were much less stable, with 17 per cent of men and 12 per cent of women who reported relationship satisfaction of 7 or lower in 2006 no longer living with their partner in 2007. Still, 40 per cent of males and 35 per cent of females who reported medium levels of relationship satisfaction in 2006 rated their satisfaction with their relationship as 8 or higher out of 10 in 2007, and 80 per cent of males and 77 per cent of females who had high levels of relationship satisfaction (8 or higher out of 10) in 2006, also reported high levels of satisfaction in 2007.

Table 2.3 suggests that people make more effort to save a marriage than to stay in a de facto relationship, with less than 2 per cent of marriages ending compared to around 10 per cent of de facto relationships. Table 2.4 compares levels of relationship satisfaction for married persons and those in de facto relationships between 2002 and 2007 and leads to the expected conclusion that happy relationships continue and unhappy ones usually do not.

Figure 2.1: Mean satisfaction with partner (0–10 scale)



Note: Population weighted results.

Table 2.3: Changes in relationship satisfaction of married persons, 2006–2007 (%)

	Relationship satisfaction in 2007				
Relationship satisfaction in 2006	*Low (0–3)*	*Medium (4–7)*	*High (8–10)*	*No longer in relationship[a]*	*Total*
Males—married					
Low (0–3)	*33.9	*32.5	*19.6	*14.0	100.0
Medium (4–7)	9.2	53.2	33.4	*4.2	100.0
High (8–10)	*0.6	9.5	89.2	*0.8	100.0
Total	2.6	16.7	79.1	1.6	100.0
Females—married					
Low (0–3)	51.0	33.7	*6.8	*8.6	100.0
Medium (4–7)	9.1	60.2	27.6	*3.2	100.0
High (8–10)	0.9	12.1	85.7	1.3	100.0
Total	4.5	22.5	71.1	1.9	100.0
Males—de facto					
Low (0–3)	*4.6	*41.3	*12.8	*41.4	100.0
Medium (4–7)	*8.5	38.2	38.8	*14.5	100.0
High (8–10)	*0.9	9.6	80.1	9.3	100.0
Total	*2.5	16.1	70.3	11.1	100.0
Females—de facto					
Low (0–3)	*34.9	*33.6	*11.2	*20.3	100.0
Medium (4–7)	*7.4	47.8	34.7	*10.1	100.0
High (8–10)	*2.1	13.8	77.0	7.1	100.0
Total	4.9	22.7	64.0	8.4	100.0

Notes: Population weighted results. * Estimate not reliable. [a] This category includes all individuals who were not living with the same spouse or partner from the previous year. For most (87.1%) this was because the relationship had broken up. Percentages may not add up to 100 due to rounding.

Table 2.4: Changes in relationship satisfaction of married persons, 2002–2007 (%)

	Relationship satisfaction in 2007				
Relationship satisfaction in 2002	*Low (0–3)*	*Medium (4–7)*	*High (8–10)*	*No longer in relationship[a]*	*Total*
Males—married					
Low (0–3)	*26.1	*25.2	*26.1	*22.6	100.0
Medium (4–7)	*7.0	40.8	41.0	11.3	100.0
High (8–10)	1.4	12.7	79.5	6.4	100.0
Total	2.6	16.7	73.3	7.4	100.0
Females—married					
Low (0–3)	31.5	*30.0	*14.2	*24.3	100.0
Medium (4–7)	7.2	52.5	26.7	13.5	100.0
High (8–10)	2.4	14.3	74.1	9.2	100.0
Total	4.1	21.9	63.6	10.4	100.0
Males—de facto					
Low (0–3)	*7.5	*14.7	*0.0	*77.8	100.0
Medium (4–7)	*4.1	*21.9	*26.3	47.6	100.0
High (8–10)	*1.6	10.3	63.8	24.3	100.0
Total	2.3	12.6	55.0	30.2	100.0
Females—de facto					
Low (0–3)	*19.0	*3.6	*3.7	*73.7	100.0
Medium (4–7)	*9.5	29.8	*18.8	41.8	100.0
High (8–10)	*1.5	15.4	55.6	27.6	100.0
Total	4.2	17.9	44.7	33.2	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding. [a] Includes all individuals who were not living with the same spouse or partner from 2002. For most (79.6%) this was because the relationship had broken up.

This table also confirms that de facto relationships are less stable than marriages, with roughly one-quarter of the men and women who reported high levels of satisfaction with their de facto relationship no longer in that relationship five years later, compared to less than 10 per cent of men and women who reported high levels of satisfaction with their marriage.

While 80 per cent of married men and 74 per cent of married women who had reported high levels of relationship satisfaction in 2002 were still very happy with their relationship in 2007, 6 per cent of men and 9 per cent of women were no longer married. The proportion of people who were no longer living with their spouse from 2002 was much higher for those who were less satisfied with their relationship in 2002. For example, 11 per cent of men and 14 per cent of women who were married in 2002 and reported medium levels of relationship satisfaction were no longer married, compared to 6 per cent of men and 9 per cent of women who reported high levels of satisfaction in 2002.

Only 64 per cent of men and 56 per cent of women who reported high levels of satisfaction with their de facto relationship in 2002 were still highly satisfied with their relationship in 2007. More than 40 per cent of people who reported medium levels of satisfaction and around one-quarter of those who reported high levels of satisfaction with their relationship in 2002 were no longer living with their partner by 2007.

Endnotes

1 Previous volumes of this report have shown that there has been very little change in these proportions over the seven years from 2001 to 2007.

2 This refers to all those whose marital status in 2006 was divorced, not people whose divorce was finalised in 2006.

3 These results should be interpreted with caution. Relationship satisfaction can be quite unstable; that is, in some cases an individual's response to this question may change from day to day or week to week.

References

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3. Parenting stress and work–family stress

While many parents will tell you that their family is the most important thing in their life, the majority would also agree that being a parent can sometimes be stressful. This stress may be a result of juggling work and family arrangements, finding adequate child care, taking care of ill children or children with disability, parenting adolescents or teenagers, troubles getting along with step-children, restrictions on the amount of time available for socialising and leisure activities without the children, or just the daily stresses associated with being a parent.

In 2007, approximately 51 per cent of individuals were living in a 'couple with children' household and around 12 per cent were in lone-parent households and 77 per cent of all parents with resident children were in paid work—84 per cent of partnered fathers were in full-time employment, compared to 66 per cent of lone fathers, 31 per cent of lone mothers and 29 per cent of partnered mothers, while 8 per cent of lone fathers and partnered fathers worked part-time, as did 29 per cent of lone mothers and 40 per cent of partnered mothers. 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* like, *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*. The response scale runs from 1 (strongly disagree) to 7 (strongly agree). Table 3.1 compares the distribution of responses to the questions about parenting stress in 2007 for lone parents and parents who have a spouse or partner.

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*, and compared to mothers who had a spouse or partner, it is more common for lone mothers to agree with these statements. 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, a higher proportion of lone parents agreed with the statements.

In previous HILDA Statistical Reports, it was found that, based on a measure of parenting stress calculated by taking the average of the responses to the four statements in Table 3.1, the majority of parents fall into the category of 'medium' parenting

stress—3 to 5 out of 7—and sole parents reported higher levels of parenting stress than parents who were married or in a de facto relationship. Table 3.2 shows the proportion of parents who reported high levels of parenting stress—6 or 7 out of 7—between 2001 and 2007.

The proportion of parents who reported high levels of parenting stress has almost halved since 2001, from 12 per cent in 2001 to 6 per cent in 2006. In 2007, 11 per cent of lone mothers reported high levels of parenting stress, compared to 8 per cent of partnered mothers and only 4 per cent of fathers who were living with a spouse or partner. Each year, women reported substantially higher levels of parenting stress than men, lone mothers had higher stress levels than partnered mothers and lone fathers reported higher levels of stress than partnered fathers.

How does the number and age of children affect parenting stress?

How does the age of the children in the household affect parenting stress? Is parenting stress higher for people with young children, or are teenagers more troublesome to their parents? The HILDA Survey data indicate that in 2007, the proportion of parents with high levels of parenting stress—6 or 7 out of 7—was quite similar regardless of the age of the youngest child, with around 6 per cent of parents reporting high levels of parenting stress.

One would also expect that the level of stress that parents feel would be higher if they have more than one child. Table 3.3 shows that the proportion of parents who reported high levels of parenting stress generally increased with the number of resident children.

Table 3.1: Parenting stress, 2007 (%)

	Stress level								
	Strongly disagree						*Strongly agree*		
	1	*2*	*3*	*4*	*5*	*6*	*7*	*Total*	*Mean*
Being a parent is harder than I thought it would be									
Lone mothers	11.5	13.0	9.6	14.3	24.2	14.1	13.2	100.0	4.2
Partnered mothers	8.2	13.9	9.3	16.1	21.5	18.2	12.9	100.0	4.4
Lone fathers	*11.1	21.7	17.6	16.2	*12.3	*12.1	*8.9	100.0	3.7
Partnered fathers	10.4	17.5	14.6	21.8	19.8	10.8	5.1	100.0	3.8
Total	9.6	15.6	11.9	18.3	20.7	14.4	9.5	100.0	4.1
I often feel tired, worn out or exhausted from meeting the needs of my children									
Lone mothers	8.1	10.8	11.7	19.7	21.8	14.9	13.0	100.0	4.3
Partnered mothers	5.5	12.6	11.9	16.5	23.9	19.1	10.5	100.0	4.4
Lone fathers	*10.1	27.7	14.8	18.7	17.1	*7.1	*4.6	100.0	3.5
Partnered fathers	9.9	20.1	16.9	21.4	17.4	11.5	2.9	100.0	3.6
Total	7.8	16.2	14.1	19.0	20.7	14.9	7.4	100.0	4.0
I feel trapped by my responsibilities as a parent									
Lone mothers	30.9	22.3	12.6	13.5	9.1	6.3	5.4	100.0	2.9
Partnered mothers	31.9	29.0	13.1	12.3	6.8	4.7	2.2	100.0	2.6
Lone fathers	27.4	32.6	*11.7	15.0	*8.0	*4.1	*1.1	100.0	2.6
Partnered fathers	30.2	30.2	14.0	12.9	7.5	3.8	1.4	100.0	2.5
Total	30.9	28.9	13.4	12.8	7.4	4.5	2.1	100.0	2.6
I find that taking care of my child/children is much more work than pleasure									
Lone mothers	28.5	20.7	18.5	10.1	10.7	7.2	4.3	100.0	2.9
Partnered mothers	29.0	28.8	17.0	12.7	7.4	3.3	1.8	100.0	2.6
Lone fathers	26.6	31.4	16.4	16.2	*4.3	*3.8	*1.3	100.0	2.6
Partnered fathers	25.8	32.3	17.4	13.3	6.0	3.5	1.8	100.0	2.6
Total	27.5	29.5	17.3	12.8	7.0	3.8	2.1	100.0	2.6

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

Table 3.2: Proportion of parents with high levels of parenting stress (6 or 7 out of 7) by sex and marital status (%)

	2001	*2003*	*2005*	*2006*	*2007*
Lone mothers	17.2	16.5	16.6	13.3	10.8
Partnered mothers	13.7	9.6	9.1	9.0	7.7
Lone fathers	11.9	*6.6	*8.6	*11.3	*5.2
Partnered fathers	7.6	4.8	4.3	3.8	4.0
Total	11.5	8.2	8.0	7.4	6.4

Notes: Population weighted results. * Estimate not reliable.

Only 5 per cent of parents with one child under the age of 18 in 2007 reported high levels of parenting stress, compared to 6 per cent of parents with two children under the age of 18 and 8 per cent of parents with three or more children under 18.[1] Table 3.4 shows the correlation between parenting stress and the age of the youngest child, as well as the correlations between parenting stress and the number of children aged five and under, and the number of children under 18.

Table 3.4 shows that overall there is a weak negative correlation between parenting stress and the age of the youngest child. In other words, as the age of the youngest child increases, parenting stress decreases slightly. On the other hand, there is a weak positive correlation between levels of parenting stress and the number of children under the age of 18, particularly for partnered mothers; that is, with each additional child under the age of 18, parenting stress increases slightly. Parenting stress also increases slightly with the number of children aged five or younger. Looking at correlations separately for lone parents and partnered parents, only the correlations for partnered parents appear to be significant, the one exception being for lone mothers in respect of number of children under 18. However, this is likely to be because of the relatively small number of lone parents, particularly lone fathers.

Table 3.3: Proportion reporting high levels of parenting stress by number of children, 2007 (%)

	Number of children under 6	*Number of children under 18*
0	6.6	–
1	5.3	5.4
2	6.8	6.2
3 or more	*13.6	8.2

Notes: Population weighted results. * Estimate not reliable.

Work–family stress

Parents in paid work are also asked how strongly they agree or disagree with statements relating to *work–family stress*. Table 3.5 compares the average responses to the questions about work–family stress in 2007 for lone parents and parents who have a spouse or partner, according to whether they work full-time or part-time.[2]

Lone mothers who are working full-time have the highest levels of work–family stress. On the other hand, partnered fathers working part-time have the lowest average work–family stress levels. It is slightly

Table 3.4: Parenting stress by age of youngest child and number of children—Correlations by sex and marital status, 2007

	Age of youngest child	*Number of children under 6*	*Number of children under 18*
Lone mothers	–0.028+	0.020+	0.091
Partnered mothers	–0.099	0.099	0.115
Lone fathers	–0.094+	0.064+	0.018+
Partnered fathers	–0.072	0.075	0.074
Total	–0.072	0.073	0.092

Note: + Indicates correlation is not significantly different from zero at the 10% level.

Table 3.5: Work–family stress, 2007 (means)

	Because of my family responsibilities, I have to turn down work activities or opportunities that I would prefer to take on	*Because of my family responsibilities, the time I spend working is less enjoyable and more pressured*	*Because of the requirements of my job, I miss out on home or family activities that I would prefer to participate in*	*Because of the requirements of my job, my family time is less enjoyable and more pressured*	*Overall work–family stress*
Employed full-time					
Lone mothers	3.7	3.3	4.5	3.6	3.9
Partnered mothers	3.3	3.3	4.0	3.3	3.6
Lone fathers	3.5	3.1	4.1	3.2	3.6
Partnered fathers	3.1	3.2	4.2	3.2	3.5
Employed part-time					
Lone mothers	3.7	3.2	3.8	3.2	3.6
Partnered mothers	3.3	3.2	3.4	3.0	3.3
Lone fathers	*3.9	*3.3	*2.9	*2.1	*3.1
Partnered fathers	3.0	3.1	3.4	2.6	3.1
Total	3.2	3.2	4.0	3.2	3.5

Notes: Population weighted results. The response scale runs from 1 (strongly disagree) to 7 (strongly agree). * Estimate not reliable.

more common for lone mothers, working either full-time or part-time, to say that they have turned down work opportunities because of family responsibilities, and that that family time is less enjoyable and more pressured because of their work requirements. Compared to parents who work part-time, it is more common for parents who are in full-time work to say that they miss out on family activities because of the requirements of their job. Patterns of associations between work–family stress and number and age of children were similar to the patterns in parenting stress reported in Table 3.4. However, the slight positive correlation between work–family stress and the number of children under the age of six is only significant for coupled men working full-time.[3]

Looking at average levels of work–family stress does not reveal much variation between the stress levels of parents who work full-time or part-time, or differences between men and women. Table 3.6 shows the proportion of parents who reported high levels of work–family stress—6 or 7 out of 7—between 2001 and 2007.

Overall, levels of work–family stress have dropped slightly since 2001. Among partnered parents, particularly mothers, it was more common for those who work full-time to report high levels of stress than parents who work part-time. In 2007, 9 per cent of partnered mothers who worked full-time reported high levels of work–family stress, compared to 5 per cent of partnered mothers who were working part-time.

Persistence of family related stress, 2002 to 2007

In previous HILDA Statistical Reports, it was found that while some parents manage to reduce their parenting stress, for others the problem persists for a fairly long time. For example, 25 per cent of men and 30 per cent of women who had high parenting stress in 2001 still had high levels in 2006. Tables 3.7 and 3.8 compare the levels of parenting

Table 3.6: Proportion of parents with high levels of work–family stress by sex, marital status and working hours (%)

	2001	*2003*	*2005*	*2006*	*2007*
Employed full-time					
Lone mothers	*11.0	*14.6	*16.0	*10.9	*7.8
Partnered mothers	9.7	9.6	8.3	10.5	8.7
Lone fathers	*8.1	*7.5	*12.6	*6.0	*3.0
Partnered fathers	6.7	5.5	6.8	6.5	5.4
Employed part-time					
Lone mothers	*7.9	*7.3	*7.8	*8.7	*6.9
Partnered mothers	5.1	4.9	3.4	5.0	7.1
Lone fathers	*10.7	*0.0	*10.8	*0.0	*5.3
Partnered fathers	*10.1	*5.7	*6.8	*1.2	*0.8
All employed					
Lone mothers	9.8	10.8	11.4	10.1	*7.2
Partnered mothers	7.1	6.8	5.4	7.3	7.3
Lone fathers	*8.8	*5.9	*11.9	*5.1	*3.9
Partnered fathers	7.3	5.5	6.7	6.3	5.2
Total	7.5	6.4	6.8	6.9	6.1

Notes: Population weighted results. The response scale runs from 1 (strongly disagree) to 7 (strongly agree). * Estimate not reliable.

Table 3.7: Persistence of parenting stress, 2006–2007 (%)

	Parenting stress in 2006			
Parenting stress in 2006	*Low (1–2)*	*Medium (3–5)*	*High (6–7)*	*Total*
Males				
Low (1–2)	58.6	41.2	*0.2	100.0
Medium (3–5)	18.7	78.4	2.9	100.0
High (6–7)	*4.6	64.5	30.9	100.0
Total	28.2	68.4	3.4	100.0
Females				
Low (1–2)	64.9	34.2	*0.9	100.0
Medium (3–5)	14.0	80.8	5.2	100.0
High (6–7)	*2.9	55.5	41.5	100.0
Total	22.3	69.9	7.8	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

stress and work–family stress in 2006 and 2007 for persons who had parenting responsibilities in both years.

Of those parents who reported high levels of parenting stress in 2006, 31 per cent of fathers and 42 per cent of mothers also reported high parenting stress levels in 2007. This suggests that for mothers, parenting stress does persist for some time. Around 80 per cent of parents who reported medium levels of parenting stress—3 to 5 out of 7—in 2006 also reported medium levels in 2007, while 41 per cent of fathers and 34 per cent of mothers who reported low levels of parenting stress in 2006 had medium levels of stress by 2007.

In terms of work–family stress, more than half of the mothers who reported high levels of work–family stress in 2006 also had high levels of stress in 2007. However, of the fathers who reported high

Table 3.8: Persistence of work–family stress, 2006–2007 (%)

	Work–family stress in 2007			
Work–family stress in 2006	*Low (1–2)*	*Medium (3–5)*	*High (6–7)*	*Total*
Males				
Low (1–2)	56.4	43.6	*0.0	100.0
Medium (3–5)	11.6	83.4	5.0	100.0
High (6–7)	*9.2	65.9	24.9	100.0
Total	19.6	75.2	5.2	100.0
Females				
Low (1–2)	63.6	35.7	*0.7	100.0
Medium (3–5)	14.6	80.0	5.4	100.0
High (6–7)	*1.7	45.5	52.8	100.0
Total	25.7	66.4	7.9	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

Table 3.9: Persistence of parenting stress, 2002–2007 (%)

	Parenting stress in 2007			
Parenting stress in 2002	*Low (1–2)*	*Medium (3–5)*	*High (6–7)*	*Total*
Males				
Low (1–2)	56.7	41.5	*1.8	100.0
Medium (3–5)	20.4	76.2	3.5	100.0
High (6–7)	*4.2	71.1	*24.7	100.0
Total	27.4	68.6	3.9	100.0
Females				
Low (1–2)	58.4	40.6	*1.0	100.0
Medium (3–5)	17.0	76.0	6.9	100.0
High (6–7)	*2.5	62.3	35.1	100.0
Total	21.8	68.9	9.2	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

Table 3.10: Persistence of work–family stress, 2002–2007 (%)

	Work–family stress in 2007			
Work–family stress in 2002	*Low (1–2)*	*Medium (3–5)*	*High (6–7)*	*Total*
Males				
Low (1–2)	43.4	55.6	*1.0	100.0
Medium (3–5)	13.8	80.5	5.7	100.0
High (6–7)	*6.1	71.2	*22.7	100.0
Total	19.8	74.5	5.7	100.0
Females				
Low (1–2)	51.5	45.5	*3.0	100.0
Medium (3–5)	15.3	76.0	8.7	100.0
High (6–7)	*5.3	65.5	*29.2	100.0
Total	23.3	67.9	8.8	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

levels of work–family stress in 2006, only 25 per cent were still highly stressed in 2007. Just over 80 per cent of mothers and fathers who reported medium levels of work–family stress in 2006 still had medium levels of stress in 2007, while 36 per cent of mothers and 44 per cent of fathers whose work–family stress was low in 2006 had medium levels of stress in 2007.

Of course, the household situation may have changed during this time. Parents may have separated or had a new baby, causing higher levels of stress for one or both parents. On the other hand, the stress may have eased for parents whose children are now school age and more able to look after themselves. Parents' working hours may also have changed—increased work hours of either parent may increase levels of work–family stress, while reducing work hours may have the opposite effect.

Tables 3.7 and 3.8 show that it is more common for women than men to experience high levels of parenting stress and work–family stress that continue for at least one year, but Tables 3.9 and 3.10, which compare the levels of parenting stress and work–family stress over the five-year period from 2002 to 2007, show that most parents are able to reduce their stress in the longer term.

While very few parents who reported high levels of parenting stress in 2002 had reduced their stress levels to low by 2007, 71 per cent of men and 62 per cent of women who reported high levels of parenting stress in 2002 had medium levels of parenting stress in 2007. Just over three-quarters of parents who said their parenting stress was medium in 2002 reported medium levels in 2007, while 20 per cent of men and 17 per cent of women had gone from having medium levels of parenting stress in 2002 to low levels in 2007. Almost 60 per cent of the parents who reported low levels of parenting stress in 2002 also reported low levels in 2007, and while just over 40 per cent of this group reported medium levels of parenting stress in 2007, very few had gone from low levels of parenting stress in 2002 to high parenting stress in 2007.

Of those who reported high levels of work–family stress in 2002, few had been able to reduce their stress to low levels. However, 71 per cent of men and 66 per cent of women had lowered their level of work–family stress to a medium level. Over 80 per cent of fathers and 76 per cent of mothers who reported low levels of work–family stress in 2002 still had medium stress levels in 2007, while 14 per cent of fathers and 15 per cent of mothers had reduced their stress levels to low. As was the case with parenting stress, it was very uncommon for parents who reported low levels of work–family stress in 2002 to have high levels of stress in 2007. Just over half of the mothers whose level of work–family stress was low in 2002 also reported low levels of stress in 2007, while 56 per cent of fathers who reported low levels of work–family stress in 2002 had medium levels in 2007.

These results suggest that while many are able to reduce their levels of parenting stress and work–family stress to some extent, medium levels of stress seem to persist for several years, and high levels of parenting stress and work–family stress are more persistent for mothers than for fathers.

Endnotes

1 There are too few cases to break down these figures by sex and marital status, therefore correlations are shown.

2 As with the questions about parenting stress, the response scale runs from 1 (strongly disagree) to 7 (strongly agree).

3 Overall, there is a slight negative correlation (–0.037) between age of youngest child and work–family stress and a slight positive correlation (0.045) between work–family stress and the number of children under 18. There is only a slight positive correlation (0.049) between work–family stress and the number of children under six for coupled men working full-time, while all other groups have no significant correlation.

4. Child care: Issues and persistence of problems

Issues related to child care have become more important over the last two decades. Changes in female employment patterns and changes in family structures—a growing number of lone-parent families—have created a growing need for child care that is both accessible and affordable.

Table 4.1 shows the proportion of households with children under 15, as well as the proportion of households who had used, or had considered using, child care in the 12 months prior to their interview for the five years from 2002 to 2007.[1] Work-related child care is more common than non-work-related child care. In 2007, 43 per cent of households with children under 15 regularly used work-related child care, and 23 per cent used child care while the parents did non-work activities (including study).

In all six years, approximately 28 per cent of households had at least one child under the age of 15 living in the household. In those households with children under 15, approximately half had either used or considered using child care. The proportion of households who used some type of child care while the parents were at work increased from 40 per cent of households in 2002 to 45 per cent in 2006, then declined slightly to 43 per cent in 2007. In contrast, the proportion of households with children under the age of 15 who used child care while the parents were not at work declined slightly, from 26 per cent of households in 2002 to 23 per cent of households in 2007.

Child care in 2007

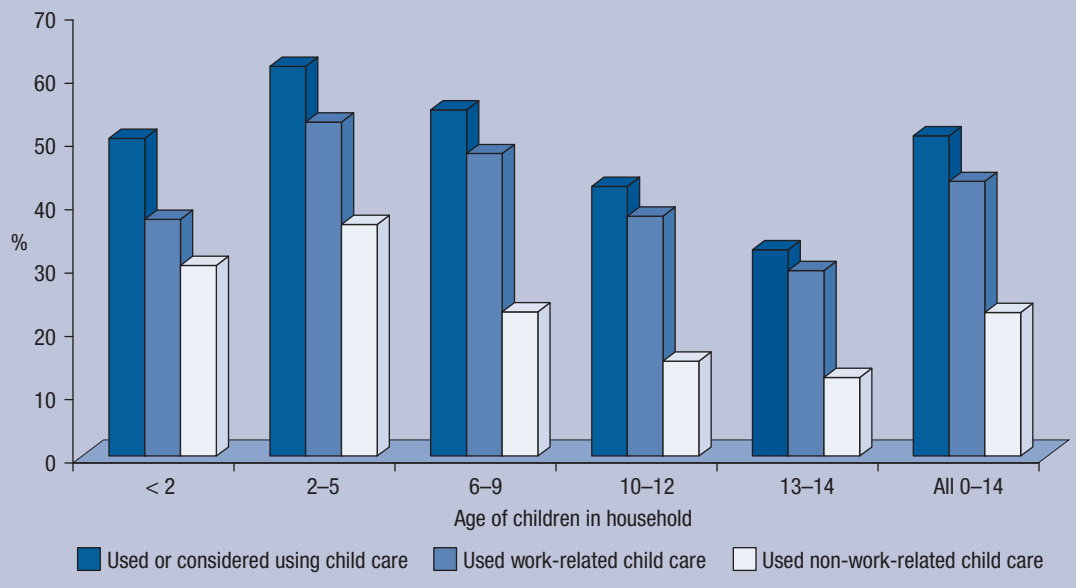
In previous volumes of the HILDA Statistical Report, it was found that use of child care is most common in households with children aged between two and five years. Figure 4.1 shows the proportion of households with children under the age of 15 who used child care in 2007, broken down by the age of the children in the household.

Table 4.1: Child care use (%)

	2002	*2003*	*2004*	*2005*	*2006*	*2007*
Proportion of households with children under 15	28.6	28.5	28.3	28.0	27.6	27.4
Of those with children under 15…						
Proportion who used or considered using child care in the past 12 months	49.5	49.6	49.0	49.2	51.2	50.6
Proportion who used work-related child care in the past 12 months	40.3	40.8	42.2	41.2	44.9	43.4
Proportion who used non-work-related child care in the past 12 months	26.3	26.4	26.5	24.3	23.2	22.7

Note: Population weighted results.

Figure 4.1: Child care use, by age of children, 2007 (%)



Note: Population weighted results.

In 2007, more than half of the parents in households where at least one child was under 10 years of age had used or considered using some form of child care, compared to 43 per cent of households with children aged between 10 and 12 and 33 per cent of households with children aged between 13 and 14.[2] As in previous years, use of both work-related and non-work-related child care was most common in households with at least one child between the ages of two and five.

Work-related child care is more commonly used than non-work-related child care, regardless of the age of the children, with 53 per cent of households with children aged between two and five, 48 per cent of households with children aged between six and nine, 38 per cent of households with children aged between 10 and 12, 37 per cent of households with children under the age of two and 29 per cent of households with children aged between 13 and 14, using child care while one or both of the parents were at work. It is also evident that, compared to school-aged children, non-employment-related child care is a lot more common for children who are not yet old enough to go to school. Only 15 per cent of households with children aged between 10 and 12 and 12 per cent of households with children aged between 13 and 14 reported using non-work-related child care in the last 12 months, compared to 23 per cent of households with children aged between six and nine, 37 per cent of households with children aged between two and five and 30 per cent of households with children below the age of two.

Work-related child care

Table 4.2 describes the types of child care used, and the average number of hours spent per week in each type of child care for school-aged children and children who are not yet at school in households where work-related child care was used.[3]

Of those households where child care was used for school-aged children while the parents were at work, 62 per cent used informal child care only, 24 per cent only used formal child care and 15 per cent used a combination of formal and informal child care. Overall, just over 75 per cent of households who used work-related child care for their school-aged children used informal child care, and almost 40 per cent used some type of formal child care. School-aged children spent an average of 8.6 hours a week in child care while their parents were at work. In terms of informal care, grandparents (either resident or non-resident) were the most common providers of child care. School-aged

Table 4.2: Work-related child care, 2007 (households where child care is used while parents are at work)

	Children not yet at school		*School-aged children*	
Type of child care	*Proportion of households that used this type of child care (%)*	*Average number of hours per child per week*	*Proportion of households that used this type of child care (%)*	*Average number of hours per child per week*
Informal child care				
The child's brother or sister	*0.7	*5.2	19.8	5.0
Child looks after self[a]	–	–	19.2	4.3
Child comes to my (or my partner's) workplace	–	–	*3.8	*3.9
Child's grandparent who lives with us	*3.0	*20.8	*3.9	*11.2
Child's grandparent who lives elsewhere	36.7	11.7	28.2	6.4
Other relative who lives with us	*0.5	12.0	*0.2	*4.0
Other relative who lives elsewhere	9.3	11.1	13.3	6.1
A friend or neighbour coming to our home	*2.9	*5.2	*5.3	*4.3
A friend or neighbour in their home	*5.0	6.9	13.6	3.7
Child's other parent not living in household	*0.0	–	*0.4	–
Total—informal child care	51.4	12.7	76.0	7.5
Formal child care				
Formal outside of school hours care	–	–	30.0	6.9
A paid sitter or nanny	6.7	16.3	5.0	8.8
Family day care	22.1	18.1	4.4	9.7
Long day care centre at workplace	10.0	23.3	–	–
Private or community long day care centre	34.0	21.1	–	–
Kindergarten or preschool	14.4	12.6	–	–
Total—formal child care	76.6	21.4	38.5	7.5
Total—formal and/or informal child care	100.0	22.9	100.0	8.6

Notes: Population weighted results. Multiple response question; columns do not add to 100. Respondents are asked the usual number of hours each child spends in each type of child care in a week while parents are working. Hours were not asked for care by child's other parent not living in household. * Estimate not reliable. [a] Note that 99% of households in which the child looked after themselves had at least one child aged between 10 and 14.

children look after themselves while their parents are at work in 19 per cent of households, 20 per cent are cared for by an older brother or sister, 13 per cent are looked after by another non-resident relative and 14 per cent go to a friend or neighbour's home. The most common type of formal work-related child care used for school-aged children is formal outside of school hours care, which was used by 30 per cent of households where child care was used for school-aged children. Other types of formal child care, such as family day care or a paid sitter or nanny, are quite uncommon.

Compared to school-aged children, child care arrangements for children who are not yet old enough to attend school are quite different. It is much more common for children who are not of school age to be in formal child care. Of those households where work-related child care is used for children who are not old enough to go to school, 49 per cent only used formal child care, 23 per cent only used informal child care and 28 per cent used a combination of formal and informal care.

In 2007, children who were not yet school age who were in child care while their parents were working spent an average of 23 hours per week in child care. The likely explanation for the difference in hours of child care used for younger children and school-aged children is that children who are not yet school age need extra child care for the hours when the school-aged children are in school, and it is also quite common for parents to change their working hours when the youngest child starts school. For children who are not old enough to go to school, the most common type of informal child care arrangement is being cared for by a non-resident grandparent, with 37 per cent of children who have not yet started school being cared for by a grandparent while their parents are at work.[4] The most common form of formal child care for children who are not of school age is a private or community long day care centre, with 34 per cent attending this type of child care while their parents are at work.

Non-employment-related child care

In 2007, non-employment-related child care—child care used while parents were not at work—was less common than work-related child care, particularly for school-aged children. Table 4.3 shows the types of non-work-related child care used for children who have not yet started school and school-aged children, and the average number of hours children spent in non-employment-related child care in a usual week.

Of those households where non-employment-related child care was used for school-aged children, 83 per cent used informal care only, 14 per cent only used formal child care, and 4 per cent used a combination of formal and informal care. Like work-related child care, the majority of non-work-related child care used for school-aged children was informal, and children were most commonly cared for by a grandparent. The average amount of informal non-work-related child care for school-aged children was 6.8 hours per week, slightly lower than the average amount of time school-aged

Table 4.3: Non-work-related child care, 2007 (households where child care is used while parents are not at work)

	Children not yet at school		*School-aged children*	
Type of child care	*Proportion of households that used this type of child care (%)*	*Average number of hours per child per week*	*Proportion of households that used this type of child care (%)*	*Average number of hours per child per week*
Informal child care				
The child's brother or sister	*4.3	*4.7	26.5	5.4
Child's grandparent who lives with us	*3.3	*4.6	*3.3	*4.0
Child's grandparent who lives elsewhere	34.9	6.9	30.6	5.8
Other relative who lives with us	*2.6	*5.0	*1.2	*1.6
Other relative who lives elsewhere	19.5	6.7	25.1	7.4
A friend or neighbour coming to our home	*5.4	*6.8	*4.7	*2.3
A friend or neighbour in their home	*6.4	*2.3	17.1	3.8
Total—informal child care	63.5	7.4	86.4	6.8
Formal child care				
A paid sitter or nanny	*5.0	*3.0	*7.9	*2.7
Family day care	20.1	15.9	*2.1	*5.9
Private or community long day care centre	16.6	10.9	*1.3	*36.0
Kindergarten or preschool	12.2	10.9	–	–
Formal outside of school hours care	–	–	*6.9	*7.4
Total—formal child care	48.4	13.4	17.5	7.5
Total—formal and/or informal child care	100.0	11.1	100.0	7.2

Notes: Population weighted results. Multiple response question. Columns do not add to 100. * Estimate not reliable.

children spent in informal child care while their parents were at work (7.5 hours per week).

In 2007, 64 per cent of households where child care was used for children who were not of school age while the parents were not at work used some type of informal child care, and almost 50 per cent used some type of formal child care. The most common type of child care used for children who had not yet stated school while parents were undertaking non-work activities was a non-resident grandparent, with 35 per cent of households who used non-work-related child care using this option. The number of hours that children who were not yet in school spend in non-work-related child care varies significantly between formal and informal child care types. The average time spent in informal child care was 7.4 hours per week, but those who spent time in formal child care spent an average of 13.4 hours per week in non-work-related child care.

Overall, Tables 4.2 and 4.3 show that, for both work-related and non-work-related child care, it is more common for younger children to be in formal child care such as family day care or a private or community long day care centre, while informal care is more commonly used for school-aged children.

Difficulties with child care

Each year, parents in households that had used or considered using child care are asked about the difficulties they have encountered. They are asked to rate the level of difficulty they have with various aspects of child care on a scale from 0 to 10, with 0 being 'no problem at all' and 10 being 'very much a problem'. Table 4.4 shows the proportion of couple and lone-parent households in each year who reported difficulties (gave a rating of 8 or more) with each of these aspects of child care.

The most common problem encountered is finding care for a sick child, with 19 per cent of couple households and almost 30 per cent of lone-parent households reporting this difficulty in 2007. Apart from problems such as the lack of care available for sick children and the exclusion of sick children from child care, this type of child care would have to be arranged at very short notice, so in that sense would be more difficult than problems that can be sorted out over time. Finding care for a sick child at short notice is more of a problem for lone-parent households than couple households, possibly because lone parents do not have a resident partner to rely on in these emergencies, although other factors may also be important, such as having lower incomes and less

Table 4.4: Households experiencing difficulties with child care (%)

	2001	*2003*	*2005*	*2006*	*2007*
Couple households					
Finding good quality child care	14.1	15.6	16.0	10.2	10.6
Finding the right person to take care of your child	16.3	14.9	14.6	14.0	13.1
Getting care for the hours you need	16.1	16.9	16.7	11.6	11.5
Finding care for a sick child	28.7	27.6	23.7	23.8	19.4
Finding care during school holidays	11.7	12.4	8.9	9.1	9.7
The cost of child care	22.4	21.4	23.2	20.1	17.9
Juggling multiple child care arrangements	12.2	12.4	8.0	5.7	7.0
Finding care for a difficult or special needs child	5.6	*10.6	*2.0	*1.5	*1.4
Finding a place at the child care centre of your choice	17.2	21.7	14.9	10.8	10.0
Finding a child care centre in the right location	14.0	18.4	11.2	8.8	9.2
Finding care your child/children are happy with	9.0	9.7	9.7	8.8	8.0
Any of the above	48.2	47.1	48.1	44.3	40.2
Lone parent households					
Finding good quality child care	18.8	14.8	15.1	13.5	*10.5
Finding the right person to take care of your child	19.3	19.4	20.4	17.8	*8.6
Getting care for the hours you need	24.1	22.7	22.0	19.7	*12.2
Finding care for a sick child	41.9	39.1	36.8	40.2	29.8
Finding care during school holidays	20.6	19.0	18.2	16.1	18.4
The cost of child care	23.3	18.8	25.2	21.7	19.8
Juggling multiple child care arrangements	19.7	16.3	15.4	9.9	*7.8
Finding care for a difficult or special needs child	20.2	*32.8	*6.5	*5.3	*3.7
Finding a place at the child care centre of your choice	20.0	20.3	14.8	18.4	*9.3
Finding a child care centre in the right location	16.1	17.6	11.9	13.4	*9.6
Finding care your child/children are happy with	16.4	16.2	13.5	17.8	*10.5
Any of the above	60.8	54.3	61.7	54.7	48.6

Notes: Population weighted results. * Estimate not reliable.

Table 4.5: Persistence of child care difficulties (households), 2005–2007 (%)

	Years where difficulty was 8+ (0–10 scale)				
	0	*1*	*2*	*3*	*Total*
Finding good quality child care	72.7	21.6	5.4	*0.3	100.0
Finding the right person to take care of your child	71.8	19.2	5.7	*3.3	100.0
Getting care for the hours you need	89.0	11.0	*0.0	*0.0	100.0
Finding care for a sick child	52.3	24.6	13.2	9.9	100.0
Finding care during school holidays	78.2	16.4	*3.5	*1.9	100.0
The cost of child care	60.0	22.2	12.7	5.1	100.0
Juggling multiple child care arrangements	65.5	22.2	10.5	*1.8	100.0
Finding care for a difficult or special needs child	96.8	*1.2	*1.0	*0.9	100.0
Finding a place at the child care centre of your choice	73.4	17.6	5.9	*3.1	100.0
Finding a child care centre in the right location	78.6	13.9	5.2	*2.3	100.0
Finding care your child/children are happy with	77.9	16.6	3.9	*1.7	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

flexible work arrangements. It is also quite common for parents to report difficulties with the cost of child care, with around 20 per cent of households reporting this problem in any year.

How persistent are problems with child care?

In previous HILDA Statistical Reports, it was found that difficulties with child care usually did not persist for more than one year. The only problem that was likely to persist for several years was finding care for a sick child. Table 4.5 shows the number of years child care problems persisted for households who had used, or considered using, child care in each of the three years from 2005 to 2007.[5]

Problems with child care availability, such as finding good quality child care and finding the right person to take care of a child and finding a place at the child care centre of their choice, generally only last for one or two years. Around 20 per cent of households reported these problems in one of the three years, and fewer than 10 per cent had these difficulties in two out of three years. However, it is possible that some parents overcame child care availability problems by reducing their working hours, or that with time, they simply adapted and became more satisfied without any change in their circumstances.[6]

Finding care for a sick child was still the most persistent problem—48 per cent of households reported difficulties finding care for a sick child in at least one of the three years, 25 per cent had difficulties finding care for a sick child in only one of the three years, 13 per cent reported problems in two of the three years and 10 per cent had difficulties finding care for a sick child in all three years. This persistence likely reflects the intransigent nature of the problem: child sickness often arises with little or no notice and requires parents to find alternative care arrangements. So, while finding care for sick children is quite likely to be an infrequent problem, it is the one that proves to be the most difficult to deal with.

Problems with the cost of child care were also somewhat persistent—5 per cent of households who used child care said this was a problem all three years, 13 per cent had problems with the cost of child care in two of the three years and 22 per cent reported problems with child care costs in one out of the three years.[7] Apart from difficulties with the cost of child care and problems finding care for a sick child, most other child care problems appear to persist for only one or two years at the most.

Endnotes

1 In 2001, the format of the child care questions was different to that from 2002 onwards.

2 Work-related child care is care provided only while the parent (and their partner) is at work and does not include time taken to do study or other training. Child care used while the parents are engaged in study or other training activities is considered non-work-related child care. For school-aged children, the figures in Table 4.2 refer to child care used during the school term.

3 The person who answers the child care questions is asked whether there are any children in the household aged 14 or less who attend school. If yes, the respondent is then asked specific questions about child care for their school-aged children. The respondent is then asked if there are any children who are not yet at school and if so, a separate set of questions is asked about these children.

4 Using the *Growing Up in Australia*: The Longitudinal Study of Australian Children study, Gray and Sanson (2005) found that, in 2004, 18 per cent of infants (defined as under three) were regularly cared for by grandparents, typically one or two days a week, averaging 12 hours a week.

5 Given that child care needs change as children grow from babies, to toddlers, pre-school age and then school age and high school age, it is not sensible to restrict the sample only to households where child care was used in all seven years from 2001 to 2007. Therefore, for the purpose of looking at persistence of child care difficulties, only those households where child care had been used or considered in each of the three years from 2005

to 2007 have been included. Also note that there were too few cases to separate the table into couple households and lone parent households and still obtain statistically reliable estimates.

6 Using the HILDA Survey data, McNamara et al. (2005) found that compared to mothers who did not have difficulties with child care in 2002, it was more common for mothers who had reported problems with child care in 2002 to have reduced their working hours by 2003 or moved their children to informal child care. The HILDA Survey data show that of those mothers who were not working at the time of interview, but said they would like to work, the main reason for not looking for work is that they prefer to look after their children.

7 Possible reasons for relatively few households experiencing persistent difficulties with child care costs are that the cost of child care tends to decrease as children become older and they can look after themselves and/or their younger siblings.

References

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McNamara, J., Cassells, R. and Lloyd, R. (2005) 'Persistence of Problems with Child Care: Evidence from the HILDA Survey'. Paper presented at the HILDA Survey Research Conference, University of Melbourne, 29–30 September, <http://www.melbourneinstitute.com/hilda/conf/conf2005/confpapers/Session%204B_Families/McNamara_Justine.pdf>.

5. Life events in the past 12 months

Specific events in life can have a substantial impact on an individual's wellbeing. For example, positive events such as getting married or getting promoted at work are likely to cause an increase in life satisfaction, at least for a reasonable amount of time. On the other hand, negative events such as being the victim of physical violence, are very likely to have a negative effect on both physical and mental wellbeing.

A series of questions about life events was introduced into the HILDA Survey in 2002. Respondents were asked whether they had experienced events such as getting married, the birth of a child, the death of a family member or close friend, or being the victim of physical violence or property crime in the 12 months prior to their interview. Table 5.1 gives an overview of the occurrence of particular life events in each year from 2002 to 2007.

Table 5.1: Life events (%)

	2002	*2003*	*2004*	*2005*	*2006*	*2007*
Got married	2.5	2.4	2.8	3.3	2.5	2.4
Separated from spouse or long-term partner	4.3	4.2	3.9	3.8	3.6	3.5
Got back together with spouse or long-term partner after a separation	1.3	1.0	0.9	1.0	1.0	1.0
Pregnancy or pregnancy of partner	5.2	4.8	4.4	5.1	4.8	4.8
Birth or adoption of new child	3.3	3.5	3.1	3.2	3.3	3.3
Serious personal injury or illness to self	8.3	9.3	8.5	8.6	8.8	7.7
Serious injury or illness to a close relative or family member	17.3	18.0	16.4	16.6	16.1	14.4
Death of spouse or child	1.0	0.9	1.1	0.9	0.8	0.8
Death of other close relative or family member	11.5	10.9	11.5	12.3	10.4	10.7
Death of a close friend	11.2	11.1	11.3	10.4	11.1	10.3
Victim of physical violence	2.0	1.9	1.5	1.5	1.5	1.4
Victim of a property crime	6.9	6.2	5.3	4.2	4.9	3.5
Detained in jail	0.2	0.2	0.2	0.2	0.2	0.2
Close family member detained in jail	1.0	1.1	1.3	1.3	1.4	1.5
Retired from the workforce	2.8	2.9	2.4	2.0	2.5	2.5
Fired or made redundant by employer	3.5	3.1	2.6	2.6	2.7	2.8
Changed jobs	12.6	12.9	12.9	13.5	13.5	14.0
Promoted at work	6.0	6.3	6.3	6.5	6.3	6.7
Major improvement in financial situation (e.g. won lottery, received an inheritance)	3.3	3.1	3.1	2.9	2.8	3.1
Major worsening in finances (e.g. went bankrupt)	3.3	3.3	2.5	2.8	2.6	2.2
Changed residence	15.0	15.1	14.1	13.9	13.6	13.5

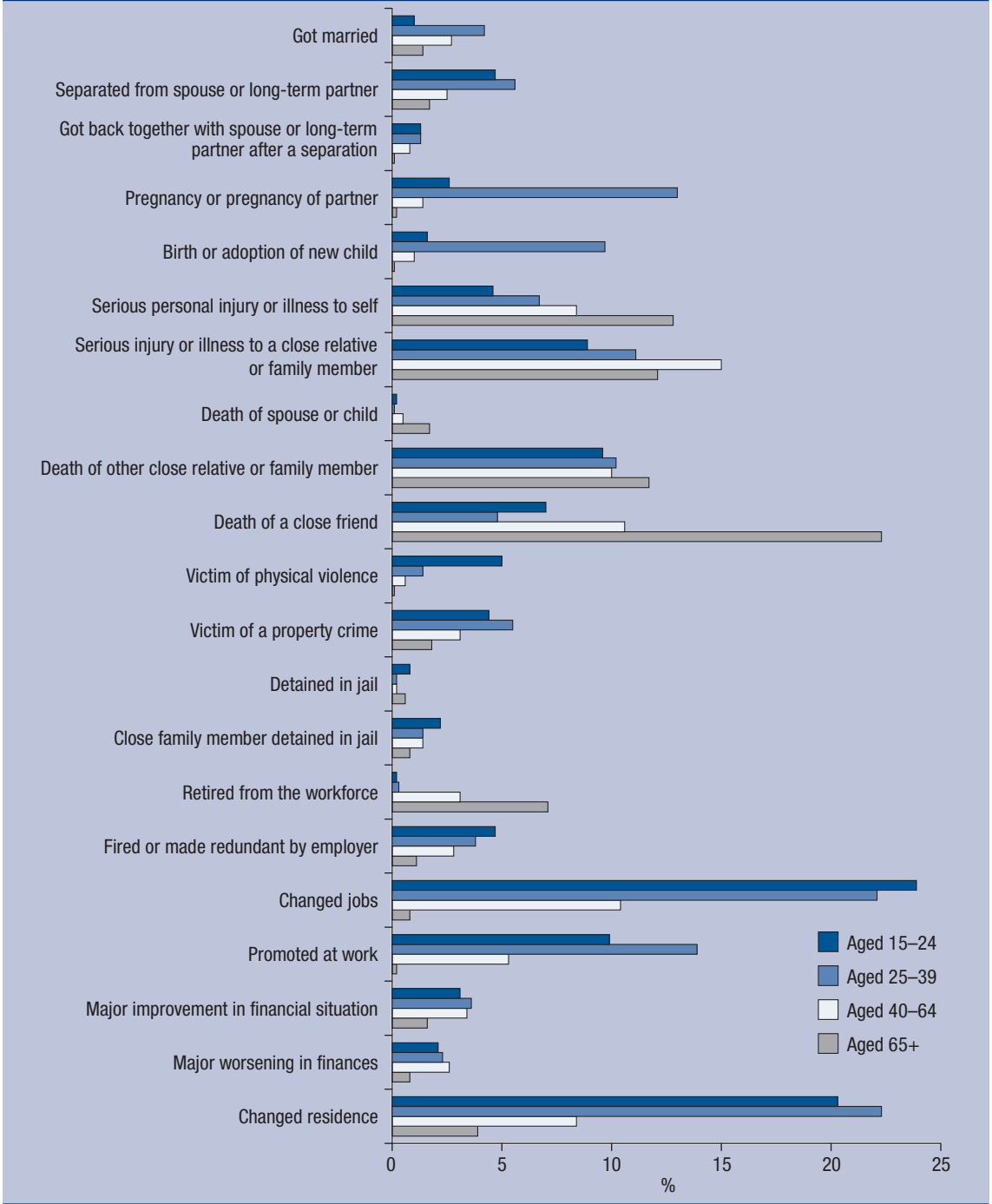
Note: Population weighted results.

The most common life event, experienced each year by between 14 per cent and 18 per cent of Australians aged 15 and over, is serious injury or illness of a close relative or family member, while around 8 per cent had a serious injury or illness themselves. Changing jobs is the next most common life event, followed by moving house. Other relatively common events, experienced by at least 5 per cent of people each year, include death of a close relative or family member—not including their spouse or children—death of a close friend and promotion at work.

Life events, by age and sex

Of course, certain life events are more likely to happen to people of a particular age, sex or living in a certain area. For example, males are much more likely than females to have been detained in a jail, and the likelihood of retiring from the workforce increases with age.[1] Figures 5.1 and 5.2 show the proportion of individuals who experienced specific life events in 2007, broken down by broad age groups.

Figure 5.1: Percentage of males experiencing each major life event by age group, 2007

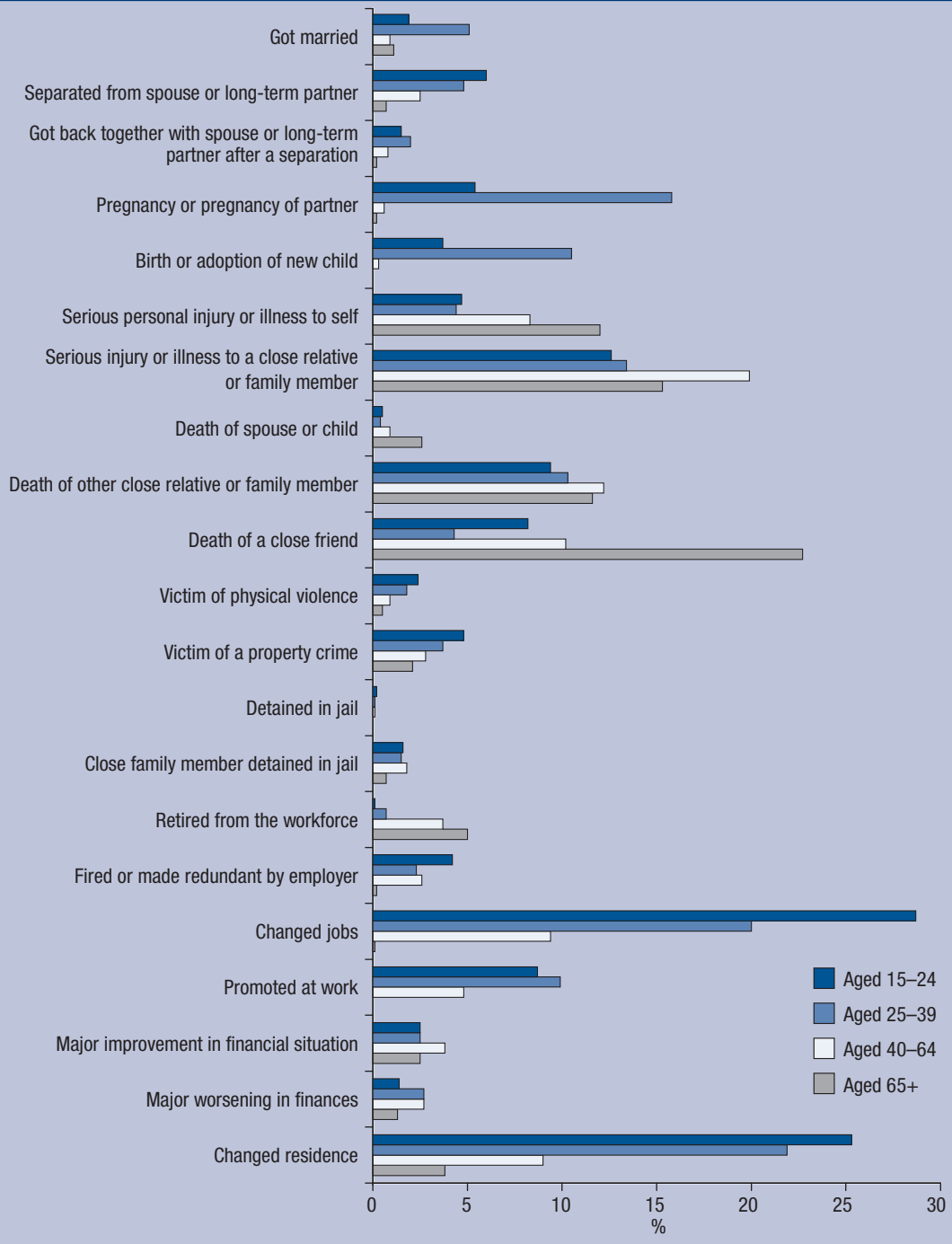


Note: Population weighted results.

As one would expect, marriage is more common among males in the 25–39 years age range than among males in the other age groups. However, males under 25 are almost as likely as males aged between 25 and 39 to experience separation from a spouse or partner—although typically they are not married to the partner from whom they separate. In 2007, 13 per cent of males aged between 25 and 39 had experienced the pregnancy of a partner and 10 per cent of males in this age group either had a partner who had given birth to a new baby, or adopted a child. Moving house is most common for males aged between 25 and 39, with 22 per cent of males in this age group changing residence at least once in the 12 months prior to their 2007 interview, compared to 20 per cent of males under the age of 25, 8 per cent of males aged between 40 and 64 and only 4 per cent of males aged 65 or older.

The proportion of males experiencing a serious personal injury or illness in the past 12 months

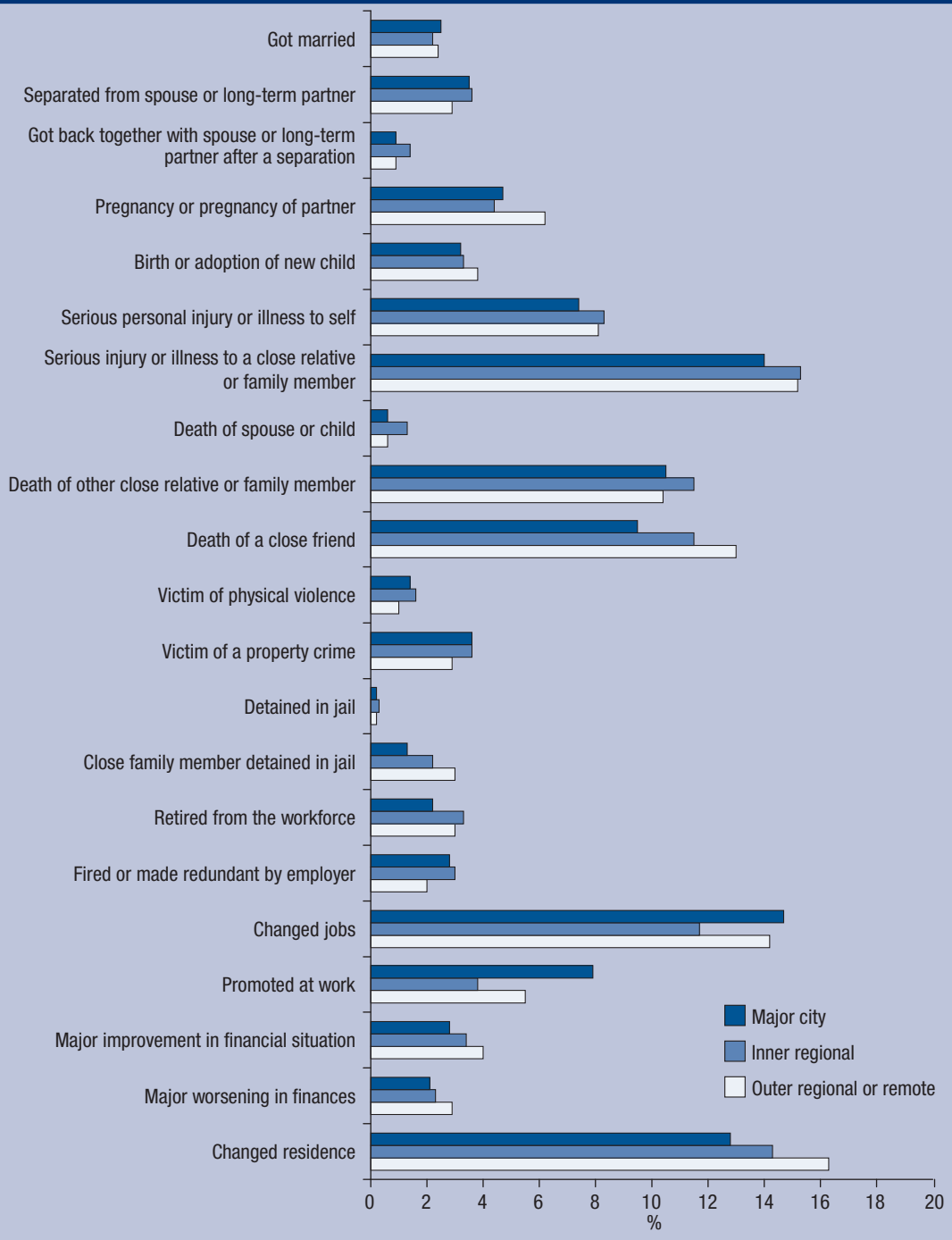
Figure 5.2: Percentage of females experiencing each major life event by age group, 2007



Note: Population weighted results.

increases with age, as does the proportion who experienced the death of a close friend. The one exception here is that of males aged between 15 and 24, for whom it was more common to have experienced the death of a close friend than it was for men in the 25–39 age group. Having been the victim of property crime is most common among males in the 25–39 age group, while being the victim of physical violence is most common among younger males, with 5 per cent of males aged under 25 reporting having been the victim of physical violence in the 12 months prior to their 2007 interview. As expected, retirement is quite uncommon among males under the age of 40, but 3 per cent of males aged between 40 and 64 and 7 per cent of males aged 65 or older had retired in the 12 months prior to their 2007 interview. Changing jobs, being fired or being made redundant is more common for males under the age of 25 than for older males, while males in the 25–39 age group are the most likely to report being promoted at work.

Figure 5.3: Percentage of persons experiencing each major life event by region of residence, 2007



Note: Population weighted results.

As is the case for males, getting married is most common for females aged between 25 and 39. Separating from a spouse or partner is most common for females under the age of 25. In 2007, 5 per cent of females under the age of 25 and 16 per cent of females aged between 25 and 39 had been pregnant, and 4 per cent of females under 25 and 11 per cent of females between the ages of 25 and 39 had either given birth to a baby or adopted a child. The proportion of females who had moved house at least once in the 12 months prior to their 2007 HILDA Survey interview was highest for females under the age of 25: 23 per cent, compared to 22 per cent of females aged between 25 and 39, 9 per cent of females aged between 40 and 64 and only 4 per cent of females who were 65 or older.

The proportion of females experiencing a serious illness or injury is lowest for females under the age of 40 and highest for females aged 65 or older, while the proportion of females who experienced the serious illness or injury of a close relative or family member was highest among those aged between 40 and 64. Having been the victim of property crime or physical violence is more common for younger females than for older females, with 2 per cent of females aged under 25 saying that they had been the victim of physical violence in the past 12 months, and 5 per cent of females in this age group saying they had been the victim of property crime.

Very few females under the age of 40 reported having retired from the workforce in the 12 months prior to their 2007 interview, while 4 per cent of females aged between 40 and 64 and 5 per cent of females aged 65 and over had recently retired. Having been fired or made redundant is most common among younger females, and it is also more common for younger females to have changed jobs. Females under the age of 40 were more likely than older women to have been promoted at work in the last 12 months, with 9 per cent of females under the age of 25 and 10 per cent of females aged between 25 and 39 reporting being promoted.

Region of residence

Figure 5.3 considers differences in experiences of major life events by region of residence—specifically, according to whether individuals live in a major city, an inner regional area, or an outer regional or remote area.[2] Overall, the figures indicate there are few differences in the incidence of specific life events by region of residence.

The main patterns evident in Figure 5.3 are that people living in the major cities are the least likely to move residence, but the most likely to be promoted at work, while people living in outer regional or remote areas are the most likely to move and least likely to be dismissed from their job and individuals living in inner regional areas are least likely to change jobs or to be promoted at work. People living in outer regional or remote areas are also slightly less likely to report being victims of property crime or physical violence and more likely to have been pregnant, or to have a partner who was pregnant, and experience the birth or adoption of a new child. Also notable is that people living in inner regional areas have higher rates of experience of death, serious injury or serious illness of a family member or other relative and are also more likely to report being victims of physical violence.

Endnotes

1 As of 30 June 2007, females accounted for 7 per cent of the total Australian prisoner population (ABS, 2007).

2 Area of residence is categorised using Accessibility/Remoteness Index of Australia (ARIA) regions. Note that under this classification, Hobart is 'inner regional' and Darwin is 'outer regional'. The other capital cities are major cities. Note that, since approximately 15 per cent of people had changed residence at least one during the period under consideration, some of these events may have happened while they were living in their previous residence, which may not be in the same region category as their current residence. For example, some people may have moved from a major city to an outer regional area in the past 12 months, and vice versa.

Reference

Australian Bureau of Statistics (2007) *Prisoners in Australia, 2007*, ABS Catalogue No. 4517.0, Canberra.

Incomes and Economic Wellbeing

Study of the distribution of incomes, and how incomes of individuals change over time, is integral to understanding the economic fortunes of the Australian population. As has been detailed in previous volumes of the HILDA Statistical Report, the HILDA Survey has the capability to provide more information on this key dimension of economic life in Australia than any other data source. The Survey attempts to gather detailed annual income information from each individual sample member, and attempts to do so every year, resulting in a comprehensive picture of individuals' and households' incomes over an increasingly long time frame.

This is not to argue that the HILDA Survey provides the best evidence about *current levels* and *recent trends* in incomes. The regular income surveys conducted by the Australian Bureau of Statistics include very detailed questions on individual and household incomes and also have very high response rates. For example, the percentage of households approached that responded in full or in part to the Survey of Income and Housing was 78 per cent in 2003–2004 and 81 per cent in 2005–2006 (ABS, 2007, 2009). As explained in the introduction to this report, the HILDA Survey has a slightly lower response rate and unavoidably suffers some respondent attrition. HILDA questions on income are much more detailed than in most academic surveys, but are less detailed than ABS questions. The small biases in HILDA Survey results on income, and the extent to which respondent attrition is related to income are analysed in Watson and Wooden (2004). Note that household incomes, as measured in the HILDA Survey, are somewhat higher on average than in ABS surveys, although it is not clear that HILDA is less accurate.

In addition to detailed income data, the HILDA Survey regularly collects other information relevant to assessments of economic wellbeing. A four-yearly collection of household wealth data has been in place since 2002, with data for 2002 and 2006 currently available and data for 2010 to become available in early 2012. Furthermore, information on the experience of financial stress and on the ability to raise $2,000 at short notice has been collected in the Self-Completion Questionnaire in every wave. An important recent development has been the availability of data on household expenditure. First collected in Wave 5 (2005), the expenditure information allows estimates of household consumption to be produced. As with income, the Australian Bureau of Statistics (ABS) collects more detailed expenditure data in its five-yearly Household Expenditure Survey than HILDA, but HILDA provides the only nationally representative longitudinal data on household expenditure in Australia.

References

Australian Bureau of Statistics (2007) *Household Expenditure Survey and Survey of Income and Housing: User Guide, Australia, 2003–04*, ABS Catalogue No. 6503.0, Canberra.

Australian Bureau of Statistics (2009) *Information Paper: Survey of Income and Housing, User Guide, Australia, 2007–08*, ABS Catalogue No. 6553.0, Canberra.

Watson, N. and Wooden, M. (2004) 'Assessing the Quality of the HILDA Survey Wave 2 Data', HILDA Project Technical Paper Series No. 5/04, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

6. Income levels and income mobility

Income levels and living standards

Mean and median household annual disposable incomes in each year of the HILDA Survey are presented in Table 6.1, adjusted for inflation using the Consumer Price Index to be expressed in December quarter 2007 prices. The household is the unit of observation, meaning that each household contributes one 'observation' to the calculation of the mean and the median.

Average household incomes have grown quite strongly for the in-scope population over the entire period spanned by the HILDA Survey, even after the effects of inflation are removed. Growth has been particularly strong since 2004, with mean household annual disposable income expressed at December 2007 prices increasing by approximately $8,200, or $2,700 per year, and the median increasing by $6,400. In the absence of substantial changes to household composition over the period—which the last two columns of Table 6.1 would indicate is the case—this translates to a significant increase in average material living standards.

The third column of Table 6.1 shows the estimated number of households in Australia in Wave 7 is 8.15 million. Multiplying this by the mean household income implies total household disposable income of approximately $540 billion in the 2006–07

Household income

The main household income measure examined in this report is 'real household annual disposable income'. Household annual disposable income is the combined income of all household members after receipt of government pensions and benefits and deduction of taxes in the financial year ended 30 June of the year of the wave (e.g. 2001 in Wave 1). This is then adjusted for inflation—the rise in the general price level in the economy—using the Australian Bureau of Statistics Consumer Price Index, so that income in all waves is expressed at December 2007 prices, to give *real* income. Since prices tend to rise over time, the income statistics we present for Waves 1–6 are higher than what would be obtained by using incomes actually reported by sample members.

Table 6.1: Household annual disposable incomes (December 2007 prices)

	Mean ($)	*Median ($)*	*Number of households*	*Number of persons*
2001	55,726	47,841	7,448,826	18,959,802
2002	56,263	48,640	7,574,053	19,174,252
2003	56,061	48,728	7,667,829	19,391,620
2004	58,062	50,335	7,770,840	19,616,812
2005	60,528	52,773	7,887,173	19,862,316
2006	63,241	54,662	8,021,839	20,120,618
2007	66,225	56,763	8,147,208	20,427,816

Note: Population weighted results.

financial year. Australian Bureau of Statistics national accounts data for this period put household disposable income at approximately $613 billion at December 2007 prices. The difference between the two data sources is to some extent accounted for by differences in the in-scope population. The HILDA figures relate to 20.4 million persons, whereas the total Australian population was 21.2 million at the time Wave 7 was conducted.[1]

Table 6.2 considers the distribution of household income, taking into account potential changes to household composition by examining 'equivalent' income per person. Equivalent income is obtained by dividing household disposable income by the Organisation for Economic Co-operation and Development (OECD) equivalence scale, which is equal to 1 plus 0.5 for each household member over 15 years of age, plus 0.3 for each child under 15. For example, income is divided by 1.5 for a couple with no children, by 1.8 for a couple with one child under 15 and by 2.1 for a couple with two children under 15.

As well as presenting estimates for equivalised income, Table 6.2 also differs from Table 6.1 by treating the individual as the unit of observation. Every person is assigned an income—the equivalised income of that person's household—and the distribution of incomes across all individuals is examined. Persons from the same household are assigned the same equivalent income, on the implicit assumption that income is equally shared among household members. The result is that a four person household contributes four observations, whereas a two person only contributes two observations. The rationale for this approach is that what matters for understanding the distribution of individuals' access to economic resources is not the distribution of income across households,

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

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

Table 6.2: Distribution of individuals' equivalised household disposable income (December 2007 prices)

	Mean ($)	*Median ($)*	*p90/p50*	*p50/p10*	*Gini coefficient*
2001	33,329	29,301	1.93	2.11	0.303
2002	33,764	29,893	1.91	2.10	0.302
2003	33,633	29,954	1.89	2.11	0.299
2004	34,926	31,496	1.83	2.11	0.292
2005	36,456	32,993	1.85	2.16	0.293
2006	38,164	34,011	1.88	2.11	0.294
2007	40,115	35,664	1.88	2.21	0.305

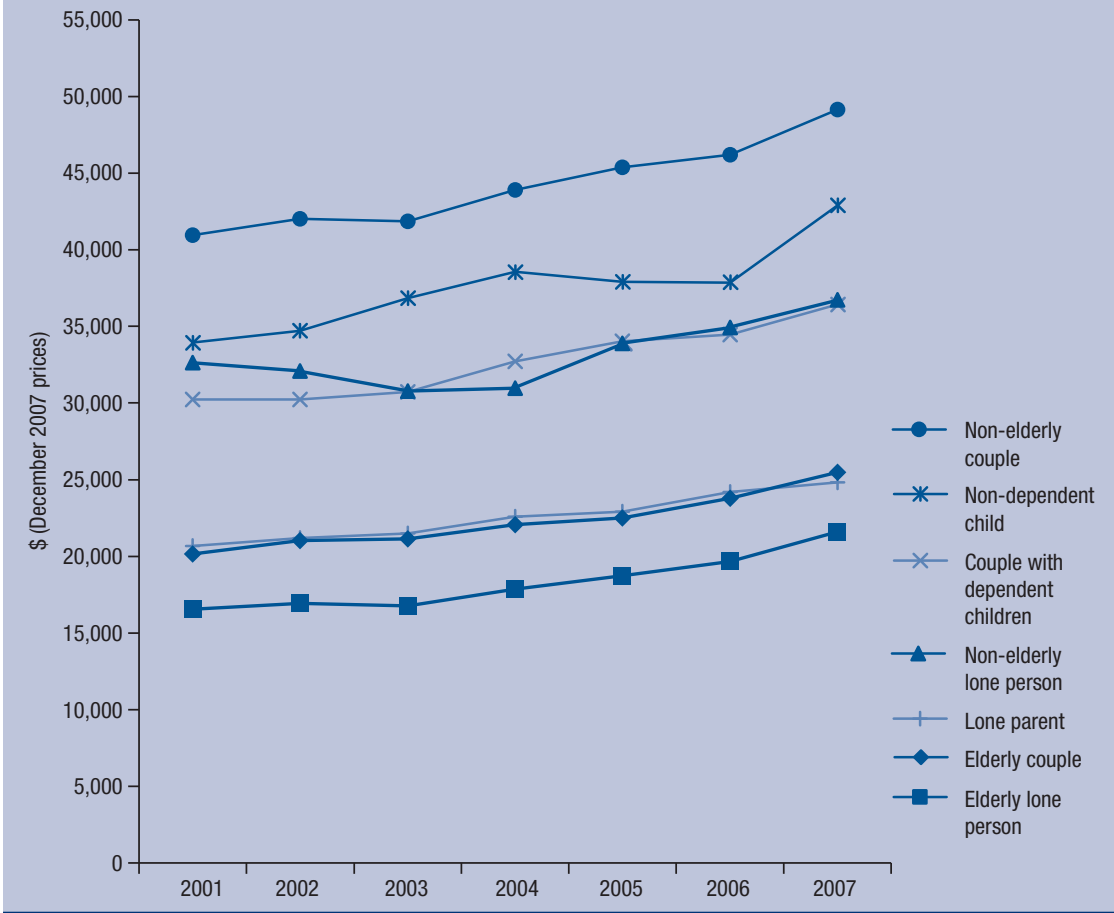
Note: Population weighted results.

but rather the distribution of income across people. For example, if the poor tend to live in larger households, the proportion of households that are poor will be lower than the proportion of persons that are poor. It is the latter quantity that is relevant, since our interest is in the wellbeing of people rather than households.

