Education and training and the avoidance of financial disadvantage

AUSTRALIAN COUNCIL FOR
EDUCATIONAL RESEARCH

Gary N Marks

A NATIONAL VOCATIONAL
EDUCATION AND TRAINING
RESEARCH AND EVALUATION
PROGRAM REPORT

NCVER

Australian Government

**Department of Education, Employment
and Workplace Relations**

NCVER

Education and training and the avoidance of financial disadvantage

Gary N Marks

AUSTRALIAN COUNCIL FOR EDUCATIONAL RESEARCH

Publisher's note

Additional information relating to this research is available in the two appendices. They are a literature review and technical information document on data, measures and methods.

To find other material of interest, search VOCED (the UNESCO/NCVER international database <http://www.voced.edu.au>) using the following keywords: poverty; financial stress; vocational education and training; unemployment; post compulsory education; labour market; higher education; disadvantaged.

Acknowledgements

About the research

NCVER

Education and training and the avoidance of financial disadvantage

Gary N Marks, Australian Council for Educational Research

There is a very large body of literature on the returns from education, which typically focuses on narrow outcomes such as employment, occupational status and wages. Gary Mark's paper extends this work by examining the relationship between educational attainment and a number of dimensions of financial disadvantage. The study uses four measures, namely, income poverty; financial stress, which refers to cash-flow problems; not being in employment; and low wealth.

He takes a systematic approach, using the longitudinal data from the Household, Income and Labour Dynamics in Australia (HILDA) survey. He runs a series of multiple regressions, beginning with demographic variables and then sequentially adds educational attainment and a series of labour market outcome variables. As expected, educational attainment assists in preventing financial disadvantage, but to a large degree this occurs through the impact of educational attainment on labour market outcomes. University qualifications have more of an impact on reducing financial disadvantage than vocational qualifications—not surprising, given that on average those with degrees earn more than those with vocational certificates.

While the work is useful in extending the conventional focus on employment and wages, it leaves a number of issues unanswered. The first obvious extension is to analyse how educational qualifications impact on financial disadvantage over and above the direct effect on employment and earnings. Do better-qualified individuals learn how to manage their financial affairs more successfully, or is a practical qualification more useful than a theoretical one? The second challenge thrown up is the role of marriage. A variable that is consistently important in the models is marital status, with those who are married suffering less financial disadvantage than those who are single, divorced, separated or in a de facto relationship. This in itself is interesting but the research challenge is to understand the relationship between education and marriage. My hypothesis is that those with very poor qualifications suffer the double disadvantage of having a low skills base and being less marriageable than their more qualified peers. However, this is work for the future.

Tom Karmel
Managing Director, NCVER

Contents

Tables

Executive summary

Poverty and other forms of financial disadvantage are the most obvious categories of social disadvantage. Being in poverty or suffering financial stress has serious detrimental implications for housing, debt reduction and the ability to obtain credit, future career prospects, marriage and partnering, health, crime and children's education. Generally, they reduce the ability to fully and actively participate in society. Not only is financial disadvantage detrimental for individuals but there are also societal costs (for example, on welfare, legal and health services) and reduced revenue from taxation.

For policy-makers, increasing the level of education and training is an attractive policy option for reducing financial disadvantage, by providing more people with the skills and credentials rewarded in the labour market. Furthermore, increasing the levels of education and training is beneficial for other reasons, for example, by increasing the stock of skills and thus theoretically enhancing productivity.

Making use of the longitudinal data from the Household, Income and Labour Dynamics in Australia (HILDA) survey, this study examines the relationship between post-school qualifications and financial disadvantage among Australians during the period 2001 to 2008. Specifically, it is concerned with the extent that education and training, vis-à-vis other influences, protects individuals and households from experiencing financial disadvantage and increases the likelihood of getting out of, or exiting, financial disadvantage once in it.

The primary research questions are:

✧ To what extent do the different types of education and training reduce the risk of experiencing financial disadvantage?

✧ To what extent do the different types of education and training facilitate exit from financial disadvantage?

In this report four dimensions of financial disadvantage are investigated, namely, income poverty; financial stress; unemployment and not in the labour force (NILF); and low wealth.[1] Four dimensions of financial disadvantage are used because an over-reliance on a single measure can be misleading.

The post-school vocational education and training (VET) qualifications examined are certificates I/II, III/IV, diplomas and advanced diplomas. The university qualifications examined are: bachelor degrees, postgraduate certificates and diplomas, and higher degrees.

It is postulated that the effects of qualifications on financial disadvantage should largely be accounted for (or mediated) by their effects on subsequent experiences in the labour force, specifically the percentages of time spent working and unemployed, present labour market status and occupational status of the current or previous job.

---

[1] Note that low consumption could not be used for this report, given that the HILDA measures do not cover all forms of consumption.

A range of other factors were also examined as they may also affect financial disadvantage: demographic factors (age, gender and marital status) and school completion.

The statistical techniques used include repeated-effects models, which use all eight waves of data, and fixed-effects models, which estimate the effects of factors, net of all unobserved (but stable) influences.

A general conclusion from this study is that post-school qualifications in education and training differ in their effects on the four dimensions of financial disadvantage.

For income poverty, all post-school qualifications reduce the risk of experiencing this, although university qualifications appear to have stronger effects than VET qualifications. Certificate III/IV qualifications have very weak effects. However, after background influences are removed, only bachelor degrees strongly reduce the risk of experiencing income poverty as well as enhancing the likelihood of exiting this state. Much of the protective effects of post-school qualifications can be attributed to their promotion of stronger labour force histories: more employment and less unemployment; and in the case of university degrees, higher-status occupations.

With financial stress the study found that bachelor and higher degrees, postgraduate diplomas and certificates all reduce the likelihood of experiencing this form of disadvantage. These effects are mediated by labour force experiences and in the case of higher degrees and bachelor degrees facilitate securing higher-status occupations. However, their effects on financial stress are weaker than their effects on income poverty. Vocational qualifications do not reduce the chances of experiencing financial stress and this expands to all post-school qualifications, after background influences have been removed. In terms of getting out of financial stress, only bachelor degrees and trade certificates helped.

Only some post-school qualifications were found to reduce the chance of becoming unemployed, namely, bachelor degrees, VET diplomas and trade certificates. A similar outcome was found when demographic and unobservable characteristics were removed: bachelor degrees, VET diplomas, and to a lesser extent, certificate III/IV qualifications reduce the likelihood of unemployment or being not in the labour force. These effects can be accounted for by their promotion of higher levels of experience in work and less unemployment. In the case of bachelor degrees, the explanation also involves higher-status jobs. Bachelor degrees, and to a lesser extent VET diplomas and entry-level VET qualifications, were also found to enhance exiting from being unemployed or not in the labour force.

For low wealth, almost all types of post-school education and training reduce the risk, with similar effects for graduate diplomas or certificates, advanced diplomas, VET diplomas and trade certificates. The protective effects of VET diplomas and trade certificates on low wealth were only partially accounted for by labour force experiences and occupational status. Certificate III/IV qualifications, however, had no significant effects on reducing the incidence of low wealth.

The study also examined the relationship between financial disadvantage and labour market outcomes and found that a higher proportion of time working reduces the likelihood of financial disadvantage. This is not surprising; however, the effect is weaker for financial stress than for the other dimensions of financial disadvantage. Higher-prestige occupations were found to offer some protection against financial disadvantage.

The study also found that being unemployed or not in the labour force tends to substantially increase the chances of experiencing income poverty, financial stress and low wealth, as well as reducing the probability of exiting from these dimensions of financial disadvantage. Further, experience of unemployment tends to have a scarring effect on financial disadvantage. Interestingly, part-time work has only weak effects on increasing the likelihood of income poverty and financial stress and has no impact on low wealth.