Average income levels are described by the mean and median, while inequality in the income distribution is described by the ratio of the 90th percentile to the median (p90/p50), the ratio of the median to the 10th percentile (p50/p10) and the Gini coefficient. The 90th percentile is the income of the individual who has 10 per cent of individuals with higher incomes and 90 per cent with lower incomes. The 10th percentile is the income of the individual who has 90 per cent of individuals with higher incomes and 10 per cent 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).

As expected, growth in the average level of incomes is robust to the move to equivalised incomes and the individual as the unit of analysis, as there will have been only modest changes in household

Figure 6.1: Median equivalised income by family type



Note: Population weighted results.

composition of the population over this period. Up until 2006, income growth appears to have been something of a 'rising tide lifting all boats', with the three measures of inequality presented in Table 6.2 remaining essentially unchanged; that is, income growth has applied equally to low-, middle- and high-income persons. However, in 2007 the ratio of the median to the 10th percentile increased slightly, as did the Gini coefficient. While the Gini coefficient was still not much above its 2001 and 2002 level, the ratio of the median to the 10th percentile was at its highest level since the commencement of the HILDA Survey. The ratio was approximately 10 percentage points higher than its level in all preceding years other than 2005—which was 5 percentage points higher than the other years—indicating those towards the bottom of the income distribution have fallen further behind middle- and upper-income households.

Figure 6.1 compares median incomes across seven family types: a couple with at least one dependent child living with them; a non-elderly couple, defined to be a couple without dependent children and with at least one member of the couple under 60 years of age; an elderly couple, where both persons are over 60 years of age; a lone parent living with at least one dependent child; a non-dependent child, defined to be a single person (aged under 60 years) living with one or both parents; a non-elderly (aged under 60 years) lone person; and an elderly (aged over 60 years) lone person. Note that many households will contain multiple 'families'. For example, a household containing a non-elderly couple living with a non-dependent child will contain a non-elderly couple family and a non-dependent child 'family'. All members of this household will, of course, have the same equivalent income.

A consistent ordering of median incomes by type of household is evident across the seven waves of the survey, ranging from single elderly persons at the bottom to non-elderly couples without dependent children at the top. All household types have experienced growth in median incomes over the full period, although the extent of growth varies somewhat.

Moving towards 'permanent' income

Friedman's (1957) permanent income hypothesis implies that what is important to an individual's living standard is not current income, but rather 'permanent' or (anticipated) lifetime income. Current income is affected by lifecycle stage and by transitory fluctuations and therefore is often not a good measure or reflection of permanent income. Of course, in practice, the stage of life at which income is received also matters, particularly since there is always uncertainty about future income streams. But the permanent income concept is nonetheless relevant and implies that even income measured over a one-year interval may provide a misleading picture because of short-term fluctuations. Income may be temporarily high, or—likely more often—temporarily low.

We can go some way to overcoming the limitations of current income using the HILDA data. The longitudinal structure of the data allows us to construct measures of income over longer intervals of time than is typically possible using cross-sectional household surveys. We can potentially obtain a much clearer picture of the resources to which an individual has access by examining income over multiple years.

In Table 6.3, the distributions of two-, three- and seven-year equivalised income are presented. Income is calculated for each individual as the mean of equivalised income (adjusted for inflation) over the relevant interval. This has the effect of allowing for changes to household composition over time—for example, if total household income over the period was divided by the equivalence scale that prevailed in the first year, it could be misleading if the individual's household changed during the period examined. A further possible adjustment is to apply a discount rate to income, since a dollar received today is worth more than a dollar received tomorrow. This is not undertaken.

Consistent with the presence of temporary fluctuations, and lifecycle trends in incomes, there is less inequality in the distribution of income, the longer the time-frame over which income is measured.

Table 6.3: Distribution of income measured over time-frames longer than one year (December 2007 prices)

	Mean ($)	*Median ($)*	*p90/p50*	*p50/p10*	*Gini coefficient*
Two-year income					
2001 and 2002	33,586	30,154	1.85	2.08	0.288
2003 and 2004	34,075	30,683	1.84	2.04	0.281
2005 and 2006	37,152	33,404	1.84	2.07	0.283
2006 and 2007	38,961	34,829	1.87	2.06	0.289
Three-year income					
2001–2003	33,540	29,945	1.85	2.01	0.282
2005–2007	38,093	34,244	1.82	2.04	0.281
Seven-year income					
2001–2007	36,001	32,831	1.75	1.97	0.269

Note: Population weighted results.

Income inequality is nonetheless important, and study of the characteristics of those with low income over the full seven-year period would reveal important information about the identities of the long-term poor.

Income changes and income mobility

Income changes

The cross-sectional snapshots considered in Tables 6.1 and 6.2 and Figure 6.1, and even Table 6.3, do not tell us what is happening to individuals over time. While many people must be experiencing increases in income, it may also be that some people have experienced declines in income, or at least only small increases. The longitudinal structure of the HILDA Survey allows us to directly examine individuals' experiences of income changes. We do this in Table 6.4, which presents median changes in income by initial location (quintile) in the income distribution; that is, we divide individuals into equal 20 per cent groupings such that quintile 1 is the lowest income group and quintile 5 the highest income group. We then calculate the median change in income for individuals in each of these quintiles. Median changes are expressed as percentages of the median of the initial quintile. For example, the median change in income of those initially in the first quintile is expressed as a percentage of the 10th percentile, which is the mid-point of the first quintile.

Considerable effort is made to collect accurate income data in the HILDA Survey, reflecting the importance of income to living standards. However, this does not mean all components of income are measured, or that those components that are measured are done so without error. Although measurement error in income afflicts all household income surveys, in longitudinal data it poses a particular problem that does not arise in cross-sectional snapshots—namely, the 'regression-to-the-mean' phenomenon. Under- or over-reporting income in one year increases the chances an individual will be located at an extremity of the income distribution. If that individual in the next year accurately reports income, it is likely they will be located closer to the middle of the income distribution in that year. A misleading picture of income mobility can then ensue. Specifically, the apparent changes for individuals at high and low initial incomes will be too large; they will appear to have 'regressed' or moved back towards the mean.

There is no single agreed solution to problems arising from regression-to-the-mean. One simple partial remedy is to focus study on changes of those not initially at an extremity of the income distribution—although this confronts the problem that we are often most interested in people at the extremities, particularly those with low initial incomes. Table 6.4 nonetheless does this to some extent, since the largest half of the changes in the top and bottom quintiles are excluded by our focus on the median change in each quintile.

A further common partial remedy, also used here, is to calculate changes in income after first combining years. In Table 6.4, we combine Waves 1 and 2 and Waves 6 and 7, and also combine Waves 1, 2 and 3 and Waves 5, 6 and 7. For the analysis that combines two waves, we have:

> *Change in income equals the mean of equivalised incomes in 2006 and 2007, minus the mean for 2001 and 2002.*

This averaging procedure reduces regression-to-the-mean by ensuring that our measure of change is less affected by one-off 'errors' due to misreporting or exceptional temporary fluctuations. It is nevertheless probable that the results given in Table 6.4 for those who started at the very top or very bottom ends of the distribution in 2001 to 2002 exaggerate the changes in income which actually occurred by 2006 to 2007. But note, also, that we would expect *real* change to be smaller when we combine waves, because we are removing some real effects of transitory fluctuations in income.

Table 6.4 shows income growth to be clearly ordered by initial location in the income distribution. The strength of the relationship diminishes as we average over more waves, but it remains present even when averaging over three waves. We cannot know the extent to which observed differences in mobility by initial location in the distribution are real versus artefacts of measurement error, but it seems very unlikely to be entirely attributable to measurement error. This is because there are 'real' reasons to expect such a pattern. For example, we might expect many high-income earners to be approaching retirement and many low-income earners to be at early stages of the lifecycle. Income growth would in general be expected to be low for the former group and high for the latter group, which would help produce the ordering of income growth found in Table 6.4. This example illustrates that we cannot infer that income growth

Table 6.4: Median percentage change in income by initial quintile of the income distribution (December 2007 prices)

	Overall	*Bottom quintile*	*2nd quintile*	*3rd quintile*	*4th quintile*	*Top quintile*
2001 to 2007	15.6	37.4	27.6	19.9	12.7	–4.6
2001–2002 to 2006–2007	13.3	26.3	19.0	15.5	12.9	0.2
2001–2003 to 2005–2007	11.6	18.3	15.8	14.2	10.6	4.1

Note: Population weighted results.

has been pro-poor, at least from a permanent income standpoint. Rather, it highlights that a cross-sectional snapshot tends to overstate the degree of inequality in incomes over the lifecycle.

Table 6.5 considers differences in household income growth by family type. For individuals classified according to their type of family in 2001, it shows the median change in equivalised income, and the median change expressed as a percentage of the median income of the family type in 2001. Growth has been lowest for childless couples, whether elderly or not, and strongest for families with dependent children, whether couple or sole parent families. Although income is equivalised, these differences could in part reflect changes in household type between 2001 and 2007. For example, if a lone parent partners between Waves 1 and 7, equivalised income can rise with no change in actual income of each household member.

Income mobility

We now turn the focus to household income mobility, by which we mean the extent to which household incomes change *relative to each other*. So the question here is not whether individuals' household incomes were rising or falling, but the extent of mobility up and down the distribution. Do most individuals scarcely change their relative position in the distribution, or is it quite common to move from low points in the distribution into the top half, and vice versa? How far do people move, and how does this depend on the time frame over which we examine mobility?

To analyse income mobility, we first in Table 6.6 examine mobility over the full period covered by the HILDA Survey. Panel A1 presents summary measures of the extent of mobility, as measured by the change in each individual's percentile rank between 2001 and 2007. An individual's percentile rank gives their location in the income distribution. For example, someone at the first percentile has 99 per cent of individuals with higher incomes, while a person at the 99th percentile has only 1 per cent of individuals with higher incomes. In aggregate, the mean change in percentile rank across all individuals must be zero—if one person moves up the ranking, one other person must move down the ranking—so Panel A1 presents the mean *absolute* change in rank, as well as the proportions in each of four groups for change in percentile rank—up 20 or more percentiles, up between 0 and 20 percentiles, down between 0 and 20 percentiles, and down 20 or more percentiles.

On average, individuals travelled 19 percentiles, or slightly less than two deciles, between 2001 and 2007. 21 per cent moved up more than 20 percentiles, and 18 per cent moved down more than 20 percentiles. Thus, mobility is evident, but whether this is regarded high is a matter of subjective assessment. That, over six years 61 per cent stayed within 20 percentiles of where they were in the income distribution, might be regarded as indicative of low mobility; but equally, that 39 per cent moved more than 20 percentiles might be regarded as indicative of high mobility.

In Panel A2, we consider mobility by initial location in the income distribution. As was done for Table 6.4, we divide equivalised incomes in 2001 into quintiles and assign each individual to one of those quintiles. We then similarly divide equivalised incomes in 2007 into quintiles and, for each quintile in 2001, find the percentage of individuals ending up in each of the 2007 quintiles. For example, in the first row of Panel A1, we see that 59.9 per cent of those in the bottom quintile in 2001 were also in the bottom quintile in 2007; 22.7 per cent were in the second quintile, 9.1 per cent were in the third quintile, 5.5 per cent were in the fourth quintile and 2.8 per cent were in the top quintile. The diagonal element in bold shows the percentage remaining in the same quintile. As might be expected based on the Panel A1 results, relatively few people move more than one quintile. Significantly, and consistent with this pattern, the proportions remaining in the top and bottom quintiles are relatively high, at or in excess of 53 per cent in both cases.

In Panels B1 and B2 of Table 6.6 we consider two-year incomes, examining mobility between location in the distribution of 2001 and 2002 income and location in the distribution of 2006 and 2007 income. As might be expected, the extent of income mobility tends to be less for two-year incomes.

Table 6.5: Median change in income by family type, 2001–2007 (December 2007 prices)

	Median 2001 ($)	*Median change ($)*	*Median change (%)*	*Percentage in the same family type in 2007*
Non-elderly couple	41,275	1,658	4.0	*47.2*
Couple with children	31,089	7,142	23.0	*65.4*
Lone parent	20,669	6,807	32.9	*45.2*
Non-dependent child	36,911	5,308	14.4	*36.6*
Non-elderly lone person	34,712	5,167	14.9	*48.0*
Elderly couple	20,426	1,494	7.3	*73.1*
Elderly lone person	16,712	1,489	8.9	*78.2*

Note: Population weighted results.

Table 6.6: Income mobility between 2001 and 2007

A1. Percentile in 2001 and 2007

	Mean absolute change	*Proportion going up 20+ percentiles*	*Proportion going up 0–20 percentiles*	*Proportion going down 0–20 percentiles*	*Proportion going down 20+ percentiles*	
	18.5	21.2	29.5	31.1	17.8	

A2. Quintile in 2001 and 2007

	Q1 in 2007	*Q2 in 2007*	*Q3 in 2007*	*Q4 in 2007*	*Q5 in 2007*	*Total*
Q1 in 2001	**59.9**	22.7	9.1	5.5	2.8	100.0
Q2 in 2001	26.4	**33.9**	21.9	12.1	5.7	100.0
Q3 in 2001	13.5	23.6	**30.2**	22.1	10.6	100.0
Q4 in 2001	6.8	12.0	21.7	**34.9**	24.6	100.0
Q5 in 2001	5.0	6.8	12.8	22.1	**53.2**	100.0

B1. Percentile in 2001–2002 and 2006–2007

	Mean absolute change	*Proportion going up 20+ percentiles*	*Proportion going up 0–20 percentiles*	*Proportion going down 0–20 percentiles*	*Proportion going down 20+ percentiles*	
	15.8	18.7	32.7	34.2	14.0	

B2. Quintile in 2001–2002 and 2006–2007

	Q1 in 2005–2007	*Q2 in 2005–2007*	*Q3 in 2005–2007*	*Q4 in 2005–2007*	*Q5 in 2005–2007*	*Total*
Q1 in 2001–2002	**67.1**	18.7	8.6	3.2	2.3	100.0
Q2 in 2001–2002	27.7	**38.2**	22.3	8.2	3.5	100.0
Q3 in 2001–2002	9.2	23.6	**33.6**	23.2	10.4	100.0
Q4 in 2001–2002	4.4	10.2	19.9	**40.9**	24.5	100.0
Q5 in 2001–2002	2.2	5.4	11.6	22.1	**58.7**	100.0

Notes: Population weighted results. Percentages may not add up to 100 due to rounding.

Table 6.7: Year to year income mobility—Change in percentile rank

	Mean absolute change	*Proportion going up 20+ percentiles*	*Proportion going up 0–20 percentiles*	*Proportion going down 0–20 percentiles*	*Proportion going down 20+ percentiles*
2001 to 2002	12.9	11.1	40.4	37.2	10.7
2003 to 2004	11.6	13.0	39.1	38.6	8.8
2005 to 2006	11.8	13.0	35.4	41.8	9.1
2006 to 2007	11.6	12.3	38.6	39.3	9.2

Note: Population weighted results.

Table 6.8: Income mobility between 2001 and 2007 by family type in 2001

	Mean absolute change	*Mean change*	*Proportion going up (%)*	*Proportion going up 20+ percentiles (%)*	*Proportion going down 20+ percentiles (%)*
Non-elderly couple	21.1	–8.3	40.7	15.2	27.5
Couple with children	17.5	0.4	54.6	19.4	16.0
Lone parent	19.2	4.6	58.2	27.1	12.3
Non-dependent child	21.0	–0.3	49.7	26.0	19.3
Non-elderly lone person	21.0	0.1	52.0	27.8	18.5
Elderly couple	15.0	–6.1	46.6	21.0	14.4
Elderly lone person	13.7	–5.4	46.4	26.4	12.7

Note: Population weighted results.

How has income mobility changed over the HILDA Survey period? We can of course consider changes in income mobility in only a limited way over the seven-year span of the data. We do this in Table 6.7 by comparing mobility from one year to the next in four pairs of years: 2001 to 2002, 2003 to 2004, 2005 to 2006 and 2006 to 2007. Aside from 2001 to 2002 appearing to have slightly higher mobility, no pattern in changes in mobility over time is evident over the HILDA Survey period. For example, the mean absolute change in percentile rank is just under 12 in all of the last three year-pairs.

Income mobility over time is something of a 'zero-sum game' at the aggregate level, so it is not generally appropriate to make assessments of whether mobility over time has been 'good' or 'bad' at this level. This is not the case when we consider mobility within individual groups in the community. It is possible for changes in location in the income distribution to be favourable for some groups and not so for others. In Table 6.8 we consider differences in income mobility by type of family (the initial family type of the individual). Substantial differences in the extent and nature of mobility are evident across the family types distinguished in the table. Mobility is considerably lower for elderly persons than for non-elderly persons, and that mobility that exists is more likely to be in a downward than upward direction. Among the non-elderly, the aggregate extent of mobility is similar across couples, couples with children, lone parents and single persons, but is much more likely to in a downward direction for childless couples. The less-favourable outcomes for couples without children may in part be because some *became* couples with children between 2001 and 2007, which can lower gross income because of reduced labour force participation of one member (usually the mother) and can further lower *equivalent* income because of the extra mouth(s) to feed.

Endnote

1 National accounts data on household disposable income is obtained from ABS Catalogue No. 5204.0, Table 46. Household disposable income is equal to gross household disposable income less consumption of fixed capital. Population data come from ABS Catalogue No. 3101.0.

References

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7. Relative income poverty

Although the term 'poverty', as it applies to material living standards, would seem to be widely understood, interpretations of what constitutes poverty vary greatly. As a consequence, a wide variety of definitions or measures of poverty, or material deprivation, have been employed by economic and social researchers. While recognising this diversity of potential measures, in this report we focus on the most commonly employed definition applied to the study of poverty in developed countries, which conceives of poverty as *relative* deprivation or socio-economic disadvantage, and which measures deprivation in terms of inadequacy of *income*. According to this definition, a person is in poverty if the income of that person's household is less than a fixed proportion of the median household income, where all incomes are adjusted for household need using an equivalence scale.

For many years the Organisation for Economic Co-operation and Development (OECD) and other international bodies defined relative income poverty as having a household income below 50 per cent of median income. More recently, the European Union and some member governments moved to a poverty line set at 60 per cent of median income. Survey evidence tends to suggest that a threshold set at 50 per cent of median income is in fact consistent with community perceptions of what it means to be poor (Citro and Michael, 1995). In this article, we adopt the older 50 per cent line, which has been regularly used by Australian researchers. While based on a degree of public and researcher consensus, it should nonetheless be acknowledged that there is an element of arbitrariness to this—or any other—definition of relative poverty.

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. In this report, we define a person to be in relative income poverty if household equivalent income is less than 50 per cent of the median household equivalent income.

One implication of this approach to defining poverty is that, as societies have grown richer, so has the income required to avoid a situation of poverty. How can we defend such a notion of poverty? The argument is that, as average living standards improve, so do the community's perceptions of what constitutes a minimum acceptable standard of living. One hundred years ago,

access to running water and electricity were not considered necessities of life, but a person unable to afford such things in modern society would be regarded by most people as suffering material deprivation, or in other words, living in poverty.[1]

Notwithstanding the arguments in favour of relative poverty thresholds or lines, often there is interest in holding the purchasing power of the poverty line constant over time to provide a gauge of society's progress for which 'the goalposts are not moving'. Typically, this is achieved by holding constant the real value of the poverty line at the value of the relative poverty line in the base year—in our case, 2001. Such a threshold is known as an absolute poverty line, differentiated from the relative poverty line by its constancy over time, irrespective of changes to average living standards. We produce poverty estimates of this kind also.

Absolute poverty lines

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

Irrespective of whether a relative or absolute poverty standard is adopted, income poverty measures have several limitations and many critics. The main limitations are that access to material resources is sometimes not well captured by contemporaneous income, for example, because the individual has substantial wealth; and the not unrelated problem that income is often not well measured. Income measurement is problematic on two main fronts. First, household surveys do not usually attempt to measure non-cash income, which can be a substantial part of the 'effective' income of a household. Non-cash income can include services provided by housing and consumer durables owned by the household, unrealised capital gains, government-provided or subsidised goods and services, and gifts and other in-kind transfers from other households. Second, cash income can be poorly measured in some circumstances. In particular, some people under-report income, and may therefore be incorrectly found to be below the poverty line.

Despite these inadequacies, and in part reflecting the complexity of and lack of consensus on proposed alternatives, income poverty measures remain useful indicators of material deprivation and are regularly produced in most parts of the world where household income data are available.[2]

Cross-sectional poverty rates

Table 7.1 presents poverty lines and rates in 2001, 2003, 2005, 2006 and 2007.[3] The poverty line is set at half the median household income. As in Chapter 6, our income measure is annual disposable household income adjusted for household composition using the OECD equivalence scale. Thus, the poverty lines presented in Table 7.1 can be interpreted as the annual income after taxes and government benefits that a single-person household would require to avoid poverty. Poverty rates refer to the proportion of persons (not households) living in poverty.

Reflecting the high rate of household income growth that has occurred over the 2001 to 2007 period, the poverty line has increased substantially. The proportion of the population below the poverty line has fluctuated over time, but it is notable that the relative poverty rate in 2007 was considerably higher than in 2006, and in fact was higher than any other year. Indeed, even if we hold the purchasing power of the poverty line constant at its level in 2001 (our absolute poverty measure), the percentage in poverty increased slightly in 2007, having steadily declined up until 2006. However, at 6.6 per cent, the absolute poverty rate in 2007 was much lower than the

Table 7.1: Poverty lines and poverty rates

	2001	*2003*	*2005*	*2006*	*2007*
Poverty line (current prices)	12,724	14,151	15,197	16,149	17,433
Poverty line (December 2007 prices)	14,979	15,788	16,551	17,043	17,880
% in relative poverty	12.4	12.4	12.9	11.9	13.5
% in absolute poverty	11.4	8.8	8.3	6.5	6.6

Note: Population weighted results.

Table 7.2: Number of years in poverty between 2001 and 2007 (%)

0 years	*1 year*	*2 years*	*3 years*	*4 years*	*5 years*	*6 years*	*7 years*	*Total*
68.3	12.5	6.2	3.7	3.0	2.2	1.8	2.2	100.0

Note: Population weighted results. Percentages may not add up to 100 due to rounding.

figure of 11.4 per cent observed in 2001. With respect to the relative poverty measure, we should also note that many welfare recipients in Australia have incomes quite close to 50 per cent of median income, so that relatively small movements in government benefits or the median can bring about sizeable changes in the poverty rate.

Poverty over the medium term

The true value of the HILDA data for the study of income poverty in Australia comes from its longitudinal structure. In Table 7.2, we make use of all seven years of the survey to examine the amount of time people spend in poverty over the medium term. It presents the proportion of the population ever in each category of 'number of years spent in poverty', which can range from zero (never in poverty) to seven (in poverty in every year). According to the HILDA Survey, 32 per cent of the Australian population has been in poverty at some stage of the 2001 to 2007 period. However, more than half of these people were in poverty only one or two of these years. The persistently poor constitute only a small fraction of all those to experience poverty over the medium term. Nonetheless, they represent a significant number of people—over 9 per cent of the population were in poverty for at least four of the seven years spanned by the survey, and 2.2 per cent were in poverty for the entire period.

Persistence and recurrence of poverty

Of perhaps as much interest as the extent of poverty in the community are the 'dynamic properties' of individuals' experiences of poverty—that is, how persistent poverty is and, for those who exit poverty, how many return to poverty. Table 7.3 takes one approach to examining persistence in poverty, and also allows consideration of whether the degree of persistence has been changing over the HILDA Survey period. It does this by considering only persistence from one year to the next. For each of four year-pairs, the proportions that were out of poverty in both years, in poverty in only the first year, in poverty in only the second year, and in poverty in both years, are reported. The estimates indicate that approximately 5–6 per cent of persons enter poverty in any given year, and a similar proportion exit poverty each year. A further 7 per cent are in poverty in both years of any two-year period.

In terms of identifying changes over time in the extent of persistence in poverty, we see that transitions into poverty were fewer in 2003–2004 than in 2001–2002 and were fewer again in 2005–2006. However, consistent with the upward spike in the poverty rate in 2007, the inflow rate increased in 2006–2007, and the outflow rate was also low in 2006–2007. However, it must be acknowledged that the seven-year time frame currently available is clearly not sufficient to decipher any time trends in persistence.

In Table 7.4 we consider persistence beyond one year. Each column presents the proportion of those in poverty in the base year (2001, 2003, 2005 or 2006) who were also in poverty in each successive year. There is evidence of a relatively high degree of persistence and/or recurrence in poverty. Of those in poverty in 2001, 57 per cent were in poverty in 2002, 49 per cent were in poverty in 2003, and 45 per cent were in poverty in 2007. Similar patterns are evident in the other columns (to the extent ascertainable given the shorter time frames available).

Table 7.3: Two-year poverty status (%)

	2001 and 2002	*2003 and 2004*	*2005 and 2006*	*2006 and 2007*
Not in poverty in either year	81.7	83.4	82.2	82.4
Out of poverty in first year and in poverty in second year	5.7	5.0	4.8	5.9
In poverty in first year and out of poverty in second year	5.7	4.8	5.9	4.4
In poverty in both years	6.9	6.8	7.1	7.4
Total	100.0	100.0	100.0	100.0

Notes: Population weighted results. Percentages may not add up to 100 due to rounding.

Table 7.4: Poverty persistence (%)

	Persons in poverty in 2001	*Persons in poverty in 2003*	*Persons in poverty in 2005*	*Persons in poverty in 2006*
In poverty in 2002	56.9	–	–	–
In poverty in 2003	49.0	–	–	–
In poverty in 2004	47.1	58.2	–	–
In poverty in 2005	48.1	50.4	–	–
In poverty in 2006	43.0	46.2	54.8	–
In poverty in 2007	45.0	46.0	54.4	62.9

Note: Population weighted results.

Table 7.5 explicitly focuses on poverty recurrence, reporting the percentage that re-enter poverty within two years of exiting poverty. For example, the first row shows that 37.8 per cent of people who exited poverty in 2002 (i.e. people who were not in poverty in 2002 after having been in poverty in 2001) re-entered poverty within the next two years. This would seem to be a high rate of recurrence. Significantly, however, the rate of recurrence appears to have declined for those exiting up until 2004, with only 30 per cent of those who exited in 2004 re-entering poverty within two years. A slight increase in poverty recurrence occurred for those exiting in 2005, but the rate of recurrence of 32.6 per cent was still well below the rate of those who exited in 2002.

Table 7.5: Poverty recurrence within two years of exit

	% re-entering poverty
Exit in 2002	37.8
Exit in 2003	33.2
Exit in 2004	30.2
Exit in 2005	32.6

Notes: Population weighted results. 'Exit in 2002' applies if an individual was in poverty in 2001 and not in poverty in 2002. Poverty recurrence within two years occurs if the individual is in poverty in 2003 or 2004. Estimates for exit in 2003, 2004 and 2005 are analogous.

Poverty by family type

Table 7.6 shows that poverty rates vary substantially by family type. Rates are consistently high among the elderly, particularly elderly single persons. Note, however, that elderly people are more likely to own their own house than are younger people, and our income poverty measure does not account for in-kind services provided by owner-occupied housing. The income poverty rates for the elderly are therefore likely to overstate the extent of relative deprivation experienced by the elderly. Poverty rates are also high, and growing, for lone-parent families, who overtook elderly couples in 2007. Non-elderly couples, whether with or without dependent children, have consistently low poverty rates.

Poverty over the medium term broken down by family type (in 2001) is considered in Table 7.7. Poverty is clearly more persistent for the elderly than for other family types. Particularly notable is that, while a high proportion of persons in lone-parent families in 2001 experience at least one year in poverty, few—only 7 per cent—were in poverty for five or more of the seven years spanned by the HILDA Survey.

Child poverty

Child poverty is a particular concern for policy makers, both because children in poverty are unambiguously 'innocent victims' who cannot be said to have in any way contributed to their predicament, and perhaps more importantly because of the damage poverty may do to children's future productive capacity and life prospects more generally. Successive governments in Australia have made concerted efforts to improve child living standards, resulting in significant inroads into child poverty in recent decades (Abello and Harding, 2004), but continued monitoring of child poverty, and more particularly its dynamic features, of course remains important.

Table 7.6: Poverty rates by family type (%)

	2001	*2003*	*2005*	*2006*	*2007*
Non-elderly couple	8.1	5.7	5.8	6.0	7.2
Couple with children	6.7	7.4	6.9	5.2	7.2
Lone parent	22.8	21.9	25.1	25.4	27.9
Non-dependent child	5.9	3.8	6.1	6.1	6.1
Non-elderly lone person	15.7	18.1	18.8	14.4	16.8
Elderly couple	24.3	20.1	26.5	25.6	26.5
Elderly lone person	41.5	41.8	38.9	40.3	39.1

Note: Population weighted results.

Table 7.7: Years in poverty by family type in 2001 (%)

	0 years	*1 or 2 years*	*3 or 4 years*	*5–7 years*	*Total*
Non-elderly couple	78.4	13.2	5.3	3.1	100.0
Couple with children	77.1	16.1	4.4	2.5	100.0
Lone parent	45.7	31.9	15.2	7.1	100.0
Non-dependent child	80.5	14.3	2.9	2.2	100.0
Non-elderly lone person	66.6	19.4	7.0	7.0	100.0
Elderly couple	42.3	29.2	12.2	16.3	100.0
Elderly lone person	32.6	23.8	12.7	30.9	100.0

Notes: Population weighted results. Percentages may not add up to 100 due to rounding.

Table 7.8: Rates of child poverty (%)

	2001	*2003*	*2005*	*2006*	*2007*
All children under 18	10.7	11.1	12.4	10.2	12.4
Live with both parents	6.9	9.1	9.4	7.2	9.5
Live with one parent	24.4	20.3	27.3	28.3	27.7

Note: Population weighted results.

Table 7.9: Medium-term child poverty: Years in poverty 2001–2007—Percentage in each category

	0 years	*1 or 2 years*	*3 or 4 years*	*5–7 years*	*Total*
All children under 18 in 2001	67.0	21.8	7.5	3.7	100.0
Lived with both parents in 2001	73.6	18.2	5.2	2.9	100.0
Lived with one parent in 2001	41.3	34.9	16.6	7.1	100.0

Notes: Population weighted results. Percentages may not add up to 100 due to rounding.

Child poverty rates presented in Table 7.8 suggest there has been some increase in child poverty between 2001 and 2007, but there is some degree of ambiguity about this trend because child poverty rates exhibit some degree of volatility from year to year. Significantly, the child poverty rate is consistently lower—albeit only slightly—than the community-wide poverty rate. It would therefore seem that policy efforts in this area have had some success. However, as the lower panel of Table 7.8 shows, there is still much room for improvement among sole parent families, with around 25 to 30 per cent of children in such families below the poverty line.

The distribution of the number of years children were poor over the 2001 to 2007 period is provided in Table 7.9. The table shows that child poverty is less persistent than is poverty in the community more generally. Children living with both parents in 2001 were particularly unlikely to experience chronic poverty, with only 2.9 per cent in poverty for at least five of the next seven years. Even among children living with one parent only, poverty experienced is not usually chronic. Although 59 per cent of children living with only one parent in 2001 experienced poverty between 2001 and 2007, only 7 per cent were in poverty for at least five of the seven years.

Endnotes

1 Note that there is an important distinction between not being able to afford goods and services and choosing not to have them. It is the former criterion that determines poverty status.

2 Note, however, that no Australian Government has ever adopted an official poverty line.

3 Results are presented in Table 7.1 for only a subset of waves for presentational reasons. The convention of omitting Waves 2 and 4 is in fact adopted for a number of tables in this report since, with seven waves, tables can become too large (and repetitive) when all waves are included.

References

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8. Welfare reliance

As in many developed countries, the extent of dependence on welfare has been a significant concern for policy-makers in Australia for some decades now. Whiteford and Angenent (2002) show the proportion of persons aged 15–64 receiving welfare at any one point in time rose from 3 per cent in 1970 to 18 per cent in 1999. Rising welfare dependence is widely regarded to have adverse consequences, for both welfare recipients and the community at large. Welfare dependence is associated with significant demands on government budgets and reduced economy-wide market output, and individuals' reliance on welfare is often associated with long-term poverty, social exclusion and other adverse outcomes for not only those individuals, but also their children. It is therefore not surprising that recent years have seen several rounds of welfare reforms aimed at reducing the extent of welfare reliance in Australia.

Welfare payments in Australia are known as income support payments, which are benefits paid to Australian residents that are not intended to represent the primary source of income of recipients. Studies of welfare reliance in Australia correspondingly focus on receipt on income support payments, although typically supplementary government benefits, known as non-income support payments, are included when determining the extent of welfare reliance of those who have received income support payments. Income support payments include the Age Pension, Disability Support Pension, Carer Payment, Parenting Payment (Single and Partnered), Newstart Allowance, Youth Allowance and Department of Veterans' Affairs Service Pension. Non-income support payments include Family Tax Benefit (Parts A and B), the Baby Bonus and Carer Allowance.

Gottschalk and Moffitt (1994), investigating welfare reliance in the United States, identify three main classes of measure of welfare reliance: (ii) benefit spell durations; (ii) the proportion of time spent on benefits in a given interval of time; and (iii) the proportion of income received from benefits in a given interval of time. In Australia, a number of studies have investigated the first two 'time-based' dimensions using welfare payments administration data on welfare recipients (e.g. Barrett, 2002; Gregory and Klug, 2002; Tseng and Wilkins, 2003; Tseng et al., 2008). Administrative data provide complete information on individuals' welfare payments, but does not contain any information on individuals when they are not on payments. Thus, while time spent on payments can be described using administrative data, income-based measures of reliance cannot be produced, because non-welfare income while not on payments is not known.

The HILDA Survey has the key advantage of providing complete income information, at the household level, which allows us to examine 'income based' measures of welfare reliance of the household over extended periods. While Australian Bureau of Statistics income surveys allow cross-sectional snapshots of the proportion of income from welfare (e.g. Tseng and Wilkins, 2003), the HILDA Survey is the only data source that makes possible longitudinal study of income-based welfare reliance. Thus, in addition to presenting cross-sectional information on rates of receipt and the proportion of household income deriving from welfare payments, we examine persistence and recurrence of welfare reliance.

Welfare reliance

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

(i) The household received income support payments and more than 50 per cent of household income came from income support and non-income support payments.

(ii) The household received income support payments and more than 90 per cent of household income came from income support and non-income support payments.

We adopt two alternative definitions of welfare reliant. Under the first definition, a person is welfare reliant if more than half of household income comes from government benefits in the form of income support and non-income support payments. Under the second definition, a person is only welfare reliant if more than 90 per cent of household income comes from government benefits. There is some degree of arbitrariness in determining the threshold at which an individual's household is deemed welfare reliant. The 50 per cent threshold accords with the intuition that a person is welfare reliant if the majority of household income comes from welfare. The 90 per cent threshold applies if welfare reliance is viewed as a situation in which almost all income comes from welfare.[1] We examine reliance both at the time of the interview ('current week') and in the financial year preceding the interview.[2] While reliance is defined in terms of household income and welfare receipt, our analysis is of individuals; that is, our analysis is of the number of *individuals* who are welfare reliant, not the number of households that are welfare reliant.

Extent of welfare reliance

Table 8.1 presents cross-sectional estimates of welfare receipt and reliance for selected years, in the

Table 8.1: Measures of welfare reliance (%)

	2001	*2003*	*2005*	*2006*	*2007*
All persons					
Current weekly welfare receipt					
Proportion on welfare	36.8	34.8	35.1	34.2	32.7
Proportion reliant (50% threshold)	22.1	21.8	21.7	20.9	19.5
Proportion reliant (90% threshold)	19.6	19.1	19.1	18.1	17.0
Among those on welfare, mean proportion of income from welfare	60.1	60.9	61.5	60.7	59.6
Financial year welfare receipt					
Proportion on welfare	40.8	39.4	39.1	37.9	35.8
Proportion reliant (50% threshold)	18.9	19.7	18.6	18.0	17.0
Proportion reliant (90% threshold)	10.9	11.1	10.1	9.6	9.5
Among those on welfare, mean proportion of income from welfare	51.4	53.9	51.8	51.6	51.6
Persons aged 15–64					
Current weekly welfare receipt					
Proportion on welfare	30.4	28.6	28.3	27.1	25.9
Proportion reliant (50% threshold)	14.5	14.2	13.9	12.7	11.5
Proportion reliant (90% threshold)	12.0	11.6	11.3	10.2	9.2
Among those on welfare, mean proportion of income from welfare	49.4	49.6	50.2	48.9	47.1
Financial year welfare receipt					
Proportion on welfare	34.5	33.1	32.6	31.2	29.2
Proportion reliant (50% threshold)	12.3	13.2	11.7	11.1	10.3
Proportion reliant (90% threshold)	7.2	7.1	6.5	5.8	6.0
Among those on welfare, mean proportion of income from welfare	43.1	45.5	42.9	42.8	42.7

Note: Population weighted results.

top panel for all persons, and in the bottom panel for 'workforce age' persons (aged 15–64 years). Prior to 2007, just over one-third of persons were living in a household in receipt of income support at the time of interview, and between 38 per cent and 40 per cent lived in households that had received income support payments at some stage in the preceding financial year. In 2007, the rate of current receipt fell to 33 per cent and annual receipt fell to 36 per cent. This represented an acceleration of a slow trend decline in rates of receipt between Waves 1 and 6. Rates of receipt are somewhat lower among workforce age persons, but the trend decline in receipt is similar.

As would be expected, the proportion of the population classified as welfare reliant depends on whether the 50 per cent or 90 per cent threshold is employed, and on whether current income or annual income is examined. Reliance is lowest adopting the 90 per cent threshold and examining annual income, and highest adopting the 50 per cent threshold and examining current income. All four series exhibit similar patterns of change between 2001 and 2007, however. Taking the 50 per cent threshold and annual income as our core definition of welfare reliance, we see that welfare reliance declined from 18.9 per cent of the population in 2001 to 17 per cent in 2007. Among those aged 15–64, reliance declined from 12.3 per cent to 10.3 per cent—albeit after increasing to 13.2 per cent in 2003. Welfare reforms of recent years—most particularly, the reforms introduced in July 2006—may therefore be having the desired effects. The last row of each panel in Table 8.1 shows the extent of reliance of those in receipt of income support payments. Among all income support recipients, the mean proportion of annual income from welfare is mostly around 52 per cent, and among workforce age income support recipients, it is mostly around 43 per cent.

Table 8.2: Number of years welfare reliant, 2001–2007 (%)

	Received welfare	*More than 50% of income from welfare*	*More than 90% of income from welfare*
0 years	44.4	74.0	80.8
1 year	14.2	6.4	6.1
2 years	8.3	3.8	2.9
3 years	6.4	3.0	2.4
4 years	5.2	2.7	1.8
5 years	4.7	2.7	1.8
6 years	4.4	3.2	2.3
7 years	12.5	4.1	1.9

Notes: Population weighted results. Sample comprises persons aged 15–58 years in 2001.

Table 8.3: Persistence of welfare reliance (%)

	Persons welfare reliant in 2001	*Persons welfare reliant in 2003*	*Persons welfare reliant in 2005*	*Persons welfare reliant in 2006*
Welfare reliant in 2002	77.4	–	–	–
Welfare reliant in 2003	73.3	–	–	–
Welfare reliant in 2004	67.3	78.4	–	–
Welfare reliant in 2005	63.9	68.0	–	–
Welfare reliant in 2006	59.1	64.6	77.7	–
Welfare reliant in 2007	55.1	59.4	66.6	75.9

Notes: Population weighted results. Sample in column 1 comprises persons aged 15–58 years in 2001; sample in column 2 comprises persons aged 15–60 years in 2003; sample in column 3 comprises persons aged 15–62 years in 2005; sample in column 4 comprises persons aged 15–63 years in 2006. A person is defined to be welfare reliant if more than 50% of household annual income came from welfare.

Focusing now on annual measures of reliance and on workforce age persons, Table 8.2 presents the distribution of the number of years on welfare and the number of years welfare reliant. This provides a better picture of the extent of individuals' welfare reliance by considering the totality of the period spanned by the HILDA Survey. The sample is restricted to persons of workforce age for the entire seven-year period, which translates to persons aged 15–58 years in Wave 1 (and 21–64 years in Wave 7). The first column indicates that more people than not—56 per cent—were at some stage of the 2001 to 2007 period living in a household that received income support payments in the preceding financial year. 13 per cent of individuals had their household receive income support payments in all seven years, while 14 per cent had their household receive income support payments in only one year. Adopting the 50 per cent threshold for defining welfare reliance, 26 per cent of individuals of workforce age were reliant at some stage between 2001 and 2007. Individuals are relatively more likely to be reliant in only one year or in all seven years, but there are still significant numbers in all of the intermediate categories (welfare reliant for between two and six years). On the basis of Table 8.2, welfare reliance therefore cannot be characterised as usually highly persistent or usually transitory—it can be either, or anything in-between. Nonetheless, it is clear that for many people welfare reliance is indeed a highly persistent phenomenon.

Persistence and recurrence of welfare reliance

In Table 8.3 we directly consider the extent of persistence in welfare reliance, as well as how persistence has been changing over time. Each column presents the proportion of persons who were welfare reliant in the base year (2001, 2003, 2005 or 2006) who were also reliant in each subsequent year. For this table, a person is defined to be welfare reliant if more than 50 per cent of household annual income came from welfare payments. Taking this approach, we see that welfare reliance is highly persistent. Of those welfare reliant in 2001, 77 per cent were still reliant in 2002, 73 per cent were reliant in 2003, 67 per cent were reliant in 2004, 64 per cent were reliant in 2005, 59 per cent were reliant in 2006 and 55 per cent were reliant in 2007. However, reliance persistence does appear to have declined over the HILDA Survey period—at least when persistence over two or more years is being considered. Of those reliant in 2003, 59 per cent were reliant four years later (compared with 64 per cent for those reliant in 2001). Of those reliant in 2005, 67 per cent were reliant two years later (compared with 68 per cent for those reliant in 2003 and 73 per cent for those reliant in 2001).

Table 8.4: Welfare recurrence within two years of exit

	% becoming welfare reliant again
Exit in 2002	45.7
Exit in 2003	35.4
Exit in 2004	35.9
Exit in 2005	34.5

Notes: Population weighted results. Sample comprises persons aged 16–62 years in the year of exit from welfare reliance. A person is defined to be welfare reliant if more than 50% of household annual income came from welfare.

Consistent with this pattern of declining persistence, in Table 8.4 we see that recurrence of welfare reliance—defined as re-entry to welfare reliance within two years of exiting welfare reliance—has declined. Of those who exited welfare reliance in 2002, 46 per cent became welfare reliant again within two years, compared with 35 per cent of persons who exited welfare reliance in 2005.

Welfare reliance by family type

As Figure 8.1 shows, welfare reliance is very much a function of lifecycle stage and family type. Over half of elderly persons are welfare reliant, and over 40 per cent of persons in lone-parent families are welfare reliant. Non-elderly couples, with or without children, have comparatively low rates of welfare reliance—almost always less than 10 per cent. Since 2003, rates of welfare reliance have declined substantially for elderly persons, possibly reflecting greater reliance on superannuation among more recent birth cohorts. Welfare reliance has also declined substantially for lone-parent

families, perhaps because of welfare reforms encouraging increased labour market participation by lone parents. Welfare reliance among other family types has remained relatively stable between 2001 and 2007.

Differences in the extent of welfare reliance by family type (in 2001) over the full 2001 to 2007 period are considered in Table 8.5. Reliance is highly persistence for the elderly, particularly those in lone-person households. Lone parents have a high rate of experience of any welfare reliance over the seven-year period, but—consistent with what was found in Chapter 7—a relatively high proportion were welfare reliant for between one and four of the seven years.

Welfare reliance by state of residence

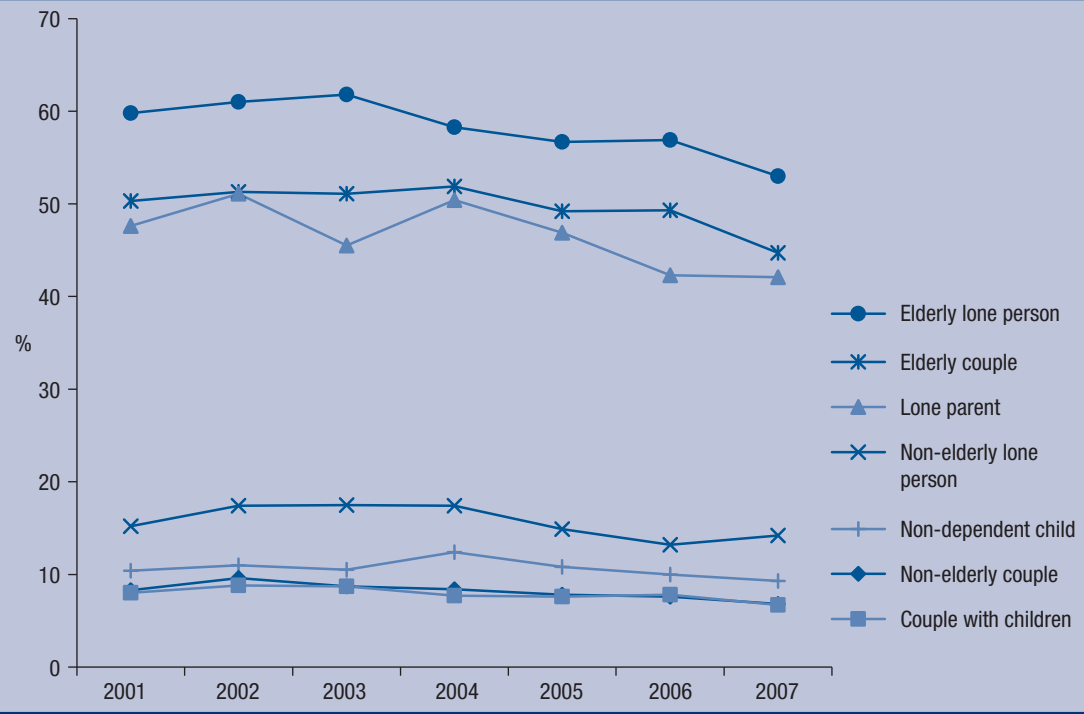
Figure 8.2 presents rates of welfare reliance broken down by state and territory of residence. Substantial differences across states and territories are evident. South Australia and Tasmania consistently have the highest rates of welfare reliance, while the Australian Capital Territory has the lowest rates. The downward trend in rates of reliance since 2002 is evident across all states, but not in the Australian Capital Territory, which experienced an increase to 2004 and has since had reliance decline.

Endnotes

1 The 90 per cent threshold was adopted by the Reference Group on Welfare Reform (2000) in its report on the Australian welfare system.

2 Note, however, the 'current week' reliance is based only on employment earnings and government benefits excluding Family Tax Benefit. This is because other income components are only reported or imputed as annual amounts for the previous financial year.

Figure 8.1: Welfare reliance by family type (%)



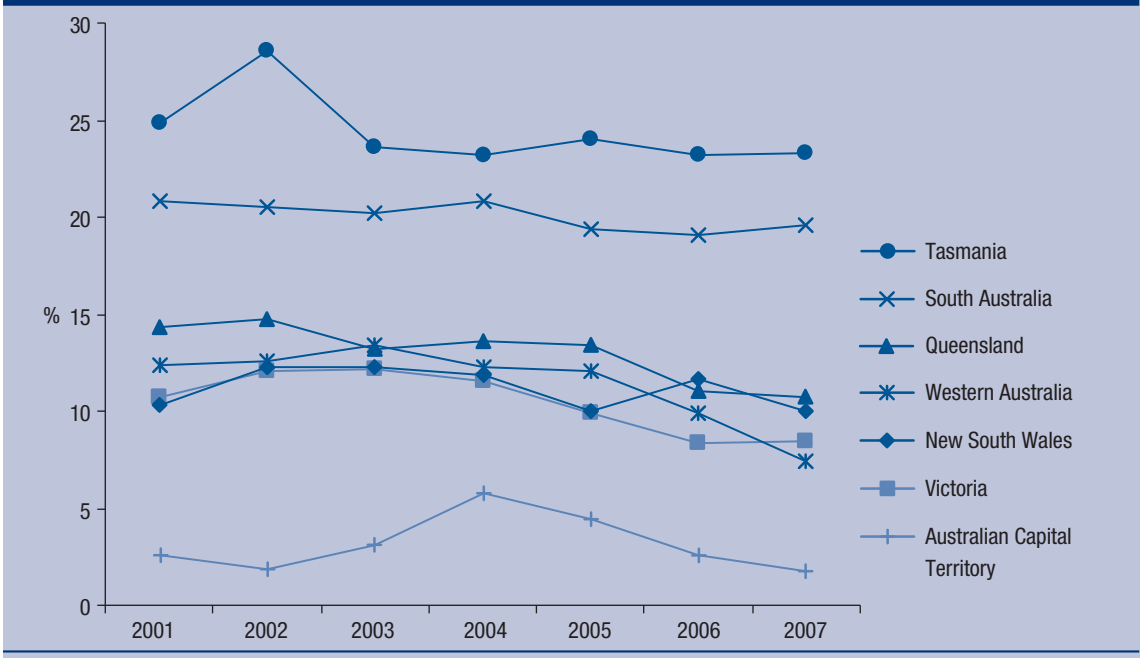
Notes: Population weighted results. A person is defined to be welfare reliant if more than 50% of household annual income came from welfare.

Table 8.5: Years welfare reliant by family type, 2001–2007

	0 years	*1 or 2 years*	*3 or 4 years*	*5–7 years*
Non-elderly couple	75.0	7.9	6.3	10.7
Couple with children	80.4	9.1	4.4	6.1
Lone parent	34.3	17.5	16.7	31.5
Non-dependent child	71.8	13.2	5.5	9.5
Non-elderly lone person	64.5	12.5	6.3	16.7
Elderly couple	26.8	8.7	7.5	57.0
Elderly lone person	20.3	9.1	4.7	66.0

Notes: Population weighted results. A person is defined to be welfare reliant if more than 50% of household annual income came from welfare.

Figure 8.2: Welfare reliance by state of residence (%)



Notes: Population weighted results. Estimates for Northern Territory were not statistically reliable and are therefore not plotted. Sample comprises persons aged 15–64 years. A person is defined to be welfare reliant if more than 50% of household annual income came from welfare.

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9. Financial stress

While the income poverty approach remains the most widely accepted one for defining and measuring inadequacy in material living standards, other measures also potentially provide useful information on individuals' economic wellbeing. Measures of 'financial stress' provide one such piece of supplemental information.

Experience of financial stress refers to an inability to meet basic financial commitments because of a shortage of money. Measures of financial stress therefore provide direct evidence on the adequacy of economic resources of individuals and households. The HILDA Survey obtains information from all respondents on inability to pay bills, having to dispose of possessions, going without meals, being unable to heat the home and obtaining material help from others, which facilitate the construction of measures of financial stress.

In all of the seven waves conducted to date, HILDA Survey respondents have been asked if, since the beginning of that year, because of a shortage of money they:

1. *Could not pay electricity, gas or telephone bills on time.*
2. *Could not pay the mortgage or rent on time.*
3. *Pawned or sold something.*
4. *Went without meals.*
5. *Were unable to heat the home.*
6. *Asked for financial help from friends or family.*
7. *Asked for help from welfare/community organisations.*

In Table 9.1 we first directly report the incidence of these seven indicators of financial stress. Results are given for individuals, but it should be noted that there was a high incidence of partners in couple households giving contradictory reports in answering these apparently more or less 'factual' questions. In fact, over half of couples 'disagreed' with each other in their reports of each of the financial problems listed in Table 9.1. Possible reasons for these contradictions are discussed in Breunig et al. (2005). Couples experiencing very severe financial hardship were somewhat less likely to disagree, but it also appears that couples can have quite different perceptions and levels of information about what is happening to them financially and what steps were taken to deal with problems.

We should also note that the incidence of financial stress is quite divergent from the incidence of income poverty. A number of persons in poverty do not report experience of financial stress, and some people who report financial problems have moderate to high incomes. This suggests that, for some people, experience of financial problems reflects a budgeting or money management problem, rather than inadequacy of income. However, we should not exclude the possibility that expenses to meet basic needs can vary substantially across individuals. For example, a person with a long-term health condition may genuinely experience financial hardship without being classified as income poor or being a bad manager of money. Similarly, certain significant life events—and in particular unforseen adverse events such as injury—may result in financial problems for people who are not classified income poor.

Financial stress

A person or household is considered to be under financial stress if, *due to a shortage of money*, it is not possible for them to meet basic financial commitments. The measure of financial stress used in this report is based on questions about inability to pay utility bills on time, inability to pay the mortgage on time, having to pawn or sell possessions, going without meals, being unable to heat the home, asking for financial help from friends or family, or asking for help from a welfare or community organisation.

Levels of financial stress appear to have fallen substantially between 2001 and 2006. For each indicator of financial stress during this six-year period, the proportion of individuals reporting having the financial problem indicated steadily fell. However, there are indications that this trend decline was arrested in 2007. In 2001, 28.3 per cent of respondents reported one or more of the financial problems listed in Table 9.1. By 2006 this had fallen to 19.1 per cent, but in 2007 it rose to 19.5 per cent. While the increase from 2006 to 2007 was small, it is in stark contrast to the steady decline up until 2006. The contrast is even greater if we focus on *severe* financial stress, as indicated by the proportion reporting three or more indicators. This proportion fell from 8.9 per cent to 5 per cent between 2001 and 2006, but then rose to 5.5 per cent in 2007. The reversal of trend in 2007 is consistent with the rise in poverty documented earlier in this report. Events since 2007 would suggest this is the beginning of an upward trend in the incidence of financial stress and poverty.

Up until 2006, the most commonly reported financial problem was inability to pay utility bills on time, which was reported by 17.7 per cent of respondents in 2001, 14.3 per cent in 2003, 12.3 per cent in 2005, 11.5 per cent in 2006 and 11.2 per cent in 2007. In 2007 this problem was overtaken by the hitherto second most common problem, asking for financial help from friends or family (which could alternatively be viewed as an attempt to deal with the issue). The incidence of this fell from 15.9 per cent in 2001 to 10.7 per cent by 2006 and then rose to 11.6 per cent in 2007. The next most commonly reported problem was inability to pay the mortgage or rent on time, followed by pawning or selling a possession. Until 2005, asking for help from a

welfare or community organisation was the next most-common indicator, but since 2006 it has been more common for individuals to report going without meals. The least frequently reported problem is inability to heat the home, although this is relatively more common among persons living in regions with colder winter climates. This notwithstanding, the ordering to a large extent reflects the individuals' prioritisation of expenses. For example, given the choice, individuals are likely to delay paying a utilities bill rather than go without meals.

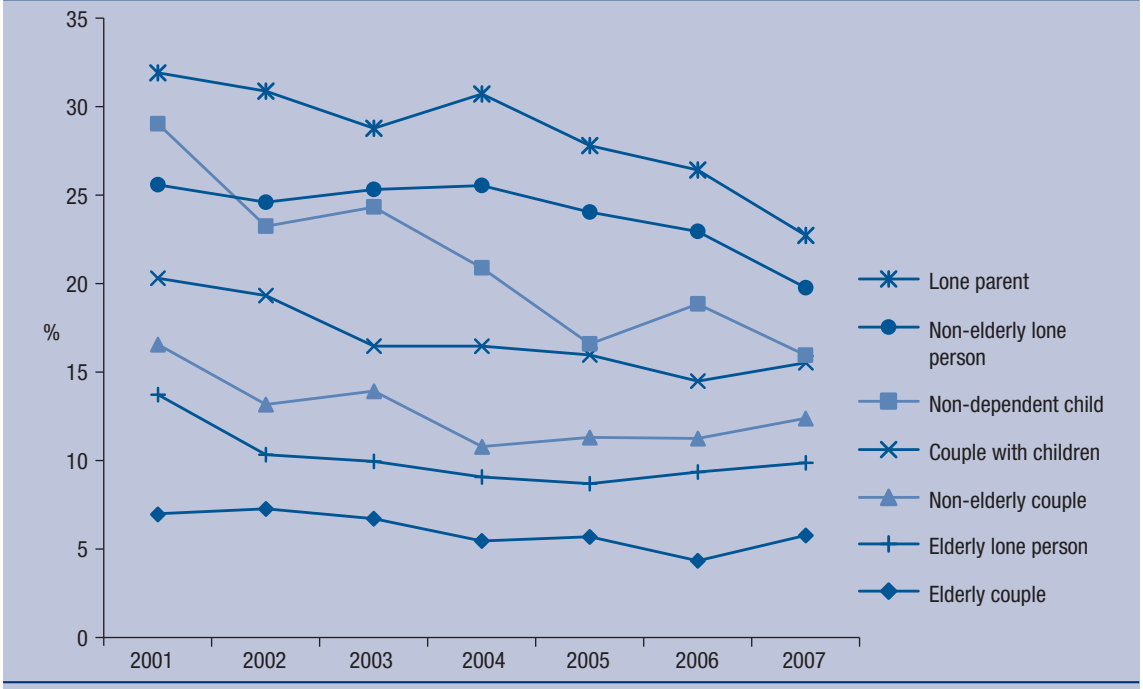
Figure 9.1 shows, for each wave, the percentage of individuals in each of seven types of family who reported one or more symptoms of financial stress. Differences in the incidence of financial stress across families are only partly in line with poverty estimates obtained earlier in this report. Lone-parent households have a high incidence of income poverty and they also report the highest incidence of financial stress. However, elderly people, and single elderly people in particular, have high rates of poverty, yet these are the two groups with the lowest reported rates of financial stress. This outcome may in part be because elderly people tend to have lower living expenses; they are more likely to own their homes outright; most are eligible for heavily subsidised medications; and most do not have to bear the costs of employment, such as commuting and dressing appropriately for work. Elderly persons are also more likely to have financial assets they can draw on if necessary, and they are likely to have more certainty in their income streams (e.g. the Age Pension is more certain than labour market earnings, particularly when one considers the potential for unemployment), making budgeting easier. However, it may also be that elderly persons tend to be better at budgeting.

Table 9.1: Financial stress (%)

	2001	*2003*	*2005*	*2006*	*2007*
Unable to pay utility bills on time	17.7	14.3	12.3	11.5	11.2
Asked family or friends for help	15.9	13.4	12.2	10.7	11.6
Unable to pay rent or mortgage on time	8.5	6.8	6.3	5.7	5.9
Had to pawn or sell something	6.2	4.7	3.7	3.4	3.6
Asked welfare agency for help	4.9	3.5	2.9	2.7	2.7
Went without meals	4.4	3.6	2.8	2.8	3.0
Unable to heat home	3.4	2.6	2.1	1.6	2.0
Percentage of persons with…					
One or two indicators of financial stress	19.4	16.7	14.8	14.1	14.0
Three or more indicators of financial stress	8.9	6.7	5.8	5.0	5.5

Note: Population weighted results.

Figure 9.1: Incidence of financial stress by family type (%)



Note: Population weighted results.

Table 9.2: Year-on-year persistence of financial stress (%)

	Proportion remaining in financial stress
2001–2002	51.6
2002–2003	53.2
2003–2004	53.6
2004–2005	51.7
2005–2006	50.0
2006–2007	51.8

Note: Population weighted results.

All family types exhibit declines in financial stress between 2001 and 2006, but the increase in financial stress in 2007 was confined to the family types with the lowest levels of financial stress—couples (with or without dependent children) and the elderly. There has thus been some degree of convergence in the incidence of financial stress across family types in 2007.

How persistent is financial stress from one year to the next? Do the same individuals tend to report stress every year, or do most people apparently manage to solve their financial problems? And has the degree of persistence in financial stress changed since 2001? In Table 9.2, we present the percentage of those who reported financial stress in one year who also reported financial stress in the next year. A person is defined to report financial stress if one or more of the seven indicators applies. For all six year-pairs examined in Table 9.2, approximately half of those who reported financial stress in one year reported financial stress in the following year. This is a relatively high degree of persistence.

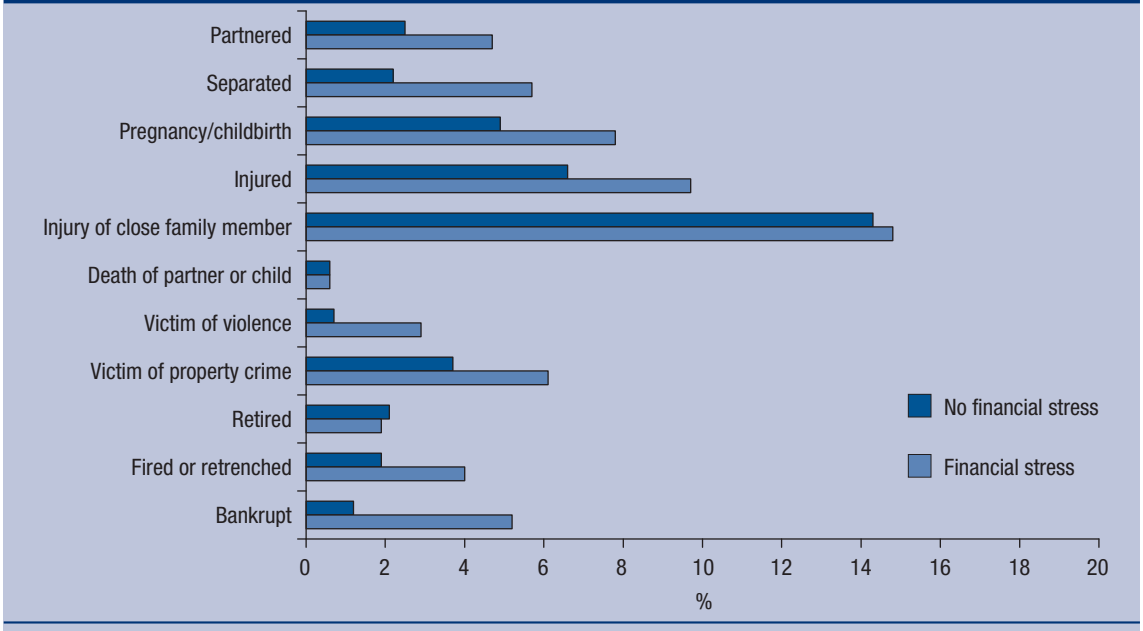
Financial stress may reflect not only low income, but also experience of significant life events that can have financial implications for the household. Each year, the HILDA Survey asks respondents about whether a number of significant life events have occurred in the preceding 12 months. In Figure 9.2, we examine a subset of these events, presenting the proportion of 'financially stressed' persons who experienced each event within the 12 months leading up to the Wave 7 interview alongside the proportion of 'non-financially stressed' persons who experienced each event.

We indeed find that people reporting financial stress are more likely to have experienced significant life events with negative implications for adequacy of household income. Particularly notable is that they were over twice as likely to have been fired or retrenched, one and a half times as likely to have been a victim of property crime, over four times as likely to have been a victim of violent crime and three times as likely to have separated from a partner. They are also more likely to have been injured or had a close family member injured, got pregnant or given birth (or had partner get pregnant or give birth) and they are also more likely to have become partnered. It is interesting that both separating and partnering are associated with financial stress; it seems that what matters in this regard is that there is a significant *change* in circumstances, which creates financial demands and difficulties.

Reference

Breunig, R., Cobb-Clark, D.A., Gong, X. and Venn, D. (2005) 'Disagreement in Partners' Reports of Financial Difficulty', IZA Discussion Paper No. 1624, Bonn.

Figure 9.2: Percentage experiencing major life events in the last 12 months, 2007



Note: Population weighted results.

10. Household consumption expenditure

Since Wave 5, the HILDA Survey has collected information on household expenditure on a range of goods and services. Most of the information is collected in the Self-Completion Questionnaire from persons who have responsibility for paying household bills.[1] Wave 5 was regarded as an experimental phase for the collection of expenditure data and indeed a number of changes were made to the expenditure questions in Wave 6. Longitudinal analysis of expenditure is therefore best restricted to Waves 6 and 7.

The items measured in the HILDA Survey since Wave 6 comprise expenditure on: groceries, alcohol; tobacco; taxis and public transport; child care; meals eaten out; motor fuel; men's clothing; women's clothing; children's clothing; telephone and internet services; holidays; education fees; health care; health insurance and other insurance; utilities; motor vehicle repairs and maintenance; home repairs and renovations; new cars; used cars; computers and related devices; home audio-visual equipment; household appliances; household furniture; rent on primary residence; and mortgage repayments.

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. Notable exclusions are: entertainment expenses (such as movies, museums, gambling and performances); books, music, magazines, newspapers and online subscriptions; non-fee education expenses (e.g. text books); sport and recreation (e.g. sports equipment, club memberships); gifts and donations; council rates; water and sewage; personal and household services (such as provided by cleaners, hairdressers, massage therapists and beauticians); health and beauty products; ornaments, art and jewellery; and bank fees and other financial service charges.

Despite these exclusions, it is useful to examine the distribution of household expenditure for those items measured to provide insights into economic wellbeing beyond those insights obtainable from looking at income. A number of studies have advocated the value of examining the distribution of household consumption expenditure (e.g. Barrett et al., 1999; Crossley and Pendakur, 2006). Key to this argument is that consumption is closer to the concept of material wellbeing that concerns economists than is income, or indeed, earnings, which are often studied by researchers. Crossley and Pendakur (2006) demonstrate this by presenting the following chain link from wages (earnings per hour of work) through to material wellbeing:

Wages → *Earnings* → *Income* → *Consumption* → *Material wellbeing*

While interest in household expenditure as a measure of economic wellbeing stems from its correspondence to the level of consumption of goods and services by household members, the correspondence is in practice far from exact. Many expenditure items are quite 'lumpy', meaning that current expenditure alone on those items is a poor measure of the actual consumption of those items; that is, in any given week, people 'consume' the services provided by various products that were not purchased in that week, and also purchase products in that week that are not completely consumed within the week. Most important in this regard is housing of owner–occupiers, who in most years do not buy a house, yet still consume housing services in those years; and in those years that a house is purchased, they do not 'consume' the entire house in that year. Other items in this category include motor vehicles and consumer durables. Indeed, for any item that typically lasts beyond one year, expenditure on that item in any given year will be an inaccurate indicator of consumption of that item.

In principle, to measure economic wellbeing, what is sought is the household's purchases of non-durable goods and services in the period under study, plus the household's consumption in that period of services delivered by durable goods and services (such as housing, cars, household appliances and furniture). Following the approach of Crossley and Pendakur (2006) as much as is possible, our main consumption measure approximates this as equal to the sum of expenditures on groceries, alcohol, tobacco, taxis, public transport, child care, meals eaten out, motor fuel, clothing,

Household expenditure and consumption

Households spend money on both non-durable and durable goods and services. Non-durables—goods and services consumed fairly soon after purchase—include such items as groceries, fuel and holiday expenditures. Durables, by contrast, are typically consumed over long periods of time, and include such items as housing, cars, household appliances and furniture. To measure non-durable consumption of a household during a particular period, it is generally sufficient to measure expenditure on non-durables in that period. However, measuring durables consumption is more difficult. First, the full stock of durables held by the household needs to be known—some durables may have been purchased in the period being examined, but most will have been purchased previously. Second, we need to estimate the value of the consumption services delivered by those durables in the period—for example, impute a rental value for owner-occupied housing—something that is inherently difficult to do.

telephone and internet services, holidays, education fees, health care, insurance, utilities, motor vehicle repairs and maintenance and rent.[2] To this measure we additionally add imputed rent on owner-occupied housing. Different approaches to imputing rent are possible. We take an approach that is common when home values are available in the data, which is to impute annual rent as a fixed proportion of the home value, usually between 4 per cent and 6 per cent (e.g. Smeeding et al.; 1993, Frick and Grabka, 2002). We impute rent as equal to 5 per cent of the value of the home.[3] As per Crossley and Pendakur, no attempt is made to estimate consumption of durables other than housing, since all that we know about the durables for which expenditure data are gathered is the value of those purchased in the last year, which will in general be a poor guide to consumption of services of durables. We therefore refer to this measure as 'non-durable consumption' expenditure, even though it contains some items that are durable.

To utilise the full set of expenditure information provided by the HILDA Survey data, we also present estimates on the distribution of expenditure for two additional measures. The first, which we label 'total consumption expenditure', is an expanded consumption measure that includes all consumption expenditure items collected by the HILDA Survey, whether durable or non-durable. This adds home repairs and renovations, new cars, used cars, computers and related devices, home audio-visual equipment, household appliances and household furniture to the consumption expenditure items examined. All of these additions are predominantly consumer durables. Our final measure is simply total household expenditure, including mortgage repayments but excluding imputed rent—that is, it is a measure of actual outlays of the household that are captured by HILDA. We refer to this as 'total expenditure'.

Non-durable consumption expenditure will generally provide a reasonable estimate of the actual level of consumption of the items included in the measure. The total consumption expenditure measure will not correlate so well with consumption because of the lumpy nature of expenditures on the additional items included. The total expenditure measure does not provide a consumption measure and is generally likely to be regarded as of less interest than our consumption expenditure measures. For most of the analysis, we equivalise household expenditure in the same manner as income was equivalised earlier in this report, for the same reasons as apply to income. Also as applied to income, all expenditure items are expressed in December quarter 2007 prices.

Household expenditure in 2006 and 2007

In Table 10.1, expenditure distributions are described for each of our three measures. We examine household income of *individuals*—thus, the household income of a four-person household is included four times, whereas that of a one-person household is included only once. The top panel presents statistics for total household expenditure for all three measures, while the lower panel presents statistics for equivalised expenditure for non-durable consumption expenditure and total consumption expenditure.

By construction, total consumption expenditure of each household exceeds non-durable consumption expenditure, and as such the mean and median are greater for total consumption expenditure. Dispersion or inequality is also higher for total consumption expenditure, particularly notable being the increase in the ratio of the 90th percentile to the median when moving from non-durable to total consumption expenditure. Despite the inclusion of mortgage repayments, the mean and median of total expenditure are lower than those of both non-durable and total consumption expenditure, a result of the omission of imputed rent for owner–occupiers. However, inequality in total expenditure is significantly greater than inequality in the consumption expenditure measures, with

Table 10.1: Distribution of individuals' household expenditure (December 2007 prices)

	Mean ($)	*Median ($)*	*p90/p50*	*p50/p10*	*Gini coefficient*
Actual expenditure					
Non-durable consumption expenditure 2006	48,707	42,889	1.85	1.93	0.271
Non-durable consumption expenditure 2007	49,022	43,536	1.85	1.99	0.277
Total consumption expenditure 2006	57,377	48,584	2.02	2.07	0.302
Total consumption expenditure 2007	57,266	49,242	2.00	2.14	0.308
Total expenditure 2006	46,970	39,584	2.08	2.45	0.324
Total expenditure 2007	46,726	39,579	2.13	2.51	0.329
Equivalised expenditure					
Non-durable consumption expenditure 2006	27,918	24,938	1.76	1.77	0.261
Non-durable consumption expenditure 2007	28,694	25,531	1.78	1.77	0.264
Total consumption expenditure 2006	32,965	28,200	1.91	1.87	0.295
Total consumption expenditure 2007	33,639	28,571	1.97	1.87	0.295

Note: Population weighted results.

the value of the 10th percentile relative to the median considerably lower for total expenditure. This most likely reflects the low levels of expenditure by owner–occupier elderly persons once imputed rent is excluded.