Looking at the relationship between financial disadvantage and demographic factors, the study found that the risk of income poverty increases with age, but for the other dimensions of financial disadvantage the risk declines with age. Gender differences tended to be small and were not consistent across the four measures. Marriage was found to strongly and consistently reduce the likelihood of financial disadvantage and promoted exiting from disadvantaged states, while being divorced or separated tended to have detrimental effects on financial status. De facto relationships also tend to show the same patterns as for marriage, although the effects are weaker and they afford no protection against low wealth. The effects for marriage cannot be wholly attributed to labour force factors and background influences, suggesting that marriage involves changes in attitudes and behaviours that help to protect against financial disadvantage.

Finally, the study examined the impact of school completion (Year 12) and found that after background influences are removed it strongly increases the likelihood of experiencing financial disadvantage. This suggests that Year 12 completion may not necessarily be beneficial for those with poor labour force prospects.

Introduction

Background

Financial disadvantage has serious detrimental implications for housing, debt reduction and the ability to obtain credit, future career prospects, marriage and partnering, health, crime and children's education. It generally reduces the ability to fully and actively participate in society. Not only is financial disadvantage detrimental for individuals, there are also societal costs (for example, increased use of welfare, health and legal services) and reduced revenue from taxation.

Increasing the levels of education and training by providing more people with skills and credentials rewarded in the labour market is an obvious policy option to reduce financial disadvantage. It is clear that higher levels of education are associated with reduced levels of income poverty (Harding, Lloyd & Greenwell 2001; Saunders & Naidoo 2009). However, the particular role of vocational education and training has not been much scrutinised in Australia (Marks 2005). Furthermore, much less research has been conducted on the impact of education and training on indicators of financial disadvantage other than on income poverty. These other dimensions of financial disadvantage—financial stress, unemployment or not in the labour force and low wealth—are the subject of this report.

The most likely mechanism by which education and training reduces financial disadvantage is indirect, by promoting better labour market outcomes. Education and training provide specific skills valued by employers, facilitating better labour market outcomes: more work, less unemployment, full-time work and higher-status jobs. Similar explanations focus on qualifications rather than skills gained through education and training. Specific academic and vocational qualifications are necessary for entry to particular occupations that provide stable and better-paid careers or are recognised by employers as an indication of more valuable employees and so are rewarded accordingly.

There are alternative explanations that do not involve labour force factors. Education and training may reduce financial disadvantage because they provide a set of general organisational and cognitive skills which reduce the risk of financial problems. Education involves delayed gratification and an orientation to the future which, arguably, militates against financial disadvantage. Another, but simpler, explanation is that educational qualifications are associated with other factors that are themselves correlated with a reduced risk of financial disadvantage, for example, higher cognitive ability, higher levels of financial literacy, or marriage.

The bulk of the literature on financial disadvantage is concerned with income poverty. There are debates about its conceptualisation and measurement, although the most common measure in Australia is based on a poverty line at 50% of the median equivalised[2] disposable household income. It generates an estimate of about 12% of Australians in poverty in a single year. Lower estimates are obtained if poverty is based on a combination of household income, subjective judgments of being poor and experience of financial stress (Marks 2005, 2007) or income,

---

[2] That is adjusted for household size. Larger households require higher disposable incomes.

consumption and wealth (Headey 2008). About 50% of those in income poverty exit poverty the following year, so the incidence of long-term poverty in Australia is considerably less than for annual poverty (Headey, Marks & Wooden 2005a; Wilkins, Warren & Hahn 2009).

There is a variety of reasons why income poverty is judged as an inadequate indicator of financial disadvantage. The measure is arbitrary; there is no compelling reason why the cut-off should be at 50% of disposable household income or for that matter at any other level. Differences in the cut-off substantially alter the estimated percentage in poverty from about 5% at the 40% cut-off to over 20% at the 60% cut-off (Headey, Marks & Wooden 2005a). The relative nature of the concept means that poverty increases even if the real incomes rise for low-income households but the incomes of richer households increase by a greater amount. Estimates based on changes in real incomes from a base year almost invariably show declines over time in the level of income poverty (Department of Family and Community Services 2003; Wilkins, Warren & Hahn 2009). Income-based measures do not take into account the cost of housing, which can range from zero, to a substantial proportion of income, or consumption patterns, which vary remarkably, even among households of the same size. Income poverty provides no indication of how households are coping financially. In addition, there are doubts about the accuracy of reports of income from low-income households (ABS 2002b).

Because of the problems associated with the concept and measurement of relative income poverty, a variety of alternative measures have been developed. These include deprivation measures, although very few Australians live without shelter, running water, or sufficient food. To define poverty in such absolute terms would mean only a very small percentage of households would be defined as in poverty. Similarly, there would be little agreement among experts on the selection and level of goods and services required to live decently in contemporary Australia.[3]

The additional indicators of financial disadvantage used in this report are financial stress, which covers cash-flow problems, not being in employment and low wealth. Further background material on financial disadvantage in Australia is presented in appendix A.

Purpose

The purpose of this report is to examine the role of post-school qualifications in reducing the incidence of financial disadvantage and promoting exit from financial disadvantage. The analyses conducted are designed to ensure that the identified effects of post-school qualifications cannot be attributed to other influences.

The study also seeks to examine the processes by which post-school education and training reduce the chances of financial stress and promote exit from financial stress. It is postulated that the effects of post-school qualifications should largely be accounted for by subsequent labour force outcomes.

Four dimensions of financial disadvantage are examined:

✧ income poverty

✧ financial stress

✧ unemployment and not in the labour force

✧ low wealth.

Post-school qualifications include both university and vocational qualifications. These are defined later.

---

[3] For a recent study on deprivation in Australia, see Saunders and Naidoo (2009).

The labour force factors proposed that mediate (or explain) the relationship between post-school qualifications in education and training and financial disadvantage comprise: experiences of employment and unemployment; current labour force situation (full-time work, part-time work, unemployment and not in the labour force); and the occupational status of the current or previous job.

Examination of the role of post-school qualifications in reducing entry to and enhancing exit from financial disadvantage needs to take into account the role of other influences. These include demographic factors (age, gender and marital status) and school completion. There are gender and age differences in financial disadvantage and there are strong effects for marital status (see appendix A). School completion may have an impact independent of post-school qualifications. Similarly, it needs to be included to guard against spurious interpretations. For example, a post-school qualification may be found to reduce the chances of being in poverty not because it has an effect per se but because it entails school completion, which is the factor responsible.

The specific hypotheses examined in this report are:

◇ Post-school education and training substantially decrease the odds of experiencing each of these four dimensions of financial disadvantage.

◇ Post-school education and training substantially increase the odds of exiting from these four dimensions of financial disadvantage.

◇ The mechanism by which post-school education and training exert their effects is through their promotion of better labour market outcomes.

◇ Other than labour market factors, the positive effects of post-school education and training on financial disadvantage cannot be attributed to other influences, either observed or unobserved.

◇ Demographic factors play only a minimal role.

Methodology

The data used in these analyses are from the first eight waves (2001 to 2008) of the longitudinal Household, Income and Labour Dynamics in Australia (HILDA) survey. Further information on this survey is provided in appendix B. For the analysis the data needed to be converted from *person* data (comprising one line of data for each respondent having variables relating to the questions asked each year the respondent participated in the study), to *person-year* data with multiple observations (from one to eight, depending on the number of years participated) for each respondent.

Income poverty is defined as living in a household with an income of less than 50% of median equivalised disposal household income. The equivalence scale used is the modified Organisation for Economic Cooperation and Development's (OECD) scale for equivalisation of household incomes.[4]

The concept of 'financial stress' is defined in terms of seven behaviours relating to *a shortage of money*, sometimes described as cash-flow problems. It comprises the following cash-flow items: could not pay utility bills on time; could not pay mortgage or rent on time; pawned or sold something; went without meals; was unable to heat home; asked for financial help from friends or family; and asked for help from welfare/community organisations. Households were defined as in financial stress if they experienced two or more incidences of cash-flow problems in a single year.

Unemployment is defined as not working and actively seeking work, whereas not in the labour force includes those marginally attached to the labour force (would work if offered a suitable job but are not actively seeking work) and the group not marginally attached.

Low wealth is defined as a household with less than 25% of median household wealth, adjusting for household size (equivalised).

The frequencies for each indicator of financial disadvantage are presented in the appropriate chapters.

Qualifications in education and training are measured by the following variables:
- ✧ university higher degree qualification
- ✧ graduate diploma or graduate certificate
- ✧ bachelor degree
- ✧ advanced diploma
- ✧ VET diploma
- ✧ trade certificate and apprenticeship
- ✧ VET certificate III and IV
- ✧ VET certificate I and II.[5]

---

[4] The modified OECD scale assigns a weight of 1 to the first adult, a weight of 0.5 to second and other adults and a weight of 0.3 for children under 14 years of age (Förster 2000).

[5] For this study, certificates of an unknown level are included with these lower-level certificates.

These groups are not mutually exclusive and are not treated as a hierarchy. Trade certificates are relevant only for respondents who obtained their vocational qualification prior to the introduction of the Australian Qualifications Framework (AQF) in the mid-1990s. Apprenticeships and traineeships obtained after this period are included in VET certificate III/IV.

The frequencies for the post-school qualification and other relevant variables are presented in appendix C.

The multivariate analyses include repeated-effects (Generalised Estimating Equations, GEE) models and fixed-effects models. The repeated-effects analyses make use of data from all (eight) waves that respondents participated in and take into account the clustering of observations within individuals. The fixed-effects models produce estimates that control for all possible unobserved but stable influences on the respective dimension of financial disadvantage, for example, cognitive ability, physical appearance, personality and disability. The model relies on changes among each respondent in their status on the variables of interest over the eight-year period.

The analyses sequentially add groups of possible influences roughly in their temporal order: demographics; qualifications in education and training; labour force experiences; present labour force situation; and finally occupational status. Sequential models allow evaluation of the process by which post-school qualifications affect financial disadvantage.

This general model was not always appropriate for a particular outcome, for example, current labour force status cannot be used to predict unemployment, since current labour force situation includes unemployment. There were too few cases for fixed effects or exit models to produce plausible estimates for unemployment (low incidence) and low wealth (only two waves of data). Unemployment was combined with not in the labour force since there were too few cases in each group for separate analyses of fixed effects or exiting.

In the discussions of the results of the analyses indications of the magnitude of the effects are provided by referring to odds ratios. An odds ratio of one indicates no relationship, whereas odds ratios above three or below 0.3 indicate strong effects. The calculation of predicted probabilities estimates for individuals with particular characteristics are detailed in appendix B. In the discussions of the findings there is an emphasis on the relative magnitudes of the effects and the role that labour force factors play in mediating (or accounting for) the effects of post-school qualifications on the respective outcome.

Appendix B details the creation of the person-year dataset, the construction of the measures of financial disadvantage, education and training, generalised estimating equations, the fixed-effects models and other methodological issues.

Income poverty

As shown in table 1, income poverty has a generally ordinal relationship with qualifications in education and training: the higher the educational qualification, the lower the percentage in poverty. Among those whose highest qualification was less than Year 12, 15–20% were in poverty in a single year. This contrasts with around 4–6% of those with bachelor degrees or postgraduate qualifications. For VET qualifications, poverty was generally lower among those with a diploma (about 7–11%), than those with advanced certificates (8–12%) and entry-level VET certificates (11–13%). A trade certificate was associated with slightly lower levels of poverty than certificates I and II, although it should be remembered that these vocational qualifications apply to different age cohorts. Also, significant numbers of respondents have multiple qualifications. For example, almost all those with a VET diploma hold lower certificate qualifications. These analyses suggest that any post-school education and training reduces the odds of being in poverty, although trade certificates and certificates I and II to a lesser extent than other types of qualifications. School completion appears to be associated with substantially lower levels of income poverty.

Table 1   Incidence of poverty by education and training qualification (%)

	2001	2002	2003	2004	2005	2006	2007	2008
All persons	11.7	12.7	12.5	12.8	14.5	12.1	13.3	13.9
Higher degree	4.7	5.6	8.2	6.1	4.1	4.6	4.1	6.0
Grad. diploma or certificate	2.5	3.6	3.2	5.2	4.0	3.0	5.2	4.8
Bachelor degree	5.2	4.8	5.8	5.3	5.3	3.4	4.4	3.8
Advanced diploma	7.3	7.6	8.7	6.6	6.6	5.3	5.3	5.5
Diploma	6.6	7.9	11.1	8.6	8.8	7.0	6.7	8.1
Certificate III/IV	7.8	10.4	8.3	7.2	9.7	8.9	10.7	11.7
Trade certificate	9.9	10.4	10.4	11.1	11.8	9.9	11.1	12.9
Certificate I/II	9.4	10.3	10.3	10.3	11.5	9.6	10.5	11.2
No post-school qualifications and:								
At least Year 12	7.3	8.1	8.8	8.0	8.4	6.1	7.1	7.2
Less than Year 12	14.8	15.9	15.2	16.5	19.4	17.2	18.8	20.1

Note: Categories are not mutually exclusive. Respondents aged 18 or over only.
Source: HILDA data waves 1 to 8.

Influences on income poverty

The results of the multivariate analyses on being in income poverty are presented in table 2. (The procedures are detailed in appendix B.)

Table 2　Effects on income poverty

	Model 1		Model 2		Model 3		Model 4		Model 5	
					Coefficients					
Intercept	-1.33	***	-0.93	***	-1.66	***	-2.41	***	-2.71	***
Age	0.27	***	0.25	***	0.35	***	0.26	***	0.17	***
Male	-0.16	***	-0.14	***	0.31	***	0.38	***	0.34	***
Married	-1.09	***	-1.07	***	-0.93	***	-0.91	***	-0.74	***
De facto relationship	-0.83	***	-0.81	***	-0.69	***	-0.68	***	-0.67	***
Divorced	-0.15	*	-0.14	†	-0.03		-0.01		0.02	
Separated	-0.22	***	-0.21	***	-0.09		-0.04		-0.05	
Widowed	0.01		-0.06		-0.11		-0.10		0.09	
Higher degree	.		-0.50	**	-0.56	**	-0.43	*	-0.23	
Grad. diploma or certificate	.		-0.53	***	-0.37	**	-0.34	*	-0.31	*
Bachelor degree	.		-0.87	***	-0.70	***	-0.54	***	-0.32	***
Advanced diploma	.		-0.41	**	-0.31	*	-0.19		0.03	
Diploma	.		-0.33	***	-0.12		-0.06		0.00	
Certificate III/IV	.		-0.13	*	-0.09		-0.05		-0.01	
Trade certificate	.		-0.18	**	0.04		0.03		0.02	
Certificate I/II	.		-0.27	***	-0.16	**	-0.10	*	-0.06	
At least Year 12	.		-0.35	***	-0.17	***	-0.14	**	-0.07	
Per cent time working	.		.		-0.22	***	-0.13	***	-0.12	***
Per cent time unemployed	.		.		0.01	***	0.01	***	0.01	***
Working part-time	.		.		.		0.59	***	0.59	***
Unemployed	.		.		.		1.15	***	0.99	***
Not in the labour force	.		.		.		1.33	***	1.27	***
Occupational status	.		.		.		.		-0.10	***

Note:　† 0.10<P<0.05; * 0.05<P<0.01; ** 0.01>P>0.001; *** P<0.001.
Source:　HILDA data waves 1 to 8.

Model 1 comprises only demographic factors. Age is associated with an increased risk of being in poverty and this effect is more or less constant with the addition of qualifications in education and training, work histories and current labour force status. Males are significantly less likely to be in poverty than females and this effect reverses and becomes larger when taking into account labour force experiences (see below). This means that, of men and women with identical histories of employment and unemployment, men are more likely to be in income poverty.