Interestingly, for both the non-durable and total consumption measures, equivalising only slightly decreases the degree of dispersion in the expenditure distribution. The effect is mostly in the lower part of the distribution, with the ratio of the median to the 10th percentile decreasing as a result of the adjustment for household size. Focusing our attention on non-durable consumption expenditure, we nonetheless see that inequality in expenditure is considerably less than is inequality in income. For the equivalised consumption expenditure distribution, in both 2006 and 2007, the ratios of the 90th percentile to the 50th percentile and the 50th percentile to the 10th percentile are just under 1.8, while the Gini coefficient is 0.26. These compare with respective estimates for equivalent income of 1.9, 2.1 and 0.29 in 2006, and 1.9, 2.2 and 0.31 in 2007.

Comparing 2006 and 2007, average levels of non-durable consumption expenditure increased, the mean of the equivalised measure by 2.8 per cent and the median by 2.4 per cent. By contrast, measures of total consumption expenditure and total expenditure exhibit slight declines in average levels, implying average expenditure on consumer durables, motor vehicles and home repairs and renovations decreased from 2006 to 2007. However, this may in part reflect a slower rate of increase in the prices of these goods compared with other goods, rather than a real decline in the quantity of these goods purchased. For example, the Consumer Price Index (CPI) for computers and audio, visual and computing equipment decreased by 11.1 per cent over this period, compared with a 3 per cent increase in the overall CPI.[4] Inequality in consumption expenditure changed very little from 2006 to 2007, although there is some indication of a slight increase in dispersion. A more pronounced increase in inequality in the distribution of total expenditure is evident, the ratio of the 90th to the 50th percentiles, the ratio of the 50th to the 10th percentiles and the Gini coefficient all increasing.

Differences in equivalised consumption expenditure levels by family type are compared in Table 10.2. In both 2006 and 2007, median consumption expenditure was lowest for lone-parent households and highest for non-elderly couples and singles without dependent children. Elderly couples also had reasonably high levels of non-durable consumption, in part reflecting high rates of home-ownership and low levels of mortgage debt. One suspects that the relative position of elderly couples in consumption levels would further improve if other durable-services consumption could be included, since they may hold relatively high stocks of durable goods, acquired during their working lives. Elderly lone persons may also improve their relative position with the inclusion of other non-durables, but start from a lower base than elderly couples by virtue of lower median equivalent expenditure on non-durable consumption.

The collection of longitudinal expenditure data creates the potential to examine consumption expenditure over a longer time frame than one year. Table 10.3 presents statistics on the distribution of equivalised consumption expenditure over a two-year time frame. Two-year expenditure is derived by adding the individual's equivalised consumption expenditure in 2006 to his or her equivalised consumption expenditure in 2007. We expect less fluctuation over time in consumption than in income. In particular, transitory income fluctuations will not

Table 10.2: Median equivalised expenditure by family type ($, December 2007 prices)

	Non-durable consumption expenditure		*Total consumption expenditure*	
	2006	*2007*	*2006*	*2007*
Non-elderly couple	28,985	28,958	33,380	33,920
Couple with children	24,549	25,207	28,237	28,455
Lone parent	19,638	20,767	21,603	22,553
Non-elderly lone person	26,394	27,567	29,476	30,039
Elderly couple	25,620	26,934	28,099	29,408
Elderly lone person	22,968	24,057	24,017	25,792
Non-dependent child	22,167	22,035	23,938	24,764

Note: Population weighted results.

Table 10.3: Equivalised consumption expenditure over two years, 2006 and 2007 (December 2007 prices)

	Mean ($)	*Median ($)*	*p90/p50*	*p50/p10*	*Gini coefficient*
Non-durable consumption expenditure	57,129	50,880	1.75	1.69	0.252
Total consumption expenditure	67,342	58,888	1.85	1.79	0.288

Note: Population weighted results

translate into swings in consumption of the same extent because of likely changes in saving and borrowing behaviour. For example, a person is likely to run down savings or increase borrowings during a period of temporary unemployment. Nonetheless, we see in Table 10.3 that the degree of dispersion in consumption expenditure does decrease when moving from a one-year to a two-year time frame, suggesting that there are transitory fluctuations—even in the case of non-durable consumption expenditure. The extent of change is not large, however. For example, the Gini coefficient for non-durable consumption expenditure decreases from 0.26 to 0.25 in moving from one-year to two-year consumption expenditure.

How well does consumption expenditure correlate with income? Table 10.4 shows the association is not as strong as might be expected. While it is true that median non-durable consumption expenditure is increasing in income once equivalised income exceeds $10,000, the rate of increase is lower than the increase in income. For example, median non-durable consumption expenditure of persons with income between $10,000 and $20,000 was $18,348 in 2007, which is only $3,014 less than median expenditure of persons with income between $20,000 and $30,000, $5,666 less than that of persons in the $30,000 to $40,000 category and $8,821 less than those in the $40,000 to $50,000 category. Thus, each $10,000 increase in equivalent household income is associated with a much smaller increase in equivalent household consumption expenditure. Perhaps more significant is that those with incomes below $10,000 actually have higher median consumption expenditure than those with incomes between $10,000 and $30,000. Consistent with patterns in median consumption by level of income, correlation coefficients for income and consumption expenditure, while positive, are all below 0.5.

The imperfect correlation between household income and consumption expenditure, and more particularly, the relatively high consumption expenditure of those with low incomes, imply that household income is not always a good indicator of access to economic resources, especially for persons with low measured household incomes. This may be in part because measured income does not capture all elements of actual income, such as income from inter-household transfers. However, it may also in part reflect consumption smoothing behaviour achieved by saving more when income is higher and saving less, reducing savings and even accumulating debt when income is low. Indeed, consistent with consumption smoothing behaviour, the correlation coefficient between income and consumption expenditure is considerably higher when income and consumption are measured over two years, when observed income is less affected by temporary shocks—for example, a given period of low income will be a smaller component of a two-year period than of a one-year period.

Longitudinal analysis of Waves 6 and 7

In Table 10.5 we examine changes in individuals' household consumption expenditure from Wave 6 to Wave 7. Across all persons of all ages, the median increase in measured household non-durable consumption expenditure per adult-equivalent was $657 (at December 2007 prices)—that is, half of the population had an increase in equivalent

Table 10.4: Association between equivalised consumption expenditure and equivalised household income—Median expenditure by level of income ($, December 2007 prices)

	Non-durable consumption expenditure		*Total consumption expenditure*	
Annual income	*2006*	*2007*	*2006*	*2007*
< $10,000	24,217	21,741	26,920	24,050
$10,000–$19,999	17,876	18,348	19,625	20,077
$20,000–$29,999	20,269	21,362	22,825	23,628
$30,000–$39,999	24,306	24,014	27,445	27,381
$40,000–$49,999	26,955	27,169	30,658	30,631
≥ $50,000	34,691	34,788	41,279	41,480
Correlation coefficient between consumption and income	0.409	0.429	0.386	0.431
Two-year income	*2006 and 2007 combined*		*2006 and 2007 combined*	
< $19,999	53,361		67,911	
$20,000–$39,999	35,845		38,733	
$40,000–$59,999	41,826		46,529	
$60,000–$79,999	49,968		57,502	
$80,000–$99,999	55,504		65,064	
≥ $100,000	70,879		83,909	
Correlation coefficient between consumption and income	0.479		0.490	

Note: Population weighted results.

Table 10.5: Median change in equivalised consumption expenditure 2006–2007 by family type in 2006 ($, December 2007 prices)

	Non-durable consumption expenditure	*Total consumption expenditure*
Non-elderly couple	238	–25
Couple with children	808	809
Lone parent	375	916
Non-elderly lone person	920	428
Elderly couple	8	–196
Elderly lone person	827	255
Non-dependent child	244	507
All persons	657	606

Note: Population weighted results.

expenditure less than $657, and half had an increase greater than $657. Persons who in 2006 were living in couple families with dependent children or single-person families (whether elderly or not) had the highest median growth, while couples without dependent children (whether elderly or not) and non-dependent children living with their parents had the lowest growth. In part, these differences are likely to derive from changes in household composition that occurred to individuals in each of these family types between Wave 6 and Wave 7. For example, two single people who partner with each other will increase their equivalised consumption expenditure if they do not change their individual levels of expenditure.

Mobility in the consumption expenditure distribution is examined in Table 10.6, which shows, for

Table 10.6: Proportion of each initial (2006) expenditure quintile in each final (2007) quintile and median percentage in expenditure change by initial quintile

	Quintile in 2007						*Median percentage change in expenditure*
Quintile in 2006	*1*	*2*	*3*	*4*	*5*	*Total*	
Equivalised non-durable consumption expenditure							
1	**65.1**	23.7	7.6	2.6	1.0	100.0	12.2
2	21.0	**44.7**	23.1	8.7	2.6	100.0	5.2
3	5.4	23.3	**44.4**	21.8	5.2	100.0	1.4
4	3.1	8.3	22.3	**46.8**	19.5	100.0	–0.2
5	0.4	1.6	4.3	21.2	**72.5**	100.0	–3.1
Equivalised total consumption expenditure							
1	**62.7**	24.1	8.8	3.1	1.3	100.0	15.6
2	23.5	**36.7**	24.3	10.6	4.9	100.0	8.3
3	7.2	24.1	**36.7**	21.7	10.3	100.0	2.7
4	3.6	12.9	21.1	**40.4**	21.9	100.0	–3.6
5	1.2	2.3	8.5	26.1	**61.9**	100.0	–13.2

Notes: Population weighted results. Percentages may not add up to 100 due to rounding.

Table 10.7: Association between changes in consumption expenditure, income level and income changes, 2006–2007

	Equivalised non-durable consumption expenditure	*Equivalised total consumption expenditure*
Median change by income quintile in 2006 ($, December 2007 prices)		
1st quintile	331	228
2nd quintile	459	725
3rd quintile	909	654
4th quintile	265	338
5th quintile	1,234	685
Correlation coefficient for changes in income and changes in expenditure	–0.008	0.010
Median change by quintile of change in income 2006–2007 ($, December 2007 prices)		
1st quintile	1,071	–91
2nd quintile	117	–36
3rd quintile	431	774
4th quintile	468	861
5th quintile	1,042	1,233

Note: Population weighted results.

each quintile of the distribution of expenditure in 2006, the proportion in each quintile of the distribution of expenditure in 2007. As with income, considerable mobility is evident, although most individuals who move quintiles only move up or down one quintile. Mobility is greater for our total consumption expenditure measure than our non-durable consumption expenditure measure. This is consistent with the 'lumpy' nature of expenditure on the durable items included in the total consumption measure. For example, if a person bought a car in 2006, they were less likely to buy one in 2007 and were therefore more likely to move into a lower quintile; while a person who did not buy a car in 2006 was more likely to buy one in 2007 and as a consequence move into a higher quintile.

How did growth in consumption expenditure between 2006 and 2007 differ by initial income level? Was expenditure growth greater for high-income people? The top panel of Table 10.7 shows median growth by quintile in the (equivalent) income distribution in 2006. There is mixed evidence on how changes in expenditure correlate with initial income. For non-durable consumption, persons in the top quintile had the biggest median increase in expenditure, and the median change in expenditure is increasing in income quintile from the first through to the third quintile. However, persons in the fourth quintile had the lowest median growth in expenditure. For total consumption expenditure, although those in the bottom income quintile had the smallest median increase in expenditure, there is otherwise no clear relationship between initial income and expenditure growth.

The bottom two panels of Table 10.7 consider the issue of the correlation between income changes and consumption changes. The first of these panels presents a summary measure of the correlation between income change and consumption change, the correlation coefficient. For both non-durable and total consumption expenditure, the correlation coefficient is very close to zero. Consistent with the cross-sectional evidence on the relationship between consumption and income presented in Table 10.4, the lack of association between consumption and income changes may reflect the tendency for saving and dissaving to occur as income fluctuates, and/or that income is not completely well measured. Either way, it suggests the income approach overstates changes in individuals' economic wellbeing from one period to the next. The bottom panel of Table 10.7 examines the association between income and consumption changes in greater detail, showing the median change in consumption expenditure for each quintile of the distribution of changes in income. This reveals that non-durable consumption expenditure increases are in fact greatest for those with the largest or the *smallest* increases in income. For total consumption expenditure, a positive association between changes in income and changes in consumption is apparent.

Endnotes

1 In Waves 6 and 7, respondents were directed to answer the household expenditure questions only if '…you have any responsibility for payment of household bills, such as electricity, gas, water and council rates.' In Wave 6, 29.4 per cent of all households had more than one person respond to at least one of the household expenditure questions in the Self-Completion Questionnaire, while 5.5 per cent of all households had no one respond to these questions, despite at least one Self-Completion Questionnaire being returned. In Wave 7, the corresponding figures were 27.4 per cent and 5.4 per cent. In couple households, women were slightly more likely to respond to the household expenditure questions than men, with women comprising approximately 54 per cent of the respondents in these households in Waves 6 and 7.

2 Respondents are asked for their household's expenditure on items over time-frames that vary: weekly expenditure is obtained for groceries, alcohol, tobacco, public transport and taxis, and meals eaten out; monthly expenditure is obtained for petrol, clothing, and telephone and internet charges; and annual expenditure is obtained for all other items.

3 We do not impute rent for non-home-owners paying no rent or public housing tenants receiving subsidised rents.

4 See ABS Catalogue No. 6401.0 *Consumer Price Index, Australia*, time series spreadsheets, Table 14 for CPI estimates for individual expenditure groups.

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Labour Market Outcomes

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

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

In this section, we present brief overviews of some of the key labour market dimensions on which the HILDA Survey provides unique information in the Australian context, examining: transitions in labour force status; wage progression over time; movements between jobs; changes over time in preferred and actual hours of work; the rate and persistence of jobless and 'job-poor' households; and dimensions of job satisfaction and the factors associated with greater overall job satisfaction. Part B of this report additionally contains articles on self-assessed literacy and numeracy and its association with earnings; work-related training; differences in earnings between public sector and private sector employees; retirement expectations and transitions; and financial preparedness for retirement.

11. Mobility in labour force status

Standard statistical summaries divide the working-aged population into three groups: those who are employed, either full-time or part-time; and two groups of non-employed people—the unemployed who are actively looking for work, and persons not in the labour force who are not actively seeking work. The HILDA Survey collects data from the same respondents every year, putting us in a position to assess many aspects of mobility in labour force status—that is, movements over time between different labour force states. For example, the data allow consideration of the extent of mobility of the Australian labour force, and more specifically, whether the same people remain in jobs year after year while others are persistently unemployed, or whether there is a high degree of movement into and out of unemployment and the other labour market states.

Table 11.1 shows the labour force status of individuals in 2007, distinguishing full-time and part-time employment (where a person is employed part-time if usual weekly hours in all jobs are less than 35) and disaggregating by age group. Overall, 70 per cent of males and 58 per cent of females were employed at the time of their 2007 interview, 27 per cent of males and 40 per cent of females were not in the labour force and the remaining 3 per cent of males and females were unemployed. It is much more common for females than males to be working part-time, with 47 per cent of the females who were employed working part-time, compared to only 17 per cent of males.

Labour force status

In this report, insofar as is possible, we follow international and Australian Bureau of Statistics 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 part-time employed if usual weekly hours of work in all jobs total less than 35. Otherwise, an employed person is classified as full-time employed.
- 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. Otherwise, a non-employed person is classified as not in the labour force.

The proportion of males who were in paid work in 2007 increases from 68 per cent of males aged between 15 and 24 to 92 per cent of males in the 25–34 age group, and then decreases with age—from 89 per cent of males aged between 35 and 44 to 61 per cent of males in the 55–64 age group and 12 per cent of males aged 65 or older. Conversely, from the 25–34 age group onwards, the proportion of males who were not in the labour force increases with age—from 6 per cent of males aged between 25 and 34 to 37 per cent of males aged between 55 and 64 and 87 per cent of males aged 65 or older. The proportion of males who were unemployed generally decreases with age, ranging from 8 per cent of males aged between 15 and 24 to 2 per cent of males in the 35–44 and 45–54 age groups.

The proportion of females who were employed in 2007 ranges from 65 per cent of females aged between 15 and 24 to 76 per cent of females in the 45–54 age group, then drops substantially to only 49 per cent of females aged between 55 and 64 and 5 per cent of females aged 65 or older. As is the case with males, the proportion of females who were unemployed generally decreases with age—from 7 per cent of females aged between 15 and 24 to less than 2 per cent of females in the 45–54 age group; and the proportion of females who were not in the labour force rises substantially from the age of 55—from 22 per cent of females between the age of 45 and 54 to 50 per cent of females aged between 55 and 64 and 96 per cent of females aged 65 or older.

Table 11.2 shows that, in the seven years from 2001 to 2007, there was very little change in the proportion of people in each labour force state. The proportion of males who were employed each year was approximately 70 per cent, and for

Table 11.1: Labour force status by sex and age group, 2007 (%)

	Age group						
	15–24	*25–34*	*35–44*	*45–54*	*55–64*	*65+*	*All*
Males							
Employed	67.6	91.8	88.8	86.2	61.3	12.3	70.1
Employed full-time	42.8	82.6	81.8	78.7	46.7	5.4	58.4
Employed part-time	24.8	9.2	7.0	7.5	14.6	6.9	11.7
Unemployed	7.6	2.7	2.2	1.9	*2.0	*0.3	2.9
Not in the labour force	24.9	5.5	9.0	12.0	36.7	87.3	27.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Females							
Employed	65.3	71.5	72.4	76.0	48.7	4.5	57.7
Employed full-time	27.6	45.0	34.5	46.4	24.6	1.2	30.8
Employed part-time	37.7	26.5	37.9	29.6	24.1	3.3	26.9
Unemployed	6.9	3.1	2.3	1.7	*1.6	*0.0	2.6
Not in the labour force	27.9	25.4	25.4	22.2	49.7	95.5	39.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

Table 11.2: Labour force status of the population aged 15 years and over (%)

	2001	*2003*	*2005*	*2006*	*2007*
Males					
Employed	68.0	68.9	69.6	70.0	70.1
Employed full-time	56.8	57.1	58.5	57.6	58.4
Employed part-time	11.2	11.8	11.1	12.4	11.7
Unemployed	5.3	4.1	3.4	3.1	2.9
Not in the labour force	26.8	27.0	27.0	26.8	27.0
Total	100.0	100.0	100.0	100.0	100.0
Females					
Employed	53.2	53.9	56.0	56.6	57.7
Employed full-time	28.2	27.6	28.4	30.2	30.8
Employed part-time	25.0	26.3	27.6	26.4	26.9
Unemployed	3.5	3.0	2.9	2.7	2.6
Not in the labour force	43.3	43.1	41.2	40.7	39.6
Total	100.0	100.0	100.0	100.0	100.0

Notes: Population weighted results. Percentages may not add up to 100 due to rounding.

females the proportion who were in paid work ranged from 53 per cent in 2001 to 58 per cent in 2007. Overall, the proportion of people working full-time did not change much in the seven-year period from 2001 to 2007. The proportion of males employed full-time ranged from 57 per cent in 2001 to 58 per cent in 2007, and for females from 28 per cent in 2001 to 31 per cent in 2007. In all seven years around 11–12 per cent of males and 25–28 per cent of females were employed part-time. Unemployment dropped from 5.3 per cent of males and 3.5 per cent of females in 2001 to 2.9 per cent of males and 2.6 per cent of females in 2007. In all seven years, around 27 per cent of males were not in the labour force and not looking for work. The proportion of females who were not in the labour force was around 43 per cent from 2001 to 2004, but subsequently dropped to 41 per cent in 2005 and 2006 and 40 per cent in 2007.

Changes in labour force status, 2002 to 2007

Table 11.3 provides an overview of movements between labour force states by showing what had happened in the one, three and five years to 2007.[1] Almost 90 per cent of those who were employed full-time in 2006 were working full-time one year later, 7 per cent had reduced their working hours to part-time, 3 per cent were no longer in the labour force and the remaining 1 per cent were unemployed. Of those who were working part-time in 2006, 67 per cent were still in part-time work in 2007, while 20 per cent had moved to full-time work, 11 per cent were out of the labour force and 3 per cent were unemployed. Almost 70 per cent of those who were unemployed in 2006 were working either full-time or part-time in 2007, while 21 per cent were no longer in the labour force and almost one-quarter were still unemployed. The majority (86 per cent) of those who were not in the labour force in 2006 were still out of the labour force in 2007: 4 per cent were employed full-time, 8 per cent were working part-time and 3 per cent were unemployed.

Looking at changes in labour force status over the three-year period from 2004 to 2007 shows even greater mobility. Among those who were working full-time in 2004, 83 per cent were still in full-time employment in 2007, 9 per cent had reduced their working hours to part-time, 6 per cent had left the labour force and 1 per cent were unemployed. Almost half of those who were working part-time in 2004 were no longer working part-time in 2007—32 per cent had moved to full-time work, 15 per cent had left the labour force and 2 per cent were unemployed. The proportion who were unemployed in both 2004 and 2007 was only 15 per cent—61 per cent were employed either full-time or part-time and 24 per cent had left the labour force. Most of the individuals (78 per cent) who were not in the labour force in 2004 were still out of the labour force in 2007: 8 per cent were working full-time, 11 per cent were working part-time and 2 per cent were looking for work.

Looking at labour force states five years apart indicates even greater mobility over the medium term. Among those who were working full-time in 2002, 78 per cent were employed full-time in 2007, while 11 per cent had changed to part-time work and 10 per cent had left the labour force. Only

Table 11.3: Labour force status mobility—Changes between 2002 and 2007 (%)

	Labour force status in 2007				
	Employed full-time	*Employed part-time*	*Unemployed*	*Not in the labour force*	*Total*
Labour force status in 2006					
Employed full-time	89.2	6.6	1.1	3.1	100.0
Employed part-time	19.8	66.9	2.7	10.5	100.0
Unemployed	27.2	28.2	23.8	20.8	100.0
Not in the labour force	3.5	7.8	3.3	85.5	100.0
Total	45.1	19.1	2.8	33.0	100.0
Labour force status in 2004					
Employed full-time	83.4	8.9	1.3	6.4	100.0
Employed part-time	31.6	51.5	2.2	14.8	100.0
Unemployed	33.6	27.1	15.3	24.0	100.0
Not in the labour force	8.3	11.4	2.4	77.9	100.0
Total	45.7	18.7	2.3	33.3	100.0
Labour force status in 2002					
Employed full-time	78.2	11.1	1.2	9.6	100.0
Employed part-time	37.1	44.1	2.1	16.7	100.0
Unemployed	41.9	19.5	12.7	25.9	100.0
Not in the labour force	9.4	11.9	2.0	76.7	100.0
Total	45.6	17.9	2.1	34.4	100.0

Notes: Population weighted results. Percentages may not add up to 100 due to rounding.

44 per cent of those who were working part-time in 2002 were in part-time work in 2007: 37 per cent had increased their working hours to full-time, 17 per cent had left the labour force and 2 per cent were unemployed. Just over three-quarters of the people who were not in the labour force in 2002 remained in that category in 2007, while 21 per cent were working in 2006 and 2 per cent were unemployed. By contrast, among those who were classified as unemployed in 2002, only 13 per cent were unemployed in 2007. More than 60 per cent had found a job (68 per cent of whom were working full-time), and 26 per cent were no longer looking for work.

Mobility in labour force status of the prime-age population

Having provided an overview of the labour force status mobility of the entire adult population, it is useful to confine the remaining analysis to persons of prime working age (25 to 54). Between 2006 and 2007, 17 per cent of the prime-age population (23 per cent of prime-age women and 12 per cent of prime-age men) changed labour force status. Table 11.4 shows the changes in labour force status for prime-age males and females between 2006 and 2007.[2] Most of the males who were working full-time in 2006 (94 per cent) were still in full-time work in 2007. Only 3 per cent had moved to part-time work and 2 per cent had left the labour force. Of those males who were working part-time in 2006, 62 per cent were still working part-time in 2007 and 31 per cent were in full-time work. Almost half of the males who were unemployed in 2006 had jobs in 2007, with most working full-time, while less than 20 per cent of males who were not in the labour force in 2006 had re-entered the labour force in 2007.

As was the case for males, most females who were in full-time work in 2006 (85 per cent) were still working full-time in 2007: 11 per cent had changed from full-time to part-time work and 3 per cent

Table 11.4: Changes in labour force status, prime-age population, 2006–2007 (%)

	Labour force status in 2007				
Labour force status in 2006	*Employed full-time*	*Employed part-time*	*Unemployed*	*Not in the labour force*	*Total*
Males					
Employed full-time	94.1	3.1	1.1	1.8	100.0
Employed part-time	31.0	61.5	*3.9	*3.5	100.0
Unemployed	32.8	*16.9	*24.0	*26.3	100.0
Not in the labour force	12.2	*6.4	*11.7	69.7	100.0
Total	81.3	8.0	2.6	8.1	100.0
Females					
Employed full-time	85.2	10.6	*1.0	3.1	100.0
Employed part-time	19.2	71.1	*1.5	8.3	100.0
Unemployed	21.9	26.1	23.2	28.8	100.0
Not in the labour force	4.5	14.3	4.1	77.1	100.0
Total	43.5	30.7	2.5	23.3	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

Table 11.5: Changes in labour force status, prime-age population, 2002–2007 (%)

	Labour force status in 2007				
Labour force status in 2002	*Employed full-time*	*Employed part-time*	*Unemployed*	*Not in the labour force*	*Total*
Males					
Employed full-time	90.2	5.7	1.2	2.8	100.0
Employed part-time	53.8	28.2	*6.0	*12.1	100.0
Unemployed	55.6	*7.0	*12.2	*25.2	100.0
Not in the labour force	23.9	*10.3	*5.1	60.6	100.0
Total	81.3	7.7	2.3	8.7	100.0
Females					
Employed full-time	70.9	19.0	*0.8	9.3	100.0
Employed part-time	31.4	55.8	*2.1	10.6	100.0
Unemployed	30.5	22.0	*12.2	35.3	100.0
Not in the labour force	13.2	30.5	4.1	52.2	100.0
Total	41.3	33.4	2.5	22.8	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

had left the labour force. Females were, however, more likely to remain in part-time employment than males, with 71 per cent of females who were working part-time in 2006 still in part-time work in 2007, and only 19 per cent moving from part-time to full-time work. Only 26 per cent of females who were unemployed in 2006 were still unemployed in 2007, with 26 per cent working full-time and 22 per cent working part-time. Almost one-quarter of the females who were not in the labour force in 2006 had re-entered the labour force by 2007: 14 per cent were working part-time, 5 per cent were employed full-time and 4 per cent were looking for work.

It appears that, for prime-age women, changes in labour force status were commonly a result of family formation and caring responsibilities. Not surprisingly, 28 per cent of women who had a baby in the 12 months prior to their 2007 interview had changed from being employed (either full-time or part-time) in 2006 to being out of the labour force in 2007 and a further 13 per cent had reduced their working hours from full-time in 2006 to part-time in 2007. There was also a weak positive correlation between changing residence and changing labour force status prime-age men and women. This may be a result of moving house because of a job opportunity in a different location, or conversely, having to leave a job because the family is moving to a new location.[3]

Table 11.5 shows the changes in labour force status of prime-age males and females between 2002 and 2007. Among prime-age males, 95 per cent of those who had jobs in 2002 were employed in 2007, and for females, the comparable figure is 89 per cent. While 90 per cent of males who were working full-time in 2002 were still in full-time work in 2007, only 28 per cent of males who were working part-time in 2002 were still in part-time work. It is much more common for females to remain in part-time work, with 56 per cent of females who were working part-time in 2002 still in part-time work in 2007, and 19 per cent of females who were working full-time in 2002 moving to part-time work by 2007.

Of the prime-age males who had been unemployed in 2002, 63 per cent were employed in 2007, and of those males who had moved from unemployment to employment, 89 per cent were in full-time work. Similarly, 53 per cent of prime-age females who were unemployed in 2002 were working in 2007. However, 42 per cent of the females who had moved from unemployment in 2002 to employment in 2007 were working part-time, possibly because of a preference for part-time work (for reasons such as child care and other unpaid work responsibilities and incentives created by the tax and benefit system). The relatively high percentage (30 per cent) of prime-age individuals who moved from unemployed in 2002 to not in the labour force in 2007 may be an indicator that there are some 'discouraged workers'.[4]

Approximately 39 per cent of prime-age males and 48 per cent of prime-age females who were not in the labour force in 2002 had re-entered the workforce by 2007. Of the prime-age males who were not working or looking for work in 2002, 34 per cent were employed in 2007 and a further 5 per cent were looking for work. Compared to prime-age males, a higher proportion of prime-age females had moved from being out of the labour force in 2002 to being employed in 2007: 31 per cent were working part-time, 14 per cent were working full-time and 4 per cent were looking for work. It is likely that many of these females had returned to the labour force after taking time out to have children—72 per cent of females who were not in the labour force in 2002 and working in 2007 were aged between 25 and 44 in 2007, and for 47 per cent of these females, their youngest child was aged between five and 10 years.

Endnotes

1 This is the labour force status at the time of interview and does not capture mobility between interviews. The best source for accurate measurement of labour force transitions is the ABS Labour Force Survey, see ABS (2007).

2 In Tables 11.4 and 11.5, the population includes only those men and women who were in the prime age group in both years.

3 For prime-age women, the correlation between the birth of a new baby in the past 12 months and a change in labour force status is 0.150 and the correlation between changing residence and changing labour force status is 0.102 (both significant at the 1 per cent level). For prime-age men, the correlation between changing residence and changing labour force status is 0.60 (significant at the 1 per cent level).

4 While some may have given up looking for work because they had no success in finding a job, others may have left the labour force for personal reasons, including attending full-time education, child raising or caring responsibilities.

Reference

Australian Bureau of Statistics (2007) *Labour Force, Australia*, ABS Catalogue No. 6202.0, Canberra.

12. Wages and wage changes

Wage rates represent a key dimension of labour market outcomes. A worker's wage per hour measures the rate at which his or her labour is rewarded in the labour market. A worker's wage is also an important contributor to his or her economic well-being (along with many other factors, not least of which is the number of hours worked). The HILDA Survey data allow us to not only examine workers' wages at a point in time, and track movements in overall wage levels, but also to track individual workers' wage progression over time. What is the nature of individual workers' wage changes? Which workers have had wage growth and which workers have not? These are some of the questions which are important to our understanding of the Australian labour market and its evolution over time.

The HILDA Survey does not ask respondents to report their hourly wage; rather, usual weekly 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 hourly earnings. This provides one rationale for examining weekly earnings, at least as an addition to the study of hourly earnings. Another reason to examining weekly earnings is that, for full-time employees who are paid a salary, the notion of an hourly wage is less relevant. For example, a full-time employee may report working more than 40 hours per week, but is implicitly only paid for 40 hours. Possibly, the longer hours of work reflect a preference of the worker to work longer hours at a lower intensity per hour. We consequently examine both weekly and hourly earnings.

In the following analysis of wages, we exclude the self-employed and employers, whose earnings are often confounded with returns on capital invested in the business (either because reported earnings include a return on capital, or because reported capital income includes a component that is actually a return on labour). In the case where a respondent holds more than one job, we restrict analysis to earnings and hours worked in the respondent's main job. All wages are expressed at December quarter 2007 prices to remove the effects of inflation.

We begin by describing the earnings distribution in each year, presenting cross-sectional snapshots in order to provide an overall picture of earnings outcomes and changes over the period spanned by the HILDA Survey. Table 12.1 presents summary measures of the distribution of weekly earnings among employees in five of the seven waves, for all employees and for full-time and part-time employees separately. Real earnings have grown reasonably steadily over the 2001 to 2007 period. Mean earnings at December 2007 prices grew from $811 in 2001 to $888 in 2007, a 9 per cent increase. The growth was experienced by both part-time workers and full-time workers, with mean

Table 12.1: Distribution of weekly earnings (December 2007 prices)

	2001	*2003*	*2005*	*2006*	*2007*
All employees					
Mean ($)	811	809	846	867	888
Median ($)	710	718	744	770	788
10th percentile ($)	177	173	191	189	200
90th percentile ($)	1,467	1,441	1,528	1,579	1,600
Gini coefficient	0.364	0.363	0.362	0.362	0.361
Full-time employees					
Mean ($)	1,013	1,022	1,063	1,085	1,105
Median ($)	887	897	930	950	980
10th percentile ($)	520	516	536	557	558
90th percentile ($)	1,633	1,631	1,701	1,767	1,786
Gini coefficient	0.271	0.268	0.269	0.268	0.269
Part-time employees					
Mean ($)	350	349	370	383	389
Median ($)	296	312	319	330	329
10th percentile ($)	71	71	79	82	86
90th percentile ($)	680	673	691	721	750
Gini coefficient	0.405	0.383	0.387	0.395	0.399

Note: Population weighted results.

weekly earnings of part-time employees increasing by 11 per cent to $389 and mean weekly earnings of full-time employees increasing by 9 per cent to $1,105.

The growth in weekly earnings has not been restricted to a particular part of the distribution—that is earnings have 'shifted up' at all levels. This is indicated by the fact that the weekly wages at the 10th percentile, at the 50th percentile (the median) and at the 90th percentile all grew. For example, in 2007 a full-time employee at the bottom end of the distribution—with 90 per cent of full-time employees having higher earnings—earned 7 per cent more than an employee in the same position in 2001; while a full-time employee at the top end of the distribution in 2007—with 90 per cent of full-time employees having lower earnings—earned 9 per cent more than a worker in the same position in 2001.

As a consequence of this 'rising tide' of wages, there has been no discernible change in the degree of inequality in earnings. The Gini coefficient, which provides a summary measure of overall inequality, has remained essentially unchanged over the seven-year period. There is thus no evidence that the labour market has become more unequal since 2001, although of course such cross-sectional analysis does not tell us how individual workers have fared.

Weekly earnings patterns over time can be influenced by changes in hours worked, not only among part-time workers, but also among full-time workers. The aggregate wage distribution can furthermore be affected by change in the ratio of part-time employment to full-time employment. While weekly earnings are clearly a key concern for workers, labour economists studying earnings—as opposed to incomes—have primarily been interested in the 'rate' at which labour is rewarded in the labour market—its 'price'—and correspondingly have generally focused on hourly earnings.

According to the HILDA data (Table 12.2), in 2007 the mean hourly earnings of all employees was $24.50 and the median was $21.30. The differences between part-time and full-time hourly earnings are much smaller than the differences in weekly earnings, reflecting the longer average hours worked by full-time employees. This demonstrates that we obtain a measure of wage rates that is more comparable between part-time and full-time workers when we examine hourly earnings. We can see that full-time workers on average earn more per hour than part-time workers, even with the greater potential for full-time employees—who are more often salaried than are part-time workers—to work additional hours without additional remuneration. Mean hourly earnings in 2007 were $25.60 for full-time workers and $22.00 for part-time workers.

Changes between 2001 and 2007 are of a very similar nature to the changes evident for weekly earnings. The growth in weekly earnings is therefore not attributable to increases in hours worked; similarly, the stability in earnings inequality is robust to controlling for the effects of changes in hours worked.

Longitudinal changes in wages

We now turn to the relative strength of HILDA: the ability to examine wage *progression* of individual employees. Because we are interested in changes in individuals' wage *rates* (not their income), and

Table 12.2: Distribution of hourly earnings (December 2007 prices)

	2001	*2003*	*2005*	*2006*	*2007*
All employees					
Mean ($)	22.70	22.50	23.80	24.10	24.50
Median ($)	19.40	19.80	20.60	20.70	21.30
10th percentile ($)	11.00	11.20	11.70	11.90	12.30
90th percentile ($)	35.50	35.50	37.10	38.50	38.20
Gini coefficient	0.285	0.264	0.278	0.277	0.272
Full-time employees					
Mean ($)	23.20	23.50	24.50	25.00	25.60
Median ($)	20.70	21.00	21.70	22.50	23.00
10th percentile ($)	12.40	12.90	13.50	13.50	14.30
90th percentile ($)	35.80	36.40	37.80	39.00	39.90
Gini coefficient	0.247	0.243	0.245	0.245	0.244
Part-time employees					
Mean ($)	21.50	20.40	22.00	22.10	22.00
Median ($)	16.80	17.20	17.70	17.90	18.30
10th percentile ($)	8.90	9.10	9.20	9.30	9.50
90th percentile ($)	32.30	33.20	33.50	34.30	34.50
Gini coefficient	0.361	0.301	0.342	0.336	0.326

Note: Population weighted results.

individuals' hours of work are highly susceptible to change from year to year, we consider only hourly wages here. This also allows us to consider full-time and part-time employees collectively, in so doing also avoiding problems caused by employees switching between part-time and full-time employment from one year to the next.

The top panel of Table 12.3 presents information on the wage changes experienced by employees. Only persons who were employees in all of the waves over which changes are measured are included in producing the estimates. Most striking is that there is a great deal of diversity in wage changes at the individual level. When changes from one wave to the next are ordered from lowest to highest, the worker with the change at the 10th percentile (who has 90 per cent of workers with higher wage changes) is found to experience a reduction in real hourly earnings of approximately 22–26 per cent. The worker at the 90th percentile experiences an increase of at least 50 per cent. Also striking is the large mean wave-on-wave growth of 15 per cent or more. Median growth is substantially lower, at around 5–7 per cent, indicating that the high mean growth in part derives from a relatively small number of workers experiencing very high growth. Nevertheless, the average person who is an employee in two successive years has experienced very good real hourly wage growth of 5–7 per cent from the first year to the second. At first glance, this is surprisingly high, especially in the context of the growth in the aggregate median hourly wage (Table 12.2), which averages 1.5 per cent between 2001 and 2007.

How do we reconcile these estimates with the much smaller cross-sectional changes? Cross-sectional changes are influenced by exits from and entries to employment. For example, young people will be entering the labour market, typically at relatively low wages, while older people will be exiting the labour market, often having been earning relatively high earnings. Such entries and exits tend to dampen earnings growth compared with longitudinal analysis that restricts attention to individuals employed in all the periods under study. The longitudinal analysis captures the increases associated with both movement through the life-cycle and the overall increase in average wages.

In the bottom two panels of Table 12.3, the distinction is drawn between employees who remained in the same job and employees who changed jobs. As Dickens et al. (2007) note, the processes determining wage changes for those who change jobs are quite different from those who remain in the same job. For those who remain in the same job, we observe how wages evolve over time in that job as the worker's career progresses (or fails to progress). By contrast, for those who change jobs, wage changes will reflect the effects of potentially a multitude of factors, including changed employer, occupation, location, tasks, responsibilities and hours of work. Furthermore, job changes will in many situations reflect an attempt by the worker and/or the original employer to find a better firm–worker match, and is therefore perhaps expected to be associated with a greater increase in wages than occurs for those who remain with the same employer.

We see in Table 12.3 that approximately 82 per cent of persons who were employees in two successive years remained in the same job, while the remaining 18 per cent changed jobs. Of those who remained in the same job, the median percentage change in hourly earnings from one year to the next fluctuated between 4.4 per cent and 6.6 per cent between 2001 and 2007. For those who changed jobs, the median change was mostly around 8–11 per cent, which is consistent with job changes resulting in improved employer–employee matches. Evaluating individual wage changes over the full seven waves for those who were employees in all seven waves, the median increase was 51 per cent for those who changed jobs, compared with 35 per cent for those who did not change jobs. Job changes can therefore be seen as, on average, having a positive effect on earnings progression.

Table 12.3: Percentage changes in individuals' wages (December 2007 prices)

	2001 to 2007	*2001 to 2002*	*2003 to 2004*	*2005 to 2006*	*2006 to 2007*
All employees					
Mean	68.3	17.2	15.3	17.5	22.5
Median	40.3	4.5	5.7	6.7	7.1
10th percentile	–4.6	–26.0	–22.9	–23.2	–22.4
90th percentile	139.1	53.8	50.0	54.6	54.3
Employees who remained in the same job					
Proportion of employees	55.4	82.5	82.9	81.6	80.9
Median percentage change	35.3	4.4	5.3	6.3	6.6
Employees who changed jobs					
Proportion of employees	44.6	17.5	17.1	18.4	19.1
Median percentage change	50.5	4.9	7.8	9.9	11.4

Notes: Population weighted results. Estimates in each column are for persons who were employees in all of the waves spanned by the column heading. For example, in column 1, a person has to be an employee in all seven waves.

Have wage changes been greater for high wage earners?

Who has experienced the largest wage gains? Have high wage earners experienced greater gains or lower gains than low wage earners? We can consider this issue by first dividing up employees based on their initial position in the wage distribution, and then comparing changes in wages for each of these groups. This is undertaken in Table 12.4, which presents median changes in wages for each quintile (20 per cent) of the initial wage distribution.

As noted in Chapter 6 in respect of the analysis of income mobility, measurement error will exist and poses the particular problem of 'regression-to-the-mean' for this type of longitudinal analysis. We adopt the same partial remedy as for the analysis of income mobility, calculating changes in wages after first combining years. In Table 12.4, we combine Waves 1 and 2, Waves 3 and 4, Waves 4 and 5 and Waves 6 and 7.

From this table, it is evident that the percentage wage change is decreasing in the initial wage rate. For employees in the bottom 20 per cent of the Waves 1–2 wage distribution, the median wage growth to Waves 6–7 was 53 per cent, compared with 15 per cent for the next lowest 20 per cent, 13 per cent for the middle 20 per cent, 10 per cent for the second-highest 20 per cent and 5 per cent for the top 20 per cent. It is likely this pattern is not particular to the 2001 to 2007 period in Australia, but rather is, at least to some extent, an ever-present phenomenon that is a function of the lifecycle stages of the lowest and highest wage earners. Many low-wage employees are young and/or relatively new entrants to the labour market who tend to experience quite rapid wage growth as they acquire work experience. Conversely, many high-wage employees are older, more established labour market participants who have already achieved, or nearly achieved, their peak earning capacity.

Table 12.4: Median percentage change in real hourly wage by initial quintile of the wage distribution

	2001–2002 to 2006–2007	*2001–2002 to 2003–2004*	*2004–2005 to 2006–2007*
Bottom quintile	52.6	24.4	24.9
2nd quintile	15.4	7.9	7.5
3rd quintile	12.8	5.3	5.6
4th quintile	10.2	2.8	5.6
Top quintile	5.2	–0.1	1.0

Note: Population weighted results.

Table 12.5: Median percentage change in real hourly wages by sex and age, educational attainment and initial occupation

	2001–2002		*2003–2004*		*2005–2006*		*2006–2007*	
	Median initial wage ($)	*% change*	*Median initial wage ($)*	*% change*	*Median initial wage ($)*	*% change*	*Median initial wage ($)*	*% change*
Males								
Aged 15–24 years	13.8	3.3	14.1	13.1	15.9	9.8	15.4	11.7
Aged 25–44 years	22.1	1.4	22.5	2.6	23.0	3.0	24.5	3.9
Aged over 45 years	23.9	0.8	24.6	2.4	25.2	–0.1	25.1	2.0
Females								
Aged 15–24 years	14.8	6.2	14.9	6.0	14.6	10.6	15.2	8.6
Aged 25–44 years	19.9	1.2	20.3	1.9	21.3	2.6	21.5	4.0
Aged over 45 years	20.2	0.7	20.1	1.6	20.9	1.6	20.6	2.0
Educational attainment								
Degree or higher	26.5	1.6	26.6	2.6	27.0	4.6	28.1	3.9
Diploma or Certificate 3/4	20.3	1.5	20.7	3.2	21.3	2.5	21.9	4.1
High school	18.2	1.8	18.3	2.5	18.6	3.1	19.2	2.1
Certificate 1/2	16.9	1.1	16.8	7.6	17.2	1.2	17.2	7.1
No qualifications	17.9	0.7	17.7	2.3	18.2	1.8	18.5	3.2
Initial occupation								
Managers	28.7	2.2	29.6	4.8	32.6	2.0	32.9	4.5
Professionals	25.9	1.5	26.6	2.1	27.2	3.5	28.1	2.8
Associate Professionals	21.4	1.1	22.2	3.7	22.2	4.6	23.6	4.6
Tradespersons	18.8	2.0	19.1	5.9	19.1	5.9	20.4	5.2
Advanced and intermediate clerks	18.1	1.4	18.5	2.1	18.9	2.8	19.2	5.3
Intermediate production workers	17.1	0.4	18.2	5.7	19.3	2.2	19.3	2.2
Elementary clerks	15.6	2.1	15.3	4.8	15.8	3.7	16.0	5.6
Labourers	15.8	0.6	15.7	1.5	16.7	0.5	16.5	4.1

Note: Population weighted results.

Wage changes for different groups of employees

We can directly consider the identities of the employees who have experienced the greatest and smallest wage increases by examining wage changes for employees with different characteristics. In Table 12.5, differences in median wage changes by sex, age, educational attainment and occupation are considered. Consistent with the explanation for the strong relationship between rate of wage growth and initial wage rate provided above, the rate of wage growth is consistently ordered by age for both males and females—that is, older employees experience lower proportionate growth. There is no clear pattern to the relationship between wage growth and educational attainment. Disaggregation by occupation shows that tradespersons have had particularly strong wage growth, which is perhaps unsurprising in the context, until recently, of public discourse on skills shortages, which had identified many trades as in shortage.

Discussion

Aggregate earnings growth is evident across the entire period spanned by the first seven waves of the HILDA Survey. Earnings inequality has also remained remarkably stable over this period, implying the growth in earnings has been shared by most employees. This is all the more remarkable in the context of the significant employment growth that has occurred over the survey period, since the new entrants to employment are likely to be on average less skilled than the incumbent employees.

Study of individual-level wage changes shows that the aggregate-level stability belies the substantial dynamism of wage changes from year to year experienced by individual employees. Many employees have experienced large increases in their rate of pay from one year to the next, and a number have experienced significant decreases. Some of this can be thought of as essentially random fluctuation, and indeed will partly be due to measurement error, but a significant share of the disparity in wage changes is systematic, and in particular, is due to differences in employees' life-cycle stages.

Reference

Dickens, W., Goette, L., Groshen, E., Holden, S., Messina, J., Schweitzer, M., Turunen, J. and Ward, M. (2007) 'How Wages Change: Micro Evidence from the International Wage Flexibility Project', *Journal of Economic Perspectives*, vol. 21, no. 2, pp. 195–214.

13. Job mobility

Integral to understanding labour market dynamics is knowledge of the extent and nature of job changes, including how often people change jobs, what sort of jobs they leave, what sort of jobs they go to, why they change jobs and the outcomes experienced by people who change jobs. By its nature, the HILDA Survey is well-placed to contribute useful insights into this aspect of the labour market.

Movements between jobs can occur for a wide variety of reasons, but ultimately the key driver is the desire by employers and employees to find better matches between workers and jobs. Mobility is therefore neither inherently good nor bad. It is good from the perspective that it facilitates improved firm–worker matches, but it is bad from the perspective that the need for it only arises because of the existence of 'inferior' matches. Note that a match between a worker and an employer will often initially be good, but as circumstances change—for example, as the skills of the worker increase, the nature or size of the firm's business changes, or new outside opportunities for the employer or employee develop—better potential matches may arise.

In the context of the interpretation of job mobility as the outcome of a 'match-making' exercise, it is valuable to understand its pervasiveness, the characteristics of the workers and jobs associated with the most mobility, and the underlying reasons for the initial mismatches (in the origin jobs) or new improved matches (in the destination jobs).

For the purposes of this section, we define a job change to occur if the employer in the respondent's current main job changes from one wave to the next. Individuals may of course change jobs more than once in a 12-month period. However, it is only for jobs held at the time of interview that we have information such as occupation, hours, wage and industry, and contemporaneous information about other aspects of the respondent's life, such as family situation, health and income. We therefore focus only on job changes identified by examining jobs held by respondents at the time of interview, and so do not identify some (within-wave) job transitions.

When examining intervals longer than two years, in addition to the job changes identified above, we also assume that if a person was employed in one wave, not employed in the next wave, and then employed in a subsequent wave, that the individual has changed jobs. In some cases, individuals will be returning to the same job, but it is generally not possible to identify these cases.

Table 13.1 shows the prevalence of job changing between Waves 1 and 2, between Waves 3 and 4, between Waves 5 and 6 and between Waves 6 and 7. The first row of each panel shows the proportion

of persons aged 15 years and over who were employed at the time of interview in both of the waves indicated by the column heading. For example, the upper left cell indicates that 62.8 per cent of males aged 15 and over were employed at the time of interview in both Wave 1 and Wave 2. The next row shows the percentage of all persons aged 15 years and over who were observed to change jobs, and the third row shows the percentage of all persons aged 15 years and over who remained employed in the same job.

Approximately 11 per cent of males are observed to change jobs each year, which translates to just over one-in-six employed males changing jobs. Females have a lower rate of job changing, at approximately 8–9 per cent, but this reflects a lower rate of employment rather than a lower propensity to change jobs. The proportion of employed females changing jobs each year is on average the same as for males.

An alternative way of interpreting the figures presented in Table 13.1 is that, on average, employed persons change jobs every six years. Of course, some workers will change jobs more frequently than others, so we cannot infer how many workers will actually change jobs within a six-year time frame. Furthermore, job changes can arise via an employed person leaving employment, potentially for an extended period, and then returning to employment. Many of these job changes—in particular, those where the period of non-employment straddles the time of interview—will not be identified from examination of transitions from one wave to the next.

In Table 13.2, medium-term job mobility is considered by describing the prevalence of job changing over three-year spans (2001 to 2004 and 2004 to 2007), and also over the full seven waves of the HILDA data. For this analysis, a job change is defined to occur whenever a person reports being in a different job to that when last interviewed, or is observed to be employed in one wave, not employed in the next wave and then employed in a subsequent wave. 'Employed in two waves' gives the proportion who were employed in at least two of the waves indicated in the column heading. For example, 71.4 per cent of males were employed in at least two of the four waves from 2001 to 2004. This can be thought of as the proportion of males potentially observed to change jobs.

Over one-quarter of males, and over one-fifth of females, change jobs over a three-year period. For both males and females, this corresponds to approximately 38 per cent of employed persons. Over the entire HILDA sample period, over half of employed persons changed jobs. The remainder were employed in only one job, although 10 per cent of males and 12 per cent of females were employed for only a subset (between two and six) of the waves. 27 per cent of males and 18 per cent of females were employed in the same job in all seven years.

Table 13.1: Prevalence of job changing among persons aged 15 years and over (%)

	2001 and 2002	*2003 and 2004*	*2005 and 2006*	*2006 and 2007*
Males				
Employed in both years	62.8	62.3	63.2	63.4
Changed jobs	10.8	10.9	10.9	11.2
Did not change jobs	51.9	51.4	52.4	52.2
Females				
Employed in both years	47.0	47.0	48.6	50.0
Changed jobs	8.1	7.9	8.6	9.4
Did not change jobs	39.0	39.1	40.0	40.6

Note: Population weighted results.

Table 13.2: Prevalence of job-changing over the medium term (%)

	2001–2004	*2004–2007*	*2001–2007*
Males			
Employed in at least two years	71.4	71.2	76.9
Changed jobs	26.9	26.4	39.5
Did not change jobs	44.5	44.8	37.4
Employed in all years and did not change job	37.4	37.1	27.0
Females			
Employed in at least two years	57.4	58.9	65.4
Changed jobs	21.9	23.1	34.5
Did not change jobs	35.5	35.8	30.9
Employed in all years and did not change job	26.9	26.3	18.4

Note: Population weighted results.

What changes about the job when a worker changes job?

In Tables 13.3 and 13.4 we examine the nature of job changes, focusing on the relatively immediate transitions that are observed from one wave to the next. Table 13.3 compares changes in job characteristics of workers who did not change jobs to changes in job characteristics of workers who did change jobs.

The top panel examines changes in occupation. 'Reported changing occupations' is the proportion responding in the affirmative to a direct question of whether the respondent has changed occupations since the date of last interview. 'Classified as changing occupations' is the proportion classified as employed in a different Australian Standard Classification of Occupations (ASCO) two-digit level occupation based on the respondent's job title and main duties in his or her current main job. Over 60 per cent of job changers reported that their occupation had changed, which matched the percentage classified as working in a different two-digit occupation. As would be expected, those who did not change jobs had low rates of reporting a different occupation, at approximately 8 per cent. However, over 30 per cent were *classified* as working in a different occupation, even at the fairly aggregated two-digit level. This reflects inherent variability in how respondents describe their occupations more than true variation in occupations.

About one-quarter of job changes involve a change in full-time/part-time employment status, which is about three times the rate of change among workers who do not change jobs. The proportion of job changers moving from part-time to full-time employment is approximately 50 per cent higher than the proportion moving from full-time to part-time employment, so job-changing more often facilitates a transition from part-time employment to full-time employment than the reverse. By contrast, persons who remain in the same job are about equally likely to move from part-time to full-time employment as from full-time to part-time employment. Consistent with the higher rate of change in part-time/full-time status, weekly working hours are more likely to change (by more than 5) for job-changers. Over half of those who change jobs change their hours of work significantly, compared with less than 30 per cent of those who remain in the same job.

The last panel of Table 13.3 considers changes in real (inflation-adjusted) weekly earnings. Workers who change jobs are just as likely to experience a decline in earnings as those who do not change jobs, but they are considerably more likely to have a substantial—greater than 10 per cent—increase in earnings. The proportion experiencing substantial pay increases has grown for both job stayers and job changers over the 2001 to 2007 period, but it is consistently higher for job changers. For example, 53 per cent of workers who changed jobs between 2006 and 2007 had pay increases in excess of 10 per cent, compared with 42 per cent of other workers.

Table 13.4 considers changes in outcomes that by definition should not change for those who

Table 13.3: Changes in employment outcomes from one year to the next—Job changers compared with job stayers (%)

	2001–2002		*2003–2004*		*2005–2006*		*2006–2007*	
	No job change	*Job change*	*No job change*	*Job change*	*No job change*	*Job change*	*No job change*	*Job change*
Occupation								
Reported changing occupations	8.4	61.0	7.4	59.0	8.6	60.9	8.5	65.4
Classified as changing occupations	31.0	64.1	29.7	62.1	27.0	59.6	29.3	64.6
Part-time/full-time status								
Remained employed part-time	22.2	20.9	23.3	21.0	22.7	19.5	21.8	21.4
Moved from part-time to full-time employment	4.3	14.4	4.0	15.1	3.9	15.6	4.7	14.2
Remained employed full-time	69.7	54.9	69.1	55.7	69.5	56.5	69.5	55.2
Moved from full-time to part-time employment	3.8	9.9	3.6	8.1	3.8	8.4	4.0	9.3
Weekly working hours								
Increased by more than 5 hours	15.3	31.0	14.2	31.6	14.2	31.8	14.2	29.5
Decreased by more than 5 hours	14.1	24.6	13.4	20.7	13.3	20.6	12.4	24.7
Did not change by more than 5 hours	70.6	44.5	72.4	47.7	72.6	47.6	73.4	45.8
Earnings								
Pay went up more than 10%	37.1	46.2	39.2	49.8	40.5	51.4	41.8	53.2
Pay went up 0–10%	19.8	9.9	20.7	11.0	19.2	8.7	20.7	9.6
Pay went down	43.1	43.9	40.1	39.2	40.3	39.9	37.5	37.2

Notes: Population weighted results. A job changer is employed in different jobs in the two waves indicated by the column heading; a job stayer is employed in the same job in both waves. 'Classified occupation changes' are based on two-digit level classification.

remain in the same job, namely industry and employee/employer status. It also summarises the reasons job changers left the last job. Nearly two-thirds of job changes involve a change in industry (at the Australia and New Zealand Standard Industry Classification (ANZSIC) two-digit level, at which 54 industries are distinguished). For most job changes the worker was an employee before and after the job change, although the number of job changes involving a switch between employee and employer/self-employed status—and in particular *from* employee *to* employer or self-employed—is not insignificant.

Most job changes are precipitated by workers quitting, and the proportion has increased over the HILDA Survey period. Job changes precipitated by dismissal or retrenchment declined from 18.2 per cent in 2001–2002 to 11.2 per cent in 2006–2007, most likely reflecting the strength of the Australian economy and labour market over this period. Consistent with the 'improved firm–worker match' hypothesis, respondents most commonly report that the reason for leaving the last job was to go to (or get) a better job. A small proportion—up to 7 per cent—stop work because of sickness, pregnancy, caring responsibilities, desire to retire or

Table 13.4: Nature of job changes (%)

	2001–2002	*2003–2004*	*2005–2006*	*2006–2007*
Changed industry	64.1	62.1	59.6	64.6
Employee/employer status				
Remained employee	81.0	80.0	85.4	85.9
Moved from employee to employer/self-employed	8.0	9.6	7.3	6.2
Remained employer/self-employed	4.8	3.9	2.6	1.8
Moved from employer/self-employed to employee	5.2	5.3	4.2	4.9
Reason left last job				
Dismissed by employer	18.2	12.7	12.4	11.2
Quit to get better job	48.3	56.5	63.3	58.6
Quit to stop work	4.4	4.4	6.4	5.6
Other reasons	15.1	12.8	10.5	13.0

Notes: Population weighted results. Figures represent the proportion of job changes for which the change indicated by the row heading is applicable. The reason for leaving last job 'Dismissed by employer' comprises 'got laid off/no work available/retrenched/made redundant/employer went out of business/dismissed etc'. 'Other reasons' include 'job was temporary or seasonal', 'holiday job', self-employed: 'business closed down for economic reasons (went broke/liquidated/no work/not enough business)', self-employed: 'business closed down or sold for other reasons' and 'spouse/partner transferred'.

Table 13.5: Income, health and subjective wellbeing by whether changed jobs

	No job change		*Voluntary job change*		*Involuntary job change*	
	Mean initial level	*Mean change*	*Mean initial level*	*Mean change*	*Mean initial level*	*Mean change*
2001 and 2002						
Household equivalised income ($)	41,076	1,224	40,477	1,208	40,883	–339
General health (0–100 scale)	73.6	–0.6	74.8	–0.6	73.8	0.7
Mental health (0–100 scale)	75.8	0.0	72.9	1.7	74.4	0.6
Life satisfaction (0–10 scale)	7.9	–0.1	7.7	0.1	7.6	0.0
Job satisfaction (0–10 scale)	7.8	–0.2	6.7	0.9	7.2	0.2
2004 and 2005						
Household equivalised income ($)	42,564	2,391	40,070	1,668	41,388	2,504
General health (0–100 scale)	72.8	–0.5	71.1	0.0	69.1	2.2
Mental health (0–100 scale)	76.0	–0.3	73.4	0.3	75.3	–0.5
Life satisfaction (0–10 scale)	7.9	–0.1	7.8	0.0	7.8	–0.2
Job satisfaction (0–10 scale)	7.8	–0.2	6.9	0.6	7.0	0.4
2006 and 2007						
Household equivalised income ($)	46,323	2,553	42,801	2,310	41,337	1,950
General health (0–100 scale)	72.83	–0.2	70.7	0.2	71.8	0.7
Mental health (0–100 scale)	76.40	–0.3	72.0	0.9	70.3	4.8
Life satisfaction (0–10 scale)	7.84	0.0	7.7	0.0	7.3	0.2
Job satisfaction (0–10 scale)	7.76	–0.1	6.9	0.5	6.8	0.5

Note: Population weighted results.

study.[1] A larger, although shrinking, proportion quit for other reasons, including closure of own business and spouse or partner being transferred.

Outcomes following job changes

In Volume 4 of the HILDA Statistical Report, we examined the characteristics of persons who changed jobs and the factors that may have precipitated a change in job. In this volume, we instead consider how various life outcomes differ depending on whether a worker remains in the same job, changes job voluntarily or changes job as a result of being dismissed or retrenched from their job. Table 13.5 presents, for three wave-pairs, mean level in the initial wave, and mean change from the first to the second wave, in measures of household income, general health, mental health, life satisfaction and job satisfaction. The estimates are presented separately for (i) persons who remained in the same job in both waves, (ii) persons employed in the first wave who quit that job and held a new job in the second wave, and (iii) persons employed in the first wave who were dismissed from that job and held a new job in the second wave. Note that this analysis excludes persons who were not employed in the second of the two waves (whether due to quitting or dismissal) and so does not show the implications of these forms of job loss on the outcomes examined (which require inclusion of persons not employed in the second wave). Rather, the comparison is of job changers with job stayers, with job changers distinguished by whether the change was voluntary or not.

Overall, income, health and life satisfaction do not appear to differ substantially across the three groups. Both initial levels and changes do not systematically differ by whether changed jobs or not, irrespective of whether the change was voluntary or not. One might expect relatively unfavourable changes for involuntary job changers, but this is not generally the case. Of course, not all persons dismissed from a job are successful in (quickly) obtaining another job, but it appears that those who do manage to secure another job in a short period of time do not suffer adverse consequences from being dismissed.

While there are no consistent patterns with respect to income, health and life satisfaction, a clear pattern is evident for job satisfaction. Job changers have substantially lower average job satisfaction in their initial job than job stayers. They do, however, show sizeable growth in mean job satisfaction from the first wave to the second, compared with a slight decline in average satisfaction for those who remain in the same job. The increase in mean job satisfaction occurs irrespective of whether the change in jobs was voluntary or involuntary.

Discussion

While there are costs of job mobility to both employers and workers, it is also important to the efficient functioning of the labour market. In particular, as the evidence from the HILDA data suggests, improved firm–worker matches will generally be the outcome of job mobility. Movements between jobs more often represent a move from part-time to full-time employment than the reverse, and substantial earnings increases are more prevalent for workers who change jobs than workers who do not. Changes in job are also associated with increases in job satisfaction. Together, these findings support the contention that job mobility leads to better labour market outcomes for the workers concerned.

Endnote

1 The proportion of all workers leaving a job for these reasons is considerably higher than for the proportion of workers who change jobs from one wave to the next, because most are not employed at the time of the next wave's interview.

14. Hours worked, hours preferred and individual-level changes in both

Each year, the HILDA Survey obtains from all employed persons not only their usual weekly hours of work, but also their *preferred* hours of work. This facilitates examination of a variety of aspects of working hours, including how hours worked and preferred by individuals change over time.

Table 14.1 provides information on working hours, showing the average of usual weekly hours (in all jobs) of employed persons in each wave, disaggregated by sex and age group. Average weekly hours worked by males dropped from 42.8 hours in 2001 to 41.7 hours in 2007, while for females, average weekly hours work remained relatively stable, at around 32 hours per week. Similarly, for males who were working full-time, average working hours dropped from 47.8 hours per week in 2001 to 46.4 hours per week in 2007, and for females working full-time, average weekly work hours were around 43 in all seven years. For males who were working part-time (less than 35 hours per week), average weekly working hours increased slightly, from 17.8 hours per week in 2001 to 18.4 hours per week in 2007, and for females who worked part-time, average weekly working hours also increased slightly—from 18.4 hours per week in 2001 to 19.1 hours per week in 2007.

In 2007, as in previous years, males aged between 35 and 54 work the longest hours—45 hours per week on average. Employed males aged 15–24 years, many of whom will still be in full-time education, average 33 hours per week, and employed males aged over 65 years, many of whom will be in partial retirement, average 29 hours per week. Females aged between 25 and 34 and females between the ages of 45 and 54 work around 35 hours per week, on average, compared to around 26 hours per week for females aged between 15 and 24, 32 hours per week for females in the 35–44 and 55–64 age groups and around 23 hours per week for females aged 65 and over.

Individual changes in working hours

How much do working hours change from one year to the next? Table 14.2 shows the changes in working hours from 2006 to 2007 for people who were employed in both years. The single most common outcome in 2007 was for individuals to be in the same hours category as they were in 2006. However, large proportions of respondents do change hours categories—although changes tend to be small. Males working part-time, and full-time employed males and females working long

Table 14.1: Mean usual weekly hours of work in all jobs by sex and age and employment status

	2001	*2003*	*2005*	*2006*	*2007*
Males					
All males	42.8	42.3	42.1	41.8	41.7
Age group					
15–24	31.6	31.8	32.7	32.2	32.9
25–34	44.6	43.8	43.9	43.7	43.5
35–44	46.3	45.8	46.0	45.7	45.4
45–54	46.6	46.4	44.9	45.5	44.8
55–64	42.7	42.7	41.6	40.1	40.6
65+	32.9	33.7	31.3	29.4	30.6
Employment status					
Full-time	47.8	47.3	46.7	46.7	46.4
Part-time	17.8	18.0	18.0	18.7	18.4
Females					
All females	31.7	31.2	31.2	31.7	31.8
Age group					
15–24	26.5	24.8	26.6	26.9	26.1
25–34	33.8	33.4	33.9	34.7	34.9
35–44	31.8	32.1	31.4	31.6	31.6
45–54	34.7	33.8	33.6	33.9	35.0
55–64	30.9	30.5	30.5	31.1	31.5
65+	22.8	18.7	21.4	21.6	23.4
Employment status					
Full-time	43.3	43.4	43.2	42.8	42.9
Part-time	18.4	18.4	18.8	18.9	19.1

Note: Population weighted results.

(over 45) hours, are particularly likely to change hours categories. Most commonly, the change is an increase in hours for persons employed part-time in 2006, and a decrease in hours for persons working long hours in 2006. For example, more than half of the people who were working fewer than 10 hours per week in 2006 had increased their working hours by 2007, and the majority of those who increased their working hours were working between 10 and 19 hours per week. Of those working 55 to 64 hours in 2006, 41 per cent of males and 48 per cent of females were in lower working-hours categories in 2007.

Preferred hours of work

Are most people happy with the hours they work? Figure 14.1 shows the proportion of prime-age employees who were working their preferred hours, and those who were not, in 2007.[1] Overall, just under 60 per cent of prime-age employees were content with their working hours in 2007. Among full-time employees, males are more likely to be satisfied with their working hours than are females, but among part-time employees, females are more likely to be satisfied with their working hours. In particular, 44 per cent of female full-time employees prefer fewer hours, compared with 33 per cent of male full-time employees, whereas 47 per cent of male part-time employees prefer greater hours, compared with only 28 per cent of female part-time employees.

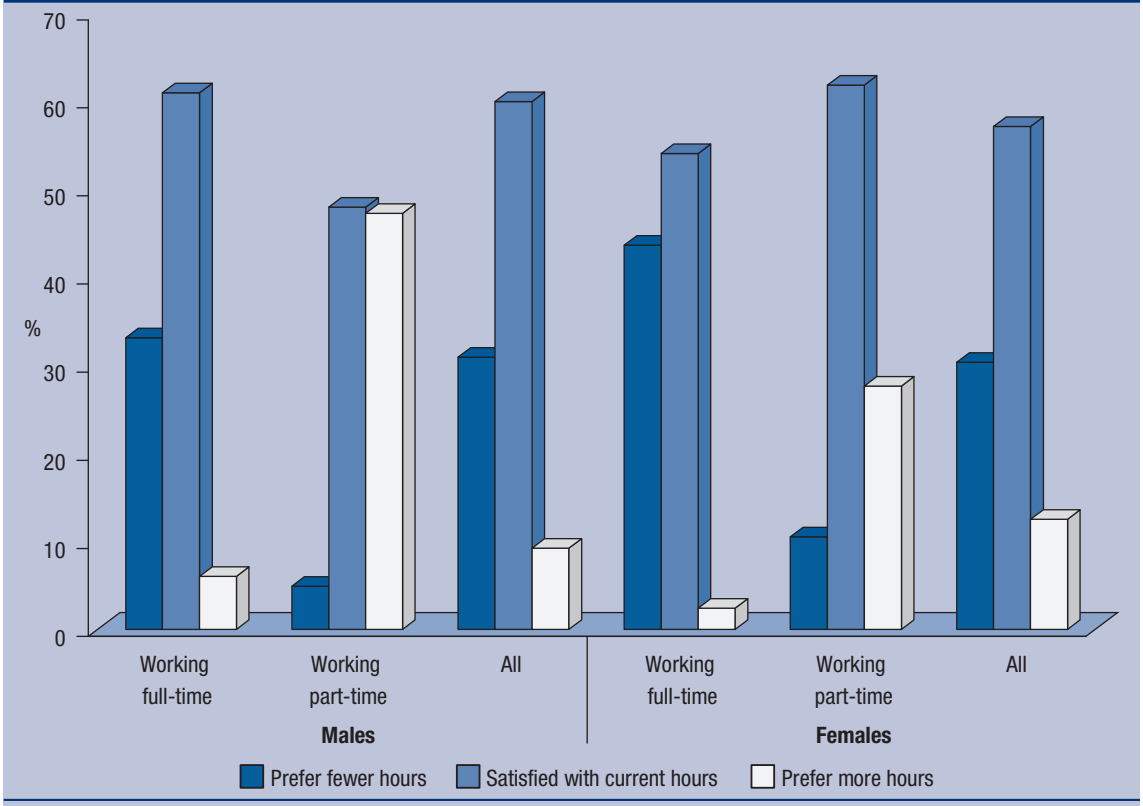
Preferred hours of work

A difficulty in eliciting individuals' preferred hours of work is that many people are inclined to say that they would like to not work at all, despite clearly choosing work over non-work. To overcome this problem, the HILDA Survey asks respondents the number of hours per week they would like to work, *taking into account the effect this would have on their income*.

Do people who are not working their preferred hours eventually get what they want? Using the HILDA Survey data to compare working-time preferences in 2002 and 2004, Wooden (2006) found that while in any year 40–45 per cent of employees were not working their preferred hours, many were working preferred hours a few years later. He found, however, that over-employment —a preference for fewer hours—was more persistent than under-employment—a preference for more hours.

Table 14.3 shows, for each combination of labour force status and hours preference in 2006, the proportions of prime-age males and females in each combination in 2007. This allows examination of the proportions of those with mismatches between preferred and actual working-time in 2006 who had resolved their mismatches by 2007—be this by changing hours worked and/or changing their preferred hours—as well as the

Figure 14.1: Work hours preferences of prime-age employees, 2007 (%)



Note: Population weighted results.