Marriage and partnering have strong effects on avoiding income poverty. The odds of married people being in poverty (rather than not being in poverty) are about three times less than the comparable odds for single people. For a de facto relationship, the effect is also quite strong, with an odds ratio of 2.3. Being separated or divorced has weaker, but statistically significant, effects on the income poverty. (Note that the calculation of odds ratios is detailed in the appendix.)

The intercept provides an estimate of the chances of being in income poverty for respondents scoring zero on the explanatory variables. According to model 1, the probability of single 45-year-old women being in poverty is relatively high, at 0.209. Marriage substantially decreases this probability to 0.081, and a de facto relationship reduced it to 0.109.

Model 2 adds the measures of education and training. Postgraduate and bachelor degrees substantially protect against income poverty. Higher (university) degrees and graduate diplomas or certificates reduce the odds of being in income poverty by about 1.6 times compared with not having the corresponding qualification. The odds ratio for a bachelor degree is stronger at 2.4. The effect for an advanced or ordinary VET diploma was a little less, at 1.5 and 1.4 times. The effects for trade certificates and higher certificate levels (III and IV) were substantially weaker, whereas

entry-level certificates had a moderate impact. However, the impact of simply completing Year 12 on reducing the odds of being in poverty was comparable with that for a VET diploma and larger than that for advanced and trade certificates.

These effects can be combined by taking the exponent of the sum of the coefficients (or equivalently multiply the relevant odds ratios). So a higher degree and bachelor degree together reduce the odds of being in poverty by about 3.8 times compared with not having these qualifications. Similarly, the effects for certificates I/II and/or certificate III/IV can be combined with a VET diploma. When combined, the effect of these three qualifications on income poverty is comparable with that for a bachelor degree.

The intercept allows calculation of the probability of being in poverty for 45-year-old women who did not complete school and who obtained no post-school qualifications: the probability is 0.28. A VET diploma qualification (assuming lower certificates but without Year 12) reduces this probability to 0.16. A bachelor degree (assuming school completion) reduces the probability to 0.10.

Model 3 adds the measures of labour force experience (percentage of time since leaving full-time education in work or unemployment). Under this specification, the effects for a VET diploma, a trade certificate and certificate III/IV qualifications approach zero and are no longer statistically significant. This means that these certificates do not reduce the chances of going into poverty, *ceritis paribus*, but do so through their association with labour force experiences. Net of labour force experiences, the effect of an advanced diploma and entry-level VET certificates (I/II) are substantially reduced.

Model 4 includes current labour force status. As expected, compared with full-time work, part-time work increases the odds of being in poverty 1.7 times. Unemployment is strongly related to income poverty, increasing the odds of being in poverty 2.7 times. An even stronger effect is found for not in the labour force, increasing the odds of being in poverty nearly four times.

The intercept allows calculation of the predicted probability of being in poverty for 45-year-old women who did not complete school, obtained no post-school qualifications and worked approximately 80% of their time since leaving full-time education: the probability is 0.16. This probability is unchanged taking into account VET qualifications other than an advanced diploma and an entry-level certificate. With an advanced diploma (assuming completion of certificates I/II) the probability declines to 0.11. For a degree (assuming school completion) the predicted probability is 0.07.

Controlling for current labour force status, the effect for a certificate I or II VET qualification becomes smaller. None of the other vocational qualifications have a protective effect when controlling for labour force status. In contrast, university qualifications significantly reduce the odds of entering poverty net of the factors in model 4. This may be because a university degree confers high enough income even among part-time workers or sufficient income generated from severance pay or accumulated assets amongst those unemployed or not in the labour force. In addition, a university qualification may be associated with a higher income earner in the household (spouse or partner).

Controlling for current labour force status, having completed Year 12 also has a small negative effect on the odds of being in poverty.

The occupational status of the present or previous job has a moderate negative impact on income poverty. A ten-unit increase (on a zero to 100-point scale) reduces the odds of being in income poverty 1.1 times. For a larger 50-unit difference, the odds ratio is 1.6 times. Considering the variation in income by occupational status, these are relatively moderate effects.

The addition of occupational status in model 5 reduces the coefficients for almost all variables. Statistically significant effects reducing the odds of being in poverty remain for bachelor degrees

and graduate diplomas or certificates. Net of experience of employment and unemployment, labour force status and occupational status, the protective effects of vocational qualifications on being in poverty are small and not statistically significant at conventional levels.

Fixed effects

The estimates from the fixed-effects models presented in table 3 are net of the effects of the other (observed variables) in the respective model and in addition all unobserved but stable influences on entering poverty. Stable influences include ability, personality and physical appearance. Remember that the effects are based on respondents' changes in status on these variables between waves 1 and 8 of the Household Income and Labour Dynamics in Australia survey.

Age increases the odds of entering income poverty. However, these estimates are for a ten-year period, so the increase in the odds of entering poverty for a one-year increase in age is quite small (about 1.06 times). The effect for age does not reflect poverty during the retirement years, since the analysis is restricted to those aged between 18 and 65 years.

Relative to being single, getting married or entering into a de facto relationship strongly reduces the odds of entering poverty. These effects are very large, reducing the odds by between two and three times. The protective effects of partnering are very robust and cannot be attributed to partnering being associated with higher qualifications, better labour force experiences, higher proportions in full-time work or higher occupational status. It is independent of all factors in model 4 and the unobservables controlled for by the fixed-effects model.

There are smaller negative effects for becoming separated, which may reflect poverty promoting separation and, once separation has occurred, the equivalised household income (because of one less household member) rises above the poverty line. The effects for separation are very robust, with controls for (changes in) labour force experiences, current labour force status and occupational status.

The fixed-effects model analyses show few effects for qualifications in education and training: demographic factors, higher and bachelor degrees have strong negative effects on entering poverty. The odds ratio is about three. These effects decline when controlling for labour force experiences and further decline when taking into account current labour force status. However, a large effect remains. When taking into account present or prior occupational status, the effect for a bachelor degree is moderate and statistically significant, but only at the less demanding 0.10>P> 0.05 level. The effect of a higher degree is no longer statistically significant.

Obtaining an entry-level VET qualification also reduces the odds of being in poverty but the effect is not nearly as strong as that for a bachelor degree (in model 2). Its effect does not survive controls for current labour force status. This suggests that entry-level VET qualifications are beneficial by promoting a higher level of full-time employment. There are no effects for other VET qualifications.

Completing Year 12 seems to have a deleterious effect on entering poverty, net of other influences. This may suggest that those with a poorer aptitude for learning and therefore possibly poorer labour force prospects are not helped by staying at school and completing Year 12. This effect becomes stronger when taking into account the present labour force situation and stronger again controlling for occupational status.

The fixed-effects model demonstrates the importance of the prior experience in full-time work. A ten-percentage point increase in time spent in full-time work reduces the odds of being in poverty 1.5 times, and a 20 percentage increase, 2.3 times.

There appears to be no scarring effects of a history of unemployment on the odds of entering poverty.

Consistent with expectations, becoming unemployed or not in the labour force substantially increases the odds of experiencing income poverty.

There was no significant effect for changes in occupational status.

Table 3   Fixed-effects model for influences on poverty

	Coefficients									
	Model 1		Model 2		Model 3		Model 4		Model 5	
Age	0.56	***	0.72	***	0.55	***	0.58	***	-0.16	
Married	-1.03	***	-0.95	***	-0.88	***	-0.89	***	-0.92	***
De facto relationship	-0.82	***	-0.78	***	-0.77	***	-0.78	***	-0.84	***
Divorced	0.05		0.09		0.15		0.13		0.12	
Separated	-0.35	**	-0.32	**	-0.30	**	-0.29	*	-0.37	*
Widowed	0.16		0.17		0.17		0.14		0.37	
Higher degree	.		-1.32	**	-1.19	*	-0.98	†	-0.84	
Grad. diploma or certificate	.		-0.36		-0.12		-0.04		0.60	
Bachelor degree	.		-1.09	***	-0.84	***	-0.58	**	-0.40	†
Advanced diploma	.		-0.47		-0.51		-0.37		-0.37	
Diploma	.		-0.14		0.02		0.08		0.03	
Certificate III/IV	.		-0.06		0.03		0.07		0.09	
Certificate I/II	.		-0.37	**	-0.27	*	-0.21		0.01	
At least Year 12	.		0.68	†	0.88	*	1.05	*	2.96	**
Per cent time working	.		.		-0.42	***	-0.35	***	-0.28	***
Per cent time unemployed	.		.		0.00		0.01		0.01	†
Working part-time	.		.		.		0.33	***	0.33	***
Unemployed	.		.		.		0.85	***	0.43	**
Not in the labour force	.		.		.		0.92	***	0.65	***
Occupational status	.		.		.		.		-0.01	

Note: † 0.10<P<0.05; * 0.05<P<0.01; ** 0.01>P>0.001; *** P<0.001.
Source: HILDA data waves 1 to 8.

Exiting income poverty

Table 4 shows the effects of demographic factors, qualifications in education and training, labour force experiences, present labour force situation and occupation on exiting from income poverty. Note that this analysis is restricted to those who are defined as in poverty in a given year, so the sample sizes are much smaller than for the analyses of entering poverty, where the whole sample is at risk.

Youth is associated with quicker exits from poverty. A ten-year increase in age reduces the odds of exiting poverty 1.36 times. So older people are more likely to enter poverty and stay in poverty longer. The effect for age changes very little with the addition of subsequent control variables.

In the demographic model and in the second model, which includes qualifications in education and training, there are no gender differences in exiting poverty. However, controlling for time spent working and unemployed, males are significantly less likely to exit poverty.

Marriage and de facto relationships substantially increase the odds of exiting poverty. The respective odds ratios are large, 2.3 and 1.5. Divorce also appears to increase the odds of exiting poverty. The effects for marriage and de facto relationships decline with the addition of the labour force experience variables and are no longer significant when controlling for occupational status. Therefore partnering per se does not increase the chances of exiting poverty; it does so indirectly by its effects on labour force experience, labour force status and occupation. This contrasts with the

effect of partnering on entering poverty, where it has strong negative effects independent of labour force factors.

Of qualifications in education and training, a bachelor degree substantially increases the odds of exiting poverty. A bachelor degree increases the odds of exiting poverty 1.8 times. None of the other qualifications has large and statistically significant effects, although a VET entry-level certificate has a weak effect, significant only at the 0.05<P<0.10 level. Completion of Year 12 also promotes exiting from poverty, although the effect is quite weak.

The probability of a 45-year-old single women exiting poverty in a given year is 0.35. By contrast, for married women of the same age the probability is better than even, increasing to 0.55. For married women ten years younger the probability is higher, at 0.62, and, of this group having a bachelor degree, it is 0.71.

A 10% increase in time spent in work increases the odds of exiting income poverty by about 1.5 times. Time spent unemployed decreases the odds of exiting poverty, indicating that prior unemployment experience has a scarring effect. A one-percentage point increase in the percentage of time spent unemployed since leaving full-time education decreases the odds of exiting poverty very marginally by 1.1 times. Although the effect is small, for those who have spent large portions of their time unemployed, this analysis indicates that they would have great difficulty exiting from poverty. About 7% of 18 to 65-year-olds had spent more than 20% of their time unemployed since leaving full-time education.

For 45-year-old single women who did not complete Year 12, have no post-school qualifications, worked about the average (78%) of the time since leaving school and were never unemployed, the predicted probability of exiting poverty is 0.50. If instead, they worked 10% more of the time since leaving school (about 90%), the probability increases only marginally to 0.55.

Compared with working full-time, part-time work has only a moderate negative effect on reducing the odds of exiting poverty by about 1.3 times. Not unexpectedly, unemployment has a strong negative effect on exiting poverty, as does being not in the labour force. The odds ratios are 2.2 and 2.6 respectively. Prior or current occupation has only a weak effect, increasing the odds of exiting 1.06 times for each ten-point difference in occupational status.

The intercept in model 5 reflects the odds of exiting poverty for respondents scoring zero on all the independent variables: 45 years old, female, single, no post-school qualifications, did not finish Year 12, spent the average time working since leaving school, has no experience of unemployment, working full-time in a job with an average occupation status. That predicted probability of exiting unemployment is a healthy 0.68. This probability declines with age, part-time work and more substantially for not in the labour force (to 0.53 for not in the labour force). It increases for more time spent working and higher-status jobs. Qualifications make no difference.

Table 4   Effects on exiting poverty

	Model 1		Model 2		Model 3		Model 4		Model 5
					Coefficients				
Intercept	-0.63	***	-0.80	***	-0.14		0.41	***	0.79***
Age	-0.31	***	-0.29	***	-0.37	***	-0.27	***	-0.16***
Male	0.05		0.03		-0.22	**	-0.24	**	-0.17
Married	0.84	***	0.83	***	0.67	***	0.61	***	0.20
De facto relationship	0.60	***	0.61	***	0.50	***	0.51	***	0.25†
Divorced	0.40	**	0.41	**	0.39	**	0.39	**	0.31
Separated	0.16		0.16		0.07		0.09		0.18
Widowed	0.18		0.22		0.30		0.27		0.15
Higher degree	.		-0.08		0.04		-0.07		-0.21
Grad. diploma or certificate	.		0.04		-0.07		-0.13		-0.06
Bachelor degree	.		0.58	***	0.47	***	0.40	**	0.26
Advanced diploma	.		0.21		0.07		-0.03		-0.19
Diploma	.		0.10		-0.04		-0.04		-0.09
Certificate III/IV	.		0.00		-0.05		-0.10		-0.19
Trade certificate	.		0.04		-0.08		-0.06		-0.03
Certificate I/II	.		0.14	†	0.02		-0.03		-0.09
At least Year 12	.		0.21	**	0.10		0.08		-0.05
Per cent time working	.		.		0.14	***	0.08	***	0.10***
Per cent time unemployed	.		.		-0.01	**	-0.01	**	-0.01*
Working part-time	.		.		.		-0.23	*	-0.21*
Unemployed	.		.		.		-0.78	***	-0.29
Not in the labour force	.		.		.		-0.94	***	-0.68***
Occupational status	.		.		.		.		0.06*

Note: † 0.10<P<0.05; * 0.05<P<0.01; ** 0.01>P>0.001; *** P<0.001.

Source: HILDA data waves 1 to 8.

Financial stress

Table 5 presents the bivariate relationships between qualifications in education and training and financial stress. For these analyses, financial stress is defined as having experienced at least two incidences of financial difficulty in a single year. These include having trouble paying housing costs and utility bills, or seeking financial help from friends and family or welfare organisations. The table shows that, irrespective of the level of education, between 2001 and 2008 there was a substantial decline in the incidence of financial stress, from 17% in 2001 for all people, to less than 10% in 2008. Financial stress is lowest among those with the highest levels of qualifications, higher degrees, followed by graduate diplomas and certificates, followed by bachelor degrees. Higher-level VET qualifications are also associated with lower incidences of financial stress, especially advanced diploma and diploma. However, the incidence of financial stress among those with lower-level VET qualifications (certificate I/II) is not always lower than that of those who did not complete school. The incidence of financial stress associated with certificates III and IV tends to be higher than the incidence among school non-completers. It is not clear why this is the case. The incidence of financial stress among the trade certificates or entry-level VET qualifications is much the same as that among school non-completers.