Table 14.2: Changes in usual weekly working hours (in all jobs), 2006–2007—Persons employed in both 2006 and 2007 (%)

Work hours in 2006	*Work hours in 2007*							
	1–9	*10–19*	*20–34*	*35–44*	*45–54*	*55–64*	*65+*	*Total*
Males								
1–9	**45.2**	31.2	*8.2	*10.5	*0.0	*4.9	*0.0	100.0
10–19	*11.7	**41.7**	21.9	19.8	*3.3	*0.6	*1.0	100.0
20–34	*2.0	12.1	**49.5**	27.0	*5.0	*2.6	*1.9	100.0
35–44	*0.4	*0.8	4.5	**75.1**	15.3	2.7	*1.2	100.0
45–54	*0.1	*0.1	2.3	27.5	**55.2**	11.7	3.1	100.0
55–64	*0.2	*0.3	*1.9	9.0	29.2	**47.1**	12.3	100.0
65+	*0.0	*0.3	*1.3	*9.6	21.2	27.7	**39.9**	100.0
Total	2.1	3.9	8.1	42.4	26.5	11.8	5.2	100.0
Females								
1–9	**42.6**	30.7	14.0	9.5	*3.1	0.0	*0.0	100.0
10–19	11.6	**51.3**	24.8	9.7	*1.4	*0.6	*0.6	100.0
20–34	*1.7	12.2	**60.8**	21.5	3.2	*0.4	*0.2	100.0
35–44	*0.7	2.1	10.9	**74.2**	10.0	*1.9	*0.2	100.0
45–54	*0.3	*1.8	8.5	34.8	**42.4**	10.3	*1.8	100.0
55–64	*0.0	*0.0	*3.0	*14.6	30.5	**40.9**	*11.0	100.0
65+	*0.0	*11.9	*2.8	*8.2	*16.1	*14.9	**46.1**	100.0
Total	5.0	12.6	24.5	40.2	12.0	4.1	1.6	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

Table 14.3: Changes in actual and preferred working hours—Prime-age persons, 2006–2007 (%)

	Work hours and preferences in 2007								
	Working full-time			*Working part-time*			*Not in paid work*		
Work hours and preferences in 2006	*Prefer fewer hours*	*Prefer current hours*	*Prefer more hours*	*Prefer fewer hours*	*Prefer current hours*	*Prefer more hours*	*Unemployed*	*Not in the labour force*	*Total*
Males									
Working full-time									
Prefer fewer hours	64.0	28.3	*2.1	*0.0	*1.8	*1.0	*1.0	*1.8	100.0
Prefer current hours	19.5	71.0	3.5	*0.1	1.7	*1.3	*1.1	1.9	100.0
Prefer more hours	*10.4	55.1	29.3	*0.0	*1.8	*1.0	*0.6	*0.9	100.0
Working part-time									
Prefer fewer hours	*11.6	*6.7	*0.0	*12.1	*23.9	*26.8	*11.4	*7.4	100.0
Prefer current hours	*5.0	19.3	*2.1	*4.7	46.8	15.3	*4.7	*2.3	100.0
Prefer more hours	*12.4	22.0	*3.9	*0.0	21.1	33.6	*2.4	*4.5	100.0
Not in paid work									
Unemployed	*8.8	*13.0	*11.0	*0.0	21.1	33.6	24.0	26.3	100.0
Not in the labour force	*3.6	*7.0	*1.8	*0.0	*3.2	*13.7	*11.8	70.1	100.0
Total	29.6	47.4	4.5	0.8	2.5	2.5	2.7	8.1	100.0
Females									
Working full-time									
Prefer fewer hours	57.6	25.9	*1.0	*2.3	5.9	3.1	*1.4	*2.9	100.0
Prefer current hours	23.2	61.3	*1.3	*1.3	5.7	*3.0	*0.8	3.4	100.0
Prefer more hours	*18.0	*54.9	*13.4	*0.0	*1.2	*8.5	*0.0	*3.9	100.0
Working part-time									
Prefer fewer hours	*9.5	*15.3	*0.0	22.0	35.7	*4.1	*0.6	*12.8	100.0
Prefer current hours	8.8	8.3	*0.0	8.0	54.8	10.4	*1.2	8.5	100.0
Prefer more hours	*5.2	15.4	*1.8	*1.3	26.6	41.6	*2.6	*5.6	100.0
Not in paid work									
Unemployed	*8.6	*13.3	*0.0	*0.0	*10.0	*16.1	23.2	28.8	100.0
Not in the labour force	2.6	*1.8	*0.2	*1.4	8.6	4.3	4.1	77.1	100.0
Total	20.0	22.7	0.9	3.6	19.0	8.1	2.5	23.3	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

proportions of those without mismatches in 2006 for whom mismatches arose in 2007.

As Figure 14.1 indicated, the two main types of mismatch for employed persons are preferences for fewer hours by full-time workers and preferences for more hours among part-time workers. Another important case of mismatch that is also considered in Table 14.3 is that of unemployment (a situation in which more hours are preferred). In general, the table indicates that the most difficult working-time preference problem to resolve is a preference for fewer hours by full-time workers. Of full-time employed males who preferred fewer hours in 2006, 64 per cent were in the same situation in 2007; the corresponding figure for females is 58 per cent.

More readily resolved is the problem of unemployment or under-employment, whether this be by increasing actual hours or decreasing preferred hours. Among part-time workers preferring more hours in 2006, only 34 per cent of males and 42 per cent of females were still in that situation in 2007, with over 50 per cent of females and almost 60 per cent of males either working full-time or still working part-time but no longer preferring more hours. Of those unemployed in 2006, only 24 per cent of males and 23 per cent of females were still unemployed in 2007. However, it should be noted that 26 per cent of males and 29 per cent of females who were unemployed in 2006 were in fact not in the labour force in 2007. For these people, the mismatch between actual and preferred hours was 'resolved' by reducing preferred hours to zero rather than by obtaining employment. This could arguably in part represent a 'discouraged worker' effect rather than a genuine change in preferences.

Endnote

1 People who were self-employed were excluded from the hours preference analysis as it is assumed that they ultimately have control over their own working hours. The analysis is further restricted to prime-age persons to avoid the complication of younger people moving from part-time work (and full-time education) to full-time work, and older people reducing their working hours before they gradually retire.

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15. Jobless households and 'job-poor' households

In the mid-1990s attention was drawn by researchers to a significant and apparently growing phenomenon in Australia of jobless households (Gregory and Hunter, 1995; Dawkins, 1996). The research highlighted that joblessness, as distinct from unemployment, was particularly prevalent among households with dependent children. This raised the specific concern that, if children grow up in households in which there is no role model in the world of work, they may be more likely to become jobless themselves (Gregory and Hunter, 1995; Headey and Verick, 2005).

With seven years of data now available, the HILDA Survey provides unique evidence for Australia about medium-term persistence and recurrence of household joblessness. Prior to the arrival of the HILDA Survey, nearly all evidence was cross-sectional, providing no information on the extent and nature of the more serious policy issue of long-term joblessness. Long-term jobless families probably tend to suffer not only material deprivation, but also some degree of social exclusion. Adverse implications for children living in long-term jobless households also seem likely, with available evidence suggesting intergenerational transmission of joblessness and welfare dependence is a significant problem (e.g. Gottschalk, 1992; Blanden and Gibbons, 2006; Jenkins and Siedler, 2007).

In this article, a jobless household is defined as one in which no household member was in work at the time of interview. Clearly, other definitions are also possible, but this is perhaps the clearest and most straightforward. The main weakness of this definition is that some households that are only temporarily jobless are classified as jobless, and some households that are usually jobless may be classified as not jobless. To some extent countering these weaknesses, we also identify households that are 'job-poor', defined as a situation in which household total usual weekly hours of work are less than 35. The 35-hour threshold corresponds to minimum hours of full-time employment, the implicit premise being that a household without the equivalent of one full-time employed person is at greater risk of poor economic outcomes.[1]

Job-poor households are clearly of less policy concern than jobless households, but are nonetheless of concern, since typically a job-poor household will not generate enough labour income to support the household. Many, if not most, job-poor households will receive income support payments. It should be noted, however, that in some instances it may be preferable—from both an individual and a societal perspective—for the household to be 'job-poor'. For example, an elderly person may be transitioning to retirement by working part-time,

and a lone parent may combine caring for children with part-time employment.

Jobless household

In this report, a jobless household is defined as one in which no household member was in paid employment (or on paid leave from employment) at the time of interview.

Job-poor household

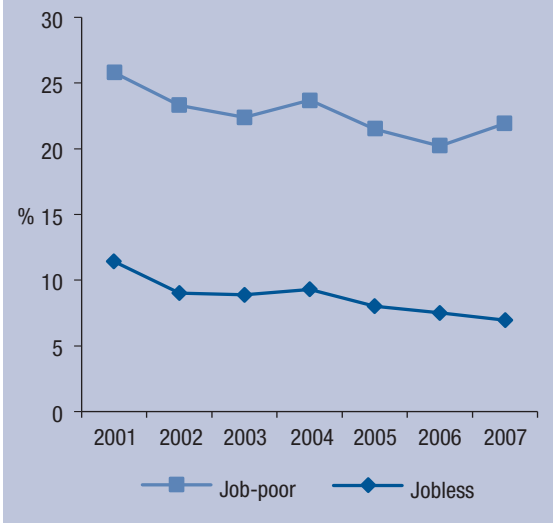
There is no accepted standard for determining whether a household is 'job-poor'. In this report, a household is defined to be job-poor if total usual hours of paid employment of all household members combined are less than 35 hours per week.

Trends in household joblessness, 2001 to 2007

Figure 15.1 presents cross-sectional estimates of the percentage of persons living in jobless households. Only persons under 65 years of age and living in a non-retired household are included. A person is deemed to be in a retired household if all persons in the household other than dependent children are retired. For example, a person who is retired but whose partner is not retired is regarded as living in a non-retired household (and is included in the analysis if aged under 65). Retired households are excluded because household joblessness is primarily an issue for households in which the societal expectation is that someone in the household works.[2]

In 2001, 11 per cent of people in non-retired households lived in jobless households. Over the HILDA Survey period as a whole, the clear trend has been for a steady decline in the rate of household joblessness. By 2007, the jobless household rate was 7 per cent, which is likely to be close to the bottom of a trough in light of the rise in unemployment since mid-2008. Significantly more households are classified as job-poor. In 2001, 26 per cent of persons in non-retired households were in job-poor households. In common with household joblessness, this rate fell substantially up to 2006, reaching 20 per cent. However, in contrast to household joblessness, the job-poor rate actually increased in 2007, to be approximately 22 per cent.

Figure 15.1: Proportion of people living in jobless and job-poor households—Persons under 65 years of age and not in a retired household (%)



Note: Population weighted results.

Figure 15.2 disaggregates jobless and job-poor rates by type of household. Societal expectations about (non-retired) childless households and couple households are unambiguous: at least one member of the household should be in paid employment. Expectations about lone-parent households are more mixed, but are probably moving towards the expectation that the parent undertake part-time employment, at least once the youngest child has reached school age. Both reflecting and driving this changing expectation, in recent years the Australian Government has progressively increased requirements on lone-parent income support recipients to participate in employment or education, with the most significant changes occurring in July 2006. Figure 15.2 clearly shows that, while lone parents—most of whom are women—have the highest jobless rate, it has fallen sharply over the 2001 to 2007 period, from 33 per cent in 2001 to under 24 per cent in 2007. The proportion of persons in lone-parent households that are job-poor has also declined steeply, implying many lone parents have moved into full-time work.

Lone person households also have high rates of joblessness. Like sole parents, the jobless rate declined sharply over the 2001 to 2006 period, from 23 per cent in 2001 to 12 per cent in 2006, but the rate of joblessness increased in 2007. The job-poor rate is also quite high for lone-person households, although somewhat lower than for lone-parent households. It should be noted that, in part, the higher rates of jobless and job-poor households for lone-parent and single-person households are deterministic functions of the smaller number of working-age people in each of these households. For example, if everyone had an equal chance of being non-employed or part-time employed, jobless and job-poor rates would be lower for couple households because there are two household members with a chance of being employed, and either one (or both combined) can lift the household out of joblessness or job poverty. Lone parent and single person households have only one person who can do this.[3]

In Figure 15.3, household joblessness by age of household members is examined. Four age groups are distinguished: children aged under 15 years; youth aged 15–24 years; prime-age adults aged 25–44 years; and older working-age persons aged 45–64 years. All age groups exhibit sizeable decline in

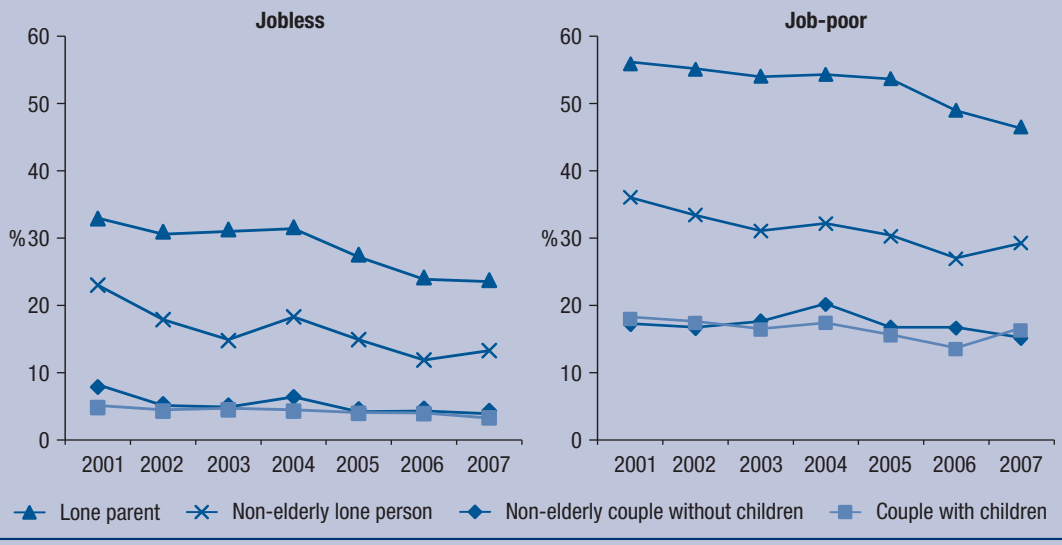
joblessness and job-poor rates between 2001 and 2007. The jobless-household rate is consistently highest for children under 15 and was still quite high, at 11 per cent, in 2007. The evidence in Figure 15.2 is that to a significant extent this reflects outcomes for lone-parent households. The job-poor rate also tends to be slightly higher for children under 15 than for the other age groups, but the differences with other age groups here are relatively small.

Longer-term household joblessness

While short-term joblessness is a concern, medium-term to long-term joblessness is a more serious policy issue because of the implications for a family's long-term income, wealth, health and social exclusion. Table 15.1 presents information on the number of years households were jobless and job-poor. Among all members of the population under 65 years of age and living in non-retired households, 84 per cent have not been in a jobless household in any of the seven years, and 9 per cent were in a jobless household in just one or two years. The remaining 7 per cent were in a jobless household in three or more years, and are fairly evenly distributed over the three to seven years range (ranging from 1 per cent to 1.8 per cent). For persons in this group, joblessness is a persistent and/or recurrent problem.

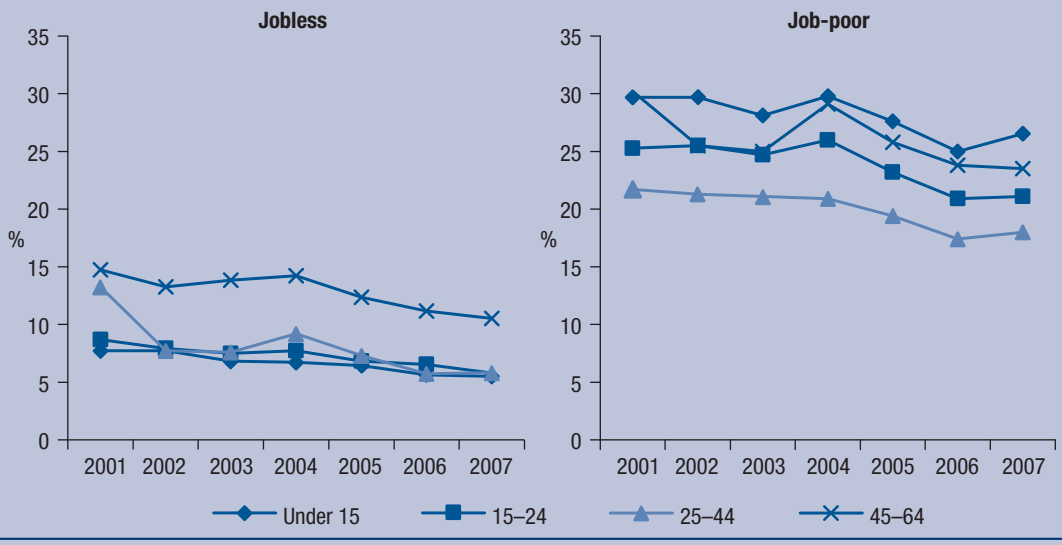
Living in a job-poor household is experienced by more people and also appears to be more likely to be long term than joblessness. Of the 41 per cent of people who experienced at least one year in a job-poor household, 23 per cent—over half—were in a job-poor household for three or more years. A sizeable 6 per cent were in a job-poor household in all seven years.

Figure 15.2: Proportion of persons living in jobless and job-poor households by type of household (%)



Note: Population weighted results.

Figure 15.3: Proportion of persons living in jobless and job-poor households by age group (%)



Note: Population weighted results.

Table 15.1: Protracted (medium-term) household joblessness—Years in jobless/job-poor household 2001–2007 (%)

			Children			
	All persons		Jobless		Job-poor	
Number of years	Jobless	Job-poor	Couple	Lone parent	Couple	Lone parent
0	84.3	59.1	88.4	38.1	65.4	10.1
1	6.3	11.9	4.8	16.6	11.3	8.4
2	2.6	6.6	1.6	8.8	4.4	12.9
3	1.8	4.7	1.5	6.8	4.2	8.6
4	1.3	4.8	1.7	5.8	4.1	11.8
5	1.5	3.3	0.5	9.5	3.2	7.0
6	1.0	3.5	0.4	6.7	2.5	10.6
7	1.4	6.2	1.0	7.8	4.9	30.8

Note: Population weighted results.

The last four columns of Table 15.1 focus on children living in jobless households, distinguishing lone-parent and couple households (based on household situation in 2001). Household joblessness for children is very much associated with residing in a lone-parent household: 88 per cent of children with both parents present in 2001 were not in a jobless household in any of the seven waves, compared with 38 per cent of children with only one parent present in the household in 2001. More importantly, 37 per cent of children in lone-parent households were in jobless households for three or more years, and 15 per cent were in jobless households for six or seven years. These figures will, furthermore, tend to understate the association between household joblessness and the presence of both parents. This is because some children in couple households in 2001 will subsequently live in lone-parent households, and some children in lone-parent households in 2001 will subsequently live in couple households.

Persistence of joblessness

Table 15.1 presents evidence on the combined effects of persistence and recurrence of household joblessness. In Table 15.2, we focus on persistence of joblessness by presenting, for those initially jobless, the proportion jobless in each subsequent year. This is presented for four initial periods: 2001, 2003, 2005 and 2006, which allows us to consider changes in the degree of persistence over the HILDA Survey period. The same information is presented for job-poor households in the lower panel of the table. Perhaps somewhat surprising in light of Table 15.1, is that a relatively high degree of persistence in joblessness is evident. For those found to be in jobless households in 2001, 65 per cent were in jobless households one year later, 48 per cent were in jobless households three years later, and 36 per cent were in jobless households six years later. As expected based on the Table 15.1 results, persistence in job poverty is greater, with fully 43 per cent of people in jobless households in 2001 also in jobless households in 2007.

Tracking down the two panels of Table 15.2 allows us to consider in a limited fashion changes over time in the degree of persistence in joblessness and job poverty. As the length of the HILDA Survey grows in the future, it will be possible to consider more fully trends in persistence. Although there is an upward spike in one-year persistence for those found to be in jobless households in 2003, there are indications of some decline in persistence over the 2001 to 2007

Table 15.2: Persistence of joblessness—Proportion of those initially in jobless/job-poor households who were jobless/job-poor in each subsequent year (%)

	Proportion jobless…					
Jobless in...	1 year later	2 years later	3 years later	4 years later	5 years later	6 years later
2001	64.9	59.6	48.4	44.8	36.0	36.0
2003	71.2	55.7	45.6	39.1	–	–
2005	60.2	54.2	–	–	–	–
2006	63.2	–	–	–	–	–
	Proportion job-poor…					
Job-poor in…	1 year later	2 years later	3 years later	4 years later	5 years later	6 years later
2001	70.1	62.1	59.1	49.8	45.7	43.4
2003	77.7	64.9	58.9	55.1	–	–
2005	74.0	66.7	–	–	–	–
2006	76.0	–	–	–	–	–

Note: Population weighted results.

period, at least for persistence beyond one year. For example, the proportion of those in jobless households in 2001 who were in jobless households two years later was 60 per cent, compared with 56 per cent for those in jobless households in 2003 and 54 per cent for those in jobless households in 2005. With regards to job poor households, there is no clear evidence that persistence has declined.

Discussion

Household joblessness declined substantially as an economic and social issue for Australia over the 2001 to 2007 period. However, the recent economic downturn is likely to have arrested this trend. Furthermore, even in the climate of declining unemployment that prevailed from 2001 to 2007, job-poor households continued to account for a large proportion of households, and persistence in joblessness remained high. Perhaps most important is that the incidence of children growing up in jobless households, while declining, remained a significant feature of Australian society in 2007. The issue of intergenerational transmission of joblessness is therefore still an important policy issue for Australia. One caveat to the contention that should be noted, however, is that most children living in jobless households are in lone-parent households. The lone-parent household jobless rate may overstate the number of children lacking an employed role model, since children may still have regular contact with an employed non-resident parent.

Endnotes

1 The choice of this threshold nonetheless has some degree of arbitrariness—in particular, reasonable arguments could be mounted for lower thresholds. It is also arguable that the threshold should vary according to the number of adult household members, since the scope for employment is greater the larger the number of adults. However, the essence of the issue on which we wish to focus is the absence of substantial household engagement with the labour market, rather than market underutilisation of household labour more generally. We therefore retain the simple and intuitive 35-hour threshold for defining job-poor households.

2 Of course, some other household types, such as a household consisting of people with a severe or profound disability only, would not be expected by most people to have someone in employment. We do not attempt to identify and exclude these households.

3 This is a point well made by Gregg et al. (2005).

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16. Job satisfaction

In every year of the HILDA Survey, individuals who are employed at the time of interview are asked to rate how satisfied they are with their job on a scale of 0 to 10, with 0 being 'totally dissatisfied' and 10 being 'totally satisfied'. In addition to overall job satisfaction, respondents are also asked about their satisfaction with particular aspects of the job, including the pay, job security, the hours they work and the flexibility available to balance work and non-work commitments. Table 16.1 shows that the average levels of these different aspects of job satisfaction changed very little between 2001 and 2007.

Overall, most people are quite satisfied with their jobs, with the average job satisfaction in all seven years being around 7.5 out of 10 for males and slightly higher for females, with average job satisfaction around 7.7 out of 10. The aspect of their job with which respondents are on average most satisfied is job security. For males, average levels of satisfaction with job security rose from 7.5 out of 10 in 2001 to 8.1 in 2007, and for females, average job security satisfaction also rose slightly—from 7.9 out of 10 in 2001 to 8.1 out of 10 in 2007. Aspects of the job with which people are least satisfied (although scores still average close to 7) are their pay and the hours they work. Satisfaction with total pay rose slightly over the seven-year period, from 6.7 out of 10 for both males and females in 2001 to 6.9 out of 10 for males and 7 out of 10 for females in 2007. There are few gender differences in job satisfaction, but females—more of whom hold part-time jobs—are more satisfied than males with their working hours and ability to balance work and non-work commitments.

Persistence and recurrence of low job satisfaction

In Volume 1 of the HILDA Statistical Report, it was found that while 11 per cent of workers had experienced low levels of job satisfaction (0–4 out of 10) in one out of three years from 2001 to 2003, it was very unusual for low job satisfaction to persist for more than one year. Either the person leaves the job that is causing dissatisfaction, or there is some improvement that causes their job satisfaction to increase. The same can be said for job security—it was rare for feelings of dissatisfaction relating to job security to persist for more than one year. However, dissatisfaction with total pay, hours of work and job flexibility appear to be ongoing problems for some people.

In Figure 16.1 we consider how long these problems persist. The figure shows, for people who were employed at the time of interview in all seven years from 2001 to 2007, the proportion expressing dissatisfaction with the various aspects of their job once, twice, three times and four or more times in the seven-year period.

While around 20 per cent of employees experience low overall job satisfaction in at least one of the seven years, it is very unusual for it to persist for more than one year. Only 8 per cent of males and 7 per cent of females report low overall job satisfaction in two or more of the six years. On the other hand, dissatisfaction with total pay is an onging problem for some people, with 7 per cent of males and females expressing dissatisfaction with their total pay in at least four years and a further 6 per cent of males and 5 per cent of females expressing dissatisfaction in three of the seven years.

Table 16.1: Mean job satisfaction (0–10 scale)

	2001	*2003*	*2005*	*2006*	*2007*
Males					
Satisfaction with total pay	6.7	6.8	6.8	6.8	6.9
Satisfaction with job security	7.5	7.8	7.8	7.9	8.1
Satisfaction with the work itself	7.6	7.6	7.5	7.5	7.6
Satisfaction with hours of work	7.0	7.0	7.1	7.0	7.1
Satisfaction with flexibility to balance work and non-work commitments	7.2	7.3	7.4	7.3	7.4
Overall job satisfaction	7.5	7.6	7.5	7.5	7.6
Females					
Satisfaction with total pay	6.7	6.7	6.9	6.9	7.0
Satisfaction with job security	7.9	8.0	8.0	8.0	8.1
Satisfaction with the work itself	7.7	7.6	7.6	7.6	7.6
Satisfaction with hours of work	7.3	7.3	7.3	7.2	7.3
Satisfaction with flexibility to balance work and non-work commitments	7.6	7.6	7.5	7.5	7.6
Overall job satisfaction	7.8	7.8	7.7	7.7	7.7

Note: Population weighted results.

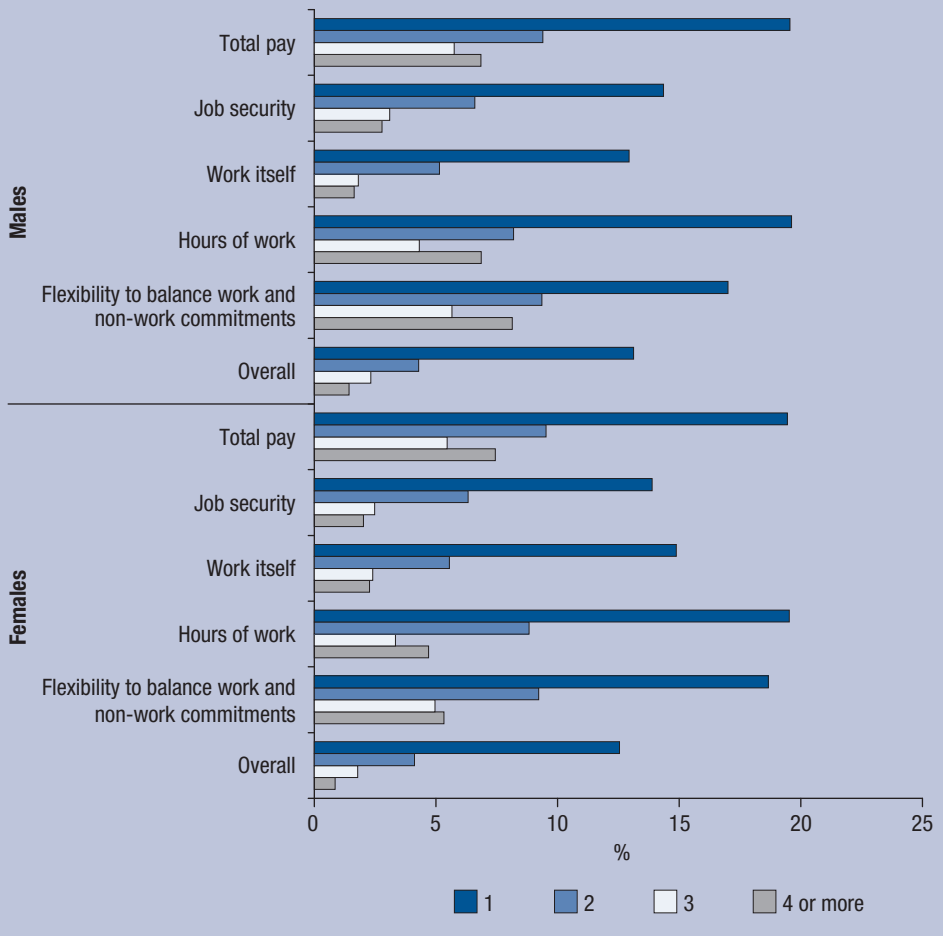
It is slightly more common for males than females to experience ongoing dissatisfaction with their working hours—7 per cent of males were dissatisfied with their working hours in four or more of the seven years, compared to 5 per cent of females. It is also more common for males to experience continuing dissatisfaction with flexibility to balance work and non-work commitments, with 8 per cent reporting low levels of satisfaction in at least four of the seven years, compared with 5 per cent of females. On the other hand, it is slightly more common for females to express continued dissatisfaction with the work itself—5 per cent of females and 3 per cent of males report satisfaction levels of 4 out of 10 or lower in three or more of the seven years.

Persistence of high job satisfaction

It may be that some individuals who report high levels of job satisfaction are just more optimistic, seeing life more as 'glass half full' than 'glass half empty'. Figure 16.2 shows the number of years that individuals reported high levels of satisfaction (8 or higher out of 10) with various aspects of their job, during the seven years from 2001 to 2007.

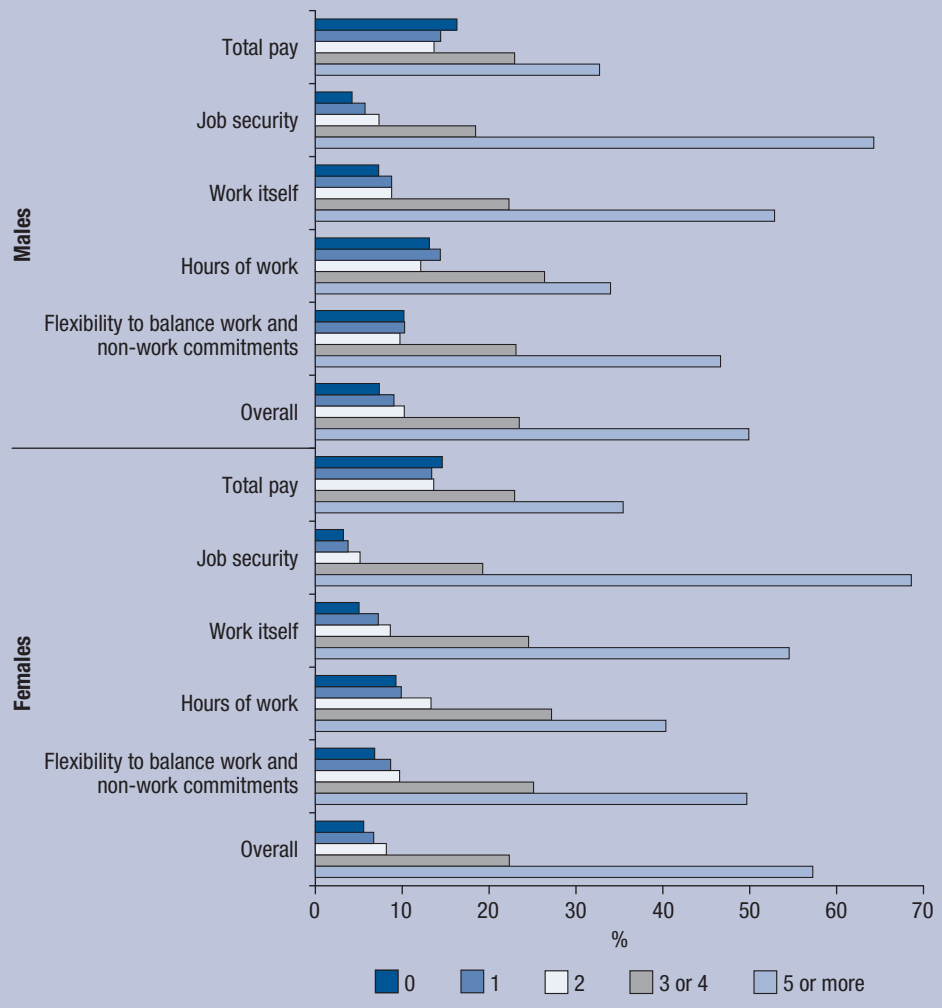
It is quite common for high levels of overall job satisfaction to continue for several years—50 per cent of males and 57 per cent of females reported high levels of overall job satisfaction in at least five of the seven years, and a further 23 per cent of males and 22 per cent of females had high levels of overall job satisfaction in three or four of the seven years. High levels of satisfaction with job security were very persistent, with 64 per cent of males and 69 per cent of females highly satisfied with the security of their jobs in five or more of the seven years. High levels of satisfaction with the work itself were also quite persistent, with over 50 per cent of employees reporting high levels of satisfaction in at least five out of the seven years. Similarly, 47 per cent of males and 50 per cent of females reported high levels of satisfaction with flexibility to balance work and non-work commitments in five or more of the seven years. Persistently high levels of satisfaction with total pay and working hours are less common—only 33 per cent of males and 35 per cent of females had high levels of satisfaction with their total pay in five or more of the seven years, and while 41 per cent of females reported high levels

Figure 16.1: Number of years of low (0–4) job satisfaction, 2001–2007 (%)



Note: Population weighted results.

Figure 16.2: Number of years of high (8–10) job satisfaction, 2001–2007 (%)



Note: Population weighted results.

of satisfaction with their working hours in at least five of the seven years, the corresponding figure for males is only 33 per cent.

Associations between job satisfaction and personal and job characteristics

Job satisfaction is potentially affected by a variety of factors, and the HILDA data provide the opportunity to investigate the effects of many of these. In Tables 16.2 and 16.3 we provide a cursory examination of the associations between overall job satisfaction in 2007 and some personal and job characteristics—namely, age group, family type, health of the individual, quintile of equivalised household disposable income, usual weekly working hours, preferred working hours, contract of employment and the type of work schedule.

In general, differences in levels of overall job satisfaction according to particular personal and job characteristics are not large, but clear patterns are nonetheless evident. Average job satisfaction increases with age, rising from 7.5 for persons aged between 15 and 34 to 8.6 for persons aged 65 and over who are still in paid work. Comparing across family types, partnered individuals generally have higher levels of job satisfaction than single people, and partnered individuals with no resident children have the highest overall levels of job satisfaction. However, partnered males with no resident children have slightly higher levels of job satisfaction than those with resident children, while for females, average levels of job satisfaction are the same for partnered women regardless of whether or not they have resident children. On average, individuals with a work-limiting health condition or disability report lower levels of job satisfaction than those who are in good health and those who have mild health problems that do not affect their ability to work. With regard to household income, very little difference in average job satisfaction by position in the income distribution is apparent. For males, mean job satisfaction ranges from 7.5 for those in the bottom, middle and fourth

Table 16.2: Average job satisfaction (0–10 scale) by selected personal characteristics, 2007

	Males	*Females*	*All persons*
Age group			
15–24	7.5	7.6	7.5
25–34	7.4	7.6	7.5
35–44	7.5	7.8	7.7
45–54	7.6	7.8	7.7
55–64	7.8	7.9	7.8
65+	8.7	8.5	8.6
Family type			
Single, no resident children	7.5	7.5	7.5
Single, with resident children	7.4	7.7	7.6
Partnered, no resident children	7.8	7.9	7.9
Partnered, with resident children	7.6	7.9	7.7
Health status			
No long-term health problems	7.6	7.8	7.7
Mild health condition or disability	7.7	7.7	7.7
Work-limiting health condition or disability	7.2	7.3	7.3
Income quintile[a]			
Bottom quintile	7.5	7.9	7.7
2nd quintile	7.6	7.7	7.7
3rd quintile	7.5	7.7	7.6
4th quintile	7.5	7.7	7.6
Top quintile	7.7	7.7	7.7

Notes: Population weighted results. [a] Income is household equivalised disposable income in the 2006–07 financial year.

Table 16.3: Average job satisfaction (0–10 scale) by selected job characteristics, 2007

	Males	*Females*	*All persons*
Usual weekly working hours			
Less than 10 hours	7.4	8.0	7.8
10–19 hours	7.7	8.0	7.9
20–34 hours	7.7	7.8	7.8
35–44 hours	7.6	7.6	7.6
45–54 hours	7.6	7.6	7.6
55–64 hours	7.6	7.4	7.5
65 or more	7.4	7.5	7.4
Preferred working hours			
Prefer fewer hours	7.1	7.3	7.2
Happy with current working hours	7.9	8.0	7.9
Prefer more hours	7.3	7.5	7.4
Contract of employment			
Employed on a fixed-term contract	7.6	7.4	7.5
Casual	7.5	7.8	7.6
Employed on a permanent or ongoing basis	7.6	7.7	7.6
Self employed	7.7	8.1	7.8
Work schedule			
Regular daytime schedule	7.6	7.8	7.7
Regular evening shift	8.0	7.5	7.7
Regular night shift	7.0	7.8	7.3
Rotating shift (changes from days to evenings to nights)	7.5	7.4	7.4
Split shift (two distinct periods each day)	6.8	7.4	7.1
On call	7.5	7.9	7.6
Irregular schedule	7.5	7.7	7.6

Note: Population weighted results.

quintile to 7.7 in the highest income quintile, while for females, those in the bottom quintile of equivalised household income had slightly higher levels of job satisfaction.

Among employed persons, average job satisfaction is lower the greater the hours worked. The one exception is that of males who worked less than 10 hours, whose average job satisfaction was 7.4—the same as that of males who were working 65 hours or more each week.

Using the first five waves of the HILDA Survey data, Wooden et al. (2009) found that it is not the number of hours worked that matters for job satisfaction, but working time mismatch—that is, the difference between preferred working hours and the actual number of hours worked. This is also evident in Table 16.3—individuals who are happy with their working hours have mean levels of job satisfaction of 7.9, compared to 7.4 for those who prefer to work more hours and 7.2 for those who prefer to work fewer hours. Males and females who are self-employed have slightly higher levels of job satisfaction than employees. Among male employees, those who are employed on a casual basis have slightly lower levels of average job satisfaction, while among female employees, those who are working on a casual basis report higher average levels of job satisfaction than those who are employed on a permanent or ongoing basis or on a fixed-term contract.[1] The type of shift one

Table 16.4: Correlations between life satisfaction, health, social inclusion and job satisfaction, 2007

	Males	*Females*	*All persons*
Overall life satisfaction	0.444	0.374	0.411
General health (SF–36)	0.179	0.172	0.176
Mental health (SF–36)	0.264	0.230	0.241
Social capital[a]	–0.204	–0.163	–0.188

Notes: Correlations are all significant at the 1% level. The HILDA social networks index comprises 10 items asking how much support respondents get from other people. [a] A person is then defined to have an inadequate social network if the average score on the 10 items is greater than 4. For more details about this measure refer to Chapter 20 of this report.

Table 16.5: Factors affecting job satisfaction, 2001–2007

	Males	*Females*
Age	–0.001[+]	–0.002[+]
Age squared	0.001	0.0001[+]
Job tenure	–0.050	–0.064
Job tenure squared	0.001	0.002
Partnered	–0.021[+]	–0.092
Resident children	0.072	–0.042[+]
Equivalised household income ($'00,000)	0.189	0.150
Health ('no health problems' omitted)		
Mild health condition or disability	–0.057[+]	–0.052[+]
Work-limiting health condition or disability	–0.233	–0.171
Working hours ('35–44 hours' omitted)		
Less than 20 hours	–0.008[+]	0.076
20–34 hours	–0.052[+]	–0.082
45–54 hours	0.034[+]	–0.032[+]
55 hours or more	–0.033[+]	–0.175
Over-employed (prefer fewer hours)	–0.286	–0.298
Under-employed (prefer more hours)	–0.422	–0.389
Casual employee	–0.238	–0.043[+]
Self-employed	0.071[+]	0.108
Irregular schedule[a]	–0.113	–0.087
Wave ('Wave 1' omitted)		
Wave 2	–0.017[+]	–0.007[+]
Wave 3	–0.056[+]	0.018[+]
Wave 4	–0.067[+]	–0.023[+]
Wave 5	–0.151	–0.034[+]
Wave 6	–0.180	–0.007[+]
Wave 7	–0.236	–0.142[+]
Constant	7.326	8.064
Number of observations	29,964	26,756

Notes: The sample comprises all employed persons aged 15 years and over. The statistics presented are fixed effects regression model coefficient estimates of the effects of the explanatory variables on job satisfaction (measured on a 0–10 scale). [+] Indicates the estimate is not statistically significantly different from zero at the 10% level. [a] Any type of work schedule other than a regular day or evening shift.

works also appears to have an impact on job satisfaction. Individuals working a split shift—two distinct periods per day—have the lowest mean levels of job satisfaction, while those working a regular day or evening shift have the highest levels of overall job satisfaction.

Job satisfaction is likely to be a function not only of the work characteristics and the standard socio-demographic factors but also more complex factors. In particular, how one feels about work often is a function of how one feels about life in general. Table 16.4 shows correlations between job satisfaction and life satisfaction, general health, mental health and social capital.

There is a strong positive correlation between job satisfaction and overall life satisfaction for men and women. The correlation between job satisfaction levels and SF–36 scores for general and mental health are also positive and significant, indicating that those with higher levels of general and mental health are also more likely to report higher levels of job satisfaction. The negative correlation between job satisfaction and the social capital measure suggests that individuals with inadequate social networks are likely to report significantly lower levels of job satisfaction.

Looking only at averages, it may appear that certain personal characteristics and job characteristics have a significant influence on an individual's job satisfaction. However it must be noted that, without controlling for other factors that might impact upon job satisfaction we cannot say that this is in fact the case. Table 16.5 shows that using a fixed effects regression and controlling for other characteristics that are known to impact upon job satisfaction, we find that for both males and females having a work-limiting health condition or disability, being either over-employed or under-employed, and having an irregular work schedule are negatively and significantly associated with job satisfaction, while job satisfaction increased with equivalised household income.[2] For males, being employed on a casual basis was also negatively associated with job satisfaction, while job satisfaction was higher among males with resident children. For females, those who worked long hours (55 hours per week or more) had significantly lower levels of job satisfaction than those who worked between 35 and 44 hours per week, and those who worked less than 20 hours per week had the highest level of job satisfaction, even after controlling for preferred working hours.

Concluding comments

Overall, most people are quite satisfied with their jobs and average levels of job satisfaction changed very little between 2001 and 2007. The aspect of the job with which people are most satisfied is job security and the aspects of the job that workers are least satisfied with are their pay and hours of work. It is very unusual for low levels of overall job satisfaction to persist for more than one year. However, low levels of satisfaction with total pay, working hours and flexibility to balance work and non-work commitments are an ongoing problem for some. On the other hand, it is quite common for high levels of overall job satisfaction to persist for several years. Ongoing satisfaction with job security and the work itself are also quite common, while persistently high levels of satisfaction with total pay and working hours are less common.

On average, levels of overall job satisfaction increase with age, people with partners report higher levels of job satisfaction, those with a work-limiting health condition or disability have lower levels of job satisfaction and average job satisfaction is lower the longer the hours worked and for those who are not working their preferred hours. Among male workers, those employed on a casual basis have the lowest average levels of job satisfaction, while the opposite is the case for females. However, after controlling for other factors that impact upon job satisfaction, we find that for both males and females, having a work-limiting health condition or disability, being either over-employed or under-employed and having an irregular work schedule are negatively associated with job satisfaction. For males, being employed on a casual basis also had a negative impact upon job satisfaction, while for females, those working long hours had significantly lower levels of job satisfaction.

Endnotes

1 Using the HILDA Survey data, Wooden and Warren (2004) found that workers do not necessarily see non-standard employment as undesirable—workers on fixed-term contracts were found to be much more satisfied with their jobs than other workers and the lower level of job satisfaction among casual employees was restricted to those working full-time, and even then the size of the effect was only marked among men.

2 The fixed effects specification helps to ensure that the estimated parameters will be net of likely strong correlations with unobservable personal characteristics such as personality. A fully developed theoretical model would likely imply a more sophisticated empirical analysis is appropriate for understanding the determinants of job security. For instance, separate equations for employee characteristics and job characteristics may be required. Note that the regression results are almost exactly the same when equivalised household income is excluded, the only significant difference was that for men, the presence of resident children was significant, with a coefficient of 0.058.

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Life Satisfaction, Health and Wellbeing

While much of the HILDA Survey is concerned with the economic wellbeing of people, extensive information is also collected on the health and social activity of respondents. Views and perceptions on a variety of life domains are also elicited, including levels of satisfaction with these life domains. In this section, we make use of some of this information to present cursory analyses of the 'subjective wellbeing', physical and mental health, 'social capital' and economic participation of the Australian community.

A number of feature articles in Part B also address issues related to health and/or subjective wellbeing, including three articles by guest authors. Dean Lillard from Cornell University examines individuals' lifetime smoking histories, Alison Goode and Markus Hahn study the healthiness of individuals' diets and Mark Wooden explores the health implications of being overweight. Part B also contains an article on associations between health, disability and certain serious illness conditions, an article on the extent to which individuals feel in control of their lives, and finally an article on the links between religious belief and life events and outcomes.

17. Life satisfaction and satisfaction with specific aspects of life

Each year, HILDA Survey respondents are asked, *All things considered, how satisfied are you with your life?* The response scale runs from 0 to 10, where 0 means 'completely dissatisfied' and 10 means 'completely satisfied'. The question is asked in the context of a battery of items asking about satisfaction with different aspects of life. Table 17.1 reports on the overall life satisfaction of Australians—males and females in different age groups—in 2001, 2003, 2005, 2006 and 2007.[1]

It is clear that, for the population as a whole, average life satisfaction has been unchanged over the six-year period, with average levels remaining at about 8. In general, in Australia, females report slightly higher levels of life satisfaction than males. The differences in Table 17.1 are generally not statistically significant, but have been confirmed in previous studies using different datasets (Headey and Wearing, 1992; Cummins, 1999). Males in the 35–44 age group had the lowest average life satisfaction, at around 7.5 out of 10 each year. For females in the 35–44 age group, life satisfaction was also lower than average, but this was also the case for females aged between 20 and 34; and 45 and 54. One possible explanation for the lower average levels of life satisfaction reported by men and women in their thirties and forties is that people in this age group are likely to have more family responsibilities and commitments and less free time.

Older people report the highest levels of life satisfaction; as previous research has shown, retirement years are very satisfying for many, at least while health holds up (Headey and Wearing, 1992). Teenagers also have higher than average levels of life satisfaction, perhaps because many are yet to face the stresses and responsibilities of adulthood.[2]

Aspects of life satisfaction

In addition to being asked about overall life satisfaction, respondents are asked to rate other aspects of their life, such as satisfaction with the home they live in, their financial situation and their employment opportunities. Table 17.2 shows average levels of satisfaction with these various aspects of life.

Average scores for most aspects of life satisfaction barely changed in the six-year period from 2001 to

Table 17.1: Mean life satisfaction by age

	2001		2003		2005		2006		2007	
Age group	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*
15–19	8.2	8.1	8.3	8.1	8.3	8.1	8.3	8.2	8.4	8.2
20–24	7.8	7.8	7.8	7.8	7.7	8.0	7.8	7.8	7.8	7.9
25–34	7.6	7.8	7.8	7.8	7.7	7.7	7.6	7.7	7.6	7.8
35–44	7.5	7.8	7.5	7.8	7.5	7.7	7.4	7.7	7.5	7.7
45–54	7.8	7.9	7.7	7.9	7.7	7.8	7.7	7.7	7.6	7.7
55–64	8.0	8.1	7.9	8.1	8.0	8.0	8.0	8.1	7.9	7.9
65+	8.4	8.5	8.4	8.6	8.3	8.4	8.3	8.3	8.3	8.2
Total	7.9	8.0	7.9	8.0	7.8	7.9	7.8	7.9	7.8	7.9

Note: Population weighted results.

2007. The largest change in fact was in satisfaction with employment opportunities, which increased from 6.6 to 7.1 for females and from 6.7 to 7.4 for males, which is entirely consistent with the decline in the unemployment rate and growth in real wages over the period. Also consistent with Australia's economic performance over this period, the average level of satisfaction with 'your financial situation' increased slightly from 6.1 to 6.5 for males and from 6.2 to 6.6 for females.

The aspects of life people feel most satisfied with are the 'local' ones—their own homes, their neighbourhood and how safe they feel. The aspects which occasioned least satisfaction (although average scores were still over 6) are your *financial situation* and *the amount of free time you have.*

Associations between life satisfaction and personal characteristics

Life satisfaction is potentially affected by a variety of factors, and the HILDA data, by virtue of the rich information on the characteristics and circumstances of sample members, provides the opportunity to investigate the effects of many of these. In Table 17.1, differences in average overall life satisfaction by sex and age group were presented. In Table 17.3 we provide a cursory examination of the associations between overall life satisfaction in 2007 and some other key characteristics; namely, region of residence, quintile of the (equivalised) household disposable income, employment status and family type.

Differences in average levels of overall satisfaction by characteristics are in general not large, but clear patterns are nonetheless evident. Average life satisfaction is decreasing with the population density of the region of residence, rising from 7.8 for persons living in major cities to 8.1 for persons living in outer regional areas. One possible explanation for this difference is that people living in country towns often feel more connected with their local community than people living in major cities do, and those with higher levels of social capital generally report higher levels of overall life satisfaction (Gittins, 2005). With regards to income, while one would expect income to be important to life satisfaction, only a weak ordering of average life satisfaction by position in the income distribution is apparent. Mean life satisfaction is 7.8 in each of the bottom three income quintiles, and then increases to 7.9 in the fourth quintile and 8 in the top quintile. Among employed persons, for both males and females average life satisfaction is lower the greater the hours worked, while unemployed people clearly have lower average life satisfaction than employed persons and persons not in the labour force. Comparing across family types, partnered individuals with no resident children have the highest mean level of life satisfaction, while those in lone-parent families have the lowest mean level.

Changes in life satisfaction over time

There is very little change in average levels of life satisfaction and satisfaction with specific aspects of life from one year to the next for the population as a whole (as shown in Tables 17.1 and 17.2). However, as previous HILDA Statistical Reports have indicated (e.g. Headey and Warren, 2008), this does not preclude substantial change from year to year at the individual level.

A particular question of interest is the extent to which dissatisfaction with things such as home, community, financial situation, and life in general, persists over time. Table 17.4 shows the number of years that people reported low levels of satisfaction with life in general and with other specific aspects of life, for the period from 2001 to 2007.

The aspect of life with which dissatisfaction persists for the longest time is the amount of free time

Table 17.2: Mean satisfaction with aspects of life

Satisfaction with …	*2001*		*2003*		*2005*		*2006*		*2007*	
	Males	*Females*	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*
The home in which you live	8.0	8.1	8.0	8.0	7.9	7.9	7.9	8.0	7.9	8.0
Employment opportunities	6.7	6.6	7.0	6.8	7.1	6.9	7.2	7.0	7.4	7.1
Your financial situation	6.1	6.2	6.3	6.4	6.4	6.4	6.4	6.4	6.5	6.6
How safe you feel	8.0	7.7	8.1	8.0	8.1	8.0	8.1	8.0	8.2	8.0
Feeling part of local community	6.6	6.7	6.6	6.8	6.6	6.8	6.7	6.8	6.7	6.8
Your health	7.4	7.4	7.5	7.4	7.3	7.2	7.3	7.3	7.3	7.2
Your neighbourhood	8.0	8.0	7.9	8.0	7.9	7.9	7.8	7.9	7.9	7.9
Amount of free time you have	6.8	6.7	6.7	6.6	6.8	6.7	6.7	6.6	6.8	6.5

Note: Population weighted results.

available. More than 40 per cent reported low levels of satisfaction (3 out of 10 or lower) with this aspect of life in at least one of the seven years from 2001 to 2007; 10 per cent reported low satisfaction in three or four of the seven years; and 5 per cent reported low levels of satisfaction in five or more of the seven years. Dissatisfaction with one's financial situation is also quite persistent, with 35 per cent reporting low levels of satisfaction with this aspect of life in at least one of the seven years, and 5 per cent reporting low levels of satisfaction for five years or more. Low levels of satisfaction with the home, the neighbourhood and personal safety appear to be much less persistent, with less than 5 per cent of people reporting low levels of satisfaction with these aspects in two or more of the seven years. It seems that is also very uncommon for dissatisfaction with life in general to persist for several years, with only 2 per cent reporting low levels of life satisfaction in two or more of the seven years from 2001 to 2007.

Can high satisfaction be maintained?

It may be that some individuals are simply more optimistic by nature. Table 17.5 shows the number of years that individuals reported high levels of satisfaction (8 or higher out of 10) with various aspects of life, during the seven years from 2001 to 2007. The aspects of life for which many people have persistent high levels of satisfaction are their neighbourhood and how safe they feel, with more than one-third of people reporting satisfaction levels of 8 or higher for these aspects of life in at least five of the seven years. High levels of satisfaction with health and the home in which a person lives are also quite persistent, with around 30 per cent reporting levels of satisfaction of 8 or higher in at least five of the seven years.

Satisfaction with financial situation, the amount of free time available and feeling part of the local community are less persistent. While 75 per cent of people reported high levels of satisfaction with feeling part of their local community in at least one of the seven years, only 16 per cent reported high levels of satisfaction in five years or more. Similarly, while 71 per cent of people reported high levels of satisfaction with the amount of free time they had and 68 per cent reported high levels of satisfaction with their financial situation in at least one of the seven years, only 15 per cent reported persistently high levels of satisfaction with their financial situation and 10 per cent reported high levels of satisfaction with the amount of free time they had in five or more of the seven years.

Table 17.3: Mean life satisfaction (0–10 scale) by selected characteristics, 2007

	Males	*Females*	*All persons*
Region [a]			
Major city	7.8	7.8	7.8
Inner regional	7.9	8.0	7.9
Outer regional	8.0	8.1	8.1
Remote	8.0	7.9	7.9
Income quintile [b]			
Bottom quintile	7.6	7.7	7.7
2nd quintile	7.9	8.0	7.9
3rd quintile	7.8	7.8	7.8
4th quintile	7.9	7.9	7.9
Top quintile	7.9	8.0	8.0
Employment status			
< 15 hours per week	8.2	8.0	8.1
15–34 hours per week	8.0	7.9	7.9
35–44 hours per week	7.8	7.8	7.8
45–54 hours per week	7.9	7.9	7.8
55+ hours per week	7.6	7.6	7.7
Unemployed	7.5	7.5	7.5
Not in the labour force	8.0	8.0	7.9
Family type			
Single, no resident children	7.7	7.8	7.8
Single, with resident children	7.3	7.2	7.2
Partnered, no resident children	8.0	8.0	8.0
Partnered, with resident children	7.8	7.9	7.8

Notes: Population weighted results. [a] Area of residence is categorised using Accessibility/Remoteness Index of Australia (ARIA) regions. Under this classification, Hobart is 'inner regional' and Darwin is 'outer regional'. The other capital cities are major cities. [b] Income is household equivalised disposable income in the 2006–07 financial year.

Table 17.4: Years of low satisfaction with specific aspects of life, and life in general, 2001–2007 (%)

	Number of years of low satisfaction					
Satisfaction with …	*0*	*1*	*2*	*3 or 4*	*5 or more*	*Total*
The home in which you live	85.6	9.6	3.2	1.4	*0.2	100.0
Employment opportunities	73.8	13.4	5.3	5.1	2.4	100.0
Your financial situation	64.8	14.6	7.6	8.2	4.8	100.0
How safe you feel	89.4	7.0	2.1	1.1	0.4	100.0
Feeling part of local community	71.5	13.4	6.6	5.7	2.7	100.0
Your health	83.1	7.9	3.1	3.6	2.3	100.0
Your neighbourhood	88.2	7.7	2.5	1.3	0.4	100.0
Amount of free time you have	58.0	17.2	9.5	10.3	5.0	100.0
Overall life satisfaction	93.7	4.2	1.1	0.6	*0.3	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

Table 17.5: Years of high satisfaction with specific aspects of life, and life in general, 2001–2007 (%)

	Number of years of high satisfaction					
Satisfaction with…	*0*	*1*	*2*	*3 or 4*	*5 or more*	*Total*
The home in which you live	12.3	14.1	14.6	30.4	28.5	100.0
Employment opportunities	16.2	15.9	15.5	28.9	23.4	100.0
Your financial situation	31.7	19.5	14.7	19.7	14.5	100.0
How safe you feel	8.5	11.3	13.7	30.2	36.3	100.0
Feeling part of local community	25.2	19.2	15.7	23.9	15.9	100.0
Your health	18.2	13.5	12.1	25.7	30.5	100.0
Your neighbourhood	9.4	11.0	13.5	29.5	36.6	100.0
Amount of free time you have	29.4	22.7	17.1	21.0	9.8	100.0
Overall life satisfaction	9.8	11.1	11.5	26.1	41.5	100.0

Notes: Population weighted results. Percentages may not add up to 100 due to rounding.

Endnotes

1 2002 and 2004 are not included in Table 17.1, as there was little change in average satisfaction levels during this period.

2 This result appears to be at odds with previous research (e.g. Backman et al., 1978) indicating that young people's satisfaction tends to improve rather than decline once they leave school.

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18. Physical and mental health: How persistent are health problems?

Every year, HILDA Survey respondents are asked to complete the SF–36 Health Survey. This 36 item questionnaire is intended to measure health outcomes (functioning and wellbeing) from a patient point of view (Ware et al., 2000). 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.[1]

The Australian Bureau of Statistics (ABS) has conducted both general health and mental health studies. Of particular relevance to the HILDA Survey results are the National Survey of Mental Health and Wellbeing of Adults conducted in 1997 and the National Health Survey of 2001 (ABS, 1997, 2001, 2006, 2009). The former included a short version of the mental health scale in the SF–36, the SF–12. So far as we know, there are no established norms for the SF–36 for Australian respondents, although a small sample validation study of an Australian version of the instrument has been done in New South Wales (Sanson-Fisher and Perkins, 1998). The HILDA Survey results for the general health and mental health scales used in this article are roughly in line with American norms. Mean scores are very close indeed (Ware et al., 2000).[2] However, the HILDA Survey mental health scale scores have a higher standard deviation than the American scores.

General health, 2001 to 2007

General health scores ranging from 0 to 100 are calculated on the basis of responses to five questions in the SF–36 (Ware, 2007). Firstly, respondents are asked to rate their health in general excellent, very good, good, fair or poor. The remaining four questions that make up the general health measure require respondents to rate how true the following statements are on a scale of 1 to 5 with 1 meaning 'definitely true' and 5 meaning 'definitely false':

- *I seem to get sick a little easier than other people.*
- *I am as healthy as anybody I know.*
- *I expect my health to get worse.*
- *My health is excellent.*

Table 18.1 provides the average general health scores, by sex and age group, for 2001, 2003, 2005, 2006 and 2007.[3]

General health scores of males decline in a straightforward linear way with age.[4] In 2007, scores decreased from 76.7 (on the 0 to 100 scale) for males aged between 15 and 19 to 60.6 for males aged 65 and over. For females over the age of 25, general health scores also decline with age, but young females aged between 15 and 24 have lower scores than those aged 25 to 34. In the years from 2001 to 2003, females aged between 15 and 24 were the only group where females had lower average general health scores than males of the same age. However, from 2005 onwards, average general health scores for females aged between 25 and 34 were also lower than the average for males in that age group, but only by a very small amount.

Mental health, 2001 to 2007

The SF–36 mental health score also ranges from 0 to 100 and is based on responses to five questions. Respondents were asked, on a scale of 1 to 6 where 1 means 'all of the time' and 6 means 'none of the time', how much of the time, during the last four weeks:

- *Have you been a nervous person?*
- *Have you felt so down in the dumps that nothing could cheer you up?*
- *Have you felt calm and peaceful?*
- *Have you felt down?*
- *Have you been a happy person?*

Table 18.1: Mean general health by sex and age (0–100 scale)

	2001		2003		2005		2006		2007	
Age group	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*
15–19	76.0	72.4	78.6	70.3	77.0	68.7	75.8	71.5	76.7	70.4
20–24	76.2	69.9	74.2	69.9	74.5	71.5	74.6	71.5	74.1	71.0
25–34	73.8	74.8	73.1	73.9	72.1	72.0	73.3	73.0	73.0	72.5
35–44	71.4	72.1	70.7	71.9	69.3	70.9	69.4	71.5	70.0	72.4
45–54	68.2	69.0	66.5	67.4	66.9	67.8	67.6	67.2	68.1	68.0
55–64	63.2	65.1	62.2	64.3	62.2	64.2	63.1	65.2	64.2	66.3
65+	58.6	61.2	59.6	61.2	60.0	60.1	60.1	59.4	60.6	61.1
Total	69.4	69.5	68.8	68.6	68.1	67.8	68.4	68.2	68.9	68.8

Note: Population weighted results.

Table 18.2 shows that, on average, mental health scores are higher for people aged over 65 than for younger people, and that, on average, males in all age groups have higher mental health scores than females, with females under the age of 25 having the lowest average mental health scores.[5]

In 2007, the average levels of mental health for females aged between 15 and 34 were approximately 72 out of 100, compared to 75 for females aged 65 and over. For males, average mental health scores ranged from 73 out of 100 for males aged between 20 and 24, to 77 out of 100 for males aged between 15 and 19 and also for males aged 65 or older. Unlike general health, there is a weak positive correlation between mental health and age for both males and females.[6]

Persistence of health problems

Do the same people tend to have health problems year after year, or are health issues usually transient? Table 18.3 shows the number of years between 2001 and 2007 that people had general health scores lower than 50 out of 100.

Around 64 per cent of people had general health scores of 50 or above in all seven years and only 6 per cent of males and 5 per cent of females had low levels of general health in all of the seven years from 2001 to 2007. As might be expected, the persistence of general health problems depends strongly on age. Persistent health problems are much more common for older people, with almost 50 per cent of persons aged 65 or older experiencing low levels of general health in at least one of the seven years, and almost 10 per cent of persons over 65 experiencing low levels of general health in all seven years.

Table 18.4 shows the number of years between 2001 and 2007 that people had mental health scores lower than 50 out of 100. It is clear that,

Table 18.2: Mean mental health by sex and age (0–100 scale)

	2001		2003		2005		2006		2007	
Age group	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*
15–19	73.5	70.1	75.9	69.4	75.6	70.7	75.7	72.6	77.3	71.8
20–24	74.4	68.9	73.7	69.2	73.2	70.7	73.3	69.8	73.3	71.4
25–34	74.0	71.9	75.2	73.1	73.5	70.9	74.7	71.3	73.6	72.3
35–44	73.2	71.4	74.3	72.3	73.6	72.2	73.8	72.7	74.2	72.3
45–54	75.5	73.4	74.6	72.9	75.2	73.0	75.0	73.0	75.3	72.6
55–64	75.2	73.4	75.6	74.5	76.7	73.8	76.3	74.0	76.2	74.4
65+	76.8	75.4	77.8	75.1	77.2	75.0	77.0	74.7	77.2	75.0
Total	74.6	72.3	75.3	72.8	75.0	72.5	75.1	72.8	75.3	73.0

Note: Population weighted results.

Table 18.3: Persistence of low general health scores by sex and age, 2001–2007 (%)

	Number of years with general health lower than 50 out of 100						
Age group in 2001	*0*	*1*	*2*	*3 or 4*	*5 or 6*	*7*	*Total*
Males							
15–19	74.0	11.9	*5.3	7.0	*0.7	*1.0	100.0
20–24	69.6	13.6	*3.3	8.5	*2.8	*2.1	100.0
25–34	73.3	11.5	*3.7	5.8	5.1	*0.6	100.0
35–44	65.5	8.2	6.3	8.7	6.2	5.2	100.0
45–54	59.8	12.6	6.0	8.2	6.6	6.7	100.0
55–64	55.0	9.9	5.0	9.0	6.3	14.7	100.0
65+	52.3	12.6	8.0	8.9	10.3	8.0	100.0
Total	63.9	11.1	5.5	7.9	5.9	5.7	100.0
Females							
15–19	63.3	10.6	*11.2	*6.3	*8.3	*0.3	100.0
20–24	63.2	11.0	*7.3	8.2	*7.2	*3.1	100.0
25–34	69.4	14.1	4.7	6.3	3.1	*2.5	100.0
35–44	69.5	10.0	4.4	6.6	4.5	5.0	100.0
45–54	62.7	11.1	6.6	7.9	5.9	5.8	100.0
55–64	61.8	8.3	*4.1	5.9	11.0	8.7	100.0
65+	50.6	14.3	7.7	8.6	7.8	11.0	100.0
Total	63.9	11.4	6.0	7.1	6.2	5.4	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

Table 18.4: Persistence of low mental health scores by sex and age, 2001–2007 (%)

	Number of years with mental health lower than 50 out of 100						
Age group in 2001	*0*	*1*	*2*	*3 or 4*	*5 or 6*	*7*	*Total*
Males							
15–19	72.2	14.6	*8.8	*3.0	*1.4	*0.0	100.0
20–24	76.5	*9.5	*4.6	*7.1	*1.3	*1.0	100.0
25–34	73.8	12.8	6.4	*2.8	*3.2	*0.9	100.0
35–44	70.7	12.4	5.1	*7.4	*3.9	*0.5	100.0
45–54	77.9	13.3	2.7	3.7	*1.8	*0.6	100.0
55–64	75.5	11.3	4.7	5.4	*1.5	*1.5	100.0
65+	82.5	6.4	3.8	3.8	*2.5	*1.1	100.0
Total	75.3	11.8	4.9	4.8	2.5	0.8	100.0
Females							
15–19	62.3	19.2	*6.0	*8.3	*3.6	*0.6	100.0
20–24	61.3	15.9	*10.5	*7.0	*3.3	*2.0	100.0
25–34	68.2	15.6	7.0	6.9	*1.3	*1.0	100.0
35–44	68.7	12.1	7.4	7.0	3.7	*1.1	100.0
45–54	72.5	11.5	6.7	7.2	*1.0	*0.9	100.0
55–64	76.8	9.5	2.9	7.0	*3.3	*0.6	100.0
65+	79.4	11.5	2.3	4.7	*2.1	*0.0	100.0
Total	71.0	12.9	6.0	6.8	2.4	0.8	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

compared to physical health problems, mental health problems are much less persistent. While 12 per cent of males and 13 per cent of females had mental health scores of less than 50 in one of the seven years from 2001 to 2007, only 0.8 per cent of individuals had low levels of mental health in all seven years.

Unlike general health, the persistence of mental health problems is not related in a linear way to age. Overall, females have higher rates of medium-term persistence of low mental health than males, but levels of long-term persistence are similar for males and females. For younger people, persistent mental health problems are more common for females than for males, with 4 per cent of males aged between 15 and 19 and 9 per cent of males aged between 20 and 24 having low levels of mental health in three or more of the seven years, compared to 13 per cent of females in the 15–19 age group and 12 per cent of females aged 20–24. Among men and women aged 25 or older, the group with the most persistent mental health problems is those aged 35–44 years. In this age group 12 per cent of men and women had mental health scores of less than 50 in three or more of the seven years from 2001 to 2007.

Endnotes

1 It should be understood that, because answers are provided by the public and not by practitioners, the SF–36 cannot be used to diagnose specific physical or mental health problems. Validation tests have shown that SF–36 scores correlate highly with practitioner assessments, but such correlations do not mean that physical and mental health problems can be assumed for individuals with low scores. In other words, the SF–36 works well as a screening instrument, but specific assessments by a medical practitioner are required for diagnoses to be made.

2 The HILDA Survey means in 2004 were 68.5 for general health and 74.1 for mental health. The American means are both about two points higher.

3 2002 and 2004 are not included in Table 17.1, as there was little change in average levels of general health during this period.

4 Pearson correlation between age and general health for men: –0.27 (2001), –0.27 (2002), –0.28 (2003), –0.26 (2004), –0.26 (2005), –0.25 (2006), –0.25 (2007). Pearson correlation between age and general health for women: –0.19 (2001), –0.20 (2002), –0.18 (2003), –0.17 (2004), –0.18 (2005), –0.21 (2006), –0.20 (2007).

5 It should be noted that women's and men's experience of mental health can be very different. For example, women and men are prone to different types of mental disorders and also deal with mental health issues in different ways. These gender differences can be hidden by datasets which group all mental health issues under one heading.

6 Pearson correlation between age and mental health for men: 0.05 (2001), 0.04 (2002), 0.04 (2003), 0.04 (2004), 0.07 (2005), 0.05 (2006), 0.05 (2007). Pearson correlation between age and mental health for women: 0.10 (2001), 0.08 (2002), 0.09 (2003), 0.09 (2004), 0.09 (2005), 0.07 (2006), 0.06 (2007).

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19. Satisfaction and dissatisfaction with family relationships and aspects of family life

Each year, respondents are asked to assess their level of satisfaction with various family relationships and with certain aspects of family life, most notably the division of household chores. In this chapter we examine these perceptions, how they vary across different groups in the community and how they have changed between 2001 and 2007. We also examine how individuals' opinions on these aspects compare with the opinions of other members of their households, and furthermore consider the extent of the persistence of dissatisfaction with relationships as well as the persistence of these relationships themselves.

Satisfaction with family relationships

Table 19.1 presents, for males and females separately, information on satisfaction with various family relationships. The first column presents the proportion of males to whom the item applies. For example, satisfaction with relationship with partner only applies to males who are partnered. Note, however, that the decision about whether an item applies is made by the respondent himself. For example, a respondent may indicate that a question about satisfaction with their partner applies, even though the information we have on that respondent from the personal interview indicates he or she is single. The next column presents the mean response among those to whom the item applies, rated on a scale from 0 (completely dissatisfied) to 10 (completely satisfied). The third column presents the percentage of males for whom the item applies classified as dissatisfied with the relationship, defined as scoring 0, 1, 2, 3 or 4 out of 10. The last three columns present the same information for females.

The highest levels of satisfaction tend to be with relationships with children (which, it should be emphasised, will comprise relationships with all resident and non-resident children of all ages, including older adult children of elderly persons). Very few parents are dissatisfied with their relationships with their children; this is especially true for females. Consistent with higher levels of satisfaction with relationships with children for females than males, we see that males tend to be more satisfied with their partner's relationship with their children than are females. Average satisfaction of females with their partner's relationship with the children is, at 7.9, still reasonably high, but a considerable 8.6 per cent are dissatisfied with their partner's relationship with the children.

Both males and females report quite high levels of satisfaction with their partner, although males tend

Table 19.1: Satisfaction with family relationships, 2007 (0–10 scale)

	Males			*Females*		
	Applicable population (%)	*Mean satisfaction*	*Dissatisfied (%)*	*Applicable population (%)*	*Mean satisfaction*	*Dissatisfied (%)*
Relationship with partner	72.5	8.3	5.1	69.6	8.0	7.5
Relationship with children	61.4	8.3	4.5	69.5	8.5	2.6
Partner's relationship with children	53.9	8.5	4.0	52.7	7.9	8.6
Relationship with step-children	11.9	7.3	10.9	10.3	6.4	22.6
Relationship of children with each other	36.6	7.9	5.8	40.9	7.7	7.2
Relationship with parents	68.7	7.9	6.7	69.2	7.8	8.0
Relationship with step-parents	15.4	7.2	12.8	13.3	6.7	18.3
Relationship with former partner	27.2	6.0	27.9	25.7	6.1	29.2

Notes: Population weighted results. 'Applicable population': percentage of persons to whom the question applies; 'Dissatisfied': satisfaction score is less than 5 out of 10. Estimates of mean satisfaction and the percentage dissatisfied are based only on scores reported by persons for whom the item applies.

to be more satisfied than females. The mean score among males was 8.3, compared with 8 among females. Correspondingly, 5.1 per cent of males reported being dissatisfied with their partner, whereas 7.5 per cent of females were dissatisfied. Unsurprisingly, lowest levels of satisfaction are reserved for former partners, and here men and women appear to be equally unhappy with their ex-partners. Satisfaction with relationships with step-children is also low on average, especially among women—in 2007, 23 per cent of women with step-children indicated they were dissatisfied with this relationship.