Table 5   Incidence of financial stress by education and training qualification (%)

	Wave							
	2001	2002	2003	2004	2005	2006	2007	2008
All persons	17.1	14.6	13.9	12.3	11.2	10.6	11.1	9.7
Higher degree	6.4	7.8	5.9	7.0	4.6	5.7	5.0	4.5
Grad. diploma or certificate	7.0	8.0	6.8	7.2	5.9	4.0	3.9	5.1
Bachelor degree	10.3	10.3	8.6	7.9	6.7	6.6	6.6	4.9
Advanced diploma	14.2	12.7	15.1	9.6	7.4	8.1	7.9	8.2
Diploma	13.5	12.5	12.1	8.8	12.0	9.6	9.8	8.5
Certificate III/IV	23.8	18.5	20.2	18.9	16.7	15.8	18.1	14.8
Trade certificate	17.4	14.1	14.0	11.1	12.0	9.3	9.9	9.9
Certificate I/II	18.6	16.0	16.1	13.8	13.2	12.1	12.3	11.4
No post-school qualifications and:								
At least Year 12	14.9	13.4	12.6	11.2	9.9	9.4	9.9	7.9
Less than Year 12	18.6	15.4	14.9	13.2	12.2	11.7	12.2	11.5

Note: Categories are not mutually exclusive.
Source: HILDA data waves 1 to 8.

Influences on financial stress

Table 6 shows the effects on financial stress. In contrast to income poverty, age has a negative impact on financial stress. Young people are more likely to experience financial stress. One plausible explanation is that older people have more financial resources to fall back onto if their

household income decreases. It is well established that household wealth increases with age (Marks, Headey & Wooden 2005) so households may use their accumulated assets to avoid financial stress.

Table 6   Effects on financial stress

	Model 1		Model 2		Model 3		Model 4		Model 5	
Intercept	-1.65	***	-1.30	***	-1.53	***	-1.88	***	-1.96	***
Age	-0.30	***	-0.36	***	-0.34	***	-0.38	***	-0.34	***
Male	-0.11	**	-0.13	***	-0.04		0.04		0.05	
Married	-0.52	***	-0.53	***	-0.46	***	-0.46	***	-0.47	***
De facto relationship	0.02		0.01		0.06		0.08	†	0.11	*
Divorced	0.51	***	0.49	***	0.53	***	0.55	***	0.61	***
Separated	0.48	***	0.45	***	0.50	***	0.52	***	0.58	***
Widowed	0.01		-0.05		-0.08		-0.09		-0.23	
Higher degree			-0.38	**	-0.44	**	-0.42	**	-0.35	*
Grad. diploma or certificate			-0.20	*	-0.17		-0.18	†	-0.10	
Bachelor degree			-0.35	***	-0.33	***	-0.23	***	-0.10	†
Advanced diploma			0.06		0.08		0.15		0.20	†
Diploma			-0.04		-0.02		0.00		0.06	
Certificate III/IV			0.11	*	0.08	†	0.11	*	0.15	**
Trade certificate			-0.12	†	-0.02		-0.02		-0.02	
Certificate I/II			0.04		0.06		0.09	*	0.10	*
At least Year 12			-0.69	***	-0.56	***	-0.55	***	-0.48	***
Per cent time working					-0.07	***	-0.02	**	-0.04	***
Per cent time unemployed					0.01	***	0.01	***	0.01	***
Working part-time					.		0.30	***	0.27	***
Unemployed					.		0.71	***	0.89	***
Not in the labour force					.		0.64	***	0.82	***
Occupational status					.		.		-0.06	***

Note: † 0.10<P<0.05; * 0.05<P<0.01; ** 0.01>P>0.001; *** P<0.001.
Source: HILDA data waves 1 to 8.

Men are slightly less likely to experience financial stress than women, although this effect is no longer statistically significant when taking into account labour force experiences.

Marriage has strong effects on financial stress. Compared with being single, marriage reduces the odds of being in financial stress by about 1.7 times. In contrast to the results for income poverty, there is no protective effect in avoiding financial stress from being in a de facto relationship. Divorce and marital separation both substantially increase the odds of being in financial stress by about 1.7 times. The detrimental effects of divorce and separation are understandable, given that these events can be associated with financial difficulties. There is no effect of widowhood on financial stress.

From the intercept for model 1, the probability of a single 45-year-old women being in financial stress is 0.16. For married 45-year-old women the probability is much smaller: 0.10. For married 25-year-old women, the probability is much higher at 0.17. For 25-year-old single women the predicted probability is 0.26. For comparable men the probability is slightly lower at 0.24.

Model 2 adds the measures of qualifications in education and training. It shows moderate negative effects on entering financial stress for university degrees. Higher degrees and bachelor degrees reduce the incidence of financial stress by about 1.4 times. Graduate diplomas and certificates have weaker effects. It should again be kept in mind that the effects are cumulative, so that postgraduate

qualifications are associated with a much reduced likelihood of entering into financial stress because they require a bachelor degree as well.

None of the vocational qualifications substantially and significantly reduce the odds of being in financial stress. A certificate III or IV qualification has a small effect on financial stress, *increasing* rather than decreasing the odds of financial stress. Completing Year 12 has a strong negative effect on entering financial stress. This effect is stronger than that for bachelor degrees and higher degrees.

In general, the effects of qualifications on financial stress are considerably weaker than their effects on income poverty. All measures of qualifications reduced the odds of being in income poverty and some of the effects were large, for example, a bachelor degree or the cumulative effects of several VET qualifications. The effect of a bachelor degree on avoiding financial stress is substantially less than its effect on avoiding income poverty.

The odds of married 45-year-old men who have completed Year 12 being in financial stress are low at 0.074. For similar men with a bachelor degree the probability declines marginally to 0.053.

Model 3 introduces the labour force experience variables. More time spent working substantially reduces the odds of experiencing financial stress and time spent unemployed increases the odds of financial stress. The effect of time spent employed is considerably weaker for financial stress than for income poverty. The respective coefficients are -0.07 (table 6) and -0.22 (table 2).

Model 4 includes labour force status. It has fairly predictable relationships with financial stress, with strong effects of unemployment and not in the labour force. Relative to full-time employment, they increase the odds of experiencing financial stress by about a factor of two. Although these are substantial effects, their impact on financial stress is weaker than their impact on income poverty. Working part-time also increases the odds of experience in financial stress but its effect is relatively moderate, increasing the odds of financial stress about 1.4 times.

Higher occupational status reduces the odds of being in financial difficulties (model 5). Again, its effect on financial stress is weaker than its effect on income poverty. The respective coefficients are -0.06 (table 6) and -0.10 (table 2).

The predicted probability of financial stress is 0.08 for married 45-year-old male school completers who have spent the average time working (78%) since leaving school, had no experience of unemployment and working full-time in a job with an average occupation status. With non-completion of school the probability increases to 0.12. The probability also increases with divorce or separation, less time (proportionally) spent working, experience of unemployment and not working full-time. It decreases with age, marriage and higher-status jobs.

Table 7   Fixed-effects model for influences on financial stress

	Model 1		Model 2		Model 3		Model 4		Model 5	
Age	-1.72	***	-1.75***		-1.84	***	-1.81	***	-1.72	***
Married	-0.51	***	-0.51***		-0.53	***	-0.51	***	-0.57	***
De facto relationship	-0.19	*	-0.19*		-0.20	*	-0.18	*	-0.16	
Divorced	0.47	***	0.48***		0.41	**	0.43	**	0.45	**
Separated	0.31	**	0.31**		0.28	*	0.30	**	0.30	*
Widowed	0.00		0.01		-0.15		-0.08		-0.21	
Higher degree	.		-0.22		-0.44		-0.33		-0.45	
Grad. diploma or certificate	.		-0.14		0.02		-0.02		0.05	
Bachelor degree	.		-0.29†		-0.43	*	-0.18		-0.05	
Advanced diploma	.		0.19		0.11		0.22		-0.20	
Diploma	.		0.17		0.03		0.05		-0.07	
Certificate III/IV	.		0.22†		0.14		0.15		0.19	
Certificate I/II	.		0.09		0.00		0.03		0.06	
At least Year 12	.		1.27**		1.16	*	1.26	*	1.78	**
Per cent time working	.		.		0.01		0.08	*	0.02	
Per cent time unemployed	.		.		0.00		0.00		0.00	
Working part-time	.		.		.		0.47	***	0.47	***
Unemployed	.		.		.		0.82	***	0.96	***
Not in the labour force	.		.		.		0.77	***	0.95	***
Occupational status	.		.		.		.		-0.05	**

Note: † 0.10<P<0.05; * 0.05<P<0.01; ** 0.01>P>0.001; *** P<0.001.