Differences in relationships' satisfaction by age are examined in Table 19.2, which shows mean satisfaction scores for each of three age groups that approximately correspond to 'youth', 'prime working age' and 'elderly' lifecycle stages. With several notable exceptions, satisfaction with relationships tends to increase with age. For all items, both males and females aged 55 years and over have the highest or equal-highest mean satisfaction score. It is also the case for most—although not all—items that persons aged 15–24 have the lowest mean score. The exceptions arise for both males and females with respect to relationships with parents and for females with respect to relationships with partner and relationships with children. Both males and females report lowest average levels of satisfaction with their parents when in the prime-age years, although the difference in mean score from those aged 15–24 years of 0.1 is not large. More significant is that females aged 25–54 have lower average levels of satisfaction with their partners and with their children than females in the other two age groups. Mean satisfaction with children is, however, still quite high at 8.3. Also notable in Table 19.2 is that males aged 15–24 with children have a relatively low average level of satisfaction of 6.6 for their relationships with their children.

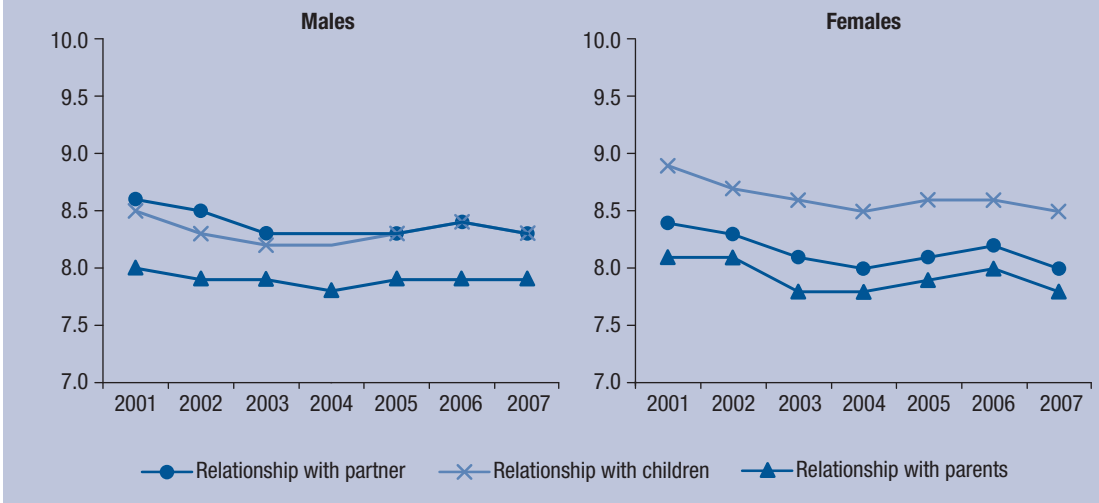
How have average levels of satisfaction with family relationships changed between 2001 and 2007? Figure 19.1 plots mean satisfaction scores in each wave for three of the most common family relationships—partner, children and parents. Mean satisfaction scores for these relationships appear to follow very similar patterns over time for both males and females. Satisfaction tended to decline

Table 19.2: Mean satisfaction with family relationships by age group, 2007 (0–10 scale)

	Males			*Females*		
	15–24	*25–54*	*55+*	*15–24*	*25–54*	*55+*
Relationship with partner	8.0	8.1	8.8	8.2	7.9	8.3
Relationship with children	6.6	8.1	8.5	8.5	8.3	8.6
Partner's relationship with children	6.8	8.3	8.8	7.6	7.7	8.2
Relationship with step-children	5.0	7.0	7.8	4.4	6.3	6.7
Relationship of children with each other	7.2	7.8	8.5	7.3	7.7	8.1
Relationship with parents	7.9	7.8	8.2	7.9	7.8	7.9
Relationship with step-parents	6.6	7.3	7.9	6.3	6.9	7.0
Relationship with former partner	5.6	5.7	7.1	5.7	5.9	7.0

Notes: Population weighted results. Means are calculated based on scores reported only by persons for whom the item applies.

Figure 19.1: Mean satisfaction with family relationships (0–10 scale)



Note: Population weighted results.

up until 2004. Since then, male satisfaction with relationships has increased slightly, while female satisfaction increased slightly to 2006, before falling back to 2004 levels in 2007.

Couples' perceptions of the division of child care and household tasks

In each wave since Wave 5, partnered respondents have been asked about their level of satisfaction with the division of child care and household tasks between themselves and their partner. Specifically, they are asked to assign a score from 0 (completed dissatisfied) to 10 (completely satisfied) in response to the questions *How satisfied are you with the way child care tasks are divided between you and your partner?* and *How satisfied are you with the way household tasks are divided between you and your partner?* As with the questions on satisfaction with relationships, respondents themselves decide whether each question applies to them. This means that respondents will only answer the question on the division of child care tasks if they assess that their children require child care (which may be ambiguous for older children) and they have a partner with whom tasks can be shared. Likewise, the question on division of household tasks will presumably only be answered by respondents with a co-resident partner.

Table 19.3 presents results from these questions analogous to those presented in Table 19.1. Males are considerably more satisfied with the division of child care and household tasks than are females. Among partnered females with children requiring child care, 15 per cent are dissatisfied with the division of child care tasks, compared with 7.5 per cent of partnered males with children requiring child care. The situation with respect to household tasks is even worse. Over one-in-six females to whom the item applies are dissatisfied with the division of household tasks, compared with just over one-in-twenty males.

Each year, respondents are asked *Do you think you do your fair share around the house?* and are given the response options indicated in the column headings of Table 19.4, which presents results for partnered persons in 2007. Consistent with the evidence in Table 19.3, women are more likely to think they do more or much more than their fair share. Women with dependent children are especially likely to believe they do more than their fair share. To some extent, men agree with women—many acknowledge that they do less than their fair share. Nonetheless, most males believe they do their fair share or more around the house. Even amongst partnered males with dependent children, 70 per cent believe they do their fair share or more, which cannot be reconciled with the 67 per cent of partnered females who believe they do more than their fair share.

The proportion of partnered females who believe they do much more than their fair share of the housework is concerning, but has the situation been improving or deteriorating since 2001? Figure 19.2 suggests things have been improving for women with dependent children, but not for women without dependent children. The figure shows the proportion of females indicating they do much more than their fair share around the house. This proportion has remained relatively stable at around 27 per cent for partnered women without dependent children. For partnered women with dependent children, the proportion doing much more than their fair share has declined substantially, from approximately 44 per

Table 19.3: Satisfaction with division of child care and household tasks, 2007

	Males			*Females*		
	Applicable population (%)	*Mean satisfaction*	*Dissatisfied (%)*	*Applicable population (%)*	*Mean satisfaction*	*Dissatisfied (%)*
Division of child care tasks	30.3	7.8	7.5	29.9	7.1	15.1
Division of household tasks	64.4	8.0	5.3	62.3	7.0	17.4

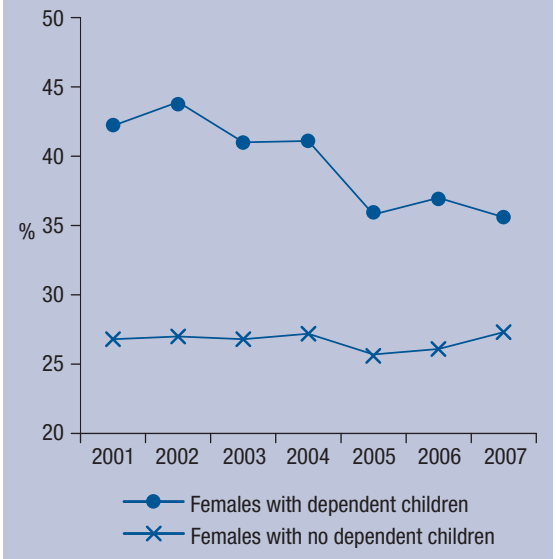
Notes: Population weighted results. 'Applicable population': percentage of persons to whom the question applies; 'Dissatisfied': satisfaction score is less than 5 out of 10. Estimates of mean satisfaction and the percentage dissatisfied are based only on scores reported by persons for whom the item applies.

Table 19.4: Self-assessment of 'fairness' of one's share of the housework—Persons living with a partner, 2007 (%)

	Do you think you do your fair share around the house?				
	Much less	*Bit less*	*Fair*	*Bit more*	*Much more*
Couples without dependent children					
Females	3.5	11.0	41.7	16.5	27.3
Males	5.8	21.9	53.8	8.7	9.7
Couples with dependent children					
Females	0.4	2.6	30.4	30.9	35.6
Males	5.1	24.7	55.2	9.0	5.9

Note: Population weighted results.

Figure 19.2: Percentage of females indicating they do much more than their fair share around the house



Note: Population weighted results.

cent in 2002 down to 36 per cent in 2007. There remains, however, considerable ground to cover before parity with males is achieved.

Persistence of low satisfaction with relationships and household tasks

In Table 19.5 the persistence of low satisfaction is examined, restricting to items applicable to relatively large numbers of people. The upper panel considers persistence from 2006 to 2007. It shows the proportion dissatisfied in 2006 and, for persons in this group, the proportion still dissatisfied in 2007, the proportion no longer dissatisfied in 2007 and the proportion for whom the item does not apply. An item is deemed not to apply in 2007 if the respondent selects the 'not applicable' response option or if, in the case of relationship with partner, division of child care and division of household tasks, the respondent is no longer with the same partner.[1]

Dissatisfaction with relationships with partner, parents and children appears to be somewhat persistent, with 43–53 per cent of those dissatisfied in 2006 indicating they are still dissatisfied with the relationship in 2007. Furthermore, in the case of partner relationships, 12 per cent of those dissatisfied in 2006 were no longer living with that partner in 2007. Dissatisfaction with former partners appears less persistent from one year to the next, but this would seem to reflect the high proportion of individuals who believe this question is no longer applicable to them in 2007, rather than an improvement in satisfaction with the former partner. Dissatisfaction with the division of child care and with the division of household tasks is also quite persistent, and in fact persistence of dissatisfaction with the division of child care is very high when one takes into account the high proportion for whom the question no longer applies in 2007. Only 35 per cent of those dissatisfied with this aspect of family life in 2006 were satisfied in 2007, compared with 40 per cent or more for the other aspects.

The lower panel of Table 19.5 presents similar information to the upper panel, but examines persistence over a five-year period, from 2002 to 2007. Note that satisfaction with division of child care and household tasks has only been obtained since 2005 and so persistence of low satisfaction with these aspects cannot be examined over the 2002 to 2007 time frame. As might be expected, persistence of dissatisfaction over five years is lower than persistence over one year. However, in the case of partner relationships, nearly 30 per cent of people dissatisfied with their relationship in 2002 were no longer living with that partner in 2007.

An alternative approach to the examination of persistence with respect to partner relationships is to focus on the persistence of *relationships* rather than the persistence of dissatisfaction. In Table 19.6, persistence of partnerships in which one or both partners was initially dissatisfied is examined. Dissatisfaction with the relationship itself, with the division of child care and with the division of household tasks are considered separately, as are couples according to whether they are legally married and whether they have dependent children. As before, persistence is examined over the one-year period from 2006 to 2007 and over the five-year period from 2002 to 2007, the latter for relationship dissatisfaction only.

The rate of dissatisfaction is higher for couples with dependent children, and is higher in de facto marriages than legal marriages. For example, in 2006, 4.6 per cent of legally married couples without dependent children had one or both members dissatisfied with their relationship, compared with 6.6 per cent of de facto married couples without dependent children, 9.8 per cent of legally married couples with dependent children and 10.9 per cent of de facto married couples with dependent children. De facto marriages in which one or both partners are dissatisfied are also more likely to subsequently end than legal marriages—particularly if there are no dependent children. For example, 76 per cent of de facto marriages without children in which at least one member was dissatisfied with the relationship in Wave 2 no longer existed in 2007, compared with a corresponding figure of only 14 per cent for legal marriages without children. To an extent reflecting the higher rate of relationship dissolution, de facto couples are substantially less likely to be subsequently dissatisfied with the relationship than legally married couples; that is, persons in de facto marriages appear to be less likely to stay in a persistently

Table 19.5: Persistence of low satisfaction with relationships (%)

2006 to 2007		*Persons dissatisfied in 2006*			
	Dissatisfied in 2006	*Dissatisfied in 2007*	*Satisfied in 2007*	*Not applicable in 2007*	*Total*
1. Relationship with partner	4.5	43.1	44.6	12.3	100
2. Relationship with children	3.4	52.6	39.9	*7.5	100
3. Relationship with parents	7.6	46.9	45.2	7.9	100
4. Relationship with former partner	30.8	28.5	41.5	29.9	100
5. Division of child care tasks	11.3	47.2	34.6	18.2	100
6. Division of household tasks	11.4	46.8	48.4	*4.0	100
2002 to 2007		*Persons dissatisfied in 2002*			
	Dissatisfied in 2002	*Dissatisfied in 2007*	*Satisfied in 2007*	*Not applicable in 2007*	*Total*
1. Relationship with partner	3.8	41.6	29.1	29.2	100
2. Relationship with children	4.0	54.5	26.9	18.6	100
3. Relationship with parents	7.8	46.3	36.4	17.3	100
4. Relationship with former partner	31.7	29.6	26.6	43.9	100

Notes: Population weighted results. * Estimate not reliable. 'Relationship with partner' restricted to co-resident partners. 'Not applicable in Wave 7' if respondent selects this response option or, for items 1, 5 and 6, the respondent was no longer living with the (same) partner.

Table 19.6: Persistence of unhappy partnerships (partnership is the unit) (%)

	2006 to 2007			*2002 to 2007*		
		Of those dissatisfied in 2006, percentage…			*Of those dissatisfied in 2002, percentage…*	
	Percentage dissatisfied in 2006	*No longer partnered in 2007*	*Still partnered in 2007, but still dissatisfied*	*Percentage dissatisfied in 2002*	*No longer partnered in 2007*	*Still partnered in 2007, but still dissatisfied*
Legally married with dependent children						
Relationship with partner	9.8	12.0	49.7	6.9	22.8	40.6
Division of child care tasks	17.7	6.5	34.5	–	–	–
Division of household tasks	23.8	3.5	49.2	–	–	–
De facto married with dependent children						
Relationship with partner	10.9	26.4	24.0	8.3	33.2	16.4
Division of child care tasks	24.5	10.8	47.6	–	–	–
Division of household tasks	28.5	8.3	45.9	–	–	–
Legally married without dependent children						
Relationship with partner	4.6	5.3	44.6	4.8	14.1	36.1
Division of child care tasks	–	–	–	–	–	–
Division of household tasks	14.1	1.0	50.0	–	–	–
De facto married without dependent children						
Relationship with partner	6.6	25.1	41.3	5.5	76.2	13.4
Division of child care tasks	–	–	–	–	–	–
Division of household tasks	21.4	10.4	58.5	–	–	–
All couples						
Relationship with partner	6.8	11.8	45.3	5.7	24.9	34.7
Division of child care tasks	18.3	7.6	36.7	–	–	–
Division of household tasks	18.8	3.7	50.3	–	–	–

Notes: Population weighted results. Dissatisfied partnership if one or both members dissatisfied (score less than 5).

unhappy relationship than are legally married couples. However, this does not appear to apply with respect to dissatisfaction with child care and household tasks: despite a higher rate of dissolution, persistence of dissatisfaction with these aspects from 2006 to 2007 is generally at least as high for de facto marriages.

Differences of opinion within the household

The collection by the HILDA Survey of information on all household members over 15 years of age makes it possible to study the extent of consensus on relationships within the household and other aspects of family life. In Panel A of Table 19.7, we take couples and compare the views of each member on their satisfaction with their relationship with the other member, with their own relationship with the couple's children, with the division of child care tasks and with the division of household tasks. In 92 per cent of couples, both are satisfied with the relationship (defined as a score of 5 or more out of 10). Shared satisfaction with their relationships with the children is even higher, with both partners satisfied in nearly 97 per cent of couples. It is less common for both members to be satisfied with the division of child care tasks, and even less common for both to be satisfied with the division of household tasks, but even in these cases, both partners are satisfied in over 80 per cent of couples. Interestingly, for all four aspects, it is much more common for only one member of the couple to be dissatisfied than for both members to be satisfied. Indeed, for each item, it is more common for the male only to be dissatisfied rather than both members to be dissatisfied, and it is also more common for the female only to be dissatisfied rather than both members to be dissatisfied. It is especially interesting to note that it is quite uncommon for both members of a couple to be dissatisfied with their relationship: it is usually only one member or the other who is dissatisfied (although it is twice as likely to be the female).

We also examine in Panel A of Table 19.7 the extent to which partners agree with each other on their relative contributions to housework. For this analysis, to maintain the focus on the division of tasks between partnered men and women, we restrict the estimates to couples with no one else living with them other than dependent children under the age of 15. In couple families with older children or other household members present, it is conceivable that both members of the couple do more than their fair share, or both do less than their fair share.

The level of a couple's disagreement about contribution to household tasks is obtained by comparing each member's response to the question *Do you think you do your fair share around the house?* The response 'I do much more than my fair share' is assigned a score of 1, 'I do a bit more than my fair share' a score of 2, 'I do my fair share' a score of 3, 'I do a bit less than my fair share' a score of 4 and 'I do much less than my fair share' is assigned a score of 5. The level of disagreement is then equal to $|\ 6 - (\text{male's score} + \text{female's score})\ |$. If the scores add up to six, so that our measure equals zero, the couple are in complete agreement—for example, both believe they do their fair share (score 3 each), or the female believes she does much more than her fair share (score of 1) and the male believes he does much less than his fair share (score of 5). The maximum

Table 19.7: Differences of opinions on household relationships within the household, 2007 (household is the unit)

A. Couples

Satisfaction

	Both satisfied (%)	*Both not satisfied (%)*	*Male not satisfied (%)*	*Female not satisfied (%)*
Relationship with partner	91.9	1.5	2.2	4.4
Relationship with children	96.5	0.5	1.8	1.2
Division of child care tasks	86.5	1.2	3.6	8.8
Division of household tasks	82.0	1.5	3.1	13.4

Level of disagreement about contribution to household tasks (%)

	0	*1*	*2*	*3*
Couples with dependent children only	38.5	39.2	18.6	3.8
Couples with no children	48.0	35.9	14.8	1.2

B. Families with resident children over 15 years of age

	All parents and child(ren) satisfied	*At least one parent and one child dissatisfied*	*At least one parent dissatisfied*	*At least one child dissatisfied*
Relationship with parents or children	90.9	0.40	2.79	5.94

Note: Population weighted results.

level of disagreement is 4, which occurs when both believe they do much more than their fair share, or both believe they do much less than their fair share.

A minority of couples are in complete agreement about their relative contributions to housework, but it is a narrow minority for couples without dependent children, among whom 48 per cent are in complete agreement. It is rare for members of couples to have completely contradictory views on their relative contributions, with only 4 per cent of couples with dependent children and 1 per cent of couples without dependent children scoring 3 or more, for example as would arise from one member indicating they do much more than their fair share and the other member indicating they do a bit more than their fair share. Relatively common is mild disagreement—a score of 1—applying to 39 per cent of couples with dependent children and 36 per cent of couples without dependent children. This situation would arise if, for example, the female thought she did much more than her fair share and the male thought he did a bit less than his fair share.

Panel B of Table 19.7 compares the views of parents and children over 15 years of age living together. Children under 15 are not interviewed and therefore cannot be included in this analysis. In 91 per cent of families with resident children over 15 years of age, all parents and children are satisfied with their child–parent relationships. Similar to the finding for couples, it is rare for both children and parents to be dissatisfied with the relationship, it being much more common for only the parent(s) or only the child(ren) to be dissatisfied. Children are twice as likely to be dissatisfied with the relationship.

Endnote

1 We note that the relationship with former partner has a very high 'not applicable' rate in Wave 7. This may in part be because of reconciliation with the partner, but it may also reflect commencement of a new relationship, or simply the severing of all ties with the former partner, so that no relationship exists in the mind of the respondent.

20. Social capital deficits and their persistence

An increasingly common view in both government and the social sciences is that *social capital* is an important consideration in the assessment of the capabilities that individuals have for living and working effectively in modern society. Most measures of social capital are essentially measures of social networks, although measures of neighbourhood quality and safety are sometimes also included. One's social networks range from intimate attachments to spouse and family, through friendship and social support networks, to acquaintances (including neighbours) whom one may be able to rely on for relatively minor assistance like borrowing household items and keeping an eye on the house while one is away on holiday (Henderson et al., 1981).

In this chapter, the focus is on assessing the incidence of inadequate social capital in the community. The HILDA Survey assesses social capital with two main sets of measures. The first set of measures, 'lives alone (and no partner)', 'not satisfied with partner', and 'not satisfied with other relatives', provides a measure of the availability, or lack thereof, of close, intimate and live-in relationships. The second set of measures, the social networks index, assesses the availability of friendship and social support.[1]

Availability of close/intimate and live-in relationships

The 'lives alone (and no partner)' measure is intended to identify individuals who appear to be at risk of lacking an intimate relationship. The 'not satisfied with partner' measure is based on a question asking *How satisfied are you with your relationship with your partner?* This question is put to all married and partnered respondents and is answered on a 0 to 10 scale where 0 means 'completely dissatisfied' and 10 means 'completely satisfied'. Respondents who answer 5 or less on the scale have been classified as 'not satisfied'. The index measuring 'not satisfied with other relatives' is based on responses to seven other questions, all on the same 0 to 10 scale, about satisfaction with other relationships in the household, as well as satisfaction with relationships with parents. In most cases, one or more of the seven questions is not applicable to the respondent. Similar to the previous measure, a respondent with an average rating on the applicable questions of 5 or less is recorded as 'not satisfied'.

Table 20.1 gives results for 2007 for the population and for various groups potentially 'at risk' of lacking adequate close relationships.[2] In 2007, 11 per cent

Table 20.1: Availability of close, intimate and live-in relationships, 2007 (%)

	Lives alone (and no partner)	*Not satisfied with partner*	*Not satisfied with other relatives*
All persons	10.6	10.5	7.8
Females	10.5	12.1	8.1
Males	10.7	8.9	7.6
Elderly (aged 65+)	23.7	6.3	3.7
Lone parent	0.0	30.0	11.6
Divorced or separated[a]	38.3	20.7	12.0
People with disability	16.0	12.4	10.0
NESB immigrant	7.6	13.7	5.8
Regional or remote area	11.7	9.4	7.6
Low income (bottom quintile)	23.0	11.4	9.0
Unemployed, aged 18–64	8.7	15.6	13.5

Notes: Population weighted results. Population is persons aged 15 years and over. [a] Divorced or separated persons may be currently partnered; hence, they can be dissatisfied with their current partner.

of persons over 15 years of age were living alone and not partnered, while a further 11 per cent were dissatisfied with their partner. These two groups are perhaps at most risk of lacking adequate close relationships. It is important to acknowledge, however, that the HILDA measures are just indicators and that it is certainly possible that some of the apparently 'at risk' individuals, if directly asked, might have reported that they had one or more close relationships and that these were enough to meet their emotional needs. Conversely, persons not living alone may report that they do not have a close relationship.

The remainder of Table 20.1 considers differences by sex and by various potentially 'at risk' groups. Females have a higher proportion than males reporting dissatisfaction with their partner, and were also slightly more likely to be dissatisfied with other relationships. The elderly are more likely to live alone, putting them at high risk of lacking close relationships, but very few report dissatisfaction with a partner or with their relationships with other relatives. Lone parents, by definition, do not live with a partner and also have a relatively high rate of dissatisfaction with relationships with relatives. A significant proportion of those who have divorced or separated also appear to be lacking close relationships.

Persons with disabilities[3] have a somewhat higher rate of living alone than the general population, and dissatisfaction with relationships is also marginally higher. Non-English-speaking background (NESB) immigrants—that is, immigrants from countries other than the main English-speaking countries of the United Kingdom, United States, South Africa and New Zealand—may be at greater risk of lacking close relationships because of language and cultural differences from the broader community, and because of remoteness from extended family. In fact, NESB immigrants have lower rates of living alone and dissatisfaction with other relationships, although they have relatively high rates of dissatisfaction their partners. People living outside the major cities may face barriers created by geographic isolation. They are indeed slightly more likely to live alone (12 per cent compared with 11 per cent for the population), but they are less likely to be dissatisfied with relationships.

Nearly one-quarter of persons in the bottom 20 per cent of the household (equivalent) income distribution live alone and without a partner, yet the proportion of all people in this income bracket dissatisfied with their partner is still higher than for the rest of the population. Clearly, low income is a strong predictor of lack of availability of close relationships. The unemployed, while less likely to live alone than the rest of the community, are significantly more likely to be dissatisfied with their partners and other relatives.

Social support networks

The HILDA social networks index comprises 10 items asking how much support respondents get from other people. Typical items are, *I often need help from other people but can't get it, There is someone who can always cheer me up when I am down* and *I often feel very lonely*. These items are answered on a 1 to 7 scale, where 1 means 'strongly disagree' and 7 means 'strongly agree'. For half of the 10 items, a higher score corresponds to a worse social network, and for the other half, a higher score corresponds to a better social network. To produce an overall indicator of adequacy of social networks, for the latter questions the scores are inverted by subtracting the recorded score from 8, so that scores still range from 1 to 7, but a higher score now corresponds to a worse social network. A person is then defined to have an inadequate social network if the average score on the 10 items is greater than 4.

Table 20.2 shows that more males than females—26 per cent compared to 23 per cent—report inadequate social networks, a result which replicates much previous research indicating that females

Table 20.2: Proportion of persons with a poor social network, 2007 (%)

	Poor social network
All persons	24.6
Females	23.2
Males	25.9
Elderly (aged 65+)	24.9
Lone parent	30.7
Divorced or separated	29.8
People with disability	30.4
NESB immigrant	32.5
Regional or remote area	24.1
Low income (bottom quintile)	32.6
Unemployed, aged 18–64	23.4

Notes: Population weighted results. Population is persons aged 15 years and over.

are more effective at networking (Flood, 2005; Rubin, 1983). Inadequate social networks are also significantly more prevalent among the 'at risk' groups, with the exception of the elderly, those living outside the major cities and the unemployed. NESB immigrants and those with low income are particularly prone to having inadequate social networks.

The persistence and recurrence of low levels of social capital

The results in Tables 20.1 and 20.2 relate just to 2007. But how many of the respondents who reported deficits in social capital in that year reported the same problems in other years as well? Clearly, persistent or recurrent deficits are more serious than deficits perceived at just one point in time. Table 20.3 covers all available measures of social capital and all seven years of the HILDA data, showing how many respondents reported particular deficits in none of the seven years, in only one or two years, and in three or more of the years. Persons who reported deficits in only one or two of the seven years are likely to have experienced only temporary deficits that they have been able to remedy. Persons with deficits for at least three years, by contrast, have deficits that are more persistent or recurrent, and are therefore of more concern.

Experience of poor social networks is very common, with 61 per cent of the population classified as having poor social networks in at least one year. For over half of these people, however, this is a temporary phenomenon, arising in only one or two of the seven years. For the remainder—28 per cent of the population as a whole—poor social networks are present for at least three years. Fewer people experience the other three social capital deficits: 23 per cent lived alone at some stage of the survey period, 24 per cent expressed dissatisfaction with their partner at some stage, and 26 per cent were at some stage dissatisfied with other relationships. Living alone is the most persistent of the social capital deficits. Of those to live alone at any stage of the survey period (23 per cent of all persons), over 62 per cent lived alone for three or more years. The two measures of relationship dissatisfaction are the most transient, with few dissatisfied for three or

Table 20.3: Years experiencing social capital deficits, 2001–2007 (%)

	All persons	*Elderly*	*Lone parent*	*Divorced or separated*	*People with disability*	*NESB immigrant*	*Regional or remote area*
Lives alone (and no partner)							
Never	77.4	68.8	92.5	41.0	72.9	85.7	76.4
1 or 2 years	8.6	7.3	4.8	14.3	7.2	5.2	8.5
3 or more years	14.0	23.9	2.7	44.7	19.9	9.1	15.1
Not satisfied with partner							
Never	76.4	87.2	62.2	70.1	76.2	74.1	77.3
1 or 2 years	17.8	10.2	29.9	21.7	16.2	18.2	17.2
3 or more years	5.8	2.6	8.0	8.2	7.6	7.7	5.6
Not satisfied with other relatives							
Never	73.8	83.0	55.5	61.5	70.2	78.1	73.8
1 or 2 years	18.1	13.3	28.8	26.1	19.5	15.6	18.0
3 or more years	8.1	3.7	15.7	12.4	10.3	6.3	8.2
Poor social network							
Never	38.7	25.9	31.3	33.1	35.2	28.6	44.2
1 or 2 years	33.2	28.4	36.0	36.0	35.0	28.4	35.2
3 or more years	28.1	45.8	32.7	30.9	29.8	43.0	20.6

Notes: Population weighted results. Population is persons aged 15 years and over. 'Elderly', 'lone parent', 'divorced or separated' and 'remote or regional area' status are evaluated in 2001. Note, therefore, that persons in the 'lone parent' group can be 'not satisfied with partner' if they are partnered subsequent to 2001. Only lone parents who were at some stage partnered between 2002 and 2007 are included in the calculation of the number of years not satisfied with partner, and among these lone parents, they are treated as not dissatisfied with their partner in waves in which they were not partnered.

more years. At least with respect to partner satisfaction, this is unsurprising. Persistent or recurrent dissatisfaction is likely to lead to dissolution of the relationship in many cases.

Consistent with the 2007 cross-sectional results, the proportions of 'at risk' groups ever experiencing each deficit are higher than for the community at large for all groups other than those living outside the major cities. It is notable that, although the elderly were not much more likely than the population as a whole to report poor social networks in 2007, they were much more likely to experience poor social networks in three or more of the seven years up to and including 2007. Although inadequate social networks are important for all groups, the relative importance of the other social capital deficit components does vary somewhat across these groups. For the elderly, 'living alone' is a key source of deficit; for lone parents, it is dissatisfaction with relationships with other relatives; for divorced and separated people, living alone and dissatisfaction with relationships with other relatives are both important sources of deficit; for people with disability, living alone is a key source of deficit; while for NESB immigrants, it is only inadequate social networks that are more prevalent than in the community as a whole.

Discussion

Many people's experience of social capital deficits is only transient—especially inadequate social networks—suggesting many people are able to take action to remedy their situation. Nonetheless, persistent or recurrent social capital deficits are apparent for significant numbers in the community. The evidence suggests that five of the groups identified above—the elderly, lone parents, divorced and separated persons, people with disability and NESB immigrants—are relatively more likely to lack social capital in Australia. There is also evidence that low income and unemployment are associated with social capital deficits, although it is unclear whether there is a causal effect of low income and unemployment on social capital.

Endnotes

1 In some years, questions relating to the local neighbourhood are also included in the HILDA Survey. These too can be regarded as social network questions.

2 Note, however, that probably the most at risk are homeless persons, who are not included in the HILDA sample.

3 A person is defined to have a disability if he or she has a health condition which has lasted or is likely to last for six months or more and which restricts that person in 'everyday activities'.

References

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21. Labour force and education participation, 2001 to 2007

At each annual interview, HILDA Survey respondents fill in a calendar for the months between the current interview and the previous interview. In principle, this provides comprehensive information on the labour market and education participation of each respondent over the full period spanned by the HILDA Survey. For each third of the month, the respondent records whether he or she was employed, unemployed or not in the labour force, and also whether he or she was enrolled in school or any course of study.

We can use this information to derive a breakdown of the percentage of time spent in paid work, unemployed and not in the labour force, and also the percentage of time spent in education. A person must always be in one of the three mentioned labour force states, so the percentage of time spent in these three states must sum to 100. The percentage of time spent in education can range from 0 to 100, irrespective of the time spent in each of the three labour force states.

In this chapter, we summarise the labour market and education participation of persons over the seven years covered by the HILDA Survey. We confine attention to a group of main interest —males and females aged 25 to 54, who are prime working age and, in many cases, face real choices between working, not working and getting more education.

Trends in participation of prime-age persons, 2001 to 2007

Table 21.1 reports the mean proportion of time spent in each labour force state, as well as the mean proportion of time enrolled in education, for each year from 2001 to 2007. The proportion of the year in paid employment gradually increased for males up until 2005, since when there has

Table 21.1: Mean proportion of time spent in each activity (%)

	Employed	*Unemployed*	*Not in the labour force*	*Full-time education*	*Part-time education*
Males					
2001	86.6	5.0	8.4	2.3	5.6
2002	86.5	5.2	8.3	2.4	6.0
2003	86.5	4.1	9.4	2.6	5.7
2004	87.7	3.3	9.0	2.9	7.0
2005	89.5	3.0	7.5	2.6	7.9
2006	89.4	3.3	7.4	2.2	5.8
2007	89.3	2.6	8.1	1.8	5.9
Females					
2001	68.5	3.0	28.5	2.9	5.7
2002	68.8	4.2	27.0	3.0	6.5
2003	69.6	3.8	26.7	3.1	6.7
2004	70.6	3.5	25.9	2.9	6.7
2005	71.9	3.4	24.6	2.6	7.9
2006	74.0	3.2	22.7	2.5	6.4
2007	73.1	3.3	23.5	2.9	6.3

Note: Population weighted results.

been a very slight (and statistically insignificant) decline in time spent in employment. For females, the mean proportion of the year employed grew up until 2006, but dipped slightly in 2007. The proportion of time unemployed has not followed such a clear path. For both males and females, since 2003 the proportion of the year unemployed had hovered around 3–4 per cent. The net product of the changes to employment and unemployment is that the total proportion of time spent by those aged 25–54 years participating in the labour force changed little for males, but increased markedly for females from 71.5 per cent in 2001 to 77.3 per cent in 2006, before falling back slightly to 76.5 per cent in 2007.

Participation in education does not appear to have changed substantially over the period, with the proportion of time enrolled in full-time education hovering around 2–3 per cent and the proportion of time enrolled in part-time education fluctuating between 5.6 per cent and 7.9 per cent. There were indications of a trend increase in education participation between 2001 and 2005, but 2006 and 2007 saw participation, particularly in part-time education, drop back somewhat.

Total employment and education activity over the life of the HILDA Survey

The upper panel of Table 21.2 shows the total proportion of time spent in each labour force and education participation state over the entire seven years from 2001 to 2007. We restrict here to persons aged 25–54 years for the *entire* period—that is, aged 25–48 in 2001. In total, 89 per cent of men's time was in the employed labour force state, 3.6 per cent was spent unemployed and 7.6 per cent was spent not participating in the labour force. Some of the time spent out of the labour force is potentially accounted for by the 1.8 per cent of time they were enrolled in full-time education, although of course many full-time students are employed. Males were also on average enrolled in part-time education for 6.3 per cent of the seven years. For females, 70.8 per cent of time was spent in the employed labour force state, 3.6 per cent was spent unemployed and 25.6 per cent was spent out of the labour force. Education participation is higher for females than males, with females enrolled in full-time education for 2.4 per cent of the period and enrolled in part-time education for 6.7 per cent of the period.

Table 21.2: Education and employment participation over the full seven years of the survey (%)

	Males	*Females*
Proportion of time spent in each activity		
Employed	88.8	70.8
Unemployed	3.6	3.6
Not in the labour force	7.6	25.6
Full-time education	1.8	2.5
Part-time education	6.3	6.7
Proportion of population that ever participated in each activity		
Employed	95.9	89.1
Unemployed	24.7	27.7
Not in the labour force	28.8	58.9
Full-time education	12.1	13.7
Part-time education	29.6	35.9

Notes: Population weighted results. Population is persons aged 25–54 for the entire 2001 to 2007 period.

The lower panel of Table 21.2 shows that it would be a mistake to imagine that the same people engage in the same activities very year. Among males, 95.9 per cent were in work at some stage during the seven years, 24.7 per cent were at some stage unemployed, and 28.8 per cent spent some time out of the labour force. The fraction of prime-age males at some stage experiencing unemployment or withdrawing from the labour force is considerably higher than many people might have expected. Prime-age females have a much higher proportion who at some stage were not in the labour force, partly because of the demands of child-rearing, but the high proportion that was at some stage unemployed—27.7 per cent—is likely to be similarly surprising to many people.

A further interesting and perhaps surprising finding is that 41.7 per cent of prime-age males and 49.6 per cent of prime-age females were at some stage enrolled in an education course in the seven-year period. Note that this is education participation that occurs when in the 25–54 years age range. 'Adult education', broadly defined, is thus clearly an extremely important activity of prime working age persons.

FEATURE ARTICLES B

22. Smoking in Australia

Dean R. Lillard †

An innovation in Wave 7 of the HILDA Survey is the addition of questions that ask current and former smokers to report the age they began to regularly smoke and, for former smokers, the calendar year they last smoked regularly. For both current and former smokers, HILDA also collects information on the number of cigarettes a person smoked in an average day when he or she smoked. In this article, I describe the new smoking data, explain why they are innovative, and present just a few of the ways they can be used to describe patterns in smoking behaviour in Australia and in a comparative context.

One innovation of the new HILDA data is that they can be combined to study smoking from a life-course perspective. Shifting tobacco research to a life-course perspective is both scientifically promising and timely. Longitudinal data offer greater scientific promise because they allow researchers to separately study (for the same individual) the decision to start and stop smoking. Previous research in both public health and health economics has usually relied on cross-sectional data to study current smoking prevalence or current cigarette demand. However, the current rate of smoking reflects the accumulated history of youth and adult smoking decisions. A given rate of population smoking prevalence could reflect either a high youth initiation rate combined with a high adult cessation rate, or a lower but steadier pattern of life-course smoking. The 'smoke while young and then quit' pattern would be similar to a common life-course pattern of heavy alcohol use (National Institute on Alcohol Abuse and Alcoholism 1999; United States Department of Health and Human Services 2000). Although still a public health problem, such a pattern in smoking behaviour would lead to less tobacco-related mortality because there is evidence that health improves substantially for smokers who quit at every age (United States Department of Health and Human Services, 1990). To complicate the picture, life-course smoking behaviour in many countries does not seem to have reached a steady state pattern. While worldwide increases in smoking initiation have been described as an epidemic (Corrao et al., 2000), there have also been important innovations in the development of effective smoking cessation products that are affecting the rate at which smokers are quitting. Thus, current population smoking prevalence reflects a complicated mixture of the varied patterns of smoking initiation and cessation by different birth cohorts. It is only by following individual smokers over their whole life-course that we can begin to disentangle some of these differences.

Although retrospectively reported data on smoking are collected in various surveys in Australia and around the world, HILDA joins a small but growing set of panel studies worldwide that collect similar data on smoking. For example, retrospectively reported smoking data have been and are being collected by the British Household Panel Study (BHPS), German Socio-Economic Panel (GSOEP), United States Panel Study of Income Dynamics (PSID), Russia Longitudinal Monitoring Study (RLMS), Ukraine Monitoring Longitudinal Study (UMLS), and China Health and Nutrition Study (CHNS). Coupled with the other diverse and rich information collected in various waves of these surveys, the retrospective smoking data can be used to describe patterns in smoking behaviour within and across countries.

To describe basic patterns in life-course smoking behaviour, we use data from the HILDA Survey, the PSID, and the BHPS. Respondents to these surveys retrospectively reported whether they had ever smoked, if so, the age they started and, if they no longer smoke, the age (or calendar year) they last smoked regularly.[1] With these data we create a person–year dataset that has an observation for every person for every year he or she was alive—from birth to the year of the survey. We then code an indicator variable for every respondent in every year of life that equals '1' if the person was smoking in that year (at that age) and '0' if he or she did not smoke. We compute the smoking prevalence rate—that is, the proportion of persons who were smokers—of men and women (separately) over calendar time and over chronological age. We compute smoking prevalence rates for 10-year birth cohorts. Although we use retrospective smoking questions from these three surveys that were asked in different years, we compute smoking prevalence rates for birth cohorts in each country defined by their age in 2007—the year the HILDA smoking data were collected.[2] We compute prevalence rates for people in their teens (16–19), twenties, thirties, forties, fifties, sixties, and seventy and older—all measured as of 2007.[3]

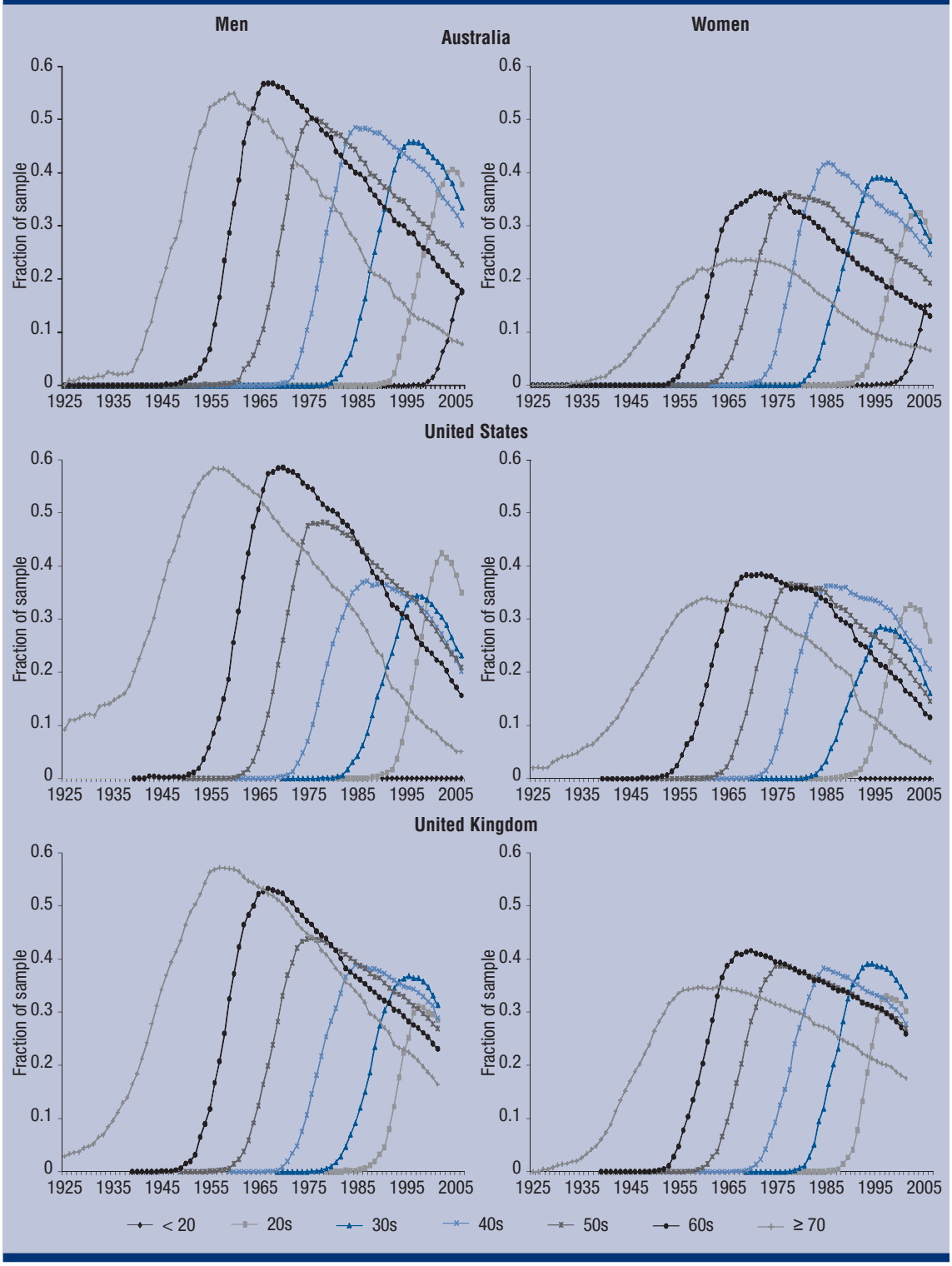
Figure 22.1 presents life-course smoking prevalence rates of these cohorts over calendar time for Australian, United States, and United Kingdom men and women. Specifically, for each cohort, the figure shows the proportion of the cohort who were 'regular' smokers in each year that they were alive up until 2007. Smoking prevalence rates of men are presented in the top panel. Rates for women are presented in the bottom panel. When presented over calendar time, life-course smoking prevalence rates of the oldest cohorts are furthest left while those of the youngest cohort are furthest to the right.

Figure 22.1 shows patterns, over time within each country and for particular cohorts across countries, that are both surprisingly similar and interestingly

different. For example, among men, smoking prevalence rates have fallen over time for all but the oldest two cohorts of Australian and United States men. In both Australia and the United States, smoking prevalence over the life course was almost the same for the two oldest cohorts of men. For each successive cohort, smoking prevalence rates peaked at lower and lower overall rates.[4]

Life-course smoking prevalence rates of women in these three countries share many similarities but also differ in sometimes surprising ways. In all three countries, the oldest cohort of women—those aged 70 years and older in 2007—smoked significantly less than the next youngest cohort—those in their sixties in 2007. This is indicated by the prevalence rate profile being considerably lower for the older

Figure 22.1: Smoking prevalence by sex, country, year, and age in 2007



cohort. The difference was starkest in Australia: in the oldest cohort of Australian women, the smoking prevalence rate reached a peak of about 24 per cent (in the late 1960s), while, in their adjacent cohort, the rate came close to 40 per cent (in the early 1970s). A similar increase in smoking prevalence from the oldest to the next oldest cohort of women was also observed in the United States and the United Kingdom but the peak rates of the two cohorts did not differ by as much.

For women, there is a less consistent pattern across countries. Life-course smoking prevalence rates of United States and the United Kingdom women are generally falling for successive cohorts (other than the oldest) but there is an uptick in smoking prevalence rates of United Kingdom women in their thirties. The figure also shows that Australian women differ from the United States and the United Kingdom counterparts in the cohort that had the highest life-course smoking prevalence rates. In the United States and the United Kingdom, life-course smoking prevalence was highest among women in their sixties while, among Australian women, life-course smoking prevalence was highest for women who were in their forties in 2007.

The patterns in smoking over the life cycle shown in Figure 22.1 can be more directly compared if we present the smoking prevalence rate of each cohort in each country over the same years of life—that is over age-years rather than calendar-years. Figure 22.2 plots the life-course smoking trajectories, by sex, country and age in 2007 for each sample.

Here we again find interesting similarities and differences across cohorts and across countries. As noted before, peak smoking prevalence rates of men have been declining for successive cohorts. Figure 22.2 clearly shows this decline. It also shows that the peak rate of smoking prevalence among male smokers was almost identical in all three countries for the three oldest cohorts—people aged seventy plus, in their sixties, and in their fifties. But for cohorts in their forties and younger, the drop in the peak smoking prevalence rate was much higher for United States and the United Kingdom men than it was for Australian men—by as much as 10 percentage points. Thus, while the peak smoking prevalence rate of Australian men was declining for successive cohorts, as it was for successive cohorts of United States and the United Kingdom men, it declines more slowly among Australian men than among United States and the United Kingdom men.

By contrast, successive cohorts of Australian, United States, and United Kingdom women reached similar peak smoking prevalence rates with a couple of exceptions. At their peak, fewer of the oldest cohort of Australian women—those in their seventies plus—smoked compared to their United States and the United Kingdom counterparts. The peak smoking prevalence rate of the oldest cohort of Australian women was about 23.7 per cent while it was 34 and 34.8 per cent for United States and the United Kingdom women, respectively. For successive cohorts of women, the peak smoking prevalence rate was quite similar, except for United States women aged in their thirties in 2007. Smoking prevalence of United States women in their thirties in 2007 peaked at 28.6 per cent, compared to 39.1 per cent for both Australian and United Kingdom women.

Though it is not so easy to see, Figure 22.2 also documents the shift of the age at which this peak smoking prevalence rate occurred. Male smokers in all three countries reach their peak smoking prevalence rate in their early twenties. However, earlier cohorts reach that peak around 24 while, on average, later cohorts reach the peak at younger ages. The picture for women shows a much more dramatic change in the age each cohort reaches its peak smoking prevalence rate. The oldest cohorts of women reach their peak smoking prevalence rate around 30 in the United States and the United Kingdom and around 37 in Australia. The age the peak rate was attained has been falling almost uniformly for successive cohorts in all three countries so that it closely resembles the age men reach their peak smoking prevalence rate. The only exception to this general trend is for Australian women in their twenties. That younger cohort reaches its peak smoking prevalence rate at age 24 while, men in their twenties in the United Kingdom and Australia reaches their peak smoking prevalence rate at around age 20.

Figure 22.2 highlights another important aspect of the pattern of life-course smoking in these three countries. Namely, it shows similarities and differences in the age that different cohorts of men and women achieve particular rates of smoking prevalence. Across these three countries, early life-course smoking trajectories of men are quite similar while later life-course smoking trajectories differ substantially across the three countries and across cohorts within each country.

Except for the oldest cohort in each country, early life-course smoking trajectories of female smokers also look quite similar. However, in contrast to male smokers, the later life-course smoking trajectories of women do not seem to vary as much as they do for men.

It is interesting to note that these figures corroborate a well-known stylised fact about smoking initiation—that it occurs primarily between the ages of 14 and 20. In most countries, smoking initiation is concentrated in these ages.

To sharpen that observation, Figure 22.3 plots the age at which each cohort first reaches smoking prevalence rates of 5 per cent, 10 per cent, 20 per cent

Figure 22.2: Life-course smoking trajectories by sex, country, and age in 2007

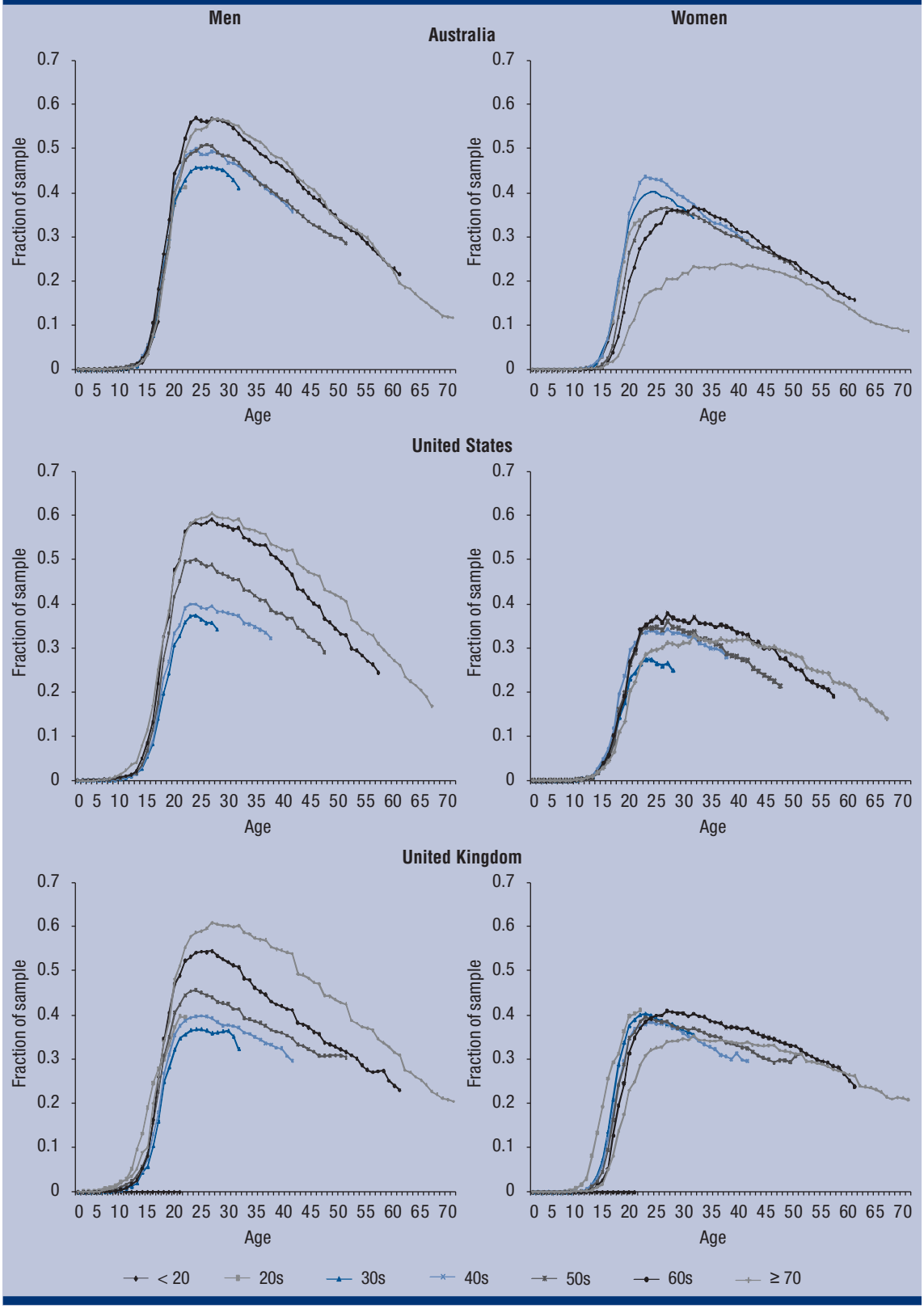
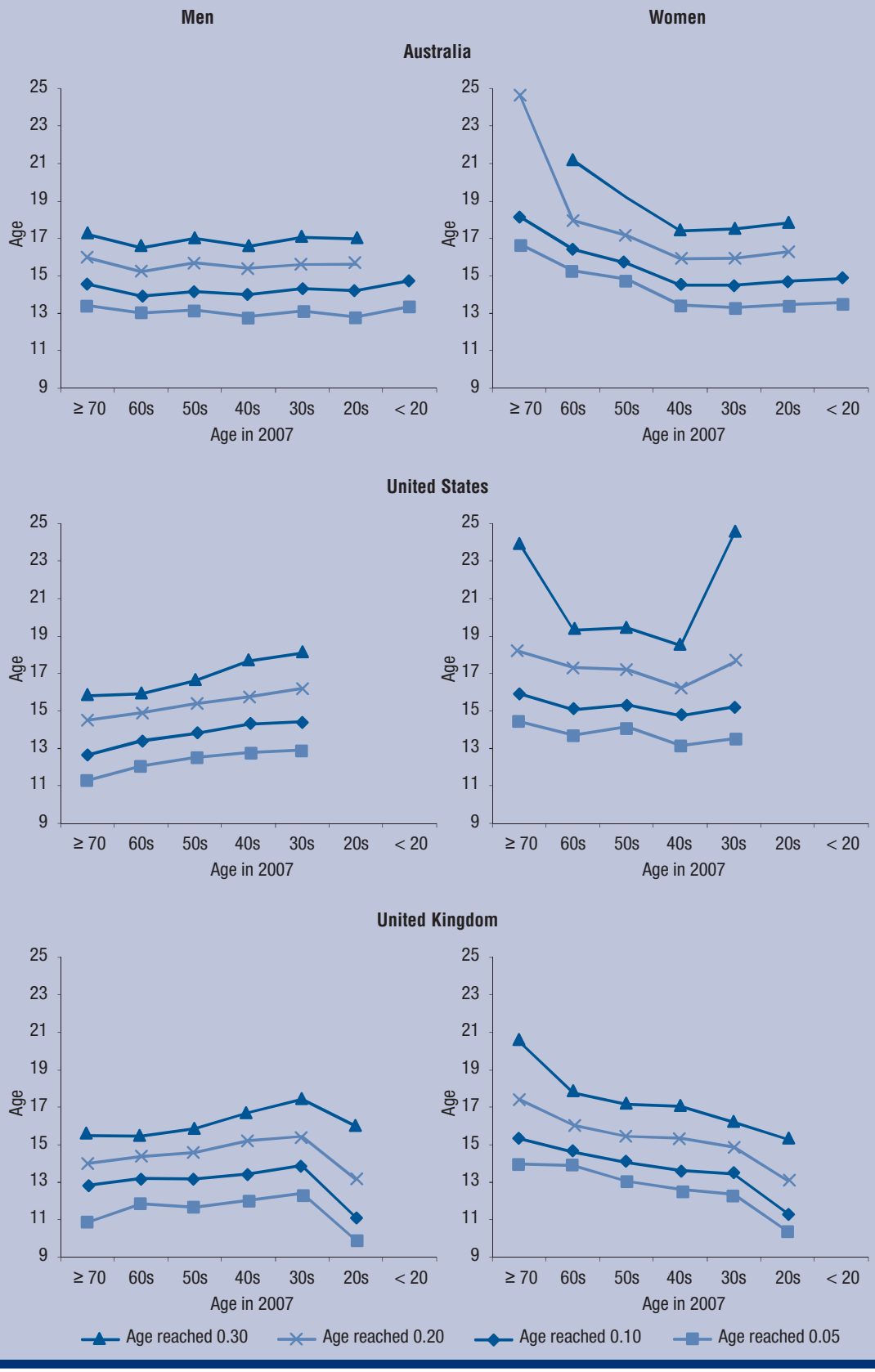


Figure 22.3: Age at which cohort smoking prevalence rate first hit specific thresholds by sex, country, and age in 2007



and 30 per cent; that is, it plots the start of the smoking life-course for men and women of each cohort in each country. The figures in the top panel plot these ages for Australian, United States, and United Kingdom men. The figures in the bottom panel plot these ages for Australian, United States, and United Kingdom women. Note that, for a given country, the flatter these curves are, the more similar the life-course smoking trajectories are for each cohort.

Consider first the patterns for Australian men, plotted in the upper left-hand part of Figure 22.3. Because these curves are practically flat for all smoking prevalence rates, the early life-course smoking trajectory of Australian men is practically identical for every cohort. By contrast, the mild upward slope of the plots for United States and United Kingdom men indicates that successive cohorts of male smokers reached these smoking prevalence thresholds at slightly later ages; that is, successive cohorts were older before they smoked as much as earlier cohorts did at younger ages.

Among women, the downward trend (sometimes dramatic among United Kingdom smokers) indicates that successive cohorts reached the above smoking prevalence thresholds at younger ages compared to older cohorts. In addition, the most recent cohorts of female smokers reached the smoking prevalence thresholds at ages that were quite similar to the ages their male counterparts reached those thresholds.

The above similarities and differences across cohorts within a country and across countries for a given cohort demand the attention of health economists and policy analysts. The patterns shown here are puzzles to understand and to explain. In this short piece, there was not sufficient space to fully develop the many different ways one might use these data to describe patterns in smoking behaviour. For example, one might add to Figure 22.1 key historical events in the history of tobacco control in each country, including indicators of dates that key scientific papers were published that definitively linked smoking with lung cancer, dates that key government reports were published, such as the 1964 United States Surgeon General's Report on Smoking (United States Public Health Service, Office of the Surgeon General, 1964), or dates of key regulatory events such as the banning of television and radio advertising of cigarettes. These and other similar events occurred at different times in each country. Coupled with other tobacco control policies they help inform and potentially explain the patterns in smoking behaviour described above for each country. Just as importantly, they offer the potential to use the new HILDA smoking data to produce scientifically important and policy relevant research using these innovative data.

Endnotes

† Department of Policy Analysis and Management, Cornell University. I thank Jeffrey Han for prompt, efficient, and invaluable assistance.

1 Neither the PSID nor HILDA defined 'regular' smoking for respondents, while the BHPS gave respondents a definition of 'at least 1 cigarette a day'.

2 Because we assume a person smoked in each year from the age he or she started until the year he or she quit, our coding ignores any periods during which a smoker might have temporarily quit. We therefore slightly overstate smoking prevalence rates.

3 The BHPS data were from 2002. Consequently we do not measure smoking behaviour of people in their teens.

4 We exclude PSID respondents in their 'twenties' because the PSID asks smoking questions only of the household 'head' and his wife or partner. This design means the sample of young smokers will be unrepresentative of all smokers.

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23. Eating habits and correlated socio-demographics

Alison Goode and Markus Hahn

As the supply of food and incomes have increased and the relative price of food has declined, the affordability, accessibility and variety of food has increased. This has influenced both the types of foods we eat as well as the quantity of food we consume. The net effect of this increased affordability and accessibility of food, coupled with a decreased amount of physical activity in our daily lives, has been a rise in diet and obesity related diseases, such as heart disease, some cancers and diabetes (Type 2) (WHO, 2007). It is, therefore, of interest to know not only whether people are eating the right foods necessary to maintain overall good health and a normal weight, but to also know how often they are eating different types of foods.

Current Australian recommendations for a healthy diet are to eat daily a selection from the following five food groups: (i) bread, cereals, rice, pasta and noodles; (ii) vegetables and legumes; (iii) fruit; (iv) milk, yoghurt and cheese; (v) meat, fish, poultry, eggs and nuts (DHFS, 1998). Australian dietary guidelines recommend eating a wide variety of nutritious foods, to limit saturated fat and moderate total fat intake, to choose foods low in salt, to consume only moderate amounts of sugars and foods containing added sugars and to limit alcohol intake (NHMRC, 2003).

While this article does not analyse whether a person's overall diet is healthy or not, it analyses the eating patterns of a selected range of foods that are considered healthy or unhealthy. Using these food types as indicators allows us to make some reasonable inferences about the healthiness or quality of a person's diet. Note, however, that these inferences cannot be considered conclusive, since we do not analyse every food type a person might consume. We focus on the consumption patterns of five food types: fruit; vegetables; milk; (common) snack foods;[1] and fried potatoes[2] investigating the socio-demographic factors correlated with the consumption of these foods.

The selection of foods is based on reasonably well-established evidence on healthiness of diet. Fruit and vegetable consumption is an important indicator of people's diet quality overall (Biltoft-Jensen et al., 2008). The more frequently people eat fruit and vegetables, the healthier their diet tends to be. A diet that is rich in fruit and vegetables not only provides essential vitamins, minerals and dietary fibres but also reduces the risk of developing common diseases such as heart disease, Type 2 diabetes and some cancers (NHMRC, 2003). The type of milk used is a good proxy indicator of saturated fat intake in a diet.[3] Studies have shown that those who use reduced fat milk tend to have an overall diet lower in saturated fat than those who use full cream milk (Biltoft-Jensen et al., 2008).[4] Consumption of snack foods and fried potatoes, which are typically high in saturated fats, sugars and/or salt, is not consistent with dietary guidelines and can contribute to overweight and obesity. Fried potatoes and snacks provide slightly different insights into the eating habits of people. Fried potatoes are popular as a side dish, especially in restaurants and as part of fast food meals, while snack foods can be seen as an unnecessary addition to one's diet. We focus only on one type of snack—potato crisps and salted nuts—which provides an example that simplifies the analysis.

The article begins with a general description of the data and then goes on to investigate whether there are any differences in the diet patterns amongst the sample using multivariate analysis. This allows us to isolate the effects of socio-demographic characteristics on the frequency of consumption of fruit, vegetables, snack foods, fried potatoes and on the type of milk used. The year analysed is 2007 (HILDA Wave 7) as this is currently the only year for which extensive information about food consumption is available. The sample consists of men and women, aged 15 years or older.

Fruit and vegetable consumption are measured as the *number of days in a usual week* these foods are consumed, ranging from 0 (not at all) to 7 (daily). Ordinary least squares (OLS) regressions are used to estimate the effects of a range of socio-demographic factors on fruit and vegetable consumption. The estimated coefficients can be interpreted as changes in days per week.

Milk is measured as a discrete question: *What is the main type of milk that you usually use? Whole/full cream; low/reduced fat; skim; other (soy, sweetened condensed, evaporated etc.) or does not drink milk.* To explain the fat-intake of individuals in our sample, we create an indicator with two categories: (i) using full cream milk (including evaporated and sweetened condensed milk); and (ii) using other types of milk or no milk. Again, logit regressions provide estimations of the average (marginal) effects of the characteristics on the probability of using full cream milk.

The consumption frequencies of snack foods and fried potatoes are measured discretely in categories. For both food types, the categories are reduced to two categories which make interpretation and estimation easier: (i) eating two or more times per week; and (ii) eating less than two times per week. The employed logit regressions estimate the average (marginal) effect of each characteristic on the probability to be in the first category (i.e. eating the mentioned foods two or more times a week). In order to simplify interpretation, we will refer to the first category as eating snack foods or fried potatoes regularly.

Table 23.1: Fruit and vegetables consumption—Number of days in a usual week (%)

	Fruit			Vegetables		
Days	*All*	*Women*	*Men*	*All*	*Women*	*Men*
0	5.8	4.4	7.3	0.6	0.4	0.8
1	7.6	5.9	9.3	1.4	1.2	1.5
2	9.4	7.6	11.4	3.2	2.4	4.0
3	9.7	8.9	10.5	7.3	6.2	8.4
4	8.2	7.6	8.8	11.2	10.3	12.2
5	10.3	9.8	10.9	16.4	15.5	17.4
6	4.6	4.3	5.0	10.9	10.8	11.0
7	44.3	51.6	37.0	49.0	53.3	44.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

Note: Population weighted results.

Each of the five models is estimated separately for men and women, which allows us to compare the results of men and women separately. All descriptive statistics are derived using the appropriate population weights, while the regressions results are unweighted.

Descriptive statistics

The descriptive analysis shows that 44.3 per cent of women and men eat fruit every day in a usual week (Table 23.1). Overall, women consume fruit more frequently than men and more women eat fruit daily than men (51.6 per cent versus 37 per cent). Those women and men who do not eat any fruit at all in a usual week account for about 6 per cent of the population, with more men than women not eating any fruit in a usual week (7.3 per cent versus 4.4 per cent).

Table 23.1 also shows that the pattern of vegetable consumption is very similar to that of fruit although slightly more people eat vegetables daily. As with fruit, a higher proportion of women eat vegetables daily than men (53.3 per cent versus 44.7 per cent) but a higher proportion of men consume vegetables than fruit. Overall, women and men consume vegetables more frequently than fruit.

The type of milk used is fairly evenly split between those that use low/reduced fat/skim milk (46.2 per cent) as opposed to whole/full cream milk (44.4 per cent). The remaining 10 per cent use either no milk or 'other' milk (Table 23.2). Men and women are very different in terms of the type of milk they use. With regards to low, reduced fat or skimmed milk, 53 per cent of women but only 39.2 per cent of men use this type of milk. Conversely, 52 per cent of men use full cream milk, while only 37 per cent of women use full cream milk.

Table 23.2: Type of milk used (%)

Type	*All*	*Women*	*Men*
Whole/full cream	44.4	37.0	52.0
Low/reduced fat/skim	46.2	53.0	39.2
Other	5.2	6.1	4.3
Does not use milk	4.2	4.0	4.5
Total %	100.0	100.0	100.0

Notes: Population weighted results. Whole/full cream category includes evaporated and sweetened condensed milk.

In terms of frequency of consumption of snacks (Table 23.3), more than half of the population eat snack foods at least once a week (56.2 per cent). Men consume snacks more frequently than women and over 5 per cent of all people eat snacks once or more daily.

Those who eat fried potatoes less than once a week account for about 50 per cent of the population (Table 23.4). More women eat fried potatoes less than once a week than men (58.9 per cent versus 44.5 per cent). Almost 2 per cent of all men eat fried potatoes one or more times daily compared to 1 per cent for women. Overall, men consume fried potatoes more frequently than women.

Tables 23.5, 23.6 and 23.7 show the mean age by gender for the frequency of consumption of fruit and vegetables, type of milk and frequency of

Table 23.3: Frequency of consumption of snacks (%)

Frequency	*All*	*Women*	*Men*
Less than once per week	43.8	48.0	39.4
Once per week	24.2	24.5	23.8
More than once per week but not daily	27.3	23.3	31.4
Once or more daily	4.8	4.2	5.4
Total %	100.0	100.0	100.0

Note: Population weighted results.

consumption per week of snacks and fried potatoes, respectively. The frequency of consumption of 'healthy' foods, such as fruit and vegetables, and the probability of using low/reduced fat milk increase with age while the frequency of consumption of 'unhealthy' foods (snacks and fried potatoes) decreases with age for both women and men. For women, the average age of those consuming fruit daily is around eight years higher than those who consume fruit less frequently. For men, this difference is about six years. Women and men who consume vegetables daily are also, on average, older than those who do not. However, the difference is less pronounced than when compared to fruit.

The average age for those using low/reduced fat milk compared to those using full cream milk is six years and seven years higher for women and men respectively. A similar pattern can be seen in the consumption frequency of snacks and fried foods although the difference in average age is much larger. Women and men who consume snacks less than once a week are around 16–17 years older than those consuming one or more snacks every day. For fried potatoes, women consuming less than once a week are, on average, around seven years older than those women who eat fried potatoes at least once a day. Men consuming fried potatoes less than once a week are about 10 years older than men consuming fried potatoes daily.

The descriptive analysis shows that overall women eat healthier that men. Furthermore persons tend to eat healthier when they are getting older.

Table 23.4: Frequency of consumption of fried potatoes (%)

Frequency	*All*	*Women*	*Men*
Less than once per week	51.8	58.9	44.5
Once per week	29.2	26.7	31.8
More than once per week but not daily	17.6	13.4	22.0
Once or more daily	1.4	1.0	1.8
Total %	100.0	100.0	100.0

Note: Population weighted results.

Table 23.5: Frequency of consumption of fruit and vegetables—Mean age in years by gender

	0 days	*1 day*	*2 days*	*3 days*	*4 days*	*5 days*	*6 days*	*7 days*
Fruit								
Women	39.7	37.5	40.0	38.6	40.7	39.2	41.6	49.6
Men	39.6	38.5	39.2	40.2	40.3	41.0	43.4	49.5
Vegetables								
Women	38.5	32.5	39.6	39.6	39.8	42.2	45.3	47.4
Men	34.4	37.7	40.2	38.7	39.1	41.6	43.2	47.3

Note: Population weighted results.

Table 23.6: Type of milk used—Mean age in years by gender

	Whole/full cream	*Low/reduced fat/skim*	*Other*	*Does not use milk*
Women	41.2	47.2	44.8	44.3
Men	40.2	47.4	45.0	48.0

Notes: Population weighted results. Whole/full cream category includes evaporated and sweetened condensed milk.

Table 23.7: Frequency of consumption of snacks and fried potatoes—Mean age in years by gender

	Less than once per week	*Once per week*	*More than once per week but not daily*	*Once or more daily*
Snacks				
Women	51.5	41.8	36.3	35.2
Men	52.6	41.5	37.6	35.4
Fried potatoes				
Women	48.5	41.0	36.3	41.3
Men	49.6	42.2	37.3	39.0

Note: Population weighted results.

Regression results

The descriptive analysis provided above reveals that men and women have different food consumption patterns. Furthermore, these consumption patterns improve by age. Going into more detail, we now ask the question of what characteristics besides gender and age influence how often people consume certain foods and in the case of milk, what influences the type of milk people use. The results of the regression models are displayed in Table 23.8 and 23.9. For fruit and vegetables, positive coefficients indicate healthier eating habits whereas for type of milk, snack foods and fried potatoes, healthier eating habits are indicated by negative coefficients. While the regressions include a number of variables, only the most interesting results are discussed.[5]

The age group coefficients of the regression models show a similar relationship between age and food consumption as the descriptive statistics. The frequency of consumption of fruit and vegetables increases with age. The reference age group in Table 23.8 is persons aged 15 to 24. This age group consumes fruit and vegetables less frequently than other age groups. Persons aged 65 years or older eat fruit and vegetables more often than the other age groups. A similar age pattern can be observed when we look at the other food types. The oldest age group has the lowest probability of using full cream milk which indicates that this group has the lowest fat-intake compared to other age groups. Similar patterns are observed for snack foods and fried potatoes—the probability to consume snack foods and fried potatoes regularly (2 or more times per week) decreases by age.