Source: HILDA data waves 1 to 8.

Fixed effects

The estimates from the fixed-effects model are presented in table 7.

Age is strongly associated with a decreased likelihood of experiencing financial stress. A ten-year increase in age reduces the odds of financial stress by a factor of 6. Its effect is stable under different model specifications. This indicates that people become more adept at handling their finances as they age. Since the fixed-effects estimates are based on changes within respondents, the effect for age is an aging effect rather than a cohort effect.

As mentioned earlier, the effect of age may be attributed to the increase in financial assets that usually occurs with age. The relationship between age and financial stress is in the opposite direction from its relationship with poverty.

Model 1 also shows strong negative effects for becoming married or entering into a de facto relationship on financial stress. Marriage reduces the odds of financial stress 1.7 times; a de facto relationship much less at 1.2 times. So partnering is associated with a substantial reduction in the chances of being in financial difficulties. This may be because the partner can provide extra financial support and reduced costs. In contrast, marital dissolution increases the chances of financial stress. Relative to being single, divorce and marital separation increase the odds of financial stress by 1.6 and 1.4 times, respectively.

Model 2 shows no significant effects for education and training qualifications on experiencing financial stress. Both university and VET qualifications have no effects in the fixed-effects model. This finding suggests that the negative effects of university qualifications on financial stress presented earlier in the chapter can be attributed to unobserved factors associated with university qualifications. So it is not because university qualifications reduce the probability of financial stress per se, but because of the unobserved factors associated with having university qualifications. The

unobserved factors most likely to account for the effects of university qualifications are general cognitive ability and financial literacy. Both plausibly reduce financial stress.

As was the case for income poverty, in the fixed-effects models the completion of Year 12 substantially increases the odds of financial stress. This effect could not be attributable to experiences in the labour force, current labour force status or present (or prior) occupation. In fact, its effect increases when these factors are introduced. This means that net of unobservable characteristics, school completion has a detrimental impact on financial stress.

The percentage of time spent unemployed has no effect on financial stress, net of the other observed variables in the model and the effects of the unobserved factors taken into account by the fixed-effects model specification. Time spent working only has an effect when considering current labour force status. This effect is anomalous since it is in the opposite direction. It is small and disappears with the addition of occupational status.

Strong effects were found for current labour force status, especially unemployment and not in the labour force. Working part-time increased the odds of financial stress a modest 1.3 times, unemployment a much more substantial 2.0 times and not in the labour force 1.9 times. The effects of unemployment and not in the labour force increase when controlling for the occupational status of present or prior job.

The occupational status of the present or prior job reduced the odds of financial stress fairly weakly. A ten-unit increase in occupational status reduces the odds of financial stress by 1.05 times.

Exiting financial stress

Table 8 presents the coefficients obtained from the analyses on exiting financial stress. Age very weakly promotes exit from financial stress. The effect of age remains weak with the sequential addition of blocks of variables and is no longer significant in the final model. It can be concluded that age has negligible effects on exiting financial stress.

There is weak tendency for males to be more likely to exit from financial stress than females. However, after controlling for educational qualifications (which themselves have little impact), the effect for being male is no longer statistically significant at conventional levels.

Table 8   Effects on exiting financial stress

	Model 1		Model 2		Model 3		Model 4		Model 5	
Intercept	-0.32	***	-0.41	***	-0.20	*	0.09		0.01	
Age	0.07	*	0.08	**	0.06	*	0.10	***	0.03	
Male	0.12	*	0.10	†	0.02		-0.05		-0.02	
Married	0.25	***	0.25	***	0.20	**	0.19	*	0.20	*
De facto relationship	-0.06		-0.05		-0.10		-0.10		-0.11	
Divorced	-0.32	**	-0.31	*	-0.32	**	-0.32	*	-0.31	†
Separated	-0.26	**	-0.23	*	-0.27	**	-0.27	**	-0.19	
Widowed	0.04		0.04		0.08		0.07		0.51	
Higher degree	.		-0.08		0.02		-0.05		-0.05	
Grad. diploma or certificate	.		0.23		0.23		0.23		0.22	
Bachelor degree	.		0.21	*	0.15	†	0.09		0.09	
Advanced diploma	.		-0.05		-0.08		-0.10		-0.14	
Diploma	.		-0.09		-0.11		-0.13		-0.18	
Certificate III/IV	.		-0.06		-0.08		-0.09		-0.09	
Trade certificate	.		0.22	*	0.20	*	0.22	*	0.18	
Certificate I/II	.		-0.08		-0.12	†	-0.14	*	-0.14	†
At least Year 12	.		0.21	**	0.11		0.10		0.14	†
Per cent time working	.		.		0.04	**	0.00		0.00	
Per cent time unemployed	.		.		-0.01	*	-0.01	*	-0.01	*
Working part-time	.		.		.		-0.28	***	-0.28	***
Unemployed	.		.		.		-0.52	***	-0.75	***
Not in the labour force	.		.		.		-0.53	***	-0.56	***
Occupational status	.		.		.		.		0.01	

Note: † 0.10<P<0.05; * 0.05<P<0.01; ** 0.01>P>0.001; *** P<0.001.
Source: HILDA data waves 1 to 8.

Marriage promotes exit from financial stress, although its effect is not as large as it is for exiting income poverty. Consistent with the finding for entering into financial stress (contrasting with the situation for income poverty), there is no impact for a de facto relationship on exiting financial stress. Both divorce and marital separation reduce the odds of exiting from financial stress by about 1.3 times. Widowhood has no effect on exiting financial stress.

Model 2 adds qualifications in education and training. Only a bachelor degree and a trade certificate had significant positive effects on exiting financial stress. In both instances the effects were weak. The effect for a bachelor degree did not survive further controls for labour force experiences and current labour force status. None of the other university or VET qualifications significantly increases the odds of exiting financial stress.

Completion of Year 12 also had a weak impact on exiting financial stress. Again the statistical significance of the weak effect did not survive further controls.

Model 3 adds the two measures of labour force experience. Both time spent working and time spent unemployed impact on the probability of exiting financial stress. However, time spent working has a much weaker impact on exiting financial stress than it has on income poverty. When controlling for present labour force situation there is no significant effect for time spent working. The effect of time spent unemployed is much the same for exiting financial stress as for income poverty.

There were larger effects for current labour force status. Working part-time reduced the odds of exiting financial stress 1.3 times, unemployment 2.1 times and not in the labour force 1.8 times. These are relatively strong effects. Unemployment and not in the labour force are major contributors to persistent financial stress.

The occupational status of the present or previous job has no impact on exiting financial stress.

Unemployment and not in the labour force

Table 9 shows incidence of unemployment (only) by education and training. These estimates are associated with relatively large standard errors, which probably accounts for the lack of definitive patterns. The overall incidence of unemployment is quite low and declines from 4% in 2001 to 2.5% in 2008. The incidence of unemployment among higher degree holders is not much different from the overall incidence. In some years the proportion of those with higher degree qualifications unemployed is the same as or greater than the proportion for 'all persons'. Unemployment among those with graduate diplomas or certificates is noticeably lower than that for 'all persons'. Similarly, bachelor degrees appear to be associated with a lower incidence of unemployment. This is also generally true of VET diplomas. In contrast, certificate III or IV qualifications appear to be associated with a higher incidence of unemployment. Unemployment among those with certificate level I or II qualifications tends to be comparable with that for 'all persons'. The group who did not complete school tend to show slightly higher proportions unemployed than that for 'all persons'.