Apparently, the preference for healthy food increases with age while the preference for unhealthy food decreases. This seems to suggest that older people are more concerned about their health than younger people. A contributing factor might be that some older people have developed conditions such as heart disease, diabetes or obesity which can be controlled through a healthy diet. Almost all age coefficients are statistically significant and relatively high compared to the other coefficients, indicating that age plays a major role in explaining diet choices. The age effect for snack foods is quite strong while other covariates seem to have little or no significant effects. This suggests

Table 23.8: Determinants of frequency of fruit and vegetable consumption

	Fruit		*Vegetables*	
	Men	*Women*	*Men*	*Women*
Age (ref: 15–24)				
25–34	0.137+	–0.230	0.141+	0.169
35–44	0.369	0.068+	0.184	0.087+
45–54	0.633	0.319	0.271	0.235
55–64	1.061	0.775	0.520	0.331
65+	1.498	1.217	0.616	0.403
Education (ref: Less than Year 10)				
Degree or higher	0.525	0.336	0.453	0.518
Diploma, Certificate 3/4	0.077+	0.186+	0.144+	0.369
Year 12	0.319	0.173+	0.292	0.328
Year 10/11 or Certificate 1/2	–0.064+	0.056+	0.094+	0.091+
SEIFA index (deciles)	0.064	0.051	0.054	0.061
Could not raise $2,000	–0.439	–0.447	–0.235	–0.279
Smoking behaviour (ref: Smoking)				
Never smoked	1.037	0.992	0.187	0.404
Stopped smoking	0.857	0.816	0.351	0.288
Physical activities (ref: None)				
3 times or less per week	0.263	0.325	0.097+	0.119
More than 3 times per week	0.599	0.704	0.223	0.346
Dieting	0.306	0.233	0.177	0.094
Number of days eating out				
Breakfast	–0.008+	0.011+	–0.055	0.093
Lunch	–0.187	–0.164	–0.036	–0.045
Dinner	–0.057+	–0.190	–0.234	–0.295
Constant	1.378	1.452	3.584	4.050
Observations	4,535	5,089	4,534	5,089

Notes: Statistics presented are Ordinary Least Squares (OLS) regression model coefficient estimates of the effects of the explanatory variables on the number of days per week fruit/vegetables are consumed. Some control variables are omitted. + Indicates the coefficient estimate is not statistically significant from zero at the 10% level.

that the preference of consuming snack foods predominantly decreases by age whereas other factors are much less important.

The regression results suggest that the higher the education of a person, the healthier their eating habits. Men and women holding a degree (bachelor's degree or higher) eat fruit and vegetables more often than men and women with less than 10 years of education. While women with higher education reduce the consumption of full cream milk, there are no significant effects for men. Education does not seem to matter with regards to the consumption of snack foods or fried potatoes. The education effects have a similar interpretation as the age effects: persons with higher education might be more aware of the relationship between eating habits and health outcomes and thus show better consumption patterns compared to persons with lower education.

The five models contain a variable for decile ranking in the 2001 Socio-Economic Index for Areas (SEIFA), a measure of relative socio-economic advantage/disadvantage in an area. The top quintiles identify advantaged areas whereas lower quintiles identify disadvantaged areas. Persons living in more advantaged areas are more likely to display healthier eating habits than persons living in less well-off areas. The better the socio-economic performance of an area, the healthier the food consumption: fruit and vegetables are consumed more often per week, the probability of using full cream milk as well as the probability of consuming fried potatoes regularly decreases. Regarding the consumption of snack foods, the economic status of an area does not seem to matter.

The HILDA data allow us to examine the relationship between chronic disease risk factors such as cigarette smoking and poor dietary behaviours. People who never smoked or have stopped smoking have healthier eating patterns than people who smoke—compared to smokers, non-smokers consume fruit and vegetables more often per week, have a lower probability of consuming full cream milk and consuming fried potatoes less often. However, no significant differences are found for snack foods.

Probably the main reason people take part in physical activities is to become or stay fit and healthy. It is reasonable to assume that this behaviour also affects a person's eating habits which is confirmed by our results. Persons not doing any exercise consume fruit and vegetables less often per week

Table 23.9 Diet regressions—Type of milk used, snack foods and fried potatoes (Logit)

	Full cream milk		*Snack foods*		*Fried potatoes*	
	Men	*Women*	*Men*	*Women*	*Men*	*Women*
Age (ref: 15–24)						
25–34	–0.035+	–0.037+	–0.148	–0.108	–0.055	–0.030
35–44	–0.040+	–0.034+	–0.188	–0.108	–0.099	–0.050
45–54	–0.087	–0.059	–0.282	–0.207	–0.115	–0.086
55–64	–0.079	–0.119	–0.371	–0.306	–0.144	–0.118
65+	–0.074	–0.111	–0.429	–0.376	–0.117	–0.110
Education (ref: Less than Year 10)						
Degree or higher	–0.079	–0.079	0.051+	0.025+	–0.018+	–0.052
Diploma, Certificate 3/4	–0.013+	–0.077	0.033+	0.055	0.015+	–0.013+
Year 12	–0.018+	–0.065	0.058	0.083	0.025+	–0.030+
Year 10/11 or Certificate 1/2	0.006+	–0.065	0.050	0.035+	0.040+	–0.021+
SEIFA index (deciles)	–0.014	–0.015	0.005	–0.001+	–0.011	–0.007
Smoking behaviour (ref: Smoking)						
Never smoked	–0.119	–0.127	–0.005+	0.005+	–0.041	–0.026
Stopped smoking	–0.122	–0.134	–0.012+	0.001+	–0.055	–0.039
Physical activities (ref: None)						
3 times or less per week	–0.012+	–0.053	0.017+	0.034	–0.014+	–0.003+
More than 3 times per week	–0.008+	–0.079	–0.014+	–0.044	–0.044	–0.004+
Dieting	–0.198	–0.146	–0.052	–0.078	–0.071	–0.039
Number of days eating out						
Breakfast	0.019	0.017+	0.006+	–0.023	0.018	–0.017
Lunch	0.001+	0.006+	0.006+	0.006+	0.014	0.016
Dinner	0.013+	–0.003+	0.037	0.050	0.043	0.041
Observations	4,535	5,089	4,515	5,060	4,510	5,064

Notes: Statistics presented are logit model 'marginal effects' estimates of the effects of the explanatory variables on the probability that full cream milk/snack foods/fried potatoes are consumed (in percentage point terms). Full cream milk includes evaporated and sweetened condensed milk. Some control variables are omitted. + Indicates the marginal effect estimate is not statistically significant from zero at the 10% level.

compared to more active persons. Women who participate in physical activities are significantly less likely to use full cream milk and are also less likely to consume snack foods regularly.

The coefficients of smoking and exercise behaviour do not capture the isolated causal effects on eating habits per se but rather combined effects which include attitudes towards a healthy lifestyle. Non-smokers and exercisers seem to favour a healthier lifestyle and these underlying preferences affect their eating habits in a positive way.

It is not surprising that persons who report they are dieting in order to lose weight change their eating patterns accordingly. The results show that being on a diet positively affects a person's eating habits.[6] Dieting persons eat fruit and vegetables more frequently, are less likely to use full cream milk and are also less likely to consume snack foods and fried potatoes regularly. For type of milk, being on a diet has the largest effect compared to the other coefficients. A possible explanation is that diet plans typically recommend a low intake of fats and it is relatively easy to substitute a high fat product with a low fat product, as the fat content is usually indicated on the packaging. Also, changing from high to low fat milk does not involve any radical changes to a person's eating habits.

Eating out in restaurants or buying meals from take-away outlets is found to have a negative effect on healthy eating habits. The five models include three variables which indicate, respectively, how often (number of days per week) a person buys breakfast, lunch or dinner. For both fruit and vegetables, the findings suggest that the more often persons eat out the less healthy their diet tends to be. Persons eating out often are also more likely to consume fried potatoes regularly. A reason for this could be that meals bought outside of the home are often accompanied by fried potatoes.

Conclusion

It has been shown that age and gender are the main influences on a person's diet. Age appears to be the dominant effect and there are considerable gender differences in diet. Women eat a healthier diet than men overall, although for both men and women diet improves with age. As men and women get older, they eat more fruit and vegetables and use less full cream milk, snack foods and fried foods.

Educational attainment and the socio-economic status of the area in which a person lives positively affect eating habits, which could be driven by increased knowledge about healthy eating habits, the accessibility of healthy food in an area or both.

Lifestyle factors such as smoking behaviour, physical activity and being on a diet are also found to have an impact on diet. Attitudes towards a healthy lifestyle seem to be reflected in healthy consumption patterns. Eating out in restaurants or buying meals from take-away outlets negatively affects a person's diet, which might be driven by a lack of healthy options.

Endnotes

1 Such as potato crisps, pretzels, popcorn, crackers, oriental snack mix and salted nuts.

2 Includes french fries, hot chips or wedges.

3 The ABS National Health Survey 2007–2008 uses type of milk usually consumed as an indicator for fat intake (ABS, 2009).

4 This study found that persons complying closest with the recommended intake of saturated fat and dietary fibre were more likely to consume reduced fat or skim milk.

5 The control variables are: household income, grocery expenditure, marital status, household size, presence of children in household, state, regional area, labour force status, occupation, BMI, self-reported health, spare time, pregnancy, birth/adoption of new child and ethnicity.

6 It should be noted that some diets can be unhealthy if overly restrictive in either overall food intake or specific food group intake. Such diets would not have a positive effect on health and eating habits.

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24. How unhealthy are the overweight?

Mark Wooden

While the HILDA Survey is not primarily a survey about health, the fact that it is portrayed to sample members as a study about life in Australia means that health cannot be ignored; and indeed health measures have been collected since the very commencement of the study. Nevertheless the set of measures included in Wave 1 was extremely brief, mostly comprising measures of disability and the limitations that such disabilities impose, the subjective health scales that comprise the SF–36, and very crude indicators of a small number of health-related behaviours (exercise, smoking and alcohol consumption).

In recent years, more consideration has been given to expanding the health-related content. As part of this strategy, questions on height and body weight were included for the first time in Wave 6, with the expectation that they will become a regular feature of the HILDA Survey. These were complemented in Wave 7 by additional questions about dieting behaviour and perceptions about, and satisfaction with, body weight.

In this article, the data collected in Wave 7 are used to examine linkages between health and weight. Particular attention is paid to the question of whether health problems are more acute among not just the obese, but the growing group of overweight people, or what the World Health Organization (WHO) (2000) has labelled as the 'pre-obese'.

Measuring healthy body weight

The principal reason for including measures of height and weight in the HILDA Survey was to enable the calculation of a body mass index (BMI) score for each respondent.

BMI is an arithmetic derivation of an individual's height and weight—weight (kgs) divided by height (metres) squared—and is widely used as an indicator of healthy adult body weight. Specifically, adults can be classified as being underweight, normal (or healthy) weight, overweight, or obese based on their BMI score: a BMI under 18.5 is underweight; between 18.5 and 24.9 is normal or healthy; between 25 and 29.9 is overweight; and in excess of 30 is described as obese (WHO, 2000). It is also increasingly common to further divide the obese category into three sub-groups or classes based on whether the BMI score lies in the ranges 30 to 34.9, 35 to 39.9, and 40 or more (WHO, 2000). Following Andersen et al. (2008), we label these three sub-groups as representing the obese, the very obese, and the morbidly obese, respectively.

As is well known (NHMRC, 2003), BMI is a very imperfect measure of ideal body weight. Nevertheless other approaches to its measurement are both time-intensive and highly invasive and so considered not feasible within the HILDA Survey. The data collected in the HILDA Survey are also self-reported, rather than based on interviewer measurements, and thus will be subject to reporting biases. Specifically, height tends to be overstated and weight understated (ABS, 1998). As a result, surveys based on self-reported data can be expected to understate the incidence of obesity in the population. Nevertheless, comparisons with self-reported data collected from the Australian Bureau of Statistics (ABS) 2004–2005 National Health Survey (NHS) reveal that there is a noticeably higher proportion of obese people in the HILDA Survey sample (Wooden et al., 2008), suggesting that the extent of such bias may be less marked in the HILDA Survey.

Finally, it should be recognised that self-reporting will be conducive to measurement error. This may be especially problematic in the HILDA Survey given the decision to include the questions on height and weight in the self-administered questionnaire (SCQ) rather than in the interview instrument. This decision was justified on the grounds that: (i) asking these questions in the presence of an interviewer could cause some discomfort for respondents, leading to both item non-response and biased answers; and (ii) permitting respondents to answer these questions in their own time would allow respondents to respond more accurately (e.g. by actually measuring and weighing themselves). On the other hand, self-administration will be associated with a higher incidence of reporting errors. While the HILDA Survey data are thoroughly checked, with some responses edited and others (implausible values) discarded (Wooden et al., 2008), it is inevitable that many answers will be badly reported, and will therefore introduce 'noise' into the data.

The distribution of BMI

Table 24.1 provides figures on the distribution of BMI scores in the adult population (defined here as persons aged 21 years or older) by both age and sex. As can be seen, very few Australian adults—less than 1 per cent of men and just 3.4 per cent of women—report body measurements that suggest they are underweight. Most Australians (76 per cent of men and 74 per cent of women) instead have body weights that either place them in the normal (i.e. healthy) range or overweight range. Indeed, overweight men considerably outnumber men with healthy body weights.[1] We can also see that close to one in four Australians adults (23 per cent) have height to weight ratios that suggest they are obese, which, as previously noted, is considerably higher than reported in other recent surveys.[2]

Table 24.1 also shows that while the incidence of obesity tends to rise with age, it is a phenomenon that is characteristic of all age groups. And nor is it true, as has been reported in other countries, that women are more likely to be obese than men. Indeed, for all age groups except the oldest (persons aged 65 years and over), the incidence of obesity is greater among men. That said, the most severe cases of obesity appear to be more prevalent among women.

We next look at how respondents view themselves; that is, do people assessed as being overweight and obese on the basis of their reported height and weight consider themselves to be overweight? As reported in Table 24.2, we can see that perceptions do not always align with the accepted medical guidelines. Only a minority of the underweight (47 per cent) consider themselves to be underweight. Similarly, less than half of the overweight (48 per cent) believe that they are overweight. Even among the obese there is a significant proportion (15 per cent) that consider themselves to be of an acceptable weight. We can also see that these disparities in perception vary markedly across the sexes, with overweight men much less likely to describe themselves as overweight; only 40 per cent of overweight men believe they are overweight, compared with almost 60 per cent of overweight women.

These findings might reflect adaptation and changing social norms. In support of this, most of the overweight and obese were not attempting to lose weight through dieting at the time of the interview (83 per cent of the overweight and 70 per cent of the obese not dieting), and only a relatively small proportion reported constantly being on a diet to lose weight (5 per cent of the overweight and 8 per cent of the obese). This might be taken as some evidence of adaptation to an overweight state (though it might also be a reflection of the perceived ineffectiveness of dieting). On the other hand, it is of some interest that the incidence of moderate or intensive physical exercise does not greatly differ between the overweight

Table 24.1: Distribution of BMI by sex and age (% of persons aged 21 years or older)

	Underweight	*Normal*	*Overweight*	*Obese*	*Very obese*	*Morbidly obese*	*Total*
Males							
21–34	*1.3	44.9	38.3	11.8	3.1	*0.6	100.0
35–49	*0.9	30.5	42.7	19.4	4.9	1.6	100.0
50–64	*0.5	23.5	46.9	22.5	4.9	*1.7	100.0
65+	*1.2	35.5	43.0	16.6	2.7	*1.0	100.0
Total	0.9	33.2	42.7	17.8	4.1	1.2	100.0
Females							
21–34	5.2	54.5	24.9	9.7	3.4	2.3	100.0
35–49	2.5	48.4	26.6	12.0	7.3	3.2	100.0
50–64	2.3	36.0	32.8	18.4	7.8	2.6	100.0
65+	3.9	37.7	34.2	18.2	4.5	*1.5	100.0
Total	3.4	44.6	29.2	14.3	6.0	2.5	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

Table 24.2: Distribution of BMI by self-perceived weight and sex (% of persons aged 21 years or older)

	Underweight	*Normal*	*Overweight*	*Obese*	*Total*
Males					
Underweight	49.6	15.7	*0.8	*1.2	6.3
Acceptable weight	*46.7	79.6	59.2	18.1	56.3
Overweight	*3.8	4.7	40.0	80.7	37.4
Females					
Underweight	46.6	3.3	*0.4	*0.3	3.2
Acceptable weight	49.8	80.3	40.3	11.1	51.8
Overweight	*3.6	16.4	59.4	88.6	45.0
Persons					
Underweight	47.2	8.5	*0.6	*0.8	4.7
Acceptable weight	49.1	80.0	51.4	14.6	54.0
Overweight	*3.6	11.5	48.0	84.7	41.2
Total	100.0	100.0	100.0	100.0	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

and those with a normal body weight. Even among the obese the incidence of exercise is quite high—just over 40 per cent reported exercising for a minimum of half an hour at least three times per week, which compares with a population average of 50 per cent.

Some of the differences between perceptions and BMI classes reported in Table 24.2 will be explained by reporting errors, while still others will be a function of the weaknesses of the BMI measure itself. It is well known that many athletes, especially those engaged in activity which emphasise strength and power, will have relatively high BMIs because of their more muscular body frames. More generally, it may be that the correlation between BMI and health indicators is quite weak, as argued for example by Campos (2004). It is to this issue that we now turn.

Subjective health and BMI

The principal measures of health status available in the HILDA Survey data come from the Medical Outcomes Study Short Form (SF–36), which has been administered as part of the Self-Completion Questionnaire (SCQ) in every wave to date. It comprises 36 items which are used to measure eight distinct health concepts: Physical Functioning; Role-Physical (interference with daily activities due to physical health limitations); Bodily Pain; General Health; Vitality; Social Functioning (interference with normal social activities as a result of health problems); Role-Emotional (interference with daily activities due to emotional problems); and Mental Health (symptoms of stress and anxiety, and measures of positive affect). All scales are transformed so that scores lie in the range of 0 to 100, with a higher score indicating a better health state.

Mean values on each of the eight sub-scales cross-classified by BMI class are reported in Table 24.3. The key feature of this table is that in almost all cases, the best outcomes, on average, are reported by people with normal or healthy body weights. Thus as expected, BMI scores in the normal range really are associated with better health outcomes. Also as expected, obesity is associated with below average scores on all indicators, with scores falling with the degree of obesity. At the other end of the spectrum, the underweight also score badly, faring worse than the obese on all indicators. Indeed, on the indicators that reflect more on emotional state rather than on physical state (such as social functioning and mental health), they score worse on average than the morbidly obese.

However, perhaps the most significant feature of Table 24.3 is not how poorly people at the ends of the BMI distribution fare, but how similar the overweight are to those in the normal range. On the scales which reflect physical health difficulties, the overweight score about three points lower than do those with so-called normal healthy body weights. The direction of difference is as expected, but the fairly modest size of this difference is not. Further, on the scales that depend less on physical prowess and more on being emotionally well-adjusted, there is little to separate the overweight from those with normal and healthy body weights. Indeed, on the mental health measure the overweight group score best, though the size of the difference is too small to be statistically significant.[3]

But do these findings hold once we take account of other individual characteristics that are both correlated with BMI and likely to be associated with health outcomes? We thus estimated Tobit regression models for each of our eight SF–36 health outcome variables that included controls for BMI class, as well as for sex, age, whether of Indigenous background, education attainment, the presence of a severe long-term disability that precluded the respondent undertaking any work activity, whether a current smoker or a former smoker, and remoteness of location.[4] The sample was again restricted to adults (persons aged 21 years and over), and we also excluded any women who had reported a pregnancy in the preceding 12 months.

The regression results are very sensible, with most variables performing much as expected. With the exception of mental health, all health indicators declined with age; women fared worse than men on all outcomes except general health (which most likely reflects differences in attitudes rather than any underlying differences in health); smokers fared poorly on all indicators; health outcomes tended to be superior for the most educated; and

Table 24.3: Mean scores on subjective health (SF–36 scales) by BMI class, adults (21 years or older)

	PF	*RP*	*BP*	*GH*	*VT*	*SF*	*RE*	*MH*
Underweight	75.3	66.6	68.1	60.6	51.0	70.1	70.2	66.0
Normal	85.9	81.4	75.5	71.4	61.9	83.5	85.1	74.5
Overweight	82.3	78.0	72.0	68.0	60.8	83.5	83.6	75.2
Obese	77.9	73.6	68.4	63.8	57.8	80.6	82.2	73.6
Very obese	74.7	69.3	65.8	60.0	55.2	78.9	79.8	72.7
Morbidly obese	64.6	60.5	57.7	52.8	50.7	72.5	73.1	68.5
Total	82.2	77.6	72.1	67.8	60.0	82.3	83.3	74.2

Notes: Population weighted results. PF: Physical Functioning; RP: Role-Physical; BP: Bodily Pain; GH: General Health; VT: Vitality; SF: Social Functioning; RE: Role-Emotional; MH: Mental Health.

Table 24.4: The association between BMI and subjective health (Tobit regression coefficients), adults (21 years or older)

	PF	*RP*	*BP*	*GH*	*VT*	*SF*	*RE*	*MH*
Underweight	–12.4	–61.4	–6.8	–10.0	–10.0	–17.7	–69.3	–7.6
Normal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Overweight	–4.1	–8.7+	–3.2	–3.1	–1.9	0.2+	–8.1+	–0.3+
Obese	–9.2	–25.9	–6.7	–6.8	–4.6	–4.6	–13.8+	–1.4
Very obese	–13.9	–47.6	–8.7	–10.5	–6.1	–6.3	–24.0	–1.6+
Morbidly obese	–27.8	–87.3	–19.7	–18.8	–10.7	–17.9	–70.9	–5.7
Mean	82.1	77.4	71.9	68.0	60.1	82.3	83.3	74.6
Standard deviation	23.5	37.1	24.5	21.2	19.9	23.7	32.8	17.1

Notes: Population weighted results. + Indicates coefficient estimate is not statistically significantly different from zero (the Normal body weight group) at the 10% level. PF: Physical Functioning; RP: Role-Physical; BP: Bodily Pain; GH: General Health; VT: Vitality; SF: Social Functioning; RE: Role-Emotional; MH: Mental Health.

people with severe long-term disabilities reported much worse health outcomes than others. Also as expected, Indigenous Australians fared worse than other Australians on all indicators, though the imprecision of the estimates (reflecting the relatively small size of the Indigenous sample) ensured that the differences were not statistically significant. Finally, place of residence did not appear to matter much except with respect to mental health, with city dwellers faring worst.

The results on BMI are summarised in Table 24.4. This table reports the Tobit regression coefficients, which summarise how responses for the different BMI classes vary from the normal weight group. In line with the descriptive data, both underweight and obese individuals fare relatively poorly on all indicators. Further, in almost all cases, the difference with the normal body weight group is statistically significant. The overweight also fare worse, but in all cases the magnitude of this differential is quite small, and in the case of four outcomes (Role-Physical, Social Functioning, Role-Emotional and Mental Health) the difference is statistically insignificant. On balance, these subjective data suggest that the health of the overweight is not too dissimilar to those classified as lying within the normal range.

Serious illness conditions and BMI

An obvious criticism of the SF–36 outcome measures is that they are constructed from the subjective assessments of respondents, and thus potentially subject to systematic biases. More objective would be data on the presence of serious illness conditions. Such data are periodically collected in the HILDA Survey, and were again collected in Wave 7. Specifically, respondents were asked whether they had ever been told by a doctor or nurse that they (currently) had one of 10 different specific types of illness conditions. The conditions all had to have lasted, or were expected to last, for at least six months. The incidence of these illness conditions cross-classified by BMI class is reported in Table 24.5.[5]

In all cases, the incidence rates are lowest for those with normal body weight, and in most cases (though not cancer) there is a clear rise in the incidence rate with obesity. Again, those in the overweight group come closest to the 'normal' body group, but now we see some quite marked disparities. Most obviously, the incidence of diagnosed Type 2 diabetes is more than twice as high among the overweight compared with the normal weight group, while the incidence of high blood

Table 24.5: Incidence of serious illness conditions by BMI class (% of persons aged 21 years or older)

	Underweight	*Normal*	*Overweight*	*Obese*	*Very obese*	*Morbidly obese*	*Total*
Arthritis	19.1	16.5	23.6	29.4	32.9	37.4	22.3
Asthma	18.9	12.6	12.8	15.5	21.1	32.3	14.0
Cancer	*5.3	4.2	6.3	6.5	6.0	*5.2	5.5
Chronic bronchitis/ emphysema	15.0	2.5	3.2	3.0	4.8	*8.1	3.3
Type 2 diabetes	*6.1	2.1	5.7	11.3	15.0	19.2	5.9
Depression/anxiety	21.5	14.8	15.0	19.0	25.3	26.7	16.4
Heart disease	*9.9	4.0	7.4	8.5	9.1	*7.1	6.4
High blood pressure/ hypertension	19.6	12.3	23.5	33.1	42.1	42.6	21.9
Other serious circulatory condition	*12.8	2.7	4.3	5.3	4.9	*10.2	4.1

Notes: Population weighted results. * Estimate not reliable.

pressure is almost twice as high. There are also noticeably higher rates of heart disease and other serious circulatory conditions among this group.

Again, however, the question arises as to whether these apparent associations with BMI remain once other characteristics, such as age, sex and smoking are controlled for. We thus again estimated regression models, this time predicting the likelihood of the respondent reporting having each of the serious illness conditions. Since the outcome variables are binary, we used the logit model. The estimated odds ratios for the BMI classes are reported in Table 24.6.

As can be seen, with respect to almost all of the conditions, people in the various obese categories are at much greater risk of serious illness than persons with normal body weight. The differences are especially acute with respect to Type 2 diabetes, high blood pressure, and other circulatory conditions; the odds of a very obese person suffering from these conditions are estimated to be around 14, seven and six times, respectively, that of persons in the 'normal' weight range. These results also confirm that the overweight are exposed to much greater health risks than 'normal' body weight people. While the risk of asthma, chronic bronchitis and depression/anxiety are not significantly higher, for the remaining conditions the increased risk (measured in terms of relative odds) ranges from 40 per cent in the case of cancer, and up to 150 per cent in the case of Type 2 diabetes.

Conclusions

The data reported in this article confirm what has been well established in many epidemiological studies—that health risks increase with body weight, and that these risks are not just restricted to those at the extremes of the distribution. This latter observation is especially important given the large fraction of the population who report being overweight, as distinct from obese.

Finally, an important caveat needs to be borne in mind. The data reported on here are entirely cross-sectional and thus are only indicative of association. They do not establish causation. High (and low) body weight could just as easily be a result of illness as a cause of it. Of course, the key feature of the HILDA Survey dataset is its longitudinal nature and hence with time it should become possible to say something more definitive about the causal linkages involved.

Endnotes

1 Comparisons between the sexes are complicated by the fact that the body composition of men and women is on average, quite different; that is, at the same BMI, women tend to have more body fat than men.

2 Data from the ABS 2004–2005 NHS (ABS 2006) suggest that the age standardised obesity rate for persons aged 18 years and over was just 17.8 per cent (after excluding cases with missing data). By comparison, the crude obesity rate for this same population group in the HILDA Survey data in Wave 7 is 22.2 per cent. Part of the difference will be explained by the higher incidence of missing cases in the ABS data; 8 per cent of cases did not provide useable height or weight data in the NHS, compared with only 5 per cent in the HILDA Survey. Another possible explanation lies in differences in data collection mode; in the HILDA Survey the height and weight data are collected via a self-administered form rather than in a personal interview as is done in the NHS. Finally, some of the difference will reflect changes over time, even though the interval involved here is only three years.

3 An analysis using the K10, a 10-item measure of non-specific psychological distress, that was also included in the Wave 7 SCQ (Wooden, 2009), leads to the same conclusion. Just 3.5 per cent of persons with normal body weights are classified as being in a state of very high psychological distress using the K10 (a score of 30 or more on this scale), exactly the same proportion among overweight persons. In contrast, 13.9 per cent of the underweight and 15.5 per cent of the morbidly obese exhibit symptoms consistent with very high psychological distress.

4 The use of a two-limit Tobit model, rather than a simple linear regression model, helps us deal with the fact that the dependent variables are all constrained to lie in the range 0 to 100.

5 Not listed here, but included in the 10 conditions in the survey question, is Type 1 diabetes. Relatively few in our adult sample (less than 1 per cent) reported having this condition. In any case, it is implausible that high (or low) weight can cause this condition, given its onset typically occurs during childhood.

Table 24.6: Estimated probability of serious illness conditions (odds ratios) by BMI class, adults (21 years or older)

	Underweight	*Normal*	*Overweight*	*Obese*	*Very obese*	*Morbidly obese*
Arthritis	0.9+	1.0	1.5	2.0	2.6	3.7
Asthma	1.6+	1.0	1.1+	1.3	1.9	3.2
Cancer	1.3+	1.0	1.4	1.5	1.6	1.3+
Chronic bronchitis/emphysema	7.0	1.0	1.0+	1.0+	2.0	3.9
Type 2 diabetes	3.0	1.0	2.5	5.4	9.7	14.1
Depression/anxiety	1.3+	1.0	1.1+	1.4	1.9	1.9
Heart disease	3.0	1.0	1.7	2.1	3.1	2.1
High blood pressure/hypertension	1.6+	1.0	2.1	3.5	6.5	7.1
Other serious circulatory condition	5.9	1.0	1.5	2.0	2.2	5.6

Note: + Indicates the ratio is not statistically significantly different from one (the Normal body weight group) at the 10% level.

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25. Health, disability and serious medical conditions

The health of individuals and their families is an important consideration in understanding work and family life. The HILDA Survey correspondingly collects considerable information each year on health conditions and wellbeing, allowing not only investigation of the impacts of health and disability on economic and social outcomes, but also the dynamic properties of health and its economic and social influences. In this article we consider some of these dynamic aspects as well as examining the interactions between health status, disability and specific serious medical conditions. Specifically, we examine associations between disability, certain medical conditions and health, including whether health, medical conditions and disability predict future health, medical conditions and disability.

The health and disability information examined here has been collected in every wave of the HILDA Survey. Health information primarily comprises the 36-item SF–36 health measure collected in the Self-Completion Questionnaire. Chapter 18 in Part A of this report contains analysis drawing on data from the SF–36 questions.

Disability information comes from questions on long-term health conditions that are collected in the personal interview. The disability measure constructed from this information is 'any long-term health condition, impairment or disability that restricts the individual in everyday activities and which has lasted, or is likely to last, for six months or more'. This is an 'operational' definition of disability that matches up well with experts' notions of disability, but it is clearly not perfect. Considerably more detailed information would need to be collected, potentially incorporating objective measures and assessments by medical experts, for a completely accurate measure. Table 25.1 presents estimates from Wave 7 of the proportion of the population meeting our definition of disability, as well as the proportion with each of the 17 specific conditions put to respondents. The most frequent response is an 'other' condition, although note that many of these individuals may also have one or more of the specific conditions.

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 he/she has 'any long-term health condition, impairment or disability that restricts the individual in everyday activities and which has lasted, or is likely to last, for six months or more'. This is an 'operational' definition of disability which is very similar to that used in many household surveys, such as the Australian Bureau of Statistics Survey of Disability, Ageing and Carers.

Data on specific medical conditions have only been obtained in Waves 3 and 7. The Wave 3 Self-Completion Questionnaire asked respondents to indicate whether they had ever been told by a doctor or nurse that they have any of eight long-term

Table 25.1: Long-term health conditions that restrict everyday activities, 2007—Proportion of persons aged 15 years and over with each condition (%)	
1. Sight problems not corrected by glasses/lenses	2.6
2. Hearing problems	5.0
3. Speech problems	0.5
4. Blackouts, fits or loss of consciousness	0.7
5. Difficulty learning or understanding things	1.2
6. Limited use of arms or fingers	2.9
7. Difficulty gripping things	2.6
8. Limited use of feet or legs	4.8
9. A nervous or emotional condition which requires treatment	3.5
10. Any condition that restricts physical activity or physical work	9.2
11. Any disfigurement or deformity	0.5
12. Any mental illness which requires help or supervision	1.3
13. Shortness of breath or difficulty breathing	3.5
14. Chronic or recurring pain	5.8
15. Long-term effects as a result of a head injury, stroke or other brain damage	1.0
16. A long-term condition or ailment which is still restrictive even though it is being treated or medication being taken for it	6.6
17. Any other long-term condition such as arthritis, asthma, heart disease, Alzheimer's disease, dementia, etc.	11.2
All with long-term condition that restricts everyday activities	27.8
Note: Population weighted results.	

health conditions. These conditions were arthritis, asthma, cancer, chronic bronchitis or emphysema, diabetes, coronary disease, hypertension and *any other serious circulatory condition*. Respondents were directed to only include conditions that '…have lasted or are likely to last six months or more'. The Wave 7 Self-Completion Questionnaire repeated the question, but distinguished Type 1 and Type 2 diabetes and added the condition 'depression/anxiety'.

These medical conditions are by no means exhaustive. Rather, they identify the presence of conditions that are usually serious and which are relatively common (e.g. as found by the Australian Bureau of Statistics National Health Survey (NHS)). The conditions are therefore more appropriately called 'common serious medical conditions'. Arguably, it is most appropriate to examine the incidence and consequences of each of these conditions individually, but in this article we primarily examine them collectively. It should also be acknowledged that there is likely to be overlap between these conditions and our measure of disability. Several of the long-term conditions listed in Table 25.1 are somewhat similar to the serious medical conditions—although a health condition must restrict an individual in his or her everyday activities to qualify as a disability.

According to the HILDA data, nearly half the population 15 years of age and over had one or more of the 10 medical conditions identified in Wave 7. While this may seem high, the 2007–2008 NHS found that 77 per cent of the population reported having one or more long-term medical conditions. The NHS attempts to capture all long-term conditions, including problems with eyesight, which affect 52 per cent of the population, hay fever and allergic rhinitis (affecting 15 per cent of the population), back pain (14 per cent) and deafness (10 per cent), none of which are included in the 10 conditions collected by HILDA in Wave 7. Nonetheless, there is potential for HILDA to overestimate the proportion of the population with certain conditions at a point in time. The framing of the HILDA question may lead some respondents to report all conditions they have ever been diagnosed with, rather than only current conditions (the latter of which is sought by the question). For conditions that are usually permanent or very long-term, such as Type 1 diabetes, this does not pose a significant problem, but for other conditions, such as cancer, this may result in misreporting.

Table 25.2 attempts to compare 2007 HILDA estimates of the population with each condition with published 2007–2008 NHS estimates. Differences in classifications and definitions make this difficult. In particular, comparable estimates are not available for 'depression/anxiety' and 'other circulatory condition'. For the other conditions, the table indicates that some reporting of non-current conditions may indeed have occurred in Wave 7. Compared with the NHS, episodic illnesses and other illnesses that are not always permanent are overstated. Namely, asthma, cancer and hypertension are higher than reported in the NHS.[1] In addition, it is clear that the rate of depression/anxiety is higher than would be expected if only current

Table 25.2: HILDA and NHS compared—Percentage of persons aged 15 years and over with each medical condition

	HILDA 2007	*NHS 2007–2008*
Arthritis	19.7	18.9
Asthma	14.0	9.8
Cancer	4.9	2.2
Chronic bronchitis or emphysema[a]	2.8	2.7
Type 1 diabetes (childhood onset)	0.7	0.5
Type 2 diabetes (adult onset)	4.9	4.4
Depression/anxiety	15.3	12.6[a]
Heart/coronary disease	5.4	4.7
High blood pressure/hypertension	18.5	11.7
Other circulatory condition	3.4	–[b]

Notes: Population weighted results. [a] Comprises 9% with 'mood problems' and 3.6% with 'anxiety problems'. An individual may have both mood and anxiety problems, so actual prevalence will be less than 12.6%. [b] Total with diseases of circulatory system in the NHS is 20.4%, but percentage with 'other circulatory condition' is not known because an individual could have one, two or all three of the circulatory conditions distinguished in Table 25.2 (heart/coronary disease, high blood pressure/hypertension and other circulatory condition).

conditions were reported, since the estimate of 12.6 per cent for the NHS assumes no overlap between people with 'mood problems' and people with 'anxiety problems', which will not be the case. By contrast, prevalence rates of arthritis, chronic bronchitis or emphysema, coronary disease, Type 1 diabetes and Type 2 diabetes, which all tend to be lifelong conditions, are very similar across the two data sources.

Prevalence of disability, serious medical conditions and poor health

Table 25.3 summarises the overall prevalence of disability, serious medical conditions and poor general, mental and physical health. Poor health is defined as a situation in which the transformed score for the health measure is less than 50 on the 0–100 scale. As noted earlier, 28 per cent are classified as having a disability and 50 per cent as having one of the serious health conditions. The prevalence of poor health—be it general health, mental health or physical functioning—is considerably lower.

Table 25.3: Prevalence of disability, serious medical conditions and poor health—Persons aged 15 years and over, 2007 (%)

Disability	27.8
Serious medical condition	49.7
Poor general health	18.5
Poor mental health	9.7
Poor physical functioning	10.9

Note: Population weighted results.

The intersection between disability, general health and serious medical condition is considered in Table 25.4, which presents the proportion of the population with each combination of disability status, general health status and serious medical condition status. 43.2 per cent of the population 15 years of age and over is in the good general health category with no disability and with none of the 10 serious medical conditions, while 11.3 per cent reported having all three of poor general health, disability and one or more of the serious medical conditions.

As might be expected, relatively few people with poor general health have neither disability nor a serious medical condition—of the 18.5 per cent of the population with poor general health, 88 per cent (16.3 per cent of 18.5 per cent) have a serious medical condition and/or disability. People with disabilities are similarly unlikely to be both in good health and without a serious medical condition, with 14 per cent of people with a disability (3.8 per cent of 27.4 per cent) being in this category. Disability is, however, more commonly associated with a serious medical condition than with poor general health. Persons with disabilities are in fact slightly more likely to be in good health than bad health (14.8 per cent versus 12.6 per cent). By contrast, they are much more likely to have one of the serious medical conditions than not: 22.3 per cent of individuals have both a disability and a serious medical condition, whereas only 5.1 per cent have a disability and do not have a serious medical condition.

Despite the strong presence of serious medical conditions among persons in poor health and among persons with disabilities, it is quite common for persons with one of the serious medical conditions to be both in good health and without disability, this applying to 23.4 per cent of the population, or nearly half of all those reporting a condition. In part, this will reflect the fact that we are capturing some people who once had a condition, but no longer have the condition. However, it is also the case that certain conditions, such as diabetes, depression/anxiety and asthma, may not translate to disability or poor health if they are well managed.

Table 25.5 examines further the links between health and disability and the serious medical conditions. It presents mean transformed scores for general health, mental health and physical functioning by disability status and serious medical condition status. For all three health measures, mean scores are clearly lower for persons with disabilities and persons with serious medical conditions, and are lowest for those with both a disability and a serious medical condition. Thus, while the disabilities and medical conditions are not necessarily associated with poor health, on average, they are. Physical functioning is especially strongly associated with disability, which is

Table 25.4: Intersection between disability, general health and serious medical conditions, 2007 (%)

	Good general health		*Poor general health*		
	Without serious medical condition	*With serious medical condition*	*Without serious medical condition*	*With serious medical condition*	*Total*
Without disability	**43.2**	23.4	2.2	3.7	72.6
With disability	3.8	11.0	1.3	**11.3**	27.4
Total	47.0	34.4	3.5	15.0	100.0

Notes: Population weighted results. Percentages may not add up to 100 due to rounding.

Table 25.5: Mean health scores by disability and serious medical condition status, 2007

	Without serious medical condition	*With serious medical condition*	*Total*
General health			
Without disability	77.1	69.7	74.4
With disability	63.2	48.7	51.4
Total	75.8	60.3	68.2
Mental health			
Without disability	77.6	74.8	76.5
With disability	73.1	66.4	67.7
Total	77.1	71.0	74.1
Physical functioning			
Without disability	92.4	86.1	90.1
With disability	77.8	60.5	63.7
Total	90.9	74.5	82.9

Notes: Population weighted results. Health score is measured on a 0–100 scale.

consistent with the definition of disability as a condition that restricts everyday activities. The associations of mental health with disability and with medical conditions are weaker, but one suspects that the association would be very strong if we looked only at specific disabilities and medical conditions that are related to mental health.

Persons with disabilities and serious medical conditions, but not in poor health

One of the findings above is that many people with disabilities and many people with serious medical conditions are nonetheless in good health—or at least do not have poor general health. What are the characteristics of these individuals? In Table 25.6, we examine the characteristics of these two groups, comparing them with all persons classified as in poor general health.

The first panel shows the proportion of each group with a disability and the proportion with a serious medical condition. Just under one-third of persons with a medical condition but classified as in good health nonetheless also have a disability, compared with over two-thirds of all persons in poor health. Nearly three-quarters of persons with a disability who are in good health also have a serious medical condition, a proportion that is slightly higher for persons in poor health, 81 per cent of whom have a serious medical condition.

The next two panels of Table 25.6 examine disability type and specific medical conditions. 'Sensory' disabilities comprise items 1–3 in Table 25.1, 'physical' disabilities comprise items 4, 6–8, 10, 11, 13 and 14, 'mental illness' disabilities comprise items 9 and 12, 'mental/brain' disabilities comprise items 5 and 15 and 'other' comprises items 16 and 17. Compared with all persons who are in poor health, those with good health but with a disability are more likely to have sensory disabilities and are similarly likely to have any of the other four disability types. However, restricting to persons with a disability (which applies to only two-thirds of those in poor health), those in good health are similarly likely to have sensory disabilities and are significantly less likely to have any of the other disability types. This implies that the people with a disability who are in good health are less likely to have multiple disability types than the people with a disability who are in poor health. Given the presence of a disability, people with a serious medical condition and in good health are also similarly likely to have sensory disabilities and less likely to have an 'other' disability than the two-thirds of persons in poor health who report a disability.

With regards to medical conditions, those with a serious medical condition but in good health are more likely to have asthma or hypertension and less likely to have any of the other conditions than are persons in poor health. Those with a disability but in good health are less likely to have any of the conditions than are persons in poor health, although, given the presence of a condition, they are much more likely to suffer from arthritis than

Table 25.6: Characteristics of individuals with disabilities or serious medical conditions but good health, 2007 (%)

	With a disability but in good health	*With a serious medical condition but in good health*	*In poor health*
Any disability	100.0	32.0	68.1
Any serious medical condition	74.3	100.0	81.1
Disability type[a]			
Sensory	25.8	7.4	17.3
Physical	50.3	15.7	47.5
Mental illness	11.4	4.2	13.3
Mental/brain	4.8	1.3	5.6
Other	46.3	17.8	44.0
Serious medical condition[a]			
Arthritis	36.5	34.7	41.4
Asthma	18.9	28.2	23.8
Cancer	6.6	8.4	10.7
Chronic bronchitis or emphysema	2.8	3.0	9.8
Type 1 diabetes (childhood onset)	0.8	1.0	2.1
Type 2 diabetes (adult onset)	7.4	7.8	12.3
Depression/anxiety	19.8	25.7	35.0
Heart/coronary disease	9.6	7.8	14.4
High blood pressure/hypertension	28.7	35.6	33.3
Other circulatory condition	5.2	3.9	11.7
Sex			
Male	49.7	45.6	47.0
Female	50.3	54.4	53.0
Total	100.0	100.0	100.0
Age group			
< 35	16.9	20.3	20.5
35–54	31.1	34.4	33.5
55+	52.0	45.3	46.0
Total	100.0	100.0	100.0
Family type			
Non-elderly couple, no dependent children	33.1	34.4	31.4
Couple with dependent children	21.0	25.3	20.8
Lone parent	3.7	4.2	5.4
Non-elderly lone person	17.8	16.3	20.2
Elderly couple	10.2	8.9	9.0
Elderly lone person	14.2	10.8	13.2
Total	100.0	100.0	100.0
Equivalised household income quintile			
Bottom quintile	29.0	20.8	34.2
2nd quintile	21.8	19.4	20.2
3rd quintile	15.5	18.4	15.6
4th quintile	17.0	20.1	17.6
Top quintile	16.6	21.2	12.4
Total	100.0	100.0	100.0

Notes: Population weighted results. [a] Individuals may have more than one disability type and/or medical condition and so panel can add up to greater than 100%.

are persons in poor health, but are less likely to have any of the other conditions, including asthma and hypertension.

The next three panels of Table 25.6 examine the key demographic characteristics of sex, age and household type for the three groups of individuals. Those with disability but in good health are evenly split between males and females, whereas both persons in good health with a serious medical condition and persons in poor health are disproportionately female. The age composition of those with a medical condition but in good health is very similar to the age composition of persons in poor health, but persons with a disability and in good health tend to be older, with 52 per cent aged 55 years and over, compared with 46 per cent of persons in poor health. With regards to

Table 25.7: Mean general health 2003–2007 by initial health, disability or medical condition status (0–100 scale)

	2003	*2004*	*2005*	*2006*	*2007*	*Change 2003–2007*
Aged 15–44 years in 2003						
Poor health in 2003	35.4	44.3	46.3	48.3	49.1	13.7
Not in poor health in 2003	78.2	76.2	75.7	75.6	75.6	–2.6
Medical condition in 2003	64.8	65.3	64.6	65.5	65.9	1.1
No medical condition in 2003	74.9	74.0	73.9	73.9	73.9	–1.0
Disability in 2003	56.9	58.5	59.2	59.7	60.4	3.5
No disability in 2003	75.8	74.7	74.3	74.4	74.4	–1.4
Aged 45–64 years in 2003						
Poor health in 2003	31.4	36.4	38.3	37.8	38.9	7.5
Not in poor health in 2003	75.3	73.7	73.0	73.2	72.6	–2.7
Medical condition in 2003	57.5	57.5	57.7	58.0	57.8	0.3
No medical condition in 2003	73.4	73.9	72.9	73.2	72.1	–1.3
Disability in 2003	48.4	49.5	49.3	49.9	49.9	1.5
No disability in 2003	73.8	73.4	72.6	72.9	72.0	–1.8
Aged over 65 years in 2003						
Poor health in 2003	32.0	35.9	36.5	36.0	36.0	4.0
Not in poor health in 2003	72.3	70.8	69.7	68.9	68.8	–3.5
Medical condition in 2003	57.0	58.0	57.2	57.1	56.9	–0.1
No medical condition in 2003	72.2	72.3	70.2	69.9	69.7	–2.5
Disability in 2003	51.2	52.1	51.5	50.8	51.0	–0.2
No disability in 2003	72.0	71.2	70.2	69.6	68.8	–3.2

Note: Population weighted results.

Table 25.8: Proportion with disability 2003–2007 by initial disability, health or medical condition status (%)

	2003	*2004*	*2005*	*2006*	*2007*	*Change 2003–2007*
Aged 15–44 years in 2003						
Disability in 2003	100.0	60.6	60.1	53.3	53.3	–46.7
No disability in 2003	0.0	7.3	9.5	8.7	9.7	9.7
Poor health in 2003	46.1	44.6	47.2	43.0	42.4	–3.7
Not in poor health in 2003	12.0	11.8	13.3	12.0	12.9	0.9
Medical condition in 2003	36.3	32.1	33.5	29.6	30.0	–6.3
No medical condition in 2003	11.0	11.7	13.4	12.4	13.3	2.3
Aged 45–64 years in 2003						
Disability in 2003	100.0	74.2	76.5	72.2	71.7	–28.3
No disability in 2003	0.0	11.9	15.5	15.5	16.9	16.9
Poor health in 2003	74.9	70.9	72.7	71.8	69.9	–5.0
Not in poor health in 2003	20.9	21.2	23.7	22.0	22.8	1.9
Medical condition in 2003	48.8	48.2	50.4	48.8	49.1	0.3
No medical condition in 2003	17.2	16.9	19.6	18.4	19.8	2.6
Aged over 65 years in 2003						
Disability in 2003	100.0	78.3	80.3	77.6	80.0	–20.0
No disability in 2003	0.0	10.1	13.7	13.7	15.1	15.1
Poor health in 2003	83.9	80.2	82.8	81.9	86.7	2.8
Not in poor health in 2003	43.8	39.3	46.6	45.1	46.0	2.2
Medical condition in 2003	63.8	58.3	64.3	62.3	64.8	1.0
No medical condition in 2003	27.6	27.6	32.1	33.5	33.7	6.1

Note: Population weighted results.

household type, persons in poor health are more likely to be living without a partner than people in the other two groups, with a higher proportion being non-elderly people living alone or living in a lone-parent household. Persons with serious medical conditions but otherwise in good health are more likely to be in couple households with dependent children and less likely to be living in elderly households than the other two groups.

The bottom panel of Table 25.6 shows the locations of the three groups in the distribution of household income. Persons with medical conditions but in good health are evenly distributed throughout the income distribution, approximately 20 per cent in each quintile—as would be expected if they were randomly distributed across the income distribution. Persons with a disability yet in good health, by contrast, tend to live in poorer households, with 29 per cent in the bottom quintile. In this respect, people in good health with a disability are somewhat similar to persons in poor health, although the situation for persons in poor health is more acute, with 34 per cent in the bottom quintile and only 12 per cent in the top quintile.

Does initial health, disability or the presence of a serious medical condition affect the evolution over time of health and disability status?

We can further explore the interdependencies between health, disability and common serious medical conditions by examining how changes over time in each dimension/measure differ depending on initial status of the other measures. As noted earlier, only health and disability are measured each wave and so we restrict attention to changes over time in these aspects. Table 25.7 first considers how general health on average evolves over time. It presents mean general health scores over the period 2003 to 2007 for each of three age groups, based on age in Wave 3 (2003), comparing across groups defined by initial health status, initial disability status and initial serious medical condition status. (Note that the Wave 3 medical conditions exclude depression/anxiety.)

A clear pattern is evident for those aged under 65 years of the mean health score increasing between 2003 and 2007 for those reporting poor health, a medical condition and/or a disability in Wave 3, and decreasing slightly for those who did not report poor health, a medical condition or a disability in Wave 3. Even for persons aged over 65 years, health increases or at least does not decrease by as much for those initially with poor health, a medical condition or a disability compared with those who were not in these groups. Thus, there is a tendency for health to rebound from low levels or high levels. Further, despite the serious medical conditions being predominately chronic conditions, and disabilities typically being long term, if not lifelong, it would seem that there is a temporary component to their health effects. Nevertheless, mean health scores are consistently lower for those initially in poor health, initially with a serious medical condition or initially with a disability. There is consequently, as expected, a high degree of persistence in effects.

Table 25.8 presents similar information for disability, with similar patterns evident. Strikingly, a large proportion of persons initially reporting a disability in Wave 3 do not report a disability in subsequent waves. This is a feature common to all waves (found in additional analysis not reported here), suggesting that disability is not always as long term as we might have thought: for a significant minority of people, despite their condition lasting six months or more and therefore qualifying as a disability, it does not last beyond one year. This is especially true for persons under 45 years of age, with 40 per cent of those reporting a disability in 2003 not reporting a disability in 2004.

Concluding comments

While there is considerable overlap between health, disability and the common serious medical conditions identified by the HILDA Survey, it is also clear that they are distinct dimensions of physical and mental wellbeing. For example, it is quite common for people with disabilities or serious medical conditions to report being in good health, and a not insignificant number of people report poor health despite the absence of disability or one of the serious medical conditions.

Individuals who report poor health in one wave often tend to 'bounce back' with improved health in subsequent waves, which is not unexpected given that poor health will in many cases be a temporary state. Perhaps not so anticipated is that quite a large number of people who report disabilities in one wave report not having any disability in the next wave. It would therefore seem that, contrary to the notion of disability as a long-term condition, there is a significant 'temporary' component to disability in the community (where 'temporary' must still be at least six months for the condition to qualify as a disability). It is likely that such 'temporary' disability primarily reflects fluctuations in severity and in the individual's ability to manage the condition over time. While this is likely to be most relevant to disabilities at the lower end of the severity spectrum, it is nonetheless important to recognise the potential for long-term health conditions to fluctuate in severity and 'manageability' over time, associated with which will be variations over time in ability to work and engage in everyday activities.

Endnote

1 In addition to including people who have managed to bring down their blood pressure, the hypertension category may also be capturing people with other circulatory conditions such as tachycardia.

26. Factors affecting 'self-efficacy'

In Waves 3, 4 and 7, the Self-Completion Questionnaire of the HILDA Survey has contained a set of seven questions designed to elicit the extent to which the respondent feels 'in control' of his or her life. Based on work by Pearlin and Schooler (1978), the questions measure one aspect of the 'coping resources' individuals have for dealing with life's stresses and strains. Specifically, respondents are asked to indicate, on a 1–7 scale, the extent to which they agree with the statements: *I have little control over the things that happen to me*; *There is really no way I can solve some of the problems I have*; *There is little I can do to change many of the important things in my life*; *I often feel helpless in dealing with the problems of life*; *Sometimes I feel that I'm being pushed around in life*; *What happens to me in the future mostly depends on me*; and *I can do just about anything I really set my mind to do.*

A measure based on responses to these questions is referred to by Pearlin and Schooler as 'mastery' and '…concerns the extent to which one regards one's life chances as being under one's own control in contrast to being fatalistically ruled' (Pearlin and Schooler, 1978, p. 5). The concept captured by these questions has more commonly been described as 'self-efficacy' (Bandura, 1977), which has the slightly different interpretation as concerning an individual's belief about his or her general capability to accomplish tasks and deal with the challenges of life.

One way to examine this information is to take the approach of Pearlin and Schooler (1978) of using principal component analysis to construct an aggregate measure of self-efficacy from the seven items. The principal component analysis transforms the seven self-efficacy variables (each of which is a score between 1 and 7) into a smaller number of uncorrelated variables called principal components. A measure of self-efficacy is the first principal component, which accounts for as much of the variability in the data as possible. The principal component is described by a set of 'loadings' across the seven variables, whereby the overall measure of self-efficacy is essentially a weighted sum of the scores for the seven variables, with weights given by the loadings.

Table 26.1 describes the distribution of scores on the seven self-efficacy items in Wave 7. As can be seen, most people disagree with the five statements indicating a lack of control over one's own life and agree with the two statements indicating the opposite. Indeed, around a quarter of the population selects the strongest possible disagreement with the first five statements and the strongest possible agreement with the last two statements. It should be emphasised that it may not be the same people providing these responses to all items—for example, it is likely that some people strongly disagree with the first statement and mildly disagree with the second statement, and that some people mildly disagree with the first statement and strongly disagree with the second statement.

Table 26.1 also presents the mean score for each item in Waves 3, 4 and 7 to show how responses have, on average, changed over time. The estimates suggest that, in the aggregate, average levels of self-efficacy have not changed between 2003 and 2007. The final column of Table 26.1 gives the loadings obtained from principal component analysis of the seven items using the Wave 7 data. As expected, the last two items have negative loadings.

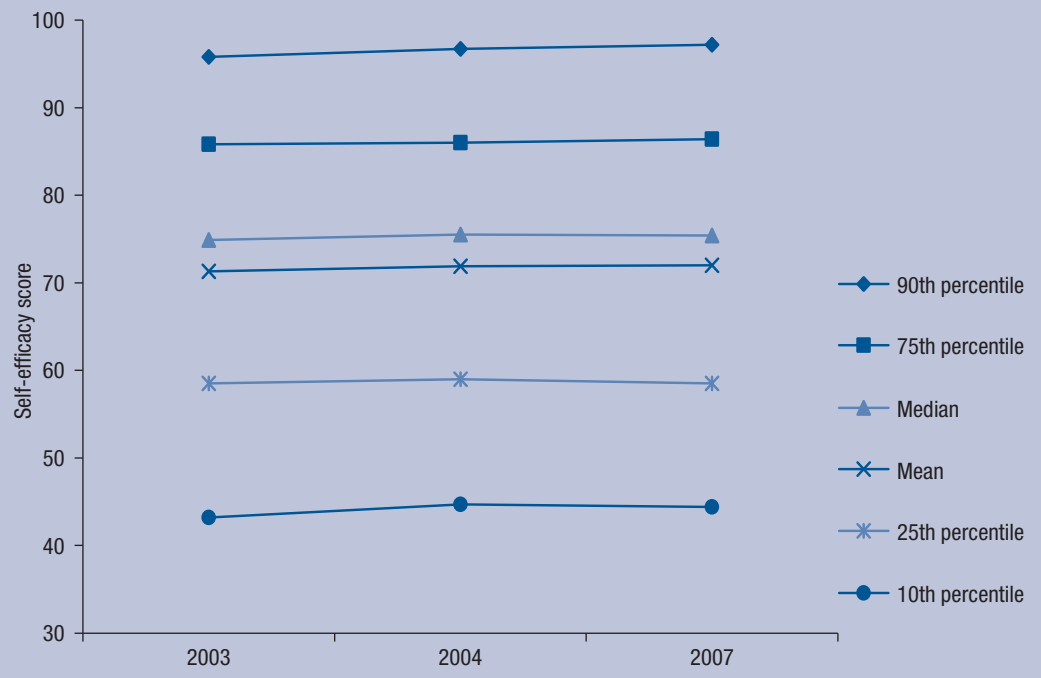
Figure 26.1 presents summary measures of the distribution of our constructed measure of self-efficacy in each wave. The measure is constructed by applying the loadings given in Table 26.1 to each individual to produce an aggregate score, which is then rescaled to a common range of 0 to 100 in each wave.[1] Consistent with Table 26.1, distributions

Table 26.1: Scores on self-efficacy items

	Percentage reporting each score in 2007							*Mean score*			*PCA loading*
	Strongly disagree						*Strongly agree*				
	1	*2*	*3*	*4*	*5*	*6*	*7*	*2003*	*2004*	*2007*	*2007*
Little control	22.1	29.5	16.0	14.8	9.2	5.0	3.3	2.9	2.8	2.9	0.39
No way to solve problems	26.7	33.1	14.0	10.3	7.2	5.0	3.6	2.7	2.7	2.7	0.44
Cannot change important things in life	25.7	32.3	14.5	11.4	7.6	5.1	3.4	2.7	2.7	2.7	0.44
Feel helpless	28.2	31.7	13.8	11.2	7.5	4.9	2.6	2.7	2.7	2.6	0.44
Pushed around	28.6	29.2	14.0	11.7	8.7	5.0	2.8	2.7	2.7	2.7	0.40
Future depends on me	3.9	3.9	4.6	9.2	14.7	32.1	31.7	5.5	5.5	5.5	–0.21
Can do just about anything	2.9	3.8	6.0	13.8	20.8	29.0	23.7	5.3	5.3	5.3	–0.27

Notes: Population weighted results. 'PCA loading': Principal Components Analysis loading factors.

Figure 26.1: Distribution of self-efficacy measure



Note: Population weighted results.

Table 26.2: Mean self-efficacy by selected demographic characteristics

	2003	*2004*	*2007*
Gender			
Male	71.9	72.8	72.9
Female	70.8	71.1	71.1
Age group			
15–24	73.2	74.8	74.6
25–34	75.1	75.3	75.1
35–44	72.1	72.1	73.1
45–54	70.3	71.0	70.5
55–64	69.1	70.4	70.9
65+	66.9	67.0	67.2
Type of household			
Couple, no children	71.5	71.7	72.8
Couple with children	72.6	73.0	73.2
Lone parent	68.2	69.5	68.2
Other	69.7	71.1	69.9
Educational attainment			
Degree or higher	75.5	75.3	75.4
Diploma or Certificate 3/4	72.4	73.2	73.0
Year 12	71.6	73.2	72.1
Year 10/11 or Certificate 1/2	70.2	70.3	70.9
Less than Year 10	64.5	65.2	64.4
Country of birth			
Aboriginal/Torres Strait Islander	69.4	66.0	68.8
Other Australian-born	72.2	72.7	72.8
Born in English-speaking country	73.3	74.0	74.9
Born in non-English-speaking country	66.0	67.2	66.3

Note: Population weighted results.

are very similar across all three waves. The distribution is negatively skewed (the mean is less than the median), with half the population scoring 75 or higher and only 10 per cent scoring less than approximately 44; that is, relatively few people have very low levels of self-efficacy.

Socio-economic correlates of self-efficacy

Does self-efficacy systematically differ depending on demographic characteristics and economic circumstances? Tables 26.2 and 26.3 suggest that it does. Table 26.2 presents means of our self-efficacy measure for different demographic groups. Clear patterns are evident. Males have a slightly higher average level of self-efficacy than females. Self-efficacy peaks in the 25–34 years age range, and thereafter there is a strong negative association between age and self-efficacy. People living in couple households—whether with or without dependent children—tend to have greater self-efficacy than people living in other types of households. Unsurprisingly, lone parents have quite low average levels of self-efficacy—something which may help explain the lower average level among females compared with males. Persons with educational attainment of less than Year 10 have very low average levels of self-efficacy. There is also a weak positive association between educational attainment and self-efficacy evident across the other educational attainment categories, which might be expected. Likewise consistent with expectations, Indigenous persons and non-English-speaking background immigrants have considerably lower average levels of self-efficacy than other members of the community.

Table 26.3 considers the association between economic circumstances and self-efficacy, presenting mean self-efficacy by employment status and by quintile of the distribution of equivalised household disposable income. The self-employed and employers have high average levels of self-efficacy, and indeed for all employed people the average level is quite high. By contrast, persons not employed, who comprise not only the unemployed, but also the retired and others not in the labour force, have a very low average level of self-efficacy. Employment is thus clearly key to a sense of control of one's life. Associations with income quintile also indicate a very strong income gradient for self-efficacy. In all three waves, mean self-efficacy is greater the higher the individual's household income quintile.

Changes over time in individuals' self-efficacy

The notion of mastery or self-efficacy is primarily conceived as a trait of individuals that affects their ability to succeed in life, and is therefore often treated by researchers as an explanatory factor in various life outcomes. However, it is also possible to think about self-efficacy itself as an outcome of life experiences, and it is from this perspective that we consider changes over time in individuals' self-efficacy and the association between self-efficacy and some of its potential determinants.[2]

Table 26.4 provides information on individual-level changes in the measure from Wave 3 to Wave 7. The table presents the mean change, the percentage of people exhibiting an increase in the measure and the percentage of people exhibiting a decrease in the measure. It also presents indicative measures on the degree of variability of changes across individuals in the population group—specifically, the standard deviation, the 10th percentile (the change in self-efficacy which has 10 per cent of people with a lower value for the change) and the 90th percentile (which has 90 per cent of people with a lower value for the change). In addition to presenting the information for all persons, estimates are presented separately for males and females and are also presented separately based on economic circumstances in 2003 —specifically, employment status and quintile in the distribution of equivalised household income in 2003.

Mean changes in self-efficacy over time mirror, to a significant extent, the cross-sectional associations

Table 26.3: Mean self-efficacy by employment status and level of household income

	2003	*2004*	*2007*
Employment status			
Full-time employee	74.4	74.7	74.9
Part-time employee	73.5	73.4	73.3
Self-employed or employer	75.0	76.1	76.5
Not employed	66.7	67.5	67.2
Income quintile			
Bottom quintile	65.8	65.6	64.5
2nd quintile	69.4	70.4	70.7
3rd quintile	72.0	72.4	73.6
4th quintile	73.0	73.9	73.7
Top quintile	75.7	76.5	76.8

Note: Population weighted results.

Table 26.4: Individual-level changes in self-efficacy, 2003–2007

	Mean change	*Percentage exhibiting increase*	*Percentage exhibiting decrease*	*Standard deviation*	*10th percentile*	*90th percentile*
All persons	0.3	49.4	48.0	18.7	–21.9	22.0
Males	0.8	49.6	47.5	18.2	–20.4	21.6
Females	–0.2	49.1	48.5	19.1	–23.4	22.3
By employment status in 2003						
Full-time employee	1.5	51.5	45.6	17.3	–18.7	22.0
Part-time employee	–0.1	48.2	49.3	18.3	–21.7	21.8
Self-employed	0.6	48.0	48.6	16.1	–18.5	20.4
Not employed	–1.0	48.0	49.9	20.8	–27.0	23.1
By income quintile in 2003						
1st quintile	–1.8	45.4	52.3	21.2	–28.2	23.7
2nd quintile	0.6	49.5	48.2	19.3	–21.9	22.9
3rd quintile	0.9	51.1	46.3	17.6	–20.2	21.1
4th quintile	0.6	50.7	46.7	18.0	–20.3	20.8
5th quintile	1.3	50.4	46.3	17.0	–18.5	21.4

Note: Population weighted results.

between level of self-efficacy and demographic characteristics and economic circumstances. Males were slightly more likely to experience an increase in the measure than females. Consistent with the peak in self-efficacy at 25–34 years of age, persons aged 15–24 in 2003 on average exhibited an increase; and consistent with the relatively low average level among persons aged over 65, this age group on average experienced a decrease. However, persons in the 25–64 years age range on average experienced no change or an increase in self-efficacy, which is not consistent with the cross-sectional association found in Table 26.2.

Factors affecting self-efficacy

In Table 26.5, all three waves in which our measure of self-efficacy is available are used to estimate models of the determinants of self-efficacy. The models allow for the effects of age, labour force and employment status, income, household type, educational attainment, ethnicity and country of birth, and a wide range of major life events collected in the life events 'inventory' section of the Self-Completion Questionnaire each wave. The 'pooled' regression simply combines all three waves to consider cross-sectional associations between explanatory factors and self-efficacy. The 'fixed effects' regression, by contrast, identifies effects of factors by examining the associations between changes experienced by individuals in these factors and changes in their self-efficacy. To contrast the two approaches, consider, for example, the effects of income on self-efficacy. The pooled regression examines whether people with higher incomes tend to have higher or lower self-efficacy, whereas the fixed effects regression examines whether people who experience increases in income exhibit increases or decreases in self-efficacy (and also whether people who experience decreases in income exhibit increases or decreases in self-efficacy).

In general, fixed effects estimates are to be preferred to cross-sectional estimates because of the potential for stable 'unobserved' factors that affect self-efficacy (such as personality) to be correlated with the explanatory variables—meaning that effects attributed to the explanatory variables in the cross-sectional regression will actually in part reflect the effects of the unobserved factors. However, a problem for fixed effects estimation is that it requires 'sufficient' variation over time at the individual level of both self-efficacy and the explanatory factors. For some factors, such as country of birth, there is clearly not going to be enough variation (there should be none for country of birth), in which case the pooled regression is required.

Considering first the pooled regression estimates, in contrast to the evidence presented in Table 26.2, there is no clear relationship between age and self-efficacy, other than the fact that persons aged 15–24 have higher levels, all else being equal. This implies that other differences in characteristics that are correlated with age are responsible for the association found in Table 26.2. All else being equal, the households with the highest self-efficacy are couples without dependent children; while, as found in Table 26.3, persons in lone-parent households have the lowest self-efficacy. Effects associated with place of birth, employment status and income are also consistent with the descriptive evidence in Table 26.2. The regression model further distinguishes unemployment from non-participation in the labour force and finds that, for males, non-participation is associated with lower self-efficacy, whereas for females it is unemployment that is associated with lower self-efficacy.

Table 26.5: Factors affecting self-efficacy, 2003–2007

	Pooled regression		*Fixed effects regression*	
	Males	*Females*	*Males*	*Females*
Age group ('15–24' omitted)				
25–44	–3.899	–0.933	0.166+	0.254+
45–64	–4.710	–3.017	2.185	–1.155+
65+	–2.358	–3.424	3.036	–0.184+
Household type ('Couple without children' omitted)				
Couple with children	–1.071	–1.052		
Lone parent	–2.941	–2.523		
Other	–1.822	–0.522+		
Educational attainment ('Less than Year 10' omitted)				
Degree or higher	6.548	6.089		
Diploma or Certificate 3/4	5.132	4.452		
Year 12	4.632	3.477		
Year 10/11 or Certificate 1/2	3.990	2.646		
Place of birth ('Australia' omitted)				
Immigrant—English-speaking country	1.247	1.413		
Immigrant—non-English-speaking country	–3.395	–5.621		
Labour force status ('Employed' omitted)				
Unemployed	–3.014	–3.365	0.962+	–1.016+
Not in the labour force	–4.353	–2.565	–0.379+	0.148+
Self-employed	2.730	1.581	1.416	1.178+
Equivalised household income ($)	6.2e-05	4.9e-05	7.7e-06+	–4.0e-06+
Equivalised household income squared	3.9e-11	7.8e-12+	5.2e-12+	–1.0e-11+
Life events				
Got married	–1.181+	0.003+	0.107+	1.004+
Separated from spouse	–3.389	–2.342	–1.924	–2.431
Got back together with spouse	0.726+	–3.916	1.346+	–1.045+
Pregnancy	1.488	2.659	1.638	2.532
Birth/adoption of new child	2.909	2.314	0.935+	–0.161+
Serious personal injury/illness	–5.580	–5.874	–1.677	–1.524
Serious injury/illness to family member	–1.502	–1.373	–0.887	–0.583+
Death of spouse or child	–2.357+	–5.920	–6.072	–3.019+
Death of close relative/family member	–0.283+	–0.703+	0.094+	–0.582+
Death of a close friend	–0.928	–0.490+	0.315+	–1.209
Victim of physical violence	–4.389	–9.671	–2.780	–5.411
Victim of a property crime	–2.485	–1.793	–0.540+	–1.551
Detained in jail	–6.356	–4.162+	–6.234+	3.608+
Close family member detained in jail	1.184+	–1.992+	2.635+	0.455+
Retired from the workforce	–0.657+	1.126+	–0.572+	0.813+
Fired or made redundant	–1.464+	–1.942	–0.132+	0.320+
Changed jobs	0.487+	0.919	1.086	0.769
Promoted at work	2.469	2.161	0.510+	1.005
Major improvement in finances	1.498	3.382	2.348	1.565
Major worsening in finances	–11.458	–10.510	–6.391	–4.982
Changed residence	0.423+	0.634+	0.182+	0.160+
Constant	72.670	71.794	71.771	72.825
Adjusted R-squared	0.090	0.086	0.016	0.013
Number of observations	15,299	17,142	15,305	17,146

Notes: The sample comprises all persons aged 15 years and over. The statistics presented are regression model coefficient estimates of the effects of the explanatory variables on the self-efficacy measure. + Indicates the estimate is not statistically significantly different from zero at the 10% level.

A number of the major life events, which relate to the 12 months leading up to the time at which self-efficacy is measured, are associated with statistically significant effects on self-efficacy. While getting married has no significant effects on self-efficacy, for both men and women, separation from one's spouse is associated with a negative effect. Interestingly, for women, reconciliation with a spouse is associated with an even greater decline in self-efficacy than separation. Both pregnancy (a partner's pregnancy in the case of males) and the birth or adoption of a child are associated with positive effects on self-efficacy—for females, the larger effect is for pregnancy, while for males, birth or adoption has a larger positive effect.

As one would expect, experience of serious injury or illness within the last 12 months has substantial negative effects on self-efficacy, while negative effects are also evident for injury or illness of a close family member. The death of a spouse or child has a negative effect, although only for women is the estimate statistically significant. The death of another family member or of a friend does not appear to affect one's self-efficacy. Being a victim of crime is a strong predictor of a decline in self-efficacy, particularly if it was a violent crime and if the victim was female. Detention in jail is, unsurprisingly, associated with a lower sense of control over one's life, although only the estimate for men is statistically significant.

Estimates for labour market-related changes show a significant positive effect of promotion at work for both men and women, and for women, a significant negative effect of dismissal and a significant positive effect of changing jobs. Retirement within the last 12 months is not associated with any significant effects on self-efficacy of men or women. A major improvement in finances within the last 12 months appears to increase self-efficacy, but the life event with by far the largest impact on self-efficacy is a major worsening of finances. For both men and women, this has a dramatic negative effect on self-efficacy.

Results from fixed effects estimation are generally consistent with the pooled regression estimates. However, as is usual, fewer estimates are statistically significant, which largely reflects the lower level of variation in characteristics at the individual level from which to identify effects. For both men and women, the effects for unemployment, labour force non-participation, birth or adoption of a child and promotion at work are no longer statistically significant; while for women, the effects for reconciliation with spouse, serious injury or illness of family member and dismissal from job are no longer statistically significant; and for men, the effects of being a victim of a property crime or being detained in jail are no longer statistically significant. At odds with this general pattern of reduced statistical significance, we find several life events have statistically significant effects in the 'fixed effects' specification that were not present in the pooled specification. Specifically, significant negative effects of death of a spouse or child for men and death of a close friend for women, and a positive estimated effect of changing jobs for men, are found in the fixed effects model, but not the pooled cross-sectional model.

Conclusion

Since Bandura (1977), self-efficacy, or a sense of mastery over one's life, has been identified as an important influence on behaviour and consequently on life outcomes. The limited examination of outcomes undertaken in this article indicates that the HILDA Survey data would appear to support this. In particular, persons with less education, lower incomes and without employment are found to have lower average levels of self-efficacy. The longitudinal structure of the HILDA data also allows us to consider changes in self-efficacy over time and the determinants of self-efficacy. This analysis shows that there is considerable variation over time in self-efficacy, and there are strong indications that self-efficacy is at least as much a product of life outcomes and experiences as a predictor of those outcomes. Fixed effects regression models reveal important influences of a number of major life events, including changes in family structure, injury or illness, being a victim of crime and large changes in financial wellbeing.

Endnotes

1 The rescaling is achieved by taking the difference between the raw score and the minimum raw score observed in the data, dividing this by the difference between the maximum and minimum raw scores observed in the data, and then multiplying by 100. The total so obtained is then subtracted from 100 so that higher values correspond to a greater sense of control.

2 Much previous research has, of course, considered the question of the determinants of self-efficacy. Bandura (1977) identifies four main sources: 'accomplishments', 'vicarious experience', 'verbal persuasion' and 'physiological states'. The first source, and perhaps the fourth source, can be interpreted as in part capturing the factors examined in this article.

References

Bandura, A. (1977) 'Self-Efficacy: Toward a Unifying Theory of Behavioural Change', *Psychological Review*, vol. 84, no. 2, pp. 191–215.

Pearlin, L. and Schooler, C. (1978) 'The Structure of Coping', *Journal of Health and Social Behaviour*, vol. 19, no. 1, pp. 2–21.

27. Religion, life events and life outcomes

Religion is of course an important part of life for many Australians. In Waves 4 and 7, the HILDA Survey has attempted to obtain information on just how important religion is in the Australian community. While the Australian Census collected information on religious affiliation, possibly providing the best source of information on the religious affiliation composition of the Australian population, the HILDA Survey contains significantly more information on religious belief and practice, and—more importantly—now has longitudinal data allowing us to understand how religious belief and practice has changed over time for individuals and to explore the factors that lead to these changes.[1]

Religious affiliation

Table 27.1 compares estimates of the religious affiliation of the Australian population (over 15 years of age) in Waves 4 and 7 of the HILDA Survey and in the 2006 ABS Census. Christianity is the dominant religion, but based on the evidence of the limited three-year period between Waves 4 and 7, it would seem that it is on the decline. In part, this reflects growth in adherents of other religions, such as Islam and Buddhism, but it mostly reflects growth in non-affiliation to any religion. The proportion indicating no affiliation increased slightly from 26 per cent in 2004 to 27 per cent in 2007. The proportion of males with a religious affiliation is smaller than the proportion of females with a religious affiliation, although the gap narrowed slightly between 2004 and 2007.

The 2006 Census has a slightly lower proportion of the population indicating Christian affiliation and a substantially lower proportion indicating no affiliation. Both of these differences largely reflect a higher rate of non-response to the Census question, which was explicitly optional in the questionnaire. The HILDA Survey data therefore suggest that most of those who do not respond to the Census question on religious affiliation do not have a religious affiliation. Also notable in the comparisons of the HILDA and Census data is that, despite the comparatively high rate of non-response, the Census has a slightly higher rate of affiliation with non-Christian religions. This may reflect the under-representation of new immigrants in the HILDA sample.

Importance of religion

In addition to identifying their religious affiliation, HILDA Survey respondents were asked in Waves 4 and 7 to rate the importance of religion in their life on a scale of 0 to 10, with 0 being 'One of the least important things in my life' and 10 being 'The most important thing in my life'. Mean scores in 2004 and 2007 are presented in Table 27.2 broken down by sex and age group. Consistent with the higher rate of religious affiliation, females on average place considerably more importance on religion. However, even among those with a religious affiliation, the average level of importance placed on religion is 0.9 points higher for females than males, which is a large difference on a 0 to 10 scale. There is also a strong age gradient in the importance of religion evident in Table 27.2. On average, religion is least important for the youngest age group (15–44 years) and most important for the oldest age group (65+). This may reflect generational differences in religious belief, whereby people born more recently will always place less importance on religion that people born earlier; or it may reflect the effects of ageing, whereby religion increases in importance as people get older. Among those with a religious affiliation in 2004, small declines in the mean importance of religion are evident for males aged 15–44 and 45–64, but not females or males aged 65 years and over.

Frequency of attendance at religious services

Table 27.3 presents the percentage attending religious services (excluding weddings and funerals)

Table 27.1: Religious affiliation (%)

HILDA Survey, 2004 and 2007	*2004*			*2007*		
	Males	*Females*	*Persons*	*Males*	*Females*	*Persons*
Christian	64.8	72.7	68.9	62.5	69.4	66.0
Other	4.4	4.6	4.5	5.0	5.0	5.0
None	29.8	21.8	25.7	30.8	23.7	27.2
Not stated	0.9	0.9	0.9	1.7	2.0	1.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
ABS Census, 2006				*Males*	*Females*	*Persons*
Christian				61.4	66.3	63.9
Other				6.5	6.0	6.2
None				20.2	17.2	18.7
Not stated				11.9	10.5	11.2
Total				100.0	100.0	100.0

Notes: HILDA estimates are population weighted. The HILDA sample comprises all persons who returned the Self-Completion Questionnaire, regardless of whether the question on religious affiliation was completed. Percentages may not add up to 100 due to rounding.

in each of five frequency categories: never, once a year or less, several times a year, one to three times per month and at least once a week. In 2004, 50 per cent of males and 41 per cent of females reported never attending services, a percentage that remained unchanged for males in 2007 but increased slightly to 42 per cent for females. The proportion of all males 15 years of age and over attending at least once a month fell from 16.5 per cent in 2004 to 15.2 per cent in 2007, and the proportion of females 15 years of age and over attending at least once a month fell from 22.3 per cent to 21 per cent. Frequency of attendance at services has the same ordering by age as importance of religion, whereby frequency of attendance increases with age.

Changes in individuals' religious beliefs and practices, 2004 to 2007

An important question concerns the extent to which changes in cross-sectional snapshots reflect changes at the individual level. It is possible that the cross-sectional comparisons reveal changes that are at least in part the effects of 'generational change' as younger people move into the older age ranges (including children moving into the 15–44 category) and older people die. Moreover, they give us no sense of the individual-level dynamics of religious belief and practice. For example, while cross-sectional snapshots can tell us the net change in the number of people with a religious affiliation, they cannot tell us how many people took up that religious affiliation and how many ended it.

Table 27.4 examines individual-level changes in religious affiliation, the importance of religion and the frequency of attendance at religious services (something that is of course only possible with panel data). A person is defined to have commenced a religious affiliation if that person reported having no religious affiliation in Wave 4 and then reported a religious affiliation in Wave 7. Cessation of religious affiliation is defined by a movement in the opposite direction, from reporting affiliation in Wave 4 to reporting no affiliation in Wave 7. For frequency of attendance at services, a change (increase or decrease) in frequency between 2004 and 2007 is defined to occur if the respondent makes a different choice from the nine categories available on the Self-Completion Questionnaire.[2]

Rates of take-up and cessation of religious belief are perhaps surprisingly high at around 5–6 per cent over the three-year period. Some of this will be apparent rather than real, reflecting measurement error as opposed to true changes in religious belief, but differences by age group strongly suggest

Table 27.2: Mean importance of religion (0–10 scale)

	2004				2007			
	15–44	*45–64*	*65+*	*All aged 15+*	*15–44*	*45–64*	*65+*	*All aged 15+*
Males								
All males	3.0	3.5	4.3	3.3	2.9	3.4	4.3	3.3
Males with religious affiliation	4.5	4.5	4.8	4.5	4.4	4.4	5.0	4.5
Females								
All females	3.9	4.6	5.9	4.4	3.6	4.5	5.8	4.3
Females with religious affiliation	5.1	5.4	6.3	5.4	5.1	5.4	6.3	5.4

Note: Population weighted results.

Table 27.3: Frequency of attendance at religious services (%)

	2004				2007			
	15–44	*45–64*	*65+*	*All aged 15+*	*15–44*	*45–64*	*65+*	*All aged 15+*
Males								
Never	52.8	48.4	44.5	50.2	52.8	50.5	40.5	50.1
Once a year or less	21.8	26.0	24.5	23.5	23.8	23.7	29.8	24.7
Several times per year	11.3	8.1	8.6	9.9	10.5	9.6	8.7	9.9
1–3 times per month	4.5	5.6	5.3	5.0	4.4	3.8	4.6	4.2
At least once per week	9.6	12.0	17.1	11.5	8.6	12.4	16.4	11.0
Females								
Never	44.2	40.5	30.9	40.9	46.4	40.1	31.1	41.9
Once a year or less	23.5	25.0	25.2	24.2	24.4	25.2	24.1	24.6
Several times per year	13.6	11.4	11.8	12.6	12.0	13.1	13.4	12.6
1–3 times per month	7.2	7.0	6.4	7.0	6.3	6.0	6.1	6.2
At least once per week	11.6	16.2	25.8	15.3	11.0	15.6	25.2	14.8

Note: Population weighted results.

Table 27.4: Individual changes in religious belief, its importance and attendance at services, 2004–2007, by age group in 2004 (%)

	Males				Females			
	15–44	*45–64*	*65+*	*All aged 15+*	*15–44*	*45–64*	*65+*	*All aged 15+*
Religious affiliation								
Commenced religious affiliation	7.1	5.8	2.7	6.0	5.4	4.9	1.1	4.5
Ceased religious affiliation	7.3	6.0	5.3	6.6	6.3	5.2	4.6	5.7
Change in importance of religion (0–10 scale)—Persons with an affiliation in 2004								
Increase in importance	28.8	28.6	31.4	29.2	29.4	29.8	29.6	29.6
Decrease in importance	37.4	31.2	32.5	34.2	38.5	33.5	31.1	35.4
Frequency of attendance at services—Persons with an affiliation in 2004								
Increase in frequency	22.1	17.9	19.7	20.2	20.8	18.1	19.4	19.6
Decrease in frequency	25.5	22.0	21.3	23.5	24.6	21.3	24.3	23.5

Note: Population weighted results.

that much of it is real. People aged 15–44 have significantly greater rates of take-up and cessation of religious belief than older people, particularly people aged 65 years and over, which is consistent with the idea that beliefs become more entrenched as people age. As expected given the overall decline in the proportion of people reporting a religious affiliation, more people ceased religious affiliation than took it up, a pattern applying to all three age groups examined in Table 27.4.

Over 63 per cent of people with a religious affiliation in 2004 reported a change in the importance of religion. While again acknowledging the impact of measurement error, it is clear that changes in the importance of religion at the individual level are substantially more likely to be negative than positive, more so the younger the individual. Similarly, over 40 per cent of people with a religious affiliation in 2004 reported a different frequency of attendance at religious services in 2007, with a decrease in frequency significantly more common than an increase in frequency.

Associations between life changes and religious belief

The longitudinal information in HILDA provides a unique opportunity to explore how life experiences affect individuals' religious beliefs in Australia. Table 27.5 considers the association between health-related changes and changes in religious affiliation and in the importance of religion between 2004 and 2007. The first column shows the percentage of the population that experienced the health-related change while the next three columns present changes in religious belief. Adverse health-related changes examined comprise acquisition of a disability and substantial (20 points or more) deterioration in SF–36 measures of general health, mental health and physical function, while positive health-related changes correspondingly comprise 'loss' of a disability and substantial improvement in SF–36 measures of general health, mental health and physical function.

The rate of take-up of religion is generally lower for people who experienced deterioration in health than for all people with the exception that females who experienced deterioration in mental health had a take-up rate of 5.2 per cent, which was slightly higher than the general population of females. People who experienced an improvement in health had higher rates of take-up of religion, and indeed males who experienced an improvement in general health had a considerably higher rate of take-up of religion—10.5 per cent—than the general population of males. No clear consistent relationship between health changes and cessation of religious affiliation is evident, although improvement in physical functioning is associated with a higher rate of cessation for both males and females, and deterioration in males' general health is associated with a high rate of cessation of religious affiliation also. The importance of religion declined on average for all people who experienced a substantial change in health, except males who experienced an improvement in general health and females who experienced an improvement in physical functioning. On average, for most health-related measures, declines in health were associated with greater declines in the importance of religion (compared with improvements in health), the exceptions being that people who no longer had a disability exhibited a larger mean decline in importance than those who acquired a disability, and males who experienced an improvement in mental health had a bigger mean decline in importance than males who experienced a deterioration in mental health.

Changes in economic circumstances and religious belief are examined in Table 27.6, which has the same structure as Table 27.5. A relative increase in income is associated with a higher proportion ceasing religious affiliation and a decline in the importance of religion, while a relative decrease in income is associated with comparatively low rates of both commencement and cessation of religious affiliation. Ceasing income support receipt is associated with a high rate of cessation of religious affiliation, while commencing income support receipt is associated

Table 27.5: Association between health-related changes and changes in religious belief, 2004–2007

	Experienced the event (%)	*Commenced religious affiliation (%)*	*Ceased religious affiliation (%)*	*Mean change in importance*
Males				
Acquired a disability	8.6	5.3	6.6	–0.3
General health deteriorated	7.8	3.7	7.8	–0.3
Mental health deteriorated	6.3	4.1	4.7	–0.2
Physical functioning deteriorated	6.5	3.5	6.5	–0.4
Became non-disabled	8.0	4.7	6.3	–0.9
General health improved	6.3	10.5	3.7	0.0
Mental health improved	6.2	5.6	6.0	–0.3
Physical functioning improved	4.5	7.0	7.0	–0.1
All males	100.0	6.0	6.6	0.0
Females				
Acquired a disability	9.9	3.0	5.3	–0.6
General health deteriorated	8.8	3.0	5.3	–0.2
Mental health deteriorated	7.6	5.2	6.3	–0.4
Physical functioning deteriorated	7.9	4.0	5.5	–0.1
Became non-disabled	7.1	5.3	4.8	–0.7
General health improved	6.9	3.9	5.4	–0.1
Mental health improved	8.1	5.4	5.6	–0.2
Physical functioning improved	5.7	4.3	7.9	0.1
All females	100.0	4.5	5.7	–0.1

Notes: Population weighted results. 'Experienced the event': proportion of persons who experienced the disability or health change indicated by the row heading; 'Acquired a disability': did not have a disability in 2004 and had a disability in 2007; 'Became non-disabled': did not have a disability in 2007 and had a disability in 2004; 'General health deteriorated': SF–36 measure of general health was at least 20 points lower in 2007 than in 2004; 'General health improved': SF–36 measure of general health was at least 20 points higher in 2007 than in 2004; 'Mental health deteriorated': SF–36 measure of mental health was at least 20 points lower in 2007 than in 2004; 'Mental health improved': SF–36 measure of mental health was at least 20 points higher in 2007 than in 2004; 'Physical functioning deteriorated': SF–36 measure of physical functioning was at least 20 points lower in 2007 than in 2004; 'Physical functioning improved': SF–36 measure of physical functioning was at least 20 points higher in 2007 than in 2004.

Table 27.6: Association between changes in economic circumstances and changes in religious belief, 2004–2007

	Experienced the event (%)	*Commenced religious affiliation (%)*	*Ceased religious affiliation (%)*	*Mean change in importance*
Males				
Income ranking rose	22.0	5.8	9.5	–0.2
Income ranking fell	13.3	5.7	5.7	0.4
Ceased income support receipt	11.1	6.5	10.0	–0.3
Commenced income support receipt	6.4	3.4	4.7	0.0
Became unemployed	9.5	6.0	8.1	–0.4
Became employed	7.3	8.2	9.5	–0.4
Became not employed	5.9	5.3	6.9	–0.5
All males	100.0	6.0	6.6	0.0
Females				
Income ranking rose	20.4	4.3	8.0	–0.3
Income ranking fell	13.2	4.1	5.0	0.2
Ceased income support receipt	11.5	3.7	7.1	–0.1
Commenced income support receipt	6.9	6.0	4.7	0.0
Became unemployed	9.3	5.7	8.4	–0.3
Became employed	10.3	4.4	5.6	–0.3
Became not employed	7.0	5.1	7.9	–0.2
All females	100.0	4.3	5.7	–0.1

Notes: Population weighted results. 'Experienced the event': proportion of persons who experienced the economic change indicated by the row heading; 'Income ranking rose (fell)': a rank in the distribution of equivalised household disposable income was at least 20 percentiles higher (lower) in 2007 than in 2004; 'Ceased income support receipt': on income support in 2004 and not on income support in 2007; 'Commenced income support receipt': not on income support in 2004 and on income support in 2007; 'Became unemployed': not unemployed in Wave 4 and became unemployed at any stage between 2004 and 2007; 'Became employed': not employed in 2004 and employed in 2007; 'Became not employed': employed in 2004 and not employed in 2007.

with a relatively low rate of commencement for males and a relatively high rate of take-up for females. The experience of unemployment between Wave 4 and Wave 7 is associated with a higher rate of cessation of religious affiliation, as is the movement from employment in Wave 4 to non-employment in Wave 7. For males, movement from non-employment to employment is also associated with a relatively high rate of cessation of religious affiliation.

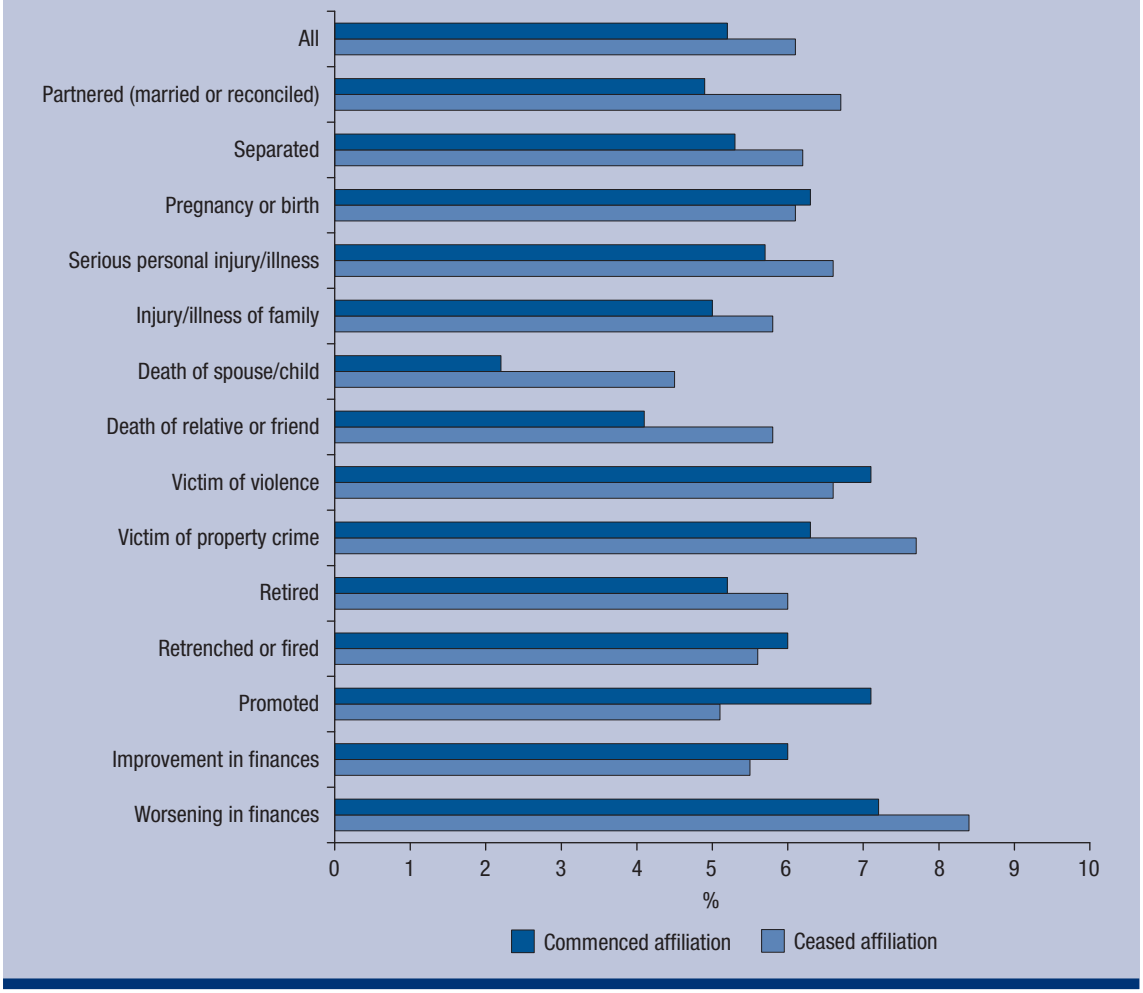
Major life events and changes in religious belief

Figure 27.1 shows how take-up and cessation of religious affiliation vary according to whether certain major life events were experienced between Wave 4 and Wave 7. It reports the percentage of those who experienced each life event who took up religion and the percentage who ceased religious affiliation between Wave 4 and Wave 7. The top pair of bars represents these percentages for the entire population aged 15 years and over to provide a point of comparison for those who experienced major life events.

Notable is that people who were victims of crime or experienced major worsening of finances had relatively high rates of both take-up and cessation of religious affiliation. By contrast, relatively few people who had a spouse or child die took-up or ceased religious affiliation, although they were much more likely to have ceased an affiliation than taken one up. Promotion at work is associated with a relatively high rate of take-up of religion; to a lesser extent, a major improvement in finances is also associated with relatively greater rate of take-up.

Figure 27.2 presents the mean change in the importance of religion on the 0 to 10 scale between Wave 4 and Wave 7 for the same groups as examined in Figure 27.1. A major worsening in finances clearly has negative apparent consequences for the importance individuals place on religion. A major improvement in finances has apparent positive effects on the importance of religion, since people who experienced such an improvement on average reported no decline (whereas on average people did report a decline in the importance of religion). Marital separation, death of a spouse or child, being a victim of violence, retiring and dismissal from a job likewise all appear to have negative effects on the importance placed on religion. Changes in the importance of religion among people who partnered, got pregnant, were injured or ill, had a family

Figure 27.1: Major life events and take up and cessation of religious affiliation, 2004–2007 (%)



member get injured or ill, had a friend or relative die, were a victim of a property crime or got promoted at work were on average no different from changes for the general population.

Conclusion

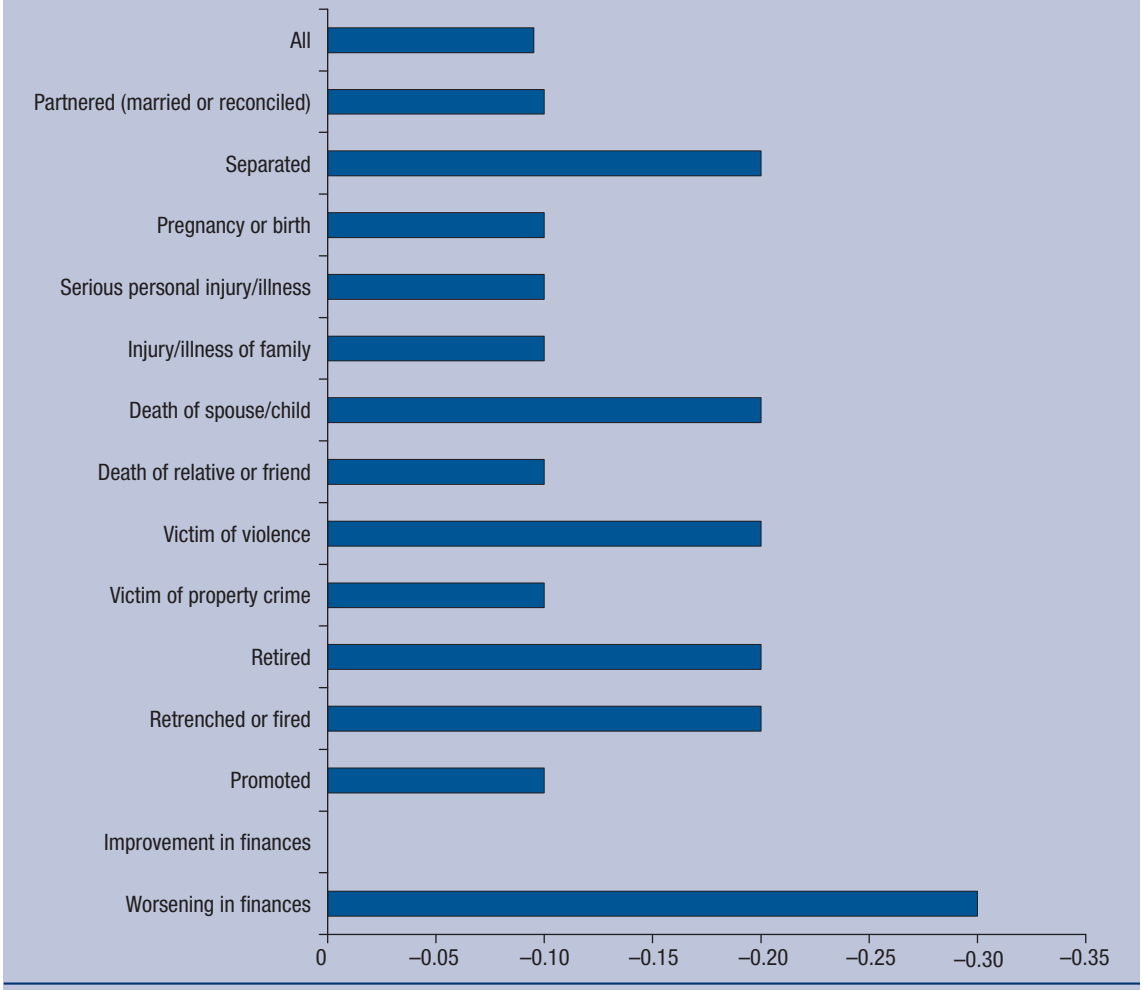
The HILDA data suggest that the 2004 to 2007 period was one of declining importance of religion in Australia. Although only very slight, the decline has not simply reflected changes to the composition of the population. The HILDA data show more people ceasing religious affiliation than commencing a religious affiliation, and younger individuals on average adjusting downwards their assessments of the importance of religion in their lives. The aggregate trend suggests a very slow-moving change. However, the HILDA data show that in fact there is a reasonable degree of dynamism in religious belief, especially among people under 45 years of age, with significant numbers observed to cease and take up religious belief between 2004 and 2007. In general, we see more dynamism in religious belief among those who experience substantial changes in circumstances or experience major life events, although it is difficult to discern systematic patterns in the associations between specific life changes and events and the nature of changes in beliefs. The primary impression is that more change corresponds to greater fluidity in religious belief. In part, this may be because of correlations between likelihood of experiencing these events and life-cycle stage—specifically, younger people tend to experience more life changes and events, and also tend to be less 'set' in their religious beliefs.

Endnotes

1 Note that religious 'belief' typically has a more wide-ranging and complex meaning than the limited interpretation given to it in this article: the religious affiliation of the respondent and the importance of religion to the respondent.

2 In both waves, the response options for frequency of attendance at religious services were: (1) Never, (2) Less than once a year, (3) About once a year, (4) Several times a year, (5) About once a month, (6) 2 or 3 times a month, (7) About once a week, (8) Several times a week, and (9) Every day.

Figure 27.2: Mean change in importance of religion by major life events, 2004–2007 (0–10 scale)



Note: Population weighted results.

28. Self-assessed literacy and numeracy and their associations with earnings

Literacy—the ability to understand and use written information, and numeracy—mathematical ability—are core skill dimensions important for functioning in modern society. From a labour market perspective, these skills represent aspects of human capital that are likely to impact on employment and earnings outcomes, both directly and indirectly—including via effects on educational attainment. For example, using data from the ABS Survey of Aspects of Literacy conducted in 1996, Chiswick et al. (2003) show substantial effects on labour force participation and unemployment associated with literacy and numeracy, both directly and via their impacts on educational attainment.

In Wave 7, the HILDA Survey asked respondents a series of questions designed to provide respondents' subjective assessments of their own literacy and numeracy. Specifically, respondents were asked to (separately) rate their reading skills and mathematical skills, first with reference to their needs of daily life, and then relative to 'the average or typical Australian adult'. Respondents were also asked about their extent of agreement with four statements about their attitudes towards and abilities in reading and mathematics.

Objective test-based measures of literacy and numeracy are likely to provide more accurate information than are subjective measures and therefore analyses of the correlates and effects of literacy and numeracy are probably better undertaken using objective measures. However, such measures are time-consuming and costly to obtain, and explicitly testing respondents' abilities can have detrimental effects on survey response rates. Furthermore, as Table 28.1 demonstrates, self-assessed measures tend to be highly correlated with objective measures. The table presents a cursory analysis of how objective and subjective measures of literacy and numeracy compare using data collected in the 2006 ABS Adult Literacy and Life Skills Survey.

The objective measures comprise two measures of literacy, 'prose' literacy and 'document' literacy, and one measure of numeracy. Prose literacy refers to '…the ability to understand and use information from various kinds of narrative texts, including texts from newspapers, magazines and brochures' while document literacy refers to '…the knowledge and skills required to locate and use information contained in various formats including job applications, payroll forms, transportation schedules, maps, tables and charts'. The objective numeracy measure is intended to identify the level of an individual's '…knowledge and skills required to effectively manage and respond to the mathematical demands of diverse situations schedules, maps, tables and charts' (ABS, 2008). The subjective measures comprise two literacy measures, self-assessed reading ability and writing ability, and one numeracy measure, the extent of agreement with the statement *I am good with numbers and calculations.*

For each of the four combinations of objective and subjective literacy measures, and for the objective and subjective numeracy measures, Table 28.1 presents the proportion in each self-assessed category who are classified by the Australian Bureau of Statistics (ABS) as 'Level 3 or above' on the objective measure, which corresponds to meeting the 'minimum required for individuals to meet the complex demands of everyday life and work in

Table 28.1: Objective and subjective ABS measures of literacy and numeracy compared—Percentage meeting the 'minimum' standard by self-assessed skill level

	Self-assessed reading skill			
	Excellent	*Good*	*Moderate*	*Poor*
Prose literacy	70.5	43.6	18.6	3.1
Document literacy	68.2	45.1	21.4	4.4
(Percentage of persons in the self-assessed skill level category)	*(52.9)*	*(32.7)*	*(10.3)*	*(4.1)*
	Self-assessed writing skill			
	Excellent	*Good*	*Moderate*	*Poor*
Prose literacy	73.1	49.5	24.9	7.4
Document literacy	70.8	49.8	27.9	8.9
(Percentage of persons in the self-assessed skill level category)	*(43.0)*	*(37.1)*	*(13.4)*	*(6.5)*
	Good with numbers and calculations			
	Strongly agree	*Agree*	*Disagree*	*Strongly disagree*
Numeracy	66.5	41.9	22.0	13.3
(Percentage of persons in the self-assessed skill level category)	*(35.4)*	*(49.7)*	*(13.3)*	*(1.7)*

Source: ABS (2008).

the emerging knowledge-based economy' (ABS, 2008). For example, the upper left cell shows that 70.5 per cent of individuals who believe they have excellent reading skills meet the minimum standard for prose literacy.

The subjective and objective measures do not attempt to measure exactly the same thing—for example, writing skill is only loosely connected to both prose and document literacy—so we should not expect perfect correlation. We do indeed see in Table 28.1 that significant numbers of people who believe their skills are excellent or good do not meet the minimum standard—over 50 per cent in the case of people who think their skills are good. Nevertheless, a high degree of correlation between the objective and subjective measures is evident. A large majority of people who believe their literacy skills are excellent or strongly agree that their mathematical skills are good are found to meet the minimum literacy or numeracy standards, while very few who believe their literacy skills are poor or strongly disagree that they are good at maths are found to meet the minimum standard. It is therefore likely that subjective measures provide meaningful information on actual ability in these domains.[1]

We consider two sets of measures of literacy and numeracy available in the HILDA data. The first set loosely corresponds to the ABS subjective measures, whereby respondents were asked the following questions:

> *Thinking about the needs of your daily life, both at work and at home, how would you rate your reading skills in English? Would you say your reading skills are excellent, good, moderate or poor?*
>
> *Thinking about the needs of your daily life, both at work and at home, how would you rate your mathematical skills? Would you say your skills are excellent, good, moderate or poor?*

The second set of measures derives from the questions:

> *Compared to the average or typical Australian adult, how would you rate your own reading skills in English? Please use a scale from 0 to 10, where 5 means 'about average', 0 means 'very poor' and 10 means 'very good'.*
>
> *And how do your mathematical skills compare to the average or typical Australian adult? As before, use a scale from 0 to 10, where 5 means 'about average', 0 means 'very poor' and 10 mean 'very good'.*

Being subjective measures, the ABS analysis would suggest that both sets are correlated with objective measures, but imperfectly so. Arguably, however, the second set of questions produces a better measure than the first, because they create a common reference point or comparison group for all people—the average or typical Australian adult. The first (more commonly used) set of questions runs the risk that people whose lives require greater literacy and numeracy skills will impose a higher standard than others, causing responses to systematically depend on characteristics such as occupation and age for reasons unrelated to actual variation in literacy and numeracy skills.

Table 28.2: Correlation coefficient between alternative measures of literacy and numeracy, 2007

Literacy measures	0.737
Numeracy measures	0.761

Note: Population weighted results.

Table 28.2 compares the two sets of measures, presenting correlation coefficients for the literacy and numeracy measures. Correlation coefficients range between –1 and 1, with 1 indicating perfect positive correlation (they are essentially the same measure), 0 indicating no correlation and –1 indicating perfect negative correlation. The measures are strongly positively correlated, as one would hope, but the correlations, at approximately 0.75, are far from perfect. The two sets of measures therefore certainly provide somewhat different information on literacy and numeracy.

Literacy and numeracy estimates from the HILDA Survey

Table 28.3 presents the proportions of males and females giving each response to the first set of literacy and numeracy questions. True to the stereotypes, females are more likely than males to report excellent literacy and males are more likely than females to report excellent numeracy. Males are more likely to report good or moderate literacy than females, but are no more likely to report poor literacy. By contrast, females are nearly twice as likely to report poor mathematical skills, and are no more likely to report good numeracy skills than males, despite the much lower proportion assessing their skills as excellent.

The distributions of responses of males and females to the second set of literacy and numeracy questions are shown in Table 28.4. Most individuals rate themselves above average, but consistent with the results presented in Table 28.3, females tend to rate their literacy more highly than do males, and males tend to rate their numeracy higher than do females. Both males and females have lower average assessments of their numeracy, with the gap particularly wide for females.

Figures 28.1 to 28.4 examine how self-assessed literacy and numeracy depend on upon age, ethnicity and place of birth, educational attainment and labour force status. An inverted U-shape relationship with age is evident for both literacy and numeracy, with people aged 15–24 and people aged over 65 years having lower average scores than people aged 25–64 years.

Substantial differences in mean scores by Indigenous status and place of birth are evident in Figure 28.2, particularly for literacy. Perhaps most striking is that Indigenous people have low average levels of both literacy and numeracy, suggesting this could be a major source of disadvantage for this group in the community. Not unexpectedly, the mean literacy score is lowest for immigrants from non-English-speaking countries. Less expected is that mean self-assessed literacy, and indeed numeracy, is higher among immigrants from English speaking countries than among non-Indigenous Australian-born persons. Immigrants from non-English-speaking countries have similar average assessments of their numeracy skills to non-Indigenous Australian-born persons. Lower average literacy for these immigrants would therefore seem to reflect language barriers associated with English not being their first language, rather than from a lower average level of innate skill.

Table 28.3: Self-assessed literacy and numeracy in daily life, 2007 (%)

	Excellent	*Good*	*Moderate*	*Poor*	*Total*
Literacy					
Males	49.5	35.1	12.3	3.1	100.0
Females	61.2	28.6	7.2	3.1	100.0
Numeracy					
Males	35.0	43.6	18.0	3.3	100.0
Females	24.5	44.0	25.6	5.9	100.0

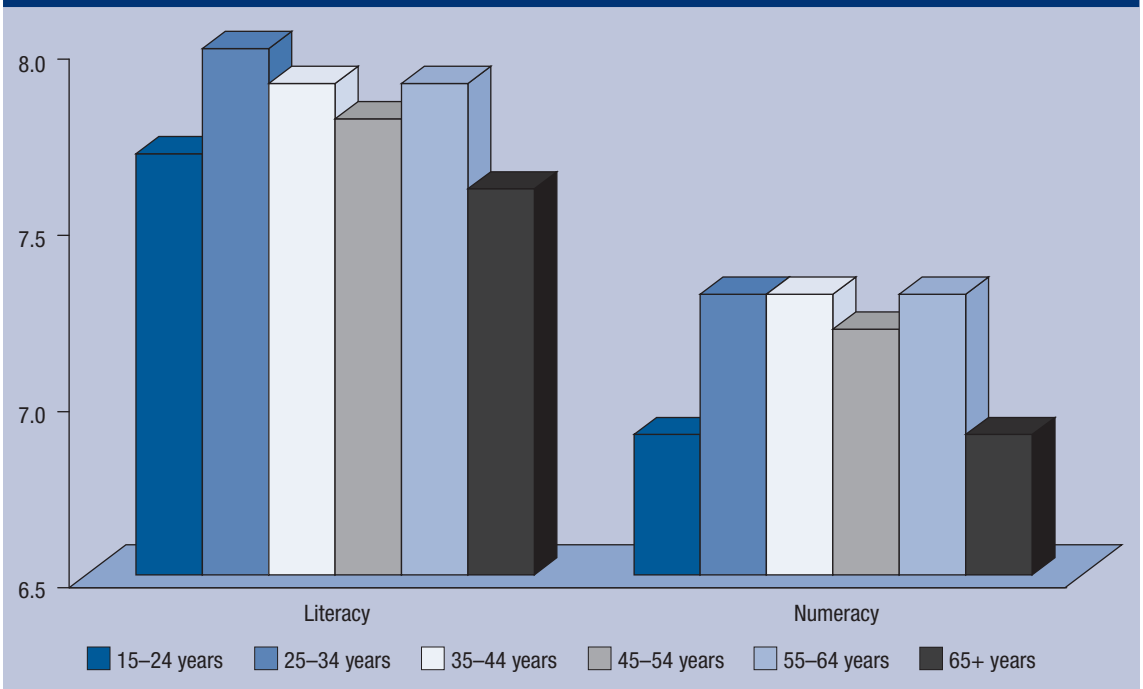
Notes: Population weighted results. Percentages may not add up to 100 due to rounding.

Table 28.4: Self-assessed literacy and numeracy compared to the average or typical Australian adult, 2007 (%)

	Very poor				*Average*						*Very good*		*Mean*
	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*Total*	*score*
Literacy													
Males	0.6	*0.4	0.7	1.2	2.5	12.3	7.4	16.0	23.5	17.2	18.1	100.0	7.6
Females	0.6	0.5	0.7	1.0	1.4	9.9	4.7	10.9	21.2	19.6	29.6	100.0	8.1
Numeracy													
Males	*0.4	*0.3	0.8	1.4	3.1	11.4	9.0	18.6	25.9	15.5	13.6	100.0	7.4
Females	0.6	*0.3	1.2	2.8	4.4	17.5	11.7	19.6	21.2	11.5	9.3	100.0	6.9

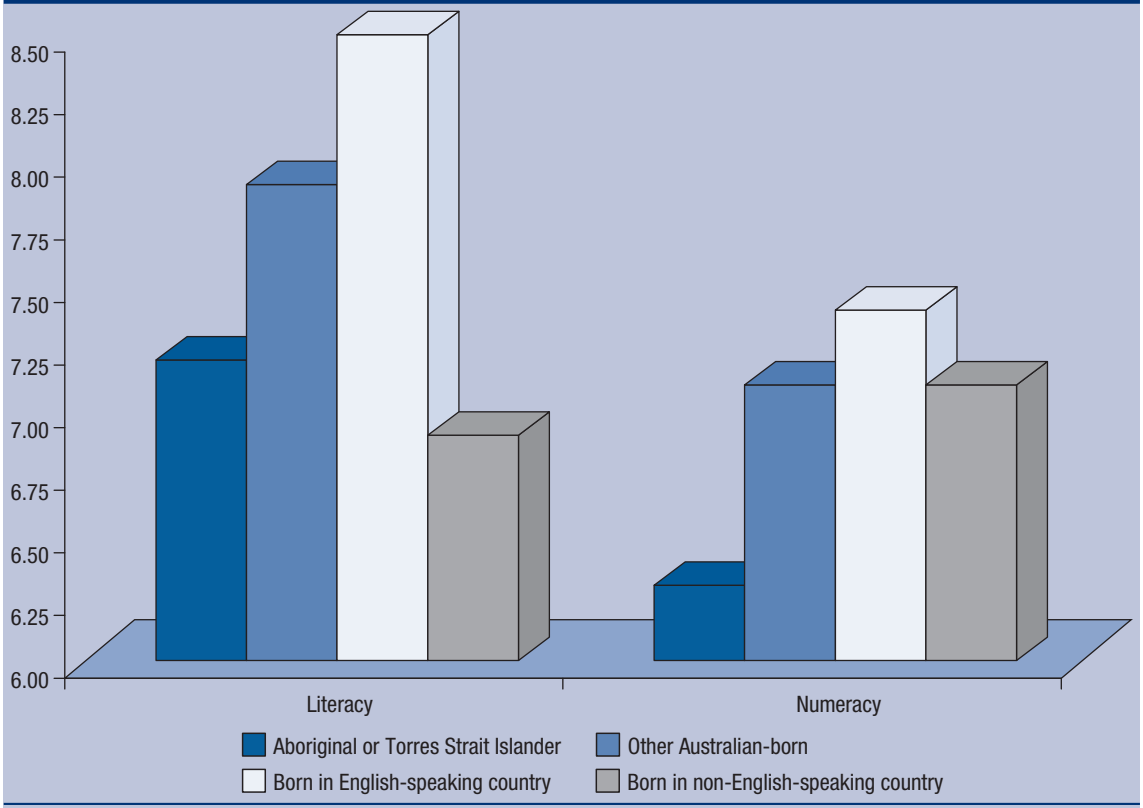
Notes: Population weighted results. Percentages may not add up to 100 due to rounding.

Figure 28.1: Mean literacy and numeracy scores relative to the average Australian adult (0–10 scale) by age group, 2007



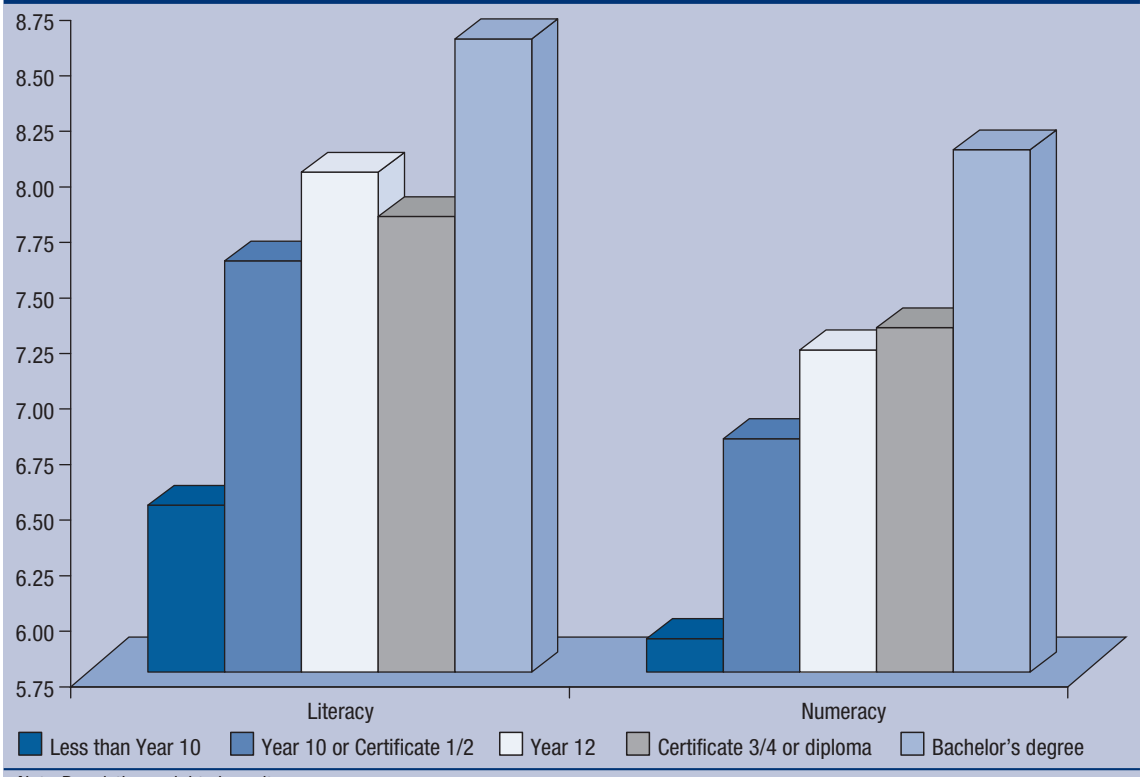
Note: Population weighted results.

Figure 28.2: Mean literacy and numeracy scores relative to the average Australian adult (0–10 scale) by indigenous status and place of birth, 2007



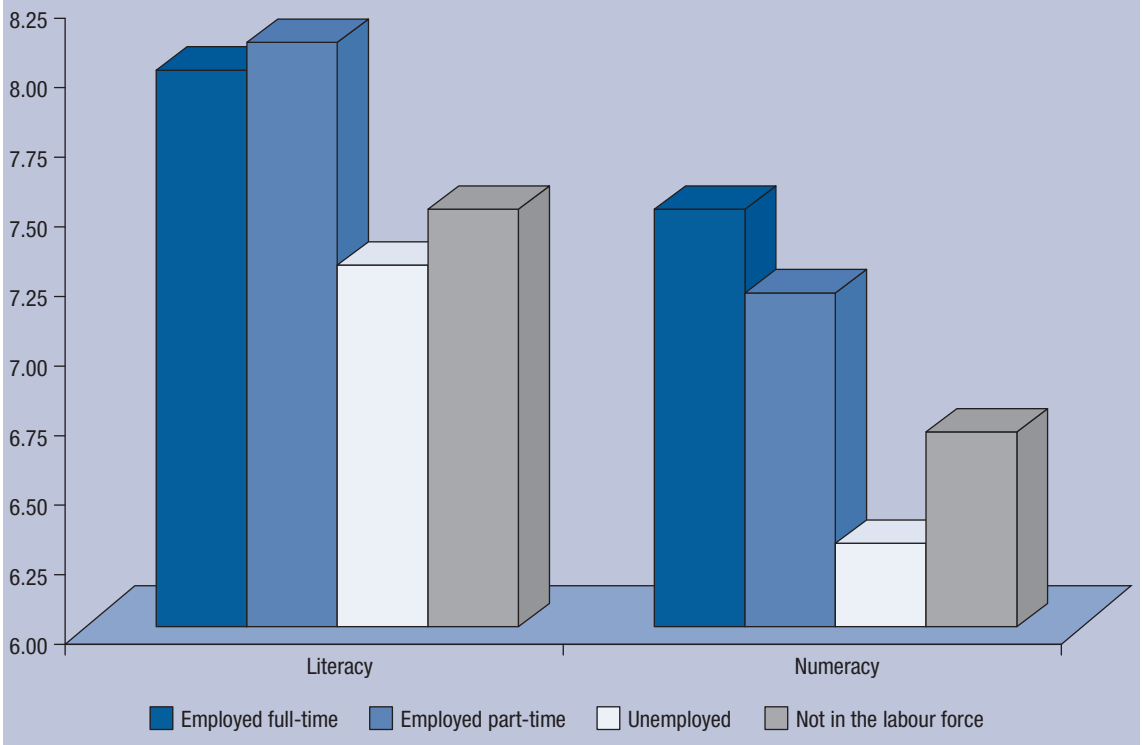
Note: Population weighted results.

Figure 28.3: Mean literacy and numeracy scores relative to the average Australian adult (0–10 scale) by educational attainment, 2007



Note: Population weighted results.

Figure 28.4: Mean literacy and numeracy scores relative to the average Australian adult (0–10 scale) by labour force status, 2007



Note: Population weighted results.

Strong positive correlations between educational attainment and literacy and numeracy are apparent in Figure 28.3, with the only exception being that those with a highest educational attainment of high school completion have a slightly higher mean literacy score than those with diploma or trade post-school qualifications. Self-assessed numeracy is particularly low for people who have not completed Year 10 and hold no post-school qualifications.

Differences in average literacy and numeracy by labour force status shown in Figure 28.4 indicate that the unemployed have relatively low levels of literacy and numeracy, while the employed have relatively high levels. Average literacy is higher for part-time workers than full-time workers, which primarily reflects the higher concentration of females—who on average have higher scores than males—in part-time employment.

Effects of literacy and numeracy on earnings

A key question for policymakers concerns the relative importance of literacy and numeracy in wage and employment outcomes vis-à-vis specific educational qualifications and other factors such as work experience, since this may have implications for the nature and emphasis of policies seeking to improve labour market outcomes. Chiswick et al. (2003) found that much of the employment effect attributed to education in studies without measures of literacy and numeracy may in fact be due to literacy and numeracy, which are correlated with educational attainment. Here we consider the importance of literacy and numeracy to wage outcomes of employed persons.

As noted earlier, although objective measures are preferable to the subjective measures available in HILDA for ascertaining the impacts of literacy and numeracy on earnings, there are good reasons to believe subjective measures provide reasonable approximations of actual literacy and numeracy. Indeed, Chiswick et al. (2003) find that estimated effects of literacy and numeracy on labour force participation and unemployment were very similar for objective and subjective measures.

Table 28.5 presents the results of estimation of the effects of literacy and numeracy on hourly earnings using the Wave 7 HILDA data.[2] Note that, because we restrict the analysis to employed persons, estimates are effects of factors conditional on employment, which is likely to differ from the effects on wages more generally. For example, many people with very low literacy or numeracy may not obtain any employment, and so we may underestimate the effects of literacy and numeracy on wage outcomes (since those unable to obtain employment will tend to have lower skill levels and therefore lower 'market' wages).

Results from three specifications are presented in Table 28.5. Specification (A) contains all explanatory

Table 28.5: The effects of literacy and numeracy on earnings of employees, 2007

	Specification (A)		*Specification (B)*		*Specification (C)*	
	Males	*Females*	*Males*	*Females*	*Males*	*Females*
Age group ('15–24' omitted)						
25–34	0.274	0.257	0.264	0.251	0.266	0.250
35–44	0.385	0.330	0.368	0.323	0.368	0.323
45–54	0.361	0.286	0.344	0.276	0.346	0.279
55–64	0.345	0.291	0.317	0.274	0.323	0.282
65+	0.406	0.318	0.364	0.296	0.370	0.315
Educational attainment ('Less than Year 10' omitted)						
Degree or higher	0.573	0.555	0.461	0.507	0.466	0.505
Diploma or Certificate 3/4	0.296	0.294	0.232	0.266	0.233	0.265
Year 12	0.248	0.262	0.173	0.227	0.171	0.223
Year 10/11 or Certificate 1/2	0.088	0.131	0.040	0.111	0.039	0.111
Work experience (years)	0.015	0.016	0.014	0.016	0.015	0.016
Work experience (years) squared	–2.6e-04	–2.8e-04	–2.6e-04	–2.7e-04	–2.6e-04	–2.8e-04
Place of birth ('Australia' omitted)						
Immigrant—English-speaking country	0.025+	0.036+	0.023+	0.035+	0.028+	0.034+
Immigrant—non-English-speaking country	–0.047	–0.009+	–0.050	0.000+	–0.042+	0.008+
Employed part-time	–0.142	–0.052	–0.149	–0.050	–0.148	–0.050
People with disability	–0.100	–0.043	–0.098	–0.042	–0.089	–0.042
Literacy relative to average			**0.006+**	**0.015**		
Numeracy relative to average			**0.039**	**0.014**		
Literacy ('Poor' omitted)						
Excellent					**0.315**	**0.240**
Good					**0.320**	**0.182+**
Moderate					**0.306**	**0.159+**
Numeracy ('Poor' omitted)						
Excellent					**0.233**	**0.051+**
Good					**0.162**	**0.034+**
Moderate					**0.082+**	**–0.009+**
Constant	2.542	2.420	2.291	2.231	2.138	2.207
Adjusted R-squared	0.315	0.307	0.331	0.313	0.332	0.313
Observations	3,402	3,537	3,401	3,536	3,401	3,537

Notes: The sample comprises all employees in receipt of wage or salary income. The statistics presented are Ordinary Least Squares (OLS) regression model coefficient estimates of the effects of the explanatory variables on (the natural logarithm of) hourly earnings in the main job. + Indicates the estimate is not statistically significantly different from zero at the 10% level.

variables other than the literacy and numeracy measures, which provides baseline estimates of the effects of educational attainment (and indeed other explanatory variables also) in the absence of measures of literacy and numeracy. Specification (B) adds two variables for self-assessed literacy and numeracy relative to the average or typical Australian adult (both of which range between 0 and 10), while Specification (C) replaces these with dummy variables for self-assessed literacy and numeracy having regard to the needs of daily life.

As is typically found in earnings regressions, wages increase with educational attainment and also increase, but at a decreasing rate, with years of work experience. Aside from significantly lower wages for persons aged 15–24, wages do not significantly differ by age once work experience is taken into account. Part-time employment and disability are associated with negative effects on hourly rates of pay.

Comparing Specifications (B) and (C) with Specification (A) shows that the addition of subjective measures of literacy and numeracy, whether assessed relative to the average person or relative to the needs of daily life, acts to reduce effects on wages attributable to education. For example, all else being equal, a bachelor's degree is associated with an approximately 56–57 per cent higher wage compared with attaining less than Year 10 when literacy and numeracy are not taken into account; but this reduces to approximately 46 per cent for males and 50 per cent for females once measures of literacy and numeracy are included. For all levels of education, the moderating

effects of the literacy and numeracy measures on estimated impacts of education are greater for males than for females.

The estimates for literacy and numeracy assessed relative to the average person (Specification (B)) indicate that both literacy and numeracy affect female wages, and to similar extents. However, only numeracy appears to impact on male wages; that is, it would seem that while both literacy and numeracy are important to female wage outcomes, only numeracy matters for male wages. Interestingly, however, the combined effects of literacy and numeracy for females are quantitatively not as large as the effects of numeracy alone for males. For females, moving from very poor to excellent literacy is associated with an approximate increase in the hourly wage of 14 per cent and moving from very poor to excellent numeracy is associated with an approximate increase in the hourly wage of 15 per cent. For males, no significant impact of literacy is evident, but moving from very poor to excellent numeracy is associated with an approximate increase in the hourly wage of 39 per cent.

The dummy variables for literacy and numeracy relative to the needs of daily life convey a very similar story, with the additional insight being that while literacy is generally not important for male wages, very low literacy does have a large negative effect—in fact, quantitatively a larger effect than exists for females. Compared with excellent literacy, poor literacy is associated with an approximately 30 per cent lower wage for males and 24 per cent lower wage for females. Poor numeracy is associated with an approximately 23 per cent lower wage compared with excellent numeracy for males, but only a (statistically insignificant) 5 per cent lower wage for females.

Conclusion

The literacy and numeracy measures gathered by the HILDA Survey, while subjective assessments by respondents, nonetheless produce estimated levels of literacy and numeracy that vary with socio-demographic characteristics in the manner we might expect. Furthermore, they are found to be associated with significant effects on wage outcomes of both male and female employees, effects that would likely be even larger if account was taken of persons unable to obtain employment at all. The inclusion of literacy and numeracy measures also suggests that effects on earnings typically attributed to education in the absence of literacy and numeracy measures are overestimates of the importance of education. Of course, education does itself contribute to improving literacy and numeracy, so the extent to which effects are being overestimated cannot be determined from the analysis presented here.

Endnotes

1 The correlations found here are further corroborated by Chiswick et al. (2003) using 1996 data, who find that subjective measures perform similarly to objective measures in explaining labour force participation and unemployment.

2 The models estimated are ordinary least squares models of the natural logarithm of hourly earnings in the main job. Earnings are modelled as a function of age, educational attainment, years of work experience, place of birth, part-time employment status, disability status and literacy and numeracy. The models were estimated on all employees (excluding employers and the self-employed) and the hourly wage was given by usual weekly earnings in the main job divided by usual weekly hours in the main job. To avoid low hourly rates of pay for highly paid people who report very long hours of work (often perhaps because of a preference to work at a lower intensity), persons who reported working more than 50 hours per week were assumed, for the purposes of constructing an hourly rate of pay, to be working 50 hours per week.

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29. Work-related training: Who does it, what does it involve and does it have any effect on earnings?

All jobs involve at least some element of on-the-job learning or training, whether it is in skills specific to that job or in more widely applicable skills. Often such acquisition of job skills is informal and is therefore difficult to identify and measure, despite being important to productivity and the path of earnings in employment over time. It was recognition of this essentially unobservable source of job skills that led Mincer (1974) to propose an empirical earnings equation that specified earnings as a (quadratic) function of (potential) years of work experience in order to capture accumulated earnings effects of on-the-job training—an approach that has since been followed by almost every applied researcher estimating the determinants of earnings.

However, one component of on-the-job learning that is observable in principle is structured education and training schemes undertaken as part of employment. Correspondingly, in every year since 2003, the HILDA Survey has gathered information on work-related training undertaken by respondents within the last 12 months: whether any training was undertaken, the aims of the training and whether the individual contributed to the cost of the training. In Wave 7, additional questions were asked about the location of the training, the amount of training undertaken, and the perceived value of the training in alternative employment—that is, in a different job. This information allows us to shed some light on the incidence, nature and effects of an important component of on-the-job learning.[1]

Who undertakes work-related training?

Table 29.1 examines the prevalence of work-related training in the community as a whole and across different demographic groups in the community over the 2003 to 2007 period. It presents the proportion of people who could potentially have received training in the 12 months preceding the interview—that is, held a job at some stage in that period—who did in fact receive training.[2] The HILDA data indicate that receipt of formal work-related training is widespread, with approximately two-fifths of employed persons receiving training each year. Estimates for Wave 7 show this fell to one-third in 2007, although it is unclear the extent to which this is attributable to the changes associated with the addition of extra questions rather than a real decline in the prevalence of training.

Rates of receipt of training are similar for males and females, which is somewhat surprising in the context of the comparatively high rate of part-time employment of females. As predicted by the Mincer model of earnings determination, training is less common among older workers, who are closer to retirement and therefore have a shorter time horizon over which the benefits from training can be recouped. Not consistent with the Mincer model is that younger workers in the 15–24 years age range also have relatively low rates of receipt of formal training, which probably reflects a high rate of part-time casual employment, much of which occurs while enrolled in full-time study. The bottom panel of Table 29.1 shows a strong association between attainment of formal educational qualifications and undertaking structured work-related training. It therefore appears that people with greater levels of investment in skills continue to invest in skills acquisition at a higher rate.

Table 29.1: Proportion of persons employed in the last 12 months undertaking work-related training in that period (%)

	2003	*2004*	*2005*	*2006*	*2007*
All persons	38.3	38.2	40.2	37.9	33.0
Males	38.3	38.8	40.7	36.4	33.3
Females	38.4	37.5	39.6	39.6	32.8
Age group					
15–24	31.3	34.0	33.3	29.6	28.0
25–34	40.6	38.1	42.2	41.5	35.2
35–44	43.9	42.7	44.0	43.1	34.9
45–54	40.4	41.9	45.2	40.7	37.6
55–64	34.1	32.7	34.4	33.5	28.9
65+	19.8	15.5	25.1	22.1	18.1
Educational attainment					
Degree+	50.9	50.6	52.6	50.5	46.0
Diploma, Certificate 3/4	44.4	43.3	44.7	42.0	34.9
Year 12	31.3	31.5	34.1	31.4	27.3
Year 10/11 or Certificate 1/2	28.2	27.3	28.7	26.9	22.4
Less than Year 10	23.6	26.2	25.3	21.9	20.3

Note: Population weighted results.

What types of jobs are more likely to involve work-related training? Table 29.2 considers how rates of training differ depending on full-time/part-time employment status and type of employment contract. The rate of receipt of training is approximately 50 per cent higher among full-time employees than among part-time employees, sitting at around 45 per cent up until 2006. This is unsurprising, but highlights the significance of the finding that females do not have lower rates of receipt of training than males, given that females are more likely to work part-time than are males. As expected, permanent or ongoing employees have high rates of receipt of training, and casual employees have relatively low rates of receipt of training. Nonetheless, between one-fifth and one-quarter of casual employees receive work-related training each year, so that even for this group of workers work-related training is a significant aspect of working life. Interestingly, a high proportion of employees on fixed-term contracts undertake work-related training. Other things being equal, one might expect employers of such workers to have less interest in investing in improving their skills, but this does not seem to be the case—although the table does not tell us whether the employers or employees are paying for the training.

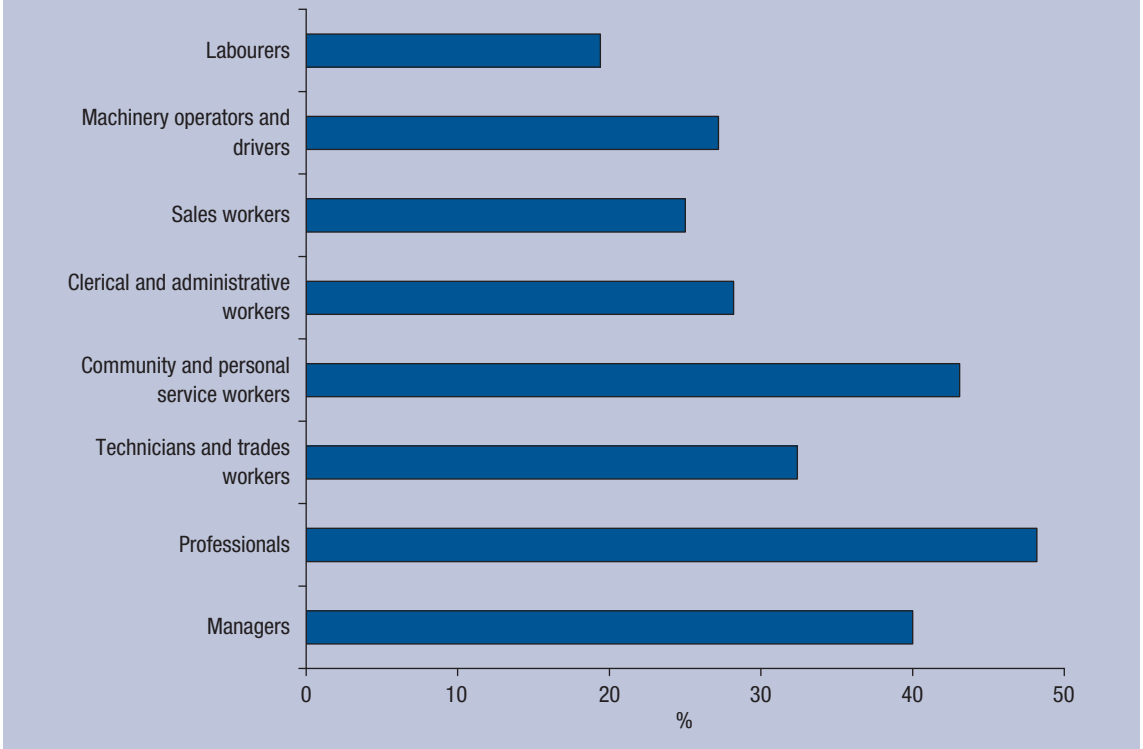
Figures 29.1 and 29.2 examine the sorts of work with higher rates of training, comparing prevalence of training in 2007 by occupation and by industry of employment. Higher-skill occupations tend to have higher proportions of workers receiving training, with professionals in particular having a high rate of receipt of training. A high proportion of community and personal service workers also receive training. Figure 29.2 shows there are substantial differences in the incidence of training across industries. Nearly 60 per cent of workers in the 'electricity, gas, water and waste services' industry undertook work-related training in the 12 months up to the Wave 7 interview, compared with

Table 29.2: Proportion of persons undertaking work-related training in the last 12 months by employment type (%)

	2003	*2004*	*2005*	*2006*	*2007*
Employed full-time	45.9	45.3	47.0	44.8	38.9
Employed part-time	30.2	31.2	32.3	30.6	26.0
Permanent	46.9	45.8	47.5	45.4	38.7
Casual	22.7	23.9	24.0	23.2	22.2
Fixed-term	44.8	48.1	48.8	46.0	35.7

Note: Population weighted results.

Figure 29.1: Percentage of employees undertaking work-related training in the last 12 months by occupation group, 2007



Note: Population weighted results.

only about 20 per cent of workers in the agriculture, forestry and fishing, wholesale trade and retail trade industries. Other industries with comparatively low rates of training include accommodation and food services and manufacturing. Industries with relatively high rates of training include education and training, financial and insurance services, public administration and safety, health care and social assistance, and mining.

The relationships between receipt of training and tenure in employment, tenure in occupation and level of earnings are examined in Table 29.3. One might expect that workers with shorter tenure with their employer and in their occupation would require more training, but in fact workers who received training had on average been with their current employer longer, and in their occupation longer, than workers who did not receive training. While it is unclear why this is the case, one hypothesis is that people who have been in the job longer are more likely to remain in the job, making employers (and the workers themselves) more willing to undertake investments in improving their skills in that job. An alternative hypothesis is that the need to update skills tends to be greater for longer-tenure workers, whose qualifications may on average have been acquired earlier than those of new hires—indeed, longer-tenure workers tend to be older and are correspondingly less likely to have obtained formal qualifications in the first place. Table 29.3 also shows that workers undertaking work-related training have considerably higher average annual earnings than do

Figure 29.2: Percentage of employees undertaking work-related training in the last 12 months, 2007, by industry group

Note: Population weighted results.

Table 29.3: Employment history and earnings of employees who undertook work-related training compared with employees who did not undertake work-related training

	2003	*2004*	*2005*	*2006*	*2007*
Mean tenure with current employer (years)					
No work-related training	4.6	4.5	4.6	4.8	5.0
Work-related training	6.3	6.3	6.1	6.2	6.6
Mean tenure in current occupation (years)					
No work-related training	6.7	6.7	6.6	7.0	7.1
Work-related training	8.0	7.8	7.9	8.3	8.5
Mean annual gross earnings (2007 prices)					
No work-related training	33,977	34,781	35,937	37,991	40,349
Work-related training	48,310	48,356	49,803	50,696	53,392

Note: Population weighted results.

Table 29.4: Nature of work-related training—Persons who undertook work-related training in the last 12 months (%)					
	2003	*2004*	*2005*	*2006*	*2007*
Aims					
To help getting started in job	10.4	10.4	12.7	10.9	13.2
To improve skills in current job	69.0	70.8	70.7	70.3	74.7
To maintain professional status and/or meet occupational standards	47.1	54.0	54.5	56.3	59.2
To prepare for a possible job in the future or to facilitate promotion	25.0	26.4	28.4	26.7	30.7
To develop skills generally	47.8	50.6	51.2	50.8	54.5
Because of health/safety concerns	23.1	27.2	27.4	28.1	28.6
Other aims	1.8	1.7	0.8	0.8	3.5
Personally contributed to costs of training	23.1	21.9	22.0	21.9	22.9
Where and when					
Place of employment—During paid work time					63.3
Place of employment—In own time					15.5
Some other place—During paid work time					52.7
Some other place—In own time					23.9
Note: Population weighted results.					

workers who do not undertake training, although the difference narrowed slightly between 2003 and 2007.

The nature of work-related training

Implicit in the discussion to date is that work-related training is received by workers to improve skills in their current job, is undertaken during paid work time, and is paid for by their employer. However training may have other purposes and it may be undertaken at the worker's expense and in their own time. Table 29.4 shows this is often the case. The upper panel presents the proportion of people reporting that they received training in the previous 12 months with each of seven types of aims. The percentages add up to more than 100 because individuals can undertake multiple training courses within one year, and also because a single course can have multiple aims. Training is most commonly undertaken to improve skills in the current job, but other common aims are maintaining professional status/meeting occupational standards and developing skills generally; less common, but still significant, are the goals of preparation for a possible future job or promotion and addressing health/safety concerns. Of these aims, only the first—improving skills in current job—is unambiguously about improving performance in the current job.

The second panel shows that over one-fifth of workers who undertook training contributed to the cost of at least some of the training they undertook in the preceding 12 months. The bottom panel presents information on the location of the training and whether undertaken during paid working hours (only obtained in Wave 7). While most training occurs during paid working hours, 16 per cent of workers report having undertaken training at their place of employment in their own time, and 24 per cent report having undertaken training at some other place and in their own time. It is therefore clear that a significant amount of training is undertaken in the worker's own time and at their own expense, and that much training has aims other than improving skills in the current job.

Table 29.5 shows, as was suggested in the interpretation of Table 29.4, that many workers undertake multiple courses in a year. The mean number of courses undertaken across all workers in Wave 7 was 3.5. The mean number of days spent undertaking training in Wave 7 was 8.6, or 2.5 days per course.

In Wave 7, employed persons who received work-related training were asked to assess the value of skills acquired in the training in a new job with a different employer. This provides a measure of the general component of the training as opposed to its firm-specific component—that is, skills that are not just of value with their current employer. For example, training in widely-used computer software is likely to have a high general component, whereas training in firm policies and procedures will typically have low general value. Table 29.5

Table 29.5: Amount and perceived general value of training—Employed persons, 2007	
Mean number of courses undertaken	3.5
Mean number of days spent undertaking training	8.6
To what extent do you think you could use the new skills you have acquired from any of this training if you got a new job with a different employer?	
Not at all (%)	4.8
Only to a limited extent (%)	13.4
To a moderate extent (%)	30.7
To a great extent (%)	33.5
To a very great extent (%)	17.7
Total (%)	100.0
Notes: Population weighted results. Percentages may not add up to 100 due to rounding.	

suggests that relatively little work-related training is perceived as entirely firm-specific, since less than 5 per cent of workers do not think the training they received in the last 12 months could be used in an alternative job. Most training is regarded as providing skills that are usable to a moderate or great (but not very great) extent.

Does work-related training affect earnings?

If work-related training increases the skills (and therefore productivity) of workers, it would be expected to lead to higher earnings. However, as we have seen, not all training is easily interpreted as skill-enhancing (e.g. health and safety training). Furthermore, economic theory suggests that only training that increases general skills (that increase productivity in jobs other than the current job) not increase productivity at other firms and therefore do not increase the wage other firms are prepared to pay the worker; thus, these skills do not need to be rewarded with higher earnings because the employer does not need to fear

Table 29.6: The effects of work-related training on employee earnings, 2003–2007

	Model 1		*Model 2*		*Model 3*	
	Males	*Females*	*Males*	*Females*	*Males*	*Females*
A. Models without controls for hours worked						
Age group						
25–34	0.234	0.149	0.234	0.147	0.233	0.148
35–44	0.351	0.317	0.352	0.316	0.353	0.316
45–54	0.481	0.453	0.482	0.452	0.482	0.452
55–64	0.560	0.538	0.559	0.536	0.560	0.537
Education: Degree or higher	0.908	0.899	0.908	0.897	0.905	0.897
Education: Diploma, Certificate 3/4	0.463	0.417	0.461	0.416	0.456	0.416
Work-related training (last year)	–0.000[+]	0.060	–0.015[+]	0.026[+]	–0.016[+]	0.027[+]
Work-related training (year before last)	0.012[+]	0.043	–0.020[+]	0.032[+]	–0.024[+]	0.031[+]
Skill-enhancing training (last year)			0.019[+]	0.039	0.020[+]	0.039
Skill-enhancing training (year before last)			0.040	0.013[+]	0.039	0.011[+]
Contributed to costs (last year)					0.002[+]	–0.002[+]
Contributed to costs (year before last)					0.025[+]	0.011[+]
Constant	6.042	5.587	6.042	5.588	6.044	5.588
Observations	11,290	11,278	11,290	11,278	11,266	11,272
B. Models with controls for hours worked						
Age group						
25–34	0.185	0.136	0.185	0.135	0.183	0.135
35–44	0.320	0.258	0.321	0.258	0.320	0.257
45–54	0.433	0.358	0.434	0.357	0.434	0.356
55–64	0.502	0.446	0.502	0.446	0.502	0.444
Education: Degree or higher	0.411	0.429	0.411	0.428	0.412	0.429
Education: Diploma, Certificate 3/4	0.348	0.221	0.346	0.221	0.343	0.222
Work-related training (last year)	–0.016	0.011[+]	–0.018[+]	0.001[+]	–0.021[+]	0.004[+]
Work-related training (year before last)	–0.002[+]	0.015	–0.027	0.004[+]	–0.027	0.005[+]
Skill-enhancing training (last year)			0.004[+]	0.012[+]	0.005[+]	0.013[+]
Skill-enhancing training (year before last)			0.031	0.013[+]	0.031	0.012[+]
Contributed to costs (last year)					0.013[+]	–0.016[+]
Contributed to costs (year before last)					0.006[+]	–0.002[+]
Working hours: < 10	–1.546	–1.343	–1.547	–1.343	–1.546	–1.343
Working hours: 10–20	–0.774	–0.634	–0.773	–0.634	–0.771	–0.634
Working hours: 20–35	–0.150	–0.126	–0.149	–0.126	–0.152	–0.126
Constant	6.353	6.108	6.353	6.109	6.354	6.109
Observations	11,280	11,267	11,280	11,267	11,256	11,261

Notes: The sample comprises all employees aged 15–64 years in receipt of wage or salary income. The statistics presented are 'fixed effects' regression model coefficient estimates of the effects of the explanatory variables on (the natural logarithm of) weekly earnings.
[+] Indicates the estimate is not statistically significantly different from zero at the 10% level.

another employer bidding the worker away to make use of those skills. Thus, if training is predominately firm-specific in nature, it is entirely possible that it does not lead to wage increases, even if it is productivity-enhancing.[3]

In Table 29.6, we report on estimates from fixed effects models of the determination of weekly earnings of employees aged 15–64 years. Panel A presents results that do not control for hours worked, to allow for the possibility that work-related training could increase earnings either by increasing the wage rate per hour or by increasing hours of work the employee is able to access. Panel B presents results that control for hours worked to focus on effects on the wage rate (i.e. earnings per hour worked).

Results of three different specifications are presented. The first includes two dummy indicators for receipt of training, one for any training in the last 12 months and one for any training in the 12 months before that (which allows for the effects of training on earnings to take time to be realised). The second specification attempts to distinguish skill-enhancing training from other training, only the former of which should affect earnings. It does this by separately identifying training of workers who reported that any of the training was to improve skills in the current job, to develop skills generally, or to prepare for a possible job in the future or to facilitate promotion. (This is achieved by interacting the indicator variables for receipt of training with an indicator variable for whether any of the training was skill-enhancing.) The third specification adds dummy variables for whether the worker contributed to the costs of any of the training, which may be an indicator of the training being general rather than firm-specific, and would perhaps be more likely to result in increased earnings.

Panel A suggests that skill-enhancing training positively impacts on earnings, while other training has no consistent significant effect. Curiously, for females, positive effects are found on current earnings only for skill-enhancing training received in the last 12 months, whereas for males it is only skill-enhancing training received in the 12 months prior to that which significantly affects earnings. No significant effects of the employee contributing to the cost of the training are evident for males or females. The results in Panel B indicate that much of the effect of skill-enhancing training for females is via a positive impact on hours worked. Although the estimated effect of training on earnings is still positive for females, it is quantitatively smaller and is not statistically significant when hours of work are controlled for.

Conclusion

The evidence from the HILDA data is that structured work-related training is an important feature of the labour market. Some of this training does not appear to be skill-enhancing, but much of it is perceived by workers as improving their level of skills. Evidence is found that skill-enhancing training positively affects earnings, suggesting it is often providing general skills to workers—something supported by worker's perceptions as reported in Table 29.5—and is therefore important to earnings progression of workers. It is therefore of some concern that work-related training appears to be disproportionately concentrated on higher-skill workers, since this will tend to exacerbate labour market inequalities as people progress through the working-age stages of the lifecycle.

Endnotes

1 Note that, since respondents are directed to restrict their answers to education and training schemes undertaken as part of their employment, only persons currently employed or employed at some stage within the last 12 months are asked the questions on work-related training.

2 Up until Wave 6, persons who were self-employed, employees in own business or unpaid family helpers at the time of interview were not asked about work-related training activities in the preceding 12 months. We have excluded these individuals in 2007 to create estimates comparable with the 2003 to 2006 estimates.

3 Some indication that training is in fact likely to often be general rather than firm-specific is provided in Table 29.5, which reports responses in Wave 7 to a question about the value of the skills acquired in alternative employment. Unfortunately, this information cannot be used in the fixed effects regression models because it is only available in Wave 7.

Reference

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30. Public sector and private sector wages

Traditionally, the determination of wages and salaries in the public and private sectors has been quite different, with market forces typically featuring less strongly in the determination of public sector wages. This has led to interest in comparing wage outcomes in the two sectors and in particular identifying whether a public sector premium or penalty exists. While it is arguable that in Australia the 'corporatisation' of many public sector entities and increased flexibility in wage determination has reduced the potential for differences with the private sector in recent years, it is nonetheless likely that differences persist. Further (as Table 30.1 shows) a higher proportion of employed females than males work in the public sector, so that differences in wage determination between the two sectors will have implications for gender wage differentials.

We begin our analysis in Table 30.1 by examining the importance of public sector employment in the Australian labour market, presenting rates of employment in the public sector by sex and age group. As mentioned, public sector employment is considerably more important for females than males, with one-quarter of employed females working in the public sector. Public sector employment is still very important for males, with 16 per cent of employed males working in the public sector. Table 30.1 also shows that there are differences in rates of employment in the public sector by age. Relatively few of those aged 15–24 years are employed in the public sector, while those aged 45–54 years have the highest rates of public sector employment—approximately 23 per cent for men and 33 per cent for women. Women aged 35–44 also have relatively high rates of public sector employment.

Wages in the public and private sectors compared

How do wages on average compare across the two sectors? Figure 30.1 presents mean hourly wages of all employees in each sector over the 2001 to 2007 period. Mean wages are consistently and considerably higher in the public sector for both males and females. In 2001, the differential was approximately $10 per hour for males (at December 2007 prices) and $6 for females. No clear pattern in the differential is evident over time, the overall impression being that the real value of the gap in mean wages has remained broadly unchanged between 2001 and 2007. However, the growth in real wages evident between 2001 and 2007 means that in percentage terms, the gap has declined.

One possible driver of the apparent high hourly earnings of public sector workers is that they may report lower hours of work, so that even though salaries are no higher, hourly rates of pay may be higher. Figures 30.2 and 30.3 compare mean weekly earnings in the public and private sectors for full-time and part-time employees, respectively. In both cases, for both men and women, the higher mean for the public sector is preserved, and indeed looks higher. It is therefore clear that public sector workers on average earn considerably more on average—be it per hour or per week—than their private sector counterparts.

Why do public sector employees earn more?

How can this public sector pay gap be explained? The most likely explanation is that public sector workers do different and, in particular, more highly skilled jobs on average than workers in the private sector. In this case, we should observe that

Table 30.1: Percentage employed in the public sector by age group—Employed persons

	2003	*2005*	*2006*	*2007*
Males				
15–24	5.7	7.0	7.7	9.9
25–34	15.1	15.5	14.4	12.4
35–44	17.7	18.3	18.5	17.3
45–54	22.1	22.5	23.0	22.7
55+	18.7	16.2	17.4	17.0
All ages	16.3	16.5	16.7	16.1
Females				
15–24	8.6	7.3	7.9	9.7
25–34	24.2	22.7	21.2	23.3
35–44	30.7	31.1	32.3	28.9
45–54	32.8	33.1	33.4	33.2
55+	23.8	25.3	27.4	28.0
All ages	25.1	24.8	25.3	25.2

Note: Population weighted results.

they are more highly skilled and work in different types of jobs. Table 30.1 showed that public sector workers tend to be older, and more particularly in the prime 35–54 years age range. Since younger workers are generally thought to be less skilled, for example because they have accumulated less on-the-job training and work experience, the different age composition of public sector employees can at least partly explain the difference.

Tables 30.2 and 30.3 provide further indicative evidence that public sector workers are on average more skilled and do different types of jobs to private sector workers. Table 30.2 presents the proportion of employees in each of four educational attainment groups working in the public sector. There is a clear ordering by educational attainment. Well over one-third of employees holding bachelor's degrees work in the public sector, compared with approximately 18 per cent of employees whose highest qualification is an undergraduate diploma or Level 3 or 4 Certificate and 14 per cent of employees with no post-school qualifications other than Certificate Level 1 or 2.

Table 30.3 shows that rates of public sector employment differ markedly across occupation groups. Nearly 40 per cent of employees in professional occupations are employed in the public sector, and approximately one-third of employees in the community and personal service workers occupation are employed in the public sector. Less than

Figure 30.1: Mean hourly wages by sector

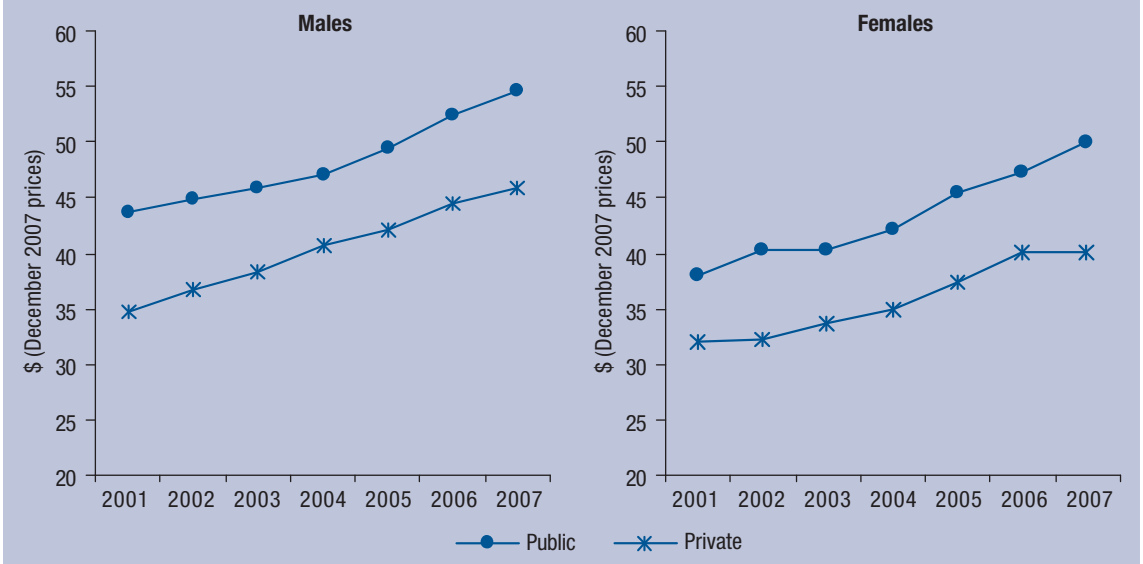
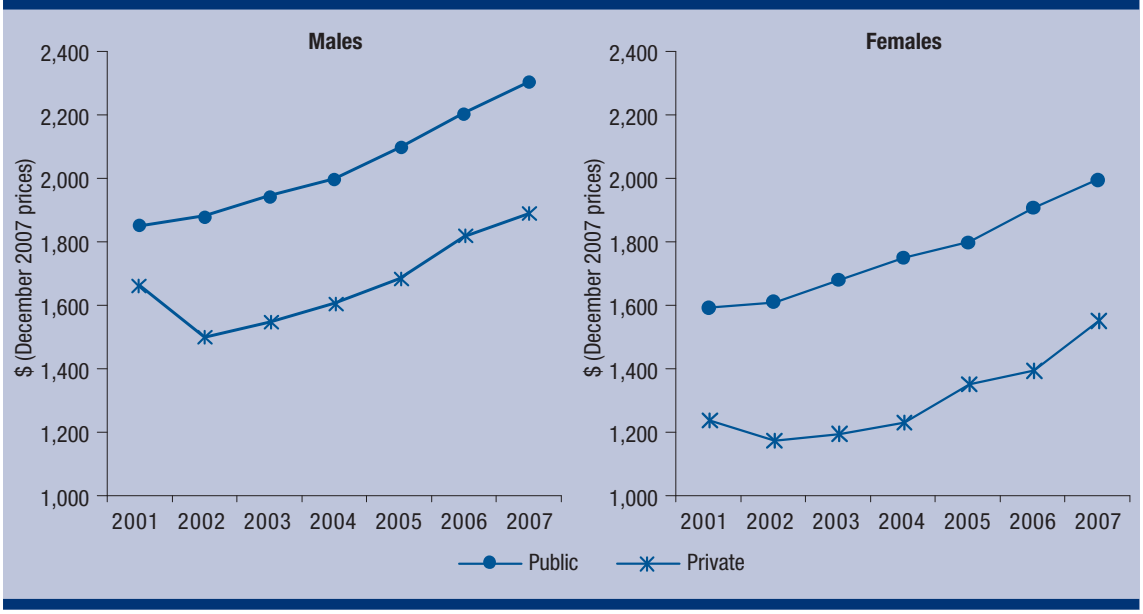


Figure 30.2: Mean weekly wages of full-time employees by sector



10 per cent of employees in technicians and trade workers, machine operators and drivers and labourers' occupation groups, and only 2 per cent of sales workers, are in the public sector. These rates—particularly for professionals and labourers—are consistent with public sector employment more often consisting of higher-skilled jobs.

There are thus strong indications that employees in the public sector are more skilled and are more likely to be working in higher-skill jobs than employees in the private sector. But do these skill differences account for all of the difference in mean wages? In Table 30.4, we investigate this question, reporting results of regression models of the determinants of hourly earnings. Estimates from two models are presented.

The first model investigates whether, after accounting for observed differences in the characteristics of employees in the private and public sectors, a wage premium persists for employees in the public sector—or indeed whether a wage penalty becomes apparent once such differences are taken into account. This is achieved by pooling together all seven waves of data and estimating a 'wage

Figure 30.3: Mean weekly wages of part-time employees by sector

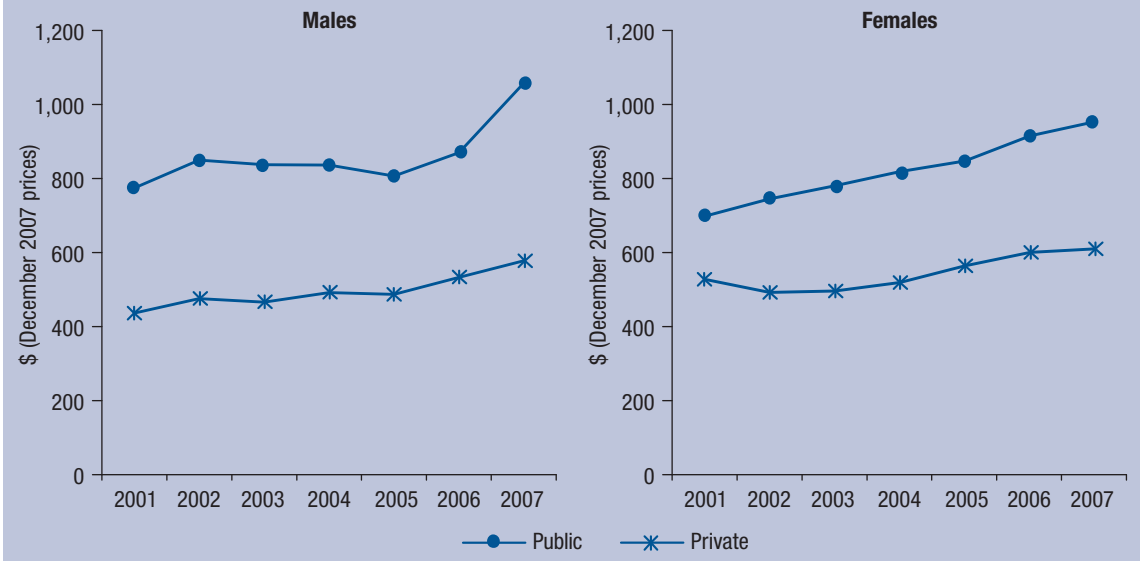


Table 30.2: Percentage employed in the public sector by education group

	2003	*2005*	*2006*	*2007*
Bachelor's degree or higher	36.3	35.0	35.0	34.5
Diploma, Certificate 3/4	18.0	18.6	19.0	18.3
High school	15.3	14.2	14.4	14.1
Other	14.0	13.7	13.9	13.9
All employed persons	21.1	21.2	21.5	21.1

Notes: Population weighted results. 'Other' education group comprises persons who have not completed high school and whose highest non-school qualification is a Certificate 2 or lower.

Table 30.3: Percentage employed in the public sector by occupation

	2003	*2005*	*2006*	*2007*
Managers	12.1	13.1	12.5	10.3
Professionals	39.7	38.2	39.0	38.8
Technicians and trade workers	8.7	10.5	9.2	10.1
Community and personal service workers	32.8	33.6	34.2	34.0
Clerical and administrative workers	26.2	24.1	25.6	22.4
Sales workers	1.8	2.5	2.0	1.8
Machine operators and drivers	9.2	7.9	9.4	7.7
Labourers	7.8	6.9	8.3	9.4

Note: Population weighted results.

Table 30.4: The effects of sector of employment on wages of employees, 2001–2007 ($, December 2007 prices)

	Pooled cross-section		*Fixed effects*	
	Males	*Females*	*Males*	*Females*
Educational attainment ('Less than high school' omitted)				
Degree or higher	0.452	0.367	0.340	0.249
Diploma or Certificate 3/4	0.190	0.122	0.253	0.148
Completed high school	0.162	0.099	–0.001+	0.027+
Age group ('15–24' omitted)				
25–34	0.104	0.117	0.137	0.128
35–44	0.120	0.093	0.277	0.236
45–54	0.058+	0.070	0.401	0.358
55+	0.051+	0.056	0.518	0.455
Years of work experience ('Less than 5' omitted)				
0–10	0.130	0.235	0.180	
11–20	0.300	0.212	0.422	0.350
21–30	0.197	0.251	0.580	0.488
30+	0.447	0.276	0.681	0.644
Employment contract ('Permanent or ongoing basis' omitted)				
Fixed-term contract	0.044	–0.014+	0.005+	–0.007+
Casual basis	–0.097	–0.070	0.039	0.030
Public sector	**0.047**	**0.106**	**0.054**	**0.047**
Wave ('Wave 1' omitted)				
Wave 2	0.012+	0.031		
Wave 3	0.065	0.065		
Wave 4	0.116	0.093		
Wave 5	0.156	0.152		
Wave 6	0.201	0.200		
Wave 7	0.252	0.255		
Constant	2.954	2.973	2.770	2.807
Observations	20,925	20,458	21,015	20,550

Notes: The statistics presented are regression model coefficient estimates of the effects of the explanatory variables on (the natural logarithm of) hourly earnings. + Indicates the estimate is not statistically significantly different from zero at the 10% level. The sample comprises all employees earning wage or salary income. Estimates for the public sector indicator variable are similar when the sample is restricted to full-time employees.

equation', whereby an employee's wage is a function of his or her educational attainment, age, work experience, type of employment contract and sector (public or private) of employment. The coefficient on the 'public sector' dummy variable can be interpreted as the (approximate) percentage effect of working in the public sector on the wage the employees receives. The estimated coefficient is 0.047 for males and 0.106 for females, the interpretation of which is that the wage premium accruing to employment in the public sector, after controlling for the effects on wages of education, age, work experience and type of employment contract, is approximately 4.7 per cent for males and 10.6 per cent for females. The pooled Ordinary Least Squares (OLS) model therefore suggests that there is indeed a premium for working in the public sector.

An issue with the above (OLS) model is that it only controls for differences in the *observed* skills, as captured by education, age and work experience. There are many other skills, not observed in the HILDA data but observable to an employer, that will impact on the value of the worker to an employer. In other words, the wage premium we identify from the OLS model may reflect higher average *unobserved* skills among employees in the public sector. Researchers have proposed several approaches for controlling for unobserved characteristics in models of wage determination, one of which is particularly attractive in the current context and is possible when using panel data, which is 'fixed effects' estimation. This identifies the public sector premium by examining how wages change for individuals who move from private sector to the public sector and vice versa.

The second model in Table 30.4 presents estimates from fixed effects estimation. It shows there is still a premium to working in the public sector, controlling for both observed characteristics and unobserved fixed characteristics. For males, the estimate is broadly unchanged at 5.4 per cent, but for females, the estimated effect is more than halved, down to 4.7 per cent, implying that females

in the public sector have higher average unobserved skills than females in the private sector.

Concluding comments

The HILDA data show employees in the public sector earn considerably higher average wages than employees in the private sector. In part, this reflects the higher skills of employees in the public sector, but the regression models estimated show that there is still a premium to working in the public sector even after controlling for differences in observed and unobserved skills. An interesting question for further work is whether this premium, which is essentially the average premium over all public sector employees, applies to all public sector employees or only a subset of employees. In particular, it is sometimes argued that pay structures in the public sector are compressed compared with the private sector, so it may be that the overall premium is driven by a (much higher) premium for only low-skill workers employed in the public sector. This is a topic for further research.

31. Retirement expectations and transitions to retirement of mature age Australians

Increased life expectancy has outpaced recent trends towards later retirement resulting in an increase in the average number of years Australians are spending in retirement. The process of retirement is also changing. Traditionally retirement has been viewed as a process that involves an abrupt change—from working continuously in a full-time job to leaving the labour force completely and remaining permanently retired. Today the pathways to retirement are much more diverse, with many more people expected to take up transition (or bridging) jobs in order to make a more gradual transition into retirement.[1] These jobs may involve a reduction in working hours, a decline in responsibilities, or a move to self-employment or casual work. And in some cases, the transition phase might even involve periods of employment interspersed by periods of 'retirement' (i.e. non-employment). A transition to retirement can be defined as 'a phase in which there is a shift from a previous relatively regular pattern' (Borland, 2005).

The availability of transition jobs potentially has important implications for the willingness of the mature age population to remain in the labour force. The Productivity Commission (2005) notes that an ageing population will reduce aggregate labour force participation (LFP) rates because labour participation declines with age. A reduction in Australia's aggregate LFP rate could have challenging economic and fiscal consequences, possibly dampening economic growth, reducing the tax base, and increasing demand for many government services. A key policy issue for the Australian Government, therefore, is how to increase workforce participation by mature age people.

In 2003, and again in 2007, a special retirement module was included in the HILDA Survey questionnaire, asking men and women aged 45 and over about their retirement intentions, expectations and experiences. This information allows us to identify the proportion of mature age men and women in transition jobs, how many had already retired through a transition job, how many intend to retire gradually, the reasons for taking or not taking a transition job and the length of actual and intended transitions from career job to complete retirement. Now that these retirement questions have been asked for a second time, we are also able to examine how the retirement plans of mature age men and women have changed over the four-year period from 2003 to 2007.

We begin by looking at self-reported retirement status. Table 31.1 shows that, as we would expect, the proportion of men and women who are completely retired increases with age, as does the proportion of men under the age of 65 and women under the age of 60 who report being partly retired.

Individuals who reported being partially retired were asked: *In what sense do you consider yourself partly retired?* The most common reasons that mature age men and women gave for considering themselves to be partly retired were that they worked only casually or occasionally, or that they worked fewer hours than before.[2]

Expected retirement age

Men and women aged between 45 and 64 who did not consider themselves to be partly retired were asked to give a percentage chance that they would be in paid work at the age of 65. In 2007, 33 per cent of men and 47 per cent of women in this group said that there was no chance that they would be working past the age of 65.[3] On the other hand, 38 per cent of men and 27 per cent of women in that age group said that the chance that they would work past the age of 65 was 50 per cent or more.[4]

When asked to give an age at which they expected to retire completely from paid work, 10 per cent of men and 6 per cent of women who were aged 45 or older and not yet retired at the time of their 2007 interview said that they did not expect to ever retire completely, and a further 7 per cent of men and 11 per cent of women could not give an expected retirement age, saying that

Table 31.1: Self-reported retirement status, men and women aged 45 and over (%)

	Age group					
	45–49	*50–54*	*55–59*	*60–64*	*65+*	*Total*
Men—2003						
Completely retired	6.7	9.3	23.7	49.0	86.9	40.5
Partly retired	*2.4	5.4	10.4	18.8	6.6	7.7
Not retired at all	90.8	84.6	65.9	32.0	6.2	51.6
Never been in paid work	*0.1	*0.7	*0.0	*0.1	*0.3	*0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
Women—2003						
Completely retired	9.9	18.9	37.0	66.5	85.2	48.5
Partly retired	6.6	8.8	13.2	13.0	3.6	7.7
Not retired at all	78.7	69.7	46.6	13.9	1.7	37.8
Never been in paid work	4.8	*2.7	*3.2	6.6	9.4	6.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Men—2007						
Completely retired	4.9	8.2	19.7	46.9	86.9	39.5
Partly retired	*1.7	*2.9	8.6	16.9	7.7	7.0
Not retired at all	92.4	87.3	71.1	36.1	5.2	52.8
Never been in paid work	*1.0	*1.6	*0.6	*0.2	*0.2	*0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Women—2007						
Completely retired	7.4	13.1	29.7	53.5	86.3	45.4
Partly retired	*2.7	6.2	10.8	9.8	2.8	5.6
Not retired at all	83.4	77.5	55.8	31.4	2.2	43.0
Never been in paid work	6.6	*3.2	*3.7	*5.3	8.6	6.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

they did not know when they expected to retire (Table 31.2). Presumably, for a relatively small, but still sizeable, number of mature age men and women, retirement was considered too distant to warrant the making of any definite plans.

The main feature of Table 31.2, however, is the rise in the average expected retirement age between 2003 and 2007. Among those who gave an exact age at which they expected to retire, the average expected retirement age was 63.6 for men and 61.4 for women in 2003, rising to 64.3 for men and 62.5 for women in 2007. Nevertheless, it is also clear that retirement expectations are sensitive to current age. Just over 18 per cent of men aged between 45 and 49 in 2003 said they expected to retire before the age of 60. By comparison, only 6 per cent of men aged between 55 and 59 in 2003 responded this way. By 2007, the proportion of men aged between 45 and 49 who expected to retire before the age of 60 had fallen to 13 per cent, and less than 3 per cent of men aged between 55 and 59 in 2007 expected to retire before the age of 60.

The situation for women is similar. As we might expect, more women than men expect to retire before age 60, but again the proportion is sensitive to how far someone is from that age. Around 35 per cent of women workers aged between 45 and 49 in 2003 said that they expected to retire before the age of 60, compared to only 8 per cent of women who were in the 55–59 age group in 2003. As was the case for men, the proportion of women who expected to retire before the age of 60 was smaller in 2007 than it was in 2003, with 20 per cent of women aged between 45 and 49 and less than 5 per cent of women in the 55–59 age group saying they expected to retire before the age of 60.

Of course some of this difference in expectations about early retirement may be attributed to a cohort effect—those who intended to retire early may already have done so and are, therefore, not included in the sample. Another likely explanation for this difference, however, is that expectations about early retirement, and how it will be funded, are overly optimistic, and become more realistic as people get closer to retirement age.

Transitions to retirement

In 2003 and again in 2007, mature age men and women who were employed at the time of interview were asked if their current job was part of a transition to full retirement from the labour force. As reported in Table 31.3, 18 per cent of employed mature age men and 22 per cent of women responded that this was so in 2003. In 2007, the

Table 31.2: Age expect to retire completely by age group (%)

	Age group					
	45–49	*50–54*	*55–59*	*60–64*	*65+*	*Total*
Men—2003						
< 55	*2.1	*0.5	–	–	–	0.8
55–59	16.2	14.0	6.3	–	–	10.6
60–64	23.8	27.1	28.1	12.7	–	22.8
65+	45.5	44.3	48.9	62.7	54.6	48.4
Do not intend to ever retire	5.9	8.4	10.6	*9.5	24.8	9.3
Do not know/no plans	6.5	5.8	6.1	15.0	20.6	8.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
Mean	62.2	62.9	63.8	66.1	72.7	63.6
Women—2003						
< 55	7.1	*0.3	–	–	–	2.8
55–59	28.1	22.1	7.5	–	–	19.0
60–64	25.8	33.4	39.4	22.0	–	29.6
65+	23.5	26.0	35.6	49.3	48.9	29.5
Do not intend to ever retire	4.4	7.7	7.3	10.5	*24.2	7.2
Do not know/no plans	11.1	10.5	10.2	18.2	*26.8	11.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
Mean	59.4	61.0	63.5	66.0	71.0	61.4
Men—2007						
< 55	*1.9	*0.6	–	–	–	0.8
55–59	11.4	9.9	*2.5	–	–	6.9
60–64	24.0	30.4	28.3	12.0	–	23.5
65+	47.3	48.3	52.1	68.6	53.3	51.7
Do not intend to ever retire	9.0	5.5	10.0	11.9	31.7	10.2
Do not know/no plans	6.5	5.3	7.0	*7.5	15.0	7.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Mean	63.0	63.4	64.5	66.7	72.2	64.3
Women—2007						
< 55	*2.6	*1.5	–	–	–	1.3
55–59	17.3	18.9	*4.6	–	–	12.5
60–64	35.9	36.1	34.0	26.6	–	33.2
65+	30.7	28.6	43.8	55.2	57.4	36.6
Do not intend to ever retire	3.4	4.9	5.6	*6.4	*24.7	5.5
Do not know/no plans	10.1	10.1	11.9	11.8	*17.9	11.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Mean	61.2	61.4	63.7	65.5	71.9	62.5

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

proportion of employed mature age men who reported being in a transition job had increased to 20 per cent, while the proportion of employed mature age women in transition jobs had decreased slightly, to 20 per cent. And, as we would expect, the proportion of men and women who reported being in a transition job increased with age.

Being in a transition job does not necessarily mean working part-time, and it appears that this is particularly true for men. Among those who said their current job was a transition job, around 80 per cent of women, but less than 50 per cent of men, were working part-time (Table 31.4).

When asked how their transition job was different to their previous job, the most commonly reported difference was that the transition job was less demanding, or involved less responsibility, than the previous job (Table 31.5). While there are no additional details available about exactly how the transition job was less demanding than the career job, for many it is likely to have been a result of a reduction in working hours. In 2007, 60 per cent of men and 65 per cent of women who said that their transition job was less demanding or involved less responsibility also said that their transition job had involved a change from full-time work to part-time work.

For many of those who were already in transition jobs, and particularly for women, changes such as moving to a completely different line of work or moving to casual or contract work were accompanied by a change from full-time to part-time work.

For 35 per cent of individuals in transition jobs in 2007, the change to a transition job had involved a move to a completely different line of work, and among those who had changed to a completely different line of work, 54 per cent of men and 57 per cent of women had also reduced their working hours to part-time. Similarly, among the 38 per cent of men and 34 per cent of women who said that their transition job had involved a change to casual or contract work, 79 per cent of men and 69 per cent of women said that this change had also involved a change to part-time work.

Moving into self-employment was also a relatively common way to make the transition to retirement, with more than 20 per cent of individuals who were in transition jobs saying that their transition job had involved a change to working for themselves rather than for someone else. For 55 per cent of the men and 65 per cent of the women who had become self-employed as part of their transition to retirement, this change had also involved a change from full-time work to part-time work.

Retirement intentions: Mature age individuals not yet retired or in transition jobs

Men and women who were employed, but in career jobs rather than transition jobs, were asked if they expected to withdraw from the labour force all at once, or to withdraw from employment gradually. Approximately 60 per cent of men and women in this category said that they expected to withdraw from the labour force gradually (Table 31.6). In both 2003 and 2007, the proportion of individuals expecting to retire gradually decreased with age, suggesting that people revise their expectations about making a gradual retirement transition as they get closer to retirement age. Among those who were still in career jobs but expected to make a gradual withdrawal from the labour force, the most common path they expected

Table 31.3: Proportion of employed men and women aged 45 and over in a transition job (%)

	2003			*2007*		
Age group	*Men*	*Women*	*Total*	*Men*	*Women*	*Total*
45–49	8.2	13.6	10.7	7.1	8.1	7.5
50–54	11.5	16.0	13.5	13.2	18.9	16.0
55–59	20.5	28.1	23.8	24.6	22.8	23.8
60–64	38.6	55.3	44.2	35.0	31.9	33.7
65+	55.7	62.6	58.0	61.4	54.7	59.4
Total	17.8	22.0	19.6	19.5	18.8	19.2

Note: Population weighted results.

Table 31.4: Proportion of men and women employed in a transition job who were working part-time (%)

	2003			*2007*		
Age group	*Men*	*Women*	*Total*	*Men*	*Women*	*Total*
45–49	*15.1	78.7	53.1	*24.2	68.6	45.6
50–54	*24.1	78.5	53.3	*18.3	74.7	51.1
55–59	30.4	78.5	54.9	43.8	85.8	62.0
60–64	66.8	84.3	74.1	71.8	86.1	77.6
65+	75.6	*100.0	84.2	74.5	82.6	76.7
Total	43.6	81.8	62.4	49.3	79.7	62.8

Notes: Population weighted results. * Estimate not reliable.

Table 31.5: How is your transition job different to the job you had prior to making this transition? (%)

	2003			*2007*		
	Men	*Women*	*Total*	*Men*	*Women*	*Total*
Less demanding or less responsibility	62.9	66.5	64.7	69.1	59.8	65.0
Change from full-time to part-time work	50.2	62.4	56.2	54.3	58.0	55.9
Involves a completely different line of work	38.5	46.2	42.3	34.9	34.2	34.6
Change to casual or contract work	39.6	37.0	38.3	38.2	34.3	36.5
Provides more opportunities for working at or from your home	33.6	30.1	31.9	41.3	22.5	33.0
Change to working for yourself rather than for someone else	25.3	16.2	20.9	26.2	13.4	20.5
Change to working for someone else rather than for yourself	11.3	11.2	11.3	10.3	6.9	8.8

Note: Population weighted results.

to follow in making this transition was via a move from full-time work to part-time work (Table 31.7).

Compared to the mature age men and women already in transition jobs, a higher proportion of those who were still in career jobs but expecting to take up a transition job at a later stage expected to change to casual or contract work, do more work from home or become self-employed. However, more than half did not expect that their transition job would be less demanding or involve less responsibility than their current job, even though it was very likely that they expected their transition job to involve part-time work.

The differences between the characteristics of actual transition jobs and expectations about future transition jobs may reflect differences between the types of transition jobs taken at a particular age. For example, for those who took up a transition job in their late forties or early fifties, the transition job may be more likely to have involved a move to full-time self-employment rather than a change to part-time work, while for those who intend to take up a transition job in their sixties, the transition might be more likely to involve a substantial reduction in working hours. On the other hand, these differences might also be the result of unrealistic expectations among those who are yet to begin their transition to retirement, and it is possible that these expectations may change as they get close to their expected retirement age.

Are expectations about retirement age also different among men and women who are already in transition jobs compared to those who are not? Do men and women who intend to make a gradual transition to retirement expect to remain in the workforce longer than those who do not intend to take up a transition job? Table 31.8 compares the expected retirement age of mature age men and women who are not yet retired, according to whether they are currently in a transition job or whether they intend to take a transition job before retiring from the workforce completely.

In both 2003 and 2007, the average expected retirement age among men and women who were not in transition jobs and did not expect to retire gradually was lower than those who were either already in a transition job or intending to retire gradually. While there was very little difference in expected retirement age between those who were already in transition jobs and those who were not in transition jobs but intended to retire gradually, there was a substantial difference between the age at which those who were already in transition jobs had taken up their transition job and the age at which those who were not in transition jobs intended to begin their transition to retirement. For example, among those who were already in a transition job in 2007, the average age at which their transition job began was around 55 for men and 53 for women, but for those who intended to retire gradually but were not yet in a transition job, the average age they expected to begin their transition to retirement was 61 for men and 60 for women. This suggests that it might be the case that there are differences between those who

Table 31.6: Proportion of men and women who expect to retire gradually (%)

	2003			*2007*		
Age group	*Men*	*Women*	*Total*	*Men*	*Women*	*Total*
45–49	60.4	65.0	62.5	64.1	73.2	68.2
50–54	60.4	60.2	60.3	63.1	62.3	62.7
55–59	58.8	58.0	58.5	64.5	55.4	60.3
60–64	50.9	50.9	50.9	55.2	46.4	51.4
65+	*40.6	*38.0	39.8	*34.4	*44.1	37.6
Total	58.7	61.1	59.7	62.1	63.1	62.5

Notes: Population weighted results. * Estimate not reliable.

Table 31.7: How do you expect to achieve this gradual withdrawal from paid work? (%)

	2003			*2007*		
	Men	*Women*	*Total*	*Men*	*Women*	*Total*
Change from full-time to part-time work	88.3	85.4	87.1	90.4	87.0	88.9
Change to casual or contract work	60.0	46.5	54.3	53.2	41.4	47.9
Change to a job that is less demanding/involves less responsibility	51.9	39.6	46.6	46.3	41.5	44.2
Spend more time working from home	51.8	34.5	44.4	52.5	32.7	43.5
Increase time spent on voluntary or charity work	38.5	50.3	43.6	37.8	44.4	40.8
Change to working for yourself rather than for someone else	39.0	20.1	30.3	30.9	20.4	25.8
Change to a completely different line of work	27.8	20.7	24.7	24.9	21.4	23.3
Change to working for someone else rather than for yourself	18.1	12.8	16.0	11.2	11.7	11.4

Note: Population weighted results.

Table 31.8: Retirement expectations by current employment status, employed men and women aged 45 and over (means)

	2003			2007		
	Expected retirement age	*Actual/expected age at start of retirement transition*	*Expected transition time (years)*	*Expected retirement age*	*Actual/expected age at start of retirement transition*	*Expected transition time (years)*
Men						
Currently in a transition job	64.3	54.1	11.0	65.4	55.4	10.6
Intend to take a transition job	64.1	61.2	3.5	64.5	61.3	3.7
Do not intend to take a transition job	62.4	–	0.0	62.8	–	0.0
Women						
Currently in a transition job	61.2	51.8	10.1	62.1	52.7	9.5
Intend to take a transition job	61.9	59.0	3.4	63.1	59.6	3.8
Do not intend to take a transition job	60.6	–	0.0	61.8	–	0.0

Note: Population weighted results.

make an early, and therefore long, transition to retirement and those who intend to retire gradually, with a much shorter time spent in a transition job.

Changes in retirement expectations between 2003 and 2007

The descriptive evidence above suggests that people seem to revise their expectations about retirement and the way they intend to make the transition to retirement as they approach retirement age. Now that the HILDA retirement questions have been asked for a second time, we are able to compare retirement intentions in 2003 and 2007. Table 31.9 compares the retirement status in 2007 of mature age men and women who were not yet retired in 2003, according to their retirement intentions in 2003.

Of those who said that the job they had at the time of their 2003 interview was part of a transition to retirement, only 41 per cent of men and 38 per cent of women were still in a transition job in 2007: 30 per cent of men and 27 per cent of women were still employed but no longer in a job that they considered to be part of a gradual transition to retirement; and 26 per cent of men and 29 per cent of women had retired from the labour force all together. Surprisingly, it was more common for those who were in transition jobs in 2003 and retired in 2007 to say they had not retired gradually rather than having made a gradual transition to retirement, particularly among women. Presumably they returned to a 'non-transition job'; that is, returned to a job with more hours or more responsibility, before they finally retired.[5]

Table 31.9: Retirement status in 2007 by retirement expectations in 2003, employed men and women aged 45 and over in 2003 (%)

	Status in 2007						
	Employed			*Retired*		*Not employed but not retired*	*Total*
Status in 2003	*Currently in a transition job*	*Intend to take a transition job*	*Do not intend to take a transition job*	*Retired gradually*	*Did not retire gradually*		
Men							
Currently in a transition job	40.9	15.9	13.6	12.2	14.0	*3.3	100.0
Intend to take a transition job	16.2	55.3	17.4	*0.5	6.4	4.2	100.0
Do not intend to take a transition job	9.1	27.4	42.1	*1.4	16.6	*3.4	100.0
Total	18.1	38.9	25.1	2.9	11.2	3.8	100.0
Women							
Currently in a transition job	37.7	16.5	10.0	9.5	19.6	*6.7	100.0
Intend to take a transition job	13.2	57.6	16.9	*0.3	6.1	5.9	100.0
Do not intend to take a transition job	12.2	25.7	46.1	*1.6	9.7	*4.6	100.0
Total	18.1	38.6	24.9	2.7	10.1	5.7	100.0

Notes: Population weighted results. * Estimate not reliable. Percentages may not add up to 100 due to rounding.

Among those who were not in a transition job in 2003 but intended to make a gradual withdrawal from the labour force at a later date, 16 per cent of men and 13 per cent of women reported being in a transition job in 2007 and a further 55 per cent of males and 58 per cent of women continued to express an intention to make a gradual withdrawal from the labour force at some time in the future. However, 6 per cent of individuals in this group had retired without making a gradual transition, and 17 per cent had changed their retirement transition plans, saying in 2007 that they did not intend to make a gradual withdrawal from the labour force. One possible reason for this change may be the realisation that such a transition job would mean a substantial drop in income and a subsequent drop in living standards. Others may have intended to retire gradually but were forced to retire more abruptly because of ill health.

Of those men and women who in 2003 said that they did not intend to retire gradually, 17 per cent of men and 10 per cent of women had followed through on those plans by 2007, retiring from the labour force without a transition job. However, a substantial proportion had changed their retirement plans—more than a quarter of those who said they did not intend to retire gradually in 2003 expressed an intention to retire gradually in 2007 and a further 9 per cent of men and 12 per cent of women were in transition jobs in 2007.

Conclusion

Descriptive evidence shows that one-third of mature age men and almost half of the mature age women who are still in paid work expect to retire before age 65 (the current male pension eligibility age). While approximately 20 per cent of this group consider their current job to be part of a transition to retirement, the majority expect to eventually make a gradual transition to retirement. Among those already in transition jobs, the change from career job to transition job has not necessarily involved a change from full-time to part-time work, but rather a change to a job that was less demanding, a change to a completely different line of work or becoming self-employed. This was particularly true for men, with less than half of those who were in transition jobs working part-time. Rather differently, more than 60 per cent of those who were still in their career jobs, but who expected to retire gradually, said that they expected to make this transition via a change from full-time to part-time work.

There were also differences in the expected retirement age of those who were already in transition jobs, those who intended to take up a transition job in the future and those who did not intend to make a gradual transition to retirement. On average, those who did not intend to retire gradually expected to retire slightly earlier. However, it seems that a reasonable proportion of mature age men and women change their expectations about retirement, and how they will make the transition to retirement as they get closer to actually retiring, with many of those who express an intention to retire gradually not actually doing so.

Endnotes

1 Several studies, including Gustman and Steinmeier (1984), Honig and Hanoch (1985), Ruhm (1990) and Clark and Quinn (2002), have found that older workers in the United States follow a diverse range of pathways to retirement, and a substantial number experience a transitional period, which may involve reduced working hours, starting their own business, or taking a job that is less demanding than their career job, before retiring completely. In contrast to the United States, Australian researchers have, at least prior to the arrival of the HILDA Survey data, not had access to rich longitudinal datasets with which to study labour force transitions. As a result, relatively little is known about the nature of transitions to retirement within the Australian workforce. Significant research activity on these issues and exploiting the HILDA Survey data is underway, and is already beginning to bear fruit. For example, Borland and Warren (2005) found that around 20 per cent of mature age workers aged 45 or older in 2003 reported that their current job was part of a transition to full retirement, and that the proportion of workers in transition jobs is generally higher for females than males. On the other hand, Thomson (2007) used a definition of partial retirement as a reduction in working hours to 30 hours or less per week and found that 54 per cent of women and 38 per cent of men who were aged 50 and over and engaged in full-time work in 2001 had shifted to partial retirement by 2004.

2 In 2007, 56 per cent of men and 58 per cent of women said that they considered themselves to be partly retired because they worked fewer hours than before and 44 per cent of men and 40 per cent of women said they considered themselves to be partly retired because they worked only casually or occasionally. These were also the two most common reasons given in 2003.

3 The corresponding figures in 2003 were 33 per cent of men and 56 per cent of women.

4 The corresponding figures in 2003 were 35 per cent of men and 23 per cent of women.

5 One possible explanation for this is that the transition job did not provide enough income to maintain the standard of living that they desired, and for this reason they returned to a higher paying job that involved more hours or more responsibility than the transition job they were in at the time of their 2003 interview.

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32. Planning for retirement: Perceptions and 'reality'

As we discussed in the preceding article, Wave 7 saw a repeat of the 'retirement' module first administered in Wave 3, whereby people aged 45 years and over were asked a series of questions about their retirement expectations and their plans for retirement. However, in Wave 7, additional questions were administered on respondents' perceptions of the amount of money needed in retirement, the savings that would be required to meet those needs and steps they have taken to prepare for retirement.

The question sequence on financial needs in retirement was as follows. Respondents who were not yet (completely) retired were first asked if they had thought about how much money they will need in retirement. Those that indicated that they had were then asked:

- how much consideration they had given the matter;
- how much income they think they will need in retirement to have a standard of living which they regard as satisfactory; and
- how much superannuation, savings and investments, if any, they think they will need in order to get that income (excluding the house they live in).

All non-retired people (aged 45 years and over) were then asked:

- if they are currently saving for retirement;
- the expected sources for funding retirement (also in Wave 3);
- steps they will have to take to manage financially in retirement (also in Wave 3);
- whether they expect their retirement income to be adequate (also in Wave 3); and
- whether and from whom they have sought any advice and information to help plan for retirement.

In this article we draw on responses to these questions, as well as responses to questions on expected and desired retirement ages, to examine the retirement plans and retirement 'readiness' of people approaching retirement, particularly focusing on whether people approaching retirement are saving enough to achieve an adequate retirement income. Given this focus, we restrict our analysis to Wave 7 data.

Expected age of retirement

We first examine intentions and preferences about the age of retirement. Table 32.1 contains separately for men and women: expected retirement age, desired retirement age and the difference between the two. The expected retirement age is the response to the question: *At what age do you expect to retire (completely) from the paid workforce?* The desired retirement age is the response to the question: *If you had the choice, at what age would you like to retire (completely) from the paid workforce?*

Respondents were given no instructions on how to interpret the difference between these two questions, but as Table 32.1 shows, on average the two questions were interpreted quite differently. Mean expected retirement ages are considerably higher than desired retirement ages—4 years for men and 3.6 years for women. One suspects that the constraint of achieving a desired retirement income, taking into account factors such as eligibility for the Age Pension, the superannuation preservation age and retirement savings, is removed by many respondents when answering the question about preferred retirement age. Desired retirement ages tend to be slightly lower for women and are, naturally enough, higher the greater the person's age—for example, a 70 year old who is not retired is unlikely to report a desired retirement age less than 70. Desired retirement age does not systematically vary by partner status, educational attainment or level of household income, but expected retirement age tends to be higher for single people, for both very low-educated and very high-educated, and for low-income people. The difference between mean expected and desired retirement ages decreases with current age, which probably reflects the fact that older non-retired people are more likely to have discretion over the age of retirement, for example because of access to the pension and superannuation, so that desired and expected retirement ages are more likely to coincide.

Table 32.1: Mean expected and desired retirement ages of people aged 45 and over and not yet (completely) retired, 2007

	Males			Females		
	Expected	*Desired*	*Difference*	*Expected*	*Desired*	*Difference*
All aged 45 and over and not retired	64.2	60.2	4.0	62.4	58.8	3.6
Marital status						
Partnered	63.9	60.0	3.9	61.6	58.4	3.2
Not partnered	65.5	60.8	4.7	64.6	60.0	4.7
Age group						
45–54	63.1	58.0	5.1	61.2	56.7	4.5
55–64	65.2	62.5	2.7	64.1	62.0	2.1
65+	71.4	70.9	0.5	72.0	71.8	0.2
Educational attainment						
Degree+	64.5	61.8	2.8	63.0	59.7	3.3
Diploma, Certificate 3/4	63.8	59.2	4.6	62.4	58.3	4.2
Year 12	63.7	60.0	3.6	62.0	58.4	3.7
Year 10/11 or Certificate 1/2	64.6	59.9	4.7	61.7	58.6	3.1
Less than Year 10	65.1	61.4	3.7	63.5	59.7	3.9
Equivalised household income quintile						
1st quintile	66.2	62.0	4.2	63.7	60.2	3.5
2nd quintile	65.4	60.8	4.6	63.5	59.4	4.1
3rd quintile	64.1	59.3	4.8	63.4	58.9	4.4
4th quintile	63.5	59.6	3.9	61.6	58.3	3.4
5th quintile	63.8	60.4	3.4	61.6	58.5	3.1

Note: Population weighted results.

Expected main funding source in retirement

Table 32.2 shows the proportion of non-retired people over 45 years of age who expect the main source of funding for their retirement to be private as opposed to the Age Pension or other government pension. It shows 83 per cent of men and 73 per cent of women expect the main funding source to be private, which are surprisingly high proportions. The lower proportion of women who expect the main funding source to be private probably reflects lower superannuation balances of women, consistent with which is the finding that only 55 per cent of single women expect the main funding source to be private. As expected, more highly educated people are more likely to expect private sources of income to be the main funding source, and the proportion expecting to rely mainly on private sources is higher the greater is household income. Nonetheless, over half of people in the bottom income quintile (for the entire population) do not expect the government pension to be the main funding source.

Table 32.2: Proportion expecting the main funding source to be private rather than a government pension, 2007 (%)

	Males	*Females*
Total	82.6	73.3
Marital status		
Partnered	83.9	80.2
Not partnered	76.5	55.0
Age group		
45–54	85.9	75.0
55–64	77.3	70.1
65+	79.3	74.6
Educational attainment		
Degree+	91.9	82.7
Diploma, Certificate 3/4	83.2	71.0
Year 12	87.2	63.0
Year 10/11 or Certificate 1/2	72.9	75.4
Less than Year 10	62.5	45.8
Equivalised household income quintile		
1st quintile	58.2	55.7
2nd quintile	61.4	47.5
3rd quintile	80.1	67.9
4th quintile	86.0	76.3
5th quintile	93.4	88.6

Note: Population weighted results.

Retirement income expectations

Table 32.3 presents information on how expectations of required retirement income and adequacy of actual retirement income vary across different groups of people approaching retirement. The first column of the table presents the mean of the annual disposable (after tax) household income estimated by respondents as required in order to achieve a satisfactory standard of living, while the second column presents the proportion of people who believe their retirement income will be insufficient to maintain their current living standard.

Recall that only people who had given thought to the amount of money required in retirement were

asked this question. We find that 64 per cent of men over 45 years of age and not yet completely retired indicated they had thought about retirement income, while 56 per cent of women indicated likewise. Partnered people, older people, more highly educated people and individuals in higher income households are more likely to have thought about financial requirements in retirement. Estimates are therefore biased towards over-representing the views of these groups.

The table shows that perceived (household) income requirements in retirement are higher for men than women, are—naturally enough—higher for partnered people, and are higher for younger people, more highly educated people and people living in higher income households. Less clear patterns are evident for expectations about the ability of expected retirement income to maintain the current living standard. Notable, however, is that more women than men expect their retirement income to be insufficient, perhaps in part because they know their savings probably need to last longer. Single people are also more likely to believe they will be unable to sustain their current standard of living.

Are people saving enough for retirement?

Perhaps a more pertinent question than perceptions about needs in retirement and whether anticipated retirement income will maintain the current living standard is whether individuals approaching retirement are (actually) saving enough to achieve a satisfactory living standard. This is of course a very difficult question to answer, since it depends on many factors, including expected retirement age, income between now and retirement, desired income in retirement, returns on savings and investments, and life expectancy. We can nonetheless provide indicative information on whether people are saving enough, based on the information provided by respondents and a range of reasonable or plausible assumptions. We can also examine how estimates are affected by changing our assumptions.

To do this we use the 'FIDO' retirement planner provided by the Australian Securities and Investments Commission (ASIC) (downloadable from <http://www.fido.gov.au>), which makes a range of assumptions believed reasonable by ASIC and allows individuals to enter their own information and also vary the assumptions they make about themselves (e.g. life expectancy) and other factors (such as investment returns). The assumptions that FIDO makes or that we have adopted for all estimates are listed in the Appendix at the end of this chapter. We input information into the FIDO calculator based on the average—more specifically, the median—respondent. In our 'base' case, the following data was used for each of 16 groups defined by gender, partner status and age:

- Current age: Mid-point of each of the age groups
- Retirement age: Median expected retirement age

Table 32.3: Expectations about retirement income, 2007

	Males		*Females*	
	Income required to achieve an adequate living standard (mean, $)	*Expect to not maintain living standard in retirement (%)*	*Income required to achieve an adequate living standard (mean, $)*	*Expect to not maintain living standard in retirement (%)*
Total	48,480	25.2	44,794	31.1
Marital status				
Partnered	50,259	23.6	48,220	26.1
Not partnered	38,542	31.4	34,909	43.1
Age group				
45–54	49,882	25.6	46,734	32.9
55–64	46,777	25.5	41,549	29.2
65+	46,636	19.3	46,531	13.3
Educational attainment				
Degree+	58,618	23.7	50,254	30.6
Diploma, Certificate 3/4	46,447	27.6	43,336	30.6
Year 12	45,982	21.4	44,766	31.3
Year 10/11 or Certificate 1/2	41,482	21.6	40,743	29.5
Less than Year 10	38,545	31.6	34,069	43.3
Equivalised household income quintile				
1st quintile	37,479	28.8	35,320	36.3
2nd quintile	36,085	27.1	32,438	36.8
3rd quintile	42,224	31.4	40,094	36.0
4th quintile	46,100	25.8	43,482	32.6
5th quintile	58,825	18.8	52,874	22.9

Note: Population weighted results.

- Desired retirement income in today's dollars: Median estimate of the 'income required in retirement to have a satisfactory living standard'
- Current superannuation balance: Median personal superannuation balance in Wave 6 increased by 10 per cent
- Current annual salary: Median of previous financial year's annual salary/wage in all jobs
- Current age of spouse: Median current age of spouse (only for the partnered groups)
- Retirement age of spouse: Median expected retirement age of spouse (only for the partnered groups)
- Current superannuation balance of spouse: Median superannuation balance of spouse (only for the partnered groups)
- Current annual salary of spouse: Median annual salary of spouse (only for the partnered groups)
- Life expectancy: Life expectancy of the group based on the ABS publication, *Life Tables, Australia, 2005–2007*

We use this information to produce an estimate, for each group, of the difference between the life expectancy at retirement of people in this group and the number of years this median person in the group could sustain the desired retirement income; that is, this tells us, for our base case scenario, if the median member of the group will save enough to maintain the desired retirement income for the expected remainder of their life.

Table 32.4 presents the results for each gender/partner status/age group. The clear result from the table is that people do not seem to be

Table 32.4: Adequacy of retirement savings, base case scenario (years)

	Aged 45–49			*Aged 50–54*		
	Life exp	*Savings exp*	*Difference*	*Life exp*	*Savings exp*	*Difference*
Partnered persons						
Males	16	13	–3	17	12	–5
Females	25	22	–3	25	15	–10
Single persons						
Males	16	8	–8	17	6	–11
Females	22	3	–19	20	5	–15
	Aged 55–59			*Aged 60–64*		
	Life exp	*Savings exp*	*Difference*	*Life exp*	*Savings exp*	*Difference*
Partnered persons						
Males	17	18	1	18	8	–10
Females	24	17	–7	21	4	–17
Single persons						
Males	17	5	–12	18	0	–18
Females	21	2	–19	21	4	–17

Notes: 'Life exp': life expectancy at retirement in years; 'Savings exp': the number of years in which retirement income is above or equal to the desired retirement income; *Difference = Life exp – Savings exp.*

Table 32.5: Sensitivity of the 'life-expectancy–saving expectancy' gap to alternative assumptions, compared to the base case scenario (years)

	Couples		*Singles*	
	Males	*Females*	*Males*	*Females*
Base scenario	–3	–3	–8	–19
Retirement age				
56 years	–16	–4	–23	–27
67 years	2	5	–4	–12
Desired retirement income				
10% lower	3	8	–4	–18
10% higher	–6	–8	–10	–19
Current superannuation balance				
10% lower	–4	–3	–9	–19
10% higher	–2	–2	–7	–18
Annual salary				
10% lower	–4	–3	–9	–19
10% higher	–2	–2	–7	–18

saving enough to maintain a living standard they believe is satisfactory for the entirety of their expected life after retirement. This is indicated by the fact that life expectancy at retirement exceeds the number of years the median individual's savings will support them at a satisfactory living standard (the 'savings expectancy'). Single people, and especially older single people, are especially below where they need to be in order to achieve an adequate income for their entire retirement. However, it should be noted that the estimates for younger people will tend to overestimate savings to the extent that there are unanticipated interruptions to full-time employment prior to the time of expected retirement, while partnered people run the risk of becoming single and likewise suffering a fall in expected savings. It also appears that women are worse off than men, primarily because of their longer life expectancy in the case of partnered women, but because of a combination of longer life expectancy and a lower 'savings expectancy' for single women. However, it should again be noted that the assumption of no change in employment income between now and retirement will likely overestimate retirement savings to a greater extent for men, because many more of them are employed full-time.

What are the effects of varying some of our assumptions? Table 32.5 considers a very small number of the possible variations that could be made to provide an indication of how key factors affect the results. It examines, for people aged 45–49 years only, the effects on the difference between life expectancy at retirement and savings expectancy of assuming a retirement age of 56 (the current superannuation preservation age) and 67 (the new minimum age of eligibility for the Age Pension from 2023) and changing desired retirement income, the current superannuation balance and the annual salary by 10 per cent (in both directions).

An assumed retirement age of 56 results in a very large increase in the gap for men, but a relatively small effect for partnered women. Setting the retirement age to 67 has a positive impact for all four groups, but the effect is larger for women and is especially large for partnered women.

10 per cent changes in desired retirement income, current superannuation balance and annual salary are somewhat mild changes to assumptions, but nonetheless appreciable effects are evident on the gap between life expectancy and savings expectancy. Altering desired retirement income has very large effects for partnered men and women, but has little effect for single men and women, essentially because they are not able to maintain their desired retirement income for any length of time, irrespective of whether desired retirement income is 10 per cent lower or higher. Somewhat surprisingly, 10 per cent changes to the current superannuation balance and the annual salary have relatively small (and in fact identical) impacts.

Concluding comments

While the nature of the analysis presented in this article means it can only provide indicative evidence on adequacy of retirement savings, the strong impression is that there is something of a 'disconnect' between the plans and expectations of people approaching retirement and the likely reality that they face. Most people expect to retire before 65, and expect the main source of income in retirement to be sources other than government pensions. This expectation is difficult to reconcile with the indications from the HILDA data and FIDO calculator that most people will not have an income they regard as satisfactory for the entirety of their retirement. Significantly, the sensitivity analysis presented in Table 32.5 suggests that the most effective way to bridge the gap between likely future retirement income and desired minimum retirement income is for people to retire later, which we might note is consistent with recent government policy initiatives, for example in respect of the superannuation preservation age and the age of eligibility for the Age Pension.

Appendix: Assumptions made for all calculations using the FIDO retirement planner[1]

- Superannuation contributions continue to be made up until retirement, after which no further contributions are made.
- No assets are held other than superannuation and the home.
- Are 'low' superannuation fund fees.
- People are home-owners.
- There are no breaks from full-time work between 2007 and retirement.
- The real value of salary income is maintained at a constant real value between 2007 and retirement salary until retirement.
- No lump sum payments are received at retirement.
- No salary sacrifice or after-tax superannuation contributions are made.
- The 'balanced investment' option is chosen (which assumes an 8 per cent rate of return).
- Employers contribute 9 per cent of gross salary.
- Effective earnings tax rate on the superannuation fund is 6 per cent.
- Inflation is 2.5 per cent.
- Community living standards rise 1 per cent each year.

Endnote

1 Most of these assumptions were the default assumptions in the FIDO calculator.

GLOSSARY

Absolute poverty

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

ANZSIC

ANZSIC is the Australia and New Zealand Standard Industry Classification. Structured in a similar manner to ASCO2, it classifies the economic activity of firms and other employers. See ABS Catalogue No. 1292.0 for details.

ASCO2

ASCO2 stands for the Australian Standard Classification of Occupations, 2nd edition. This is the Australian Bureau of Statistics classification scheme for occupations. It is based on a conception of types of tasks and skill level requirements. It has six 'levels', with 10 occupation groups distinguished at the highest level of aggregation, known as the one-digit level, 54 groups distinguished at the next (two-digit) level of aggregation, and so on. See ABS Catalogue No. 1220.0 for details.

Body mass index

Body mass index (BMI) is an arithmetic derivation of an individual's height and weight—weight in kilograms divided by height in metres squared—and is widely used as an indicator of nutritional status and healthy body weight. It is common to classify people into the following BMI groups: underweight (BMI < 18.5), normal range (BMI ≥ 18.5 and BMI < 25), overweight (BMI ≥ 25 and BMI < 30) and obese (BMI ≥ 30).

Casual employment

Casual employment is a form of employment unique to Australia. It is characterised by flexibility for employers and employees in the number and timing of hours worked from week to week (including the ability for employers to very readily reduce hours to zero), as well as the absence of employee entitlement to paid annual and sick leave.

Child poverty

Measures of child poverty presented in this report give the number of children under 18 years of age living in households with an equivalised income below the poverty line (be it a relative or absolute poverty standard).

Correlation coefficient

A correlation coefficient (often referred to as a 'Pearson correlation coefficient') is a measure of (linear) dependence or association between two quantities. It is obtained by dividing the covariance of the two variables by the product of their standard deviations. It ranges between –1 (perfect negative correlation) and 1 (perfect positive correlation). A value of zero indicates no association between the two quantities, while values close to –1 or 1 indicate strong association (or dependence) between the variables.

Deciles and quintiles

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

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 to have a disability if they have 'any long-term health condition, impairment or disability that restricts the individual in everyday activities and which has lasted, or is likely to last, for six months or more'. This is an 'operational' definition of disability which is very similar to that used in many household surveys, such as the Australian Bureau of Statistics Survey of Disability, Ageing and Carers.

Equivalence scale and equivalised income

Equivalised income is a measure of material living standards, obtained by adjusting household disposable income for the household's 'needs'. In practice, it is common for adjustment of income to be based only on the number of adult and child household members, achieved by an equivalence scale. In this report, we have used the 'modified OECD' scale (Hagenaars et al., 1994), which divides household income by one for the first household member plus 0.5 for each other household member over 15 years of age, plus 0.3 for each child under 15. A family comprising two adults and two children under 15 years of age

would therefore have an equivalence scale of 2.1 (1 + 0.5 + 0.3 + 0.3), meaning that the family would need to have an income 2.1 times that of a lone-person household in order to achieve the same standard of living.

Fertility intentions

Fertility intentions relate to the number of children one wishes to have, the gender balance (e.g. one boy and one girl) and the gender sequence (e.g. a boy followed by a girl). Demographers are extremely interested in fertility intentions as one factor determining likely future population levels. Fertility intentions were asked in detail for the first time in HILDA in 2005.

Financial stress

A person or household is considered to be under financial stress if, *due to shortage of money*, it is not possible for them to meet basic financial commitments. The measure of financial stress used in this report is based on questions about inability to pay utility bills on time, inability to pay the mortgage on time, having to pawn or sell possessions, going without meals, being unable to heat the home, asking for financial help from friends or family, or asking for help from a welfare or community organisation.

Fixed effects regression model

An econometric technique often applied to panel data, fixed effects regression involves 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 (e.g. life satisfaction) changes at the individual level in response to changes in explanatory variables (e.g. income). For example, a fixed effects model will find a positive effect of income on life satisfaction if individuals who experience increases in income from one year to the next tend to exhibit increases in life satisfaction over the same period, and individuals who experience decreases in income from one year to the next tend to exhibit decreases in life satisfaction over that period.

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. 0 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).

Household disposable income

The main household income measure examined in this report is 'real household annual disposable income'. Household annual disposable income is the combined income of all household members, after receipt of government pensions and benefits and deduction of taxes, in the financial year ended 30 June of the year of the wave (e.g. 2001 in Wave 1). This is then adjusted for inflation—the rise in the general price level in the economy—using the Australian Bureau of Statistics Consumer Price Index, so that income in all waves is expressed at September 2006 prices, to give *real* income. Since prices tend to rise over time, the incomes statistics we present for Waves 1–5 are higher than what would be obtained from using incomes actually reported by sample members.

Household expenditure and consumption

Households spend money on both non-durable and durable goods and services. Non-durables —goods and services consumed fairly soon after purchase—include such items as groceries, fuel and holiday expenditures. Durables, by contrast, are typically consumed over long periods of time, and include such items as housing, cars, household appliances and furniture. To measure non-durable consumption of a household during a particular period, it is generally sufficient to measure expenditure on non-durables in that period. However, measuring durables consumption is more difficult. First, the full stock of durables held by the household needs to be known; some durables may have been purchased in the period being examined, but most will have been purchased previously. Second, we need to estimate the value of the consumption services delivered by those durables in the period—for example, impute a rental value for owner-occupied housing—something that is inherently difficult to do.

Household wealth

The HILDA Survey obtains a measure of household wealth by asking a detailed set of questions on all main financial assets, non-financial assets and debts. Total wealth—or net worth—is equal to total (financial and non-financial) assets minus total debts of all members of the household. Financial assets comprise bank accounts, superannuation, cash investments, equity investments (shares), trust funds and the cash-in value of life insurance policies. Non-financial assets comprise the home, other property, business assets, collectibles and motor vehicles. Debts comprise unpaid credit card debt, HECS debt, other personal debt (including car loans, investment loans, hire purchase agreements and loans from friends or relatives not living in the household), business debt, home debt, other property debt and overdue household bills.

Housing stress, mortgage stress and rental stress

Housing stress refers to a situation in which a household's housing costs, which consist of rental payments or mortgage repayments on the primary residence, are regarded as 'excessively' burdensome. In this report, a household is defined to be in housing stress if housing costs are greater than 30 per cent of gross household income. Mortgage stress refers to housing stress that applies only to home-owners (i.e. high mortgage repayments relative to income) and rental stress refers to housing stress that applies only to renters (i.e. high rent relative to income).

Housing wealth

A household's housing wealth is equal to the value of housing owned by household members, whether residing in that housing or not, minus mortgage debt owed on that housing.

Income mobility

In this report, income mobility refers to the extent to which individuals' household incomes change *relative to each other*. It is measured by sorting incomes in each period (e.g. year) from lowest to highest and then examining changes in each individual's *rank* in the distribution. The greater the changes in individuals' ranks—that is, the more individuals change ranks and the bigger the change in each individual's rank—the greater is income mobility.

Jobless households and job-poor households

In this report, a household is defined to be jobless if no household member was in paid employment (or on paid leave from employment) at the time of interview and is defined to be 'job-poor' if total usual hours of paid employment of all household members combined are less than 35 hours per week.

Liquidity constraints

Liquidity (or credit) constraints refer to limits on the ability of an individual or household to borrow money. A measure of short-term but acute liquidity constraints is available in the HILDA data, which is the ability of individuals to raise $2,000 within one week.

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 per cent of the data points will lie below the median and 50 per cent above it. The mode is simply the most-frequently occurring value of a data series.

NESB immigrant

Non-English-speaking background immigrant, a person born in a country other than the main English-speaking countries of Australia, the United Kingdom, United States, New Zealand and South Africa.

Ordinary Least Squares (OLS) regression

OLS regression is a technique for estimating 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.

Principal components analysis

Principal components analysis (PCA) involves transforming a number of possibly correlated variables into a smaller number of uncorrelated variables called principal components. The first principal component accounts for as much of the variability in the data as possible, and each succeeding component accounts for as much of the remaining variability as possible. PCA is often used as a tool in exploratory data analysis, interpreted as revealing the 'internal structure' of the data in a way which best explains the variance in the data.

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. In this report, we define a person to be in relative income poverty if household equivalent income is less than 50 per cent of the median household equivalent income.

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 per cent probability that the true mean lies within 1.96 standard deviations of the estimated mean. The relative standard error of an estimate is the ratio of the standard error to the value of the estimate. In this report, we have marked with an asterisk (*) estimates which have a relative standard error greater than 25 per cent. Note that a relative standard error that is less than 25 per cent implies there is a greater than 95 per cent probability the true quantity lies within 50 per cent of the estimated value.

Remoteness of region of residence

Remoteness of region of residence is derived from the Accessibility/Remoteness Index of Australia (ARIA) scores from the 2001 Census. ARIA scores are assigned based on the Census Collection District (CD) code. In this report, we distinguish persons residing in the major cities from persons residing in other locations, which consist of inner regional Australia, outer regional Australia, remote Australia and very remote Australia. Approximately two-thirds of the in-scope Australian population resides in a major city.

SF–36 general health measure

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

Social capital

Most measures of social capital are essentially measures of social networks, although measures of neighbourhood quality and safety are sometimes also included. A person's social networks range from intimate attachments to spouse and family, through friendship and social support networks, to acquaintances (including neighbours) whom one may be able to rely on for relatively minor assistance like borrowing household items and keeping an eye on the house while one is away on holiday.

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 the different is at least 95 per cent. However, 90 per cent and 99 per cent standards are also commonly used. Note that a statistically significant difference does not mean the difference is necessarily large or significant in the common meaning of the word.

Welfare reliance

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

1. *The household received income support payments and more than 50 per cent of household income came from income support and non-income support payments.*

2. *The household received income support payments and more than 90 per cent of household income came from income support and non-income support payments.*