Due to the low incidence of unemployment, it is not possible to obtain plausible estimates from the fixed-effects models analyses or for the analysis of exiting unemployment. The fixed-effects models rely on respondents who change their status between 2001 and 2008. This, combined with the low incidence of unemployment, means the estimates are based on only very small numbers of cases. Similarly, the analyses of exiting unemployment are based on respondents unemployed in a given year which, as shown in table 9, are proportionally few. In contrast, there are sufficient numbers of cases over the eight years of survey data to analyse the effects on entering unemployment. In addition, there are sufficient numbers unemployed and not in the labour force (combined together) to obtain reasonable estimates from fixed effects and exiting analyses. The findings from these analyses are presented later.

Table 9   Incidence of unemployment by education and training qualification (%)

	Wave							
	2001	2002	2003	2004	2005	2006	2007	2008
All persons	4.0	3.6	3.0	2.9	2.8	2.4	2.3	2.5
Higher degree	4.0	2.6	3.7	1.2	2.3	1.6	2.5	2.3
Grad. diploma or certificate	1.7	2.2	1.9	1.1	0.8	1.5	1.3	1.0
Bachelor degree	2.2	2.3	1.8	1.6	1.7	1.8	1.4	2.0
Advanced diploma	4.0	2.1	1.4	2.0	2.3	2.7	1.0	1.2
Diploma	2.3	3.0	1.5	1.6	2.2	1.3	1.5	2.1
Certificate III/IV	6.1	6.3	3.8	4.5	5.0	4.1	3.2	4.4
Trade certificate	3.2	3.3	2.1	1.2	1.4	1.7	1.5	1.4
Certificate I/II	3.6	3.2	2.7	2.4	2.8	2.6	2.2	2.7
No post-school qualifications and:								
At least Year 12	3.3	3.2	3.2	3.2	2.5	2.5	2.1	2.5
Less than Year 12	4.5	3.9	2.8	2.6	3.0	2.4	2.6	2.6

Note: Categories are not mutually exclusive.
Source: HILDA data waves 1 to 8.

Influences on unemployment

Model 1 (table 10) comprises the demographic factors. Age reduces the risk of unemployment. The effect of age declines with the addition of the labour force experience measures, suggesting that the effect of age on unemployment is largely due to older persons having better labour force experiences: more time working and less unemployment. The effect further declines (slightly) when controlling for occupational status. The effect of age in reducing the odds of being unemployed cannot be attributed to qualifications; the effect actually increased, because on average, younger persons have more qualifications.

Men are significantly more likely to be unemployed than women and this small effect in the demographic model increases when controlling for labour force experiences and occupational status. This means that, of men and women with identical histories of employment and unemployment and previously in jobs with similar occupational prestige, men are more likely to be unemployed.

Partnering reduces the odds of unemployment. Compared with being single, marriage reduces the odds of unemployment 2.4 times and this effect remains when controlling for labour force histories and the occupational status of the previous job. This suggests that the social process where marriage reduces the likelihood of unemployment does not involve qualifications, partially involves labour force experiences and cannot be attributed to the relationship between marriage and occupational status.

Compared with being single, a de facto relationship reduces the odds of unemployment, 1.4 times. This effect can be attributed to a combination of differences between de facto and single persons in their labour force histories and occupations. The effect cannot be attributed to qualifications.

Divorce, separation or widowhood have no effects on being unemployed.

According to model 1 the predicted probability of unemployment for single 45-year-old women is 0.04. For 25-year-old single women the probability is higher at 0.07. For 25-year-old married women the probability is lower at 0.03.

Model 2 adds the measures of education and training. Bachelor degrees, VET diplomas and trade certificates significantly reduce the odds of unemployment, by 1.5, 1.3 and 1.6 times, respectively. These effects moved out of statistical significance when controlling for labour force experiences. Therefore the causal mechanism can be postulated: degrees, VET diplomas and trade certificates reduce the chances of unemployment because they promote superior labour force careers (more employment and less unemployment). There were no significant effects for other post-school qualifications in education and training on unemployment. In contrast, Year 12 completion substantially reduces the odds of unemployment by a factor of two.

Model 3 adds the measures of labour force experience (percentage of time since leaving full-time education in work and unemployment). The effects are quite substantial. A ten-percentage point increase in time spent working reduces the odds of unemployment 1.2 times and a one-percentage point increase in time spent unemployed increases the odds of subsequent unemployment 1.04 times.

The predicted probability of unemployment for 45-year-old women who did not complete school and obtained no post-school qualifications is very small at 0.024. If they had spent 50 percentage points less of their time working than the average (i.e. only 29%), then the predicted probability rises very slightly to 0.047. If 10% of her time since leaving school was spent unemployed, then the predicted probability of unemployment rises to 0.069.

The occupational status of the previous job has a strong impact on unemployment. A ten-unit increase in occupational status (on a zero to one hundred point scale) reduces the odds of unemployment, 1.3 times. For a 50-unit difference in occupational status, the odds ratio is

considerably larger: 3.5 times. Those in low-status occupations are much more likely to become unemployed.

With the addition of occupational status in model 5, the coefficient for diploma becomes significant and positive and the effect for a bachelor degree is only significant at the 0.05<P<0.10 level. These findings indicate that, in avoiding unemployment, qualifications provide no benefit net of labour force histories and occupation.

Table 10   Effects on unemployment

	Model 1		Model 2		Model 3		Model 4	
Intercept	-3.20	***	-2.81	***	-3.70	***	-4.21	***
Age	-0.31	***	-0.36	***	-0.16	***	-0.12	**
Male	0.19	***	0.21	***	0.36	***	0.40	***
Married	-0.87	***	-0.85	***	-0.55	***	-0.75	***
De facto relationship	-0.35	***	-0.36	***	-0.24	***	-0.09	
Divorced	-0.20		-0.23	†	-0.04		-0.15	
Separated	0.04		0.00		0.11		0.01	
Widowed	-0.46	†	-0.53	*	-0.57	*	-0.86	†
Higher degree	.		0.17		-0.04		0.24	
Grad. diploma or certificate	.		-0.11		-0.04		0.12	
Bachelor degree	.		-0.39	***	-0.13		0.23	†
Advanced diploma	.		-0.01		0.21		0.24	
Diploma	.		-0.25	*	0.06		0.34	*
Certificate III/IV	.		0.09		0.15	†	-0.09	
Trade certificate	.		-0.46	***	-0.14		-0.06	
Certificate I/II	.		-0.05		0.09		-0.12	
At least Year 12	.		-0.70	***	-0.33	***	-0.37	***
Per cent time working	.		.		-0.14	***	-0.16	***
Per cent time unemployed	.		.		0.04	***	0.03	***
Occupational status	.		.		.		-0.25	***

Note: † 0.10<P<0.05; * 0.05<P<0.01; ** 0.01>P>0.001; *** P<0.001.
Source: HILDA data waves 1 to 8.

Unemployment or not in the labour force by education and training

Table 11 presents the frequencies for not in the labour force together with unemployment by education and training. The relationships are much clearer than for only unemployment. A bachelor or higher degree substantially reduces the incidence of unemployment or not in the labour force. A graduate diploma is associated with an even lower incidence. The incidence of unemployment or not in the labour force for a VET diploma is comparable with the incidence for a bachelor degree. In contrast the incidence of unemployment or not in the labour force is substantially higher for a certificate III or IV qualification: higher than that for the 'less than Year 12' group.

Table 11   Incidence of unemployment and not in the labour force by education and training qualification (%)

	Wave							
	2001	2002	2003	2004	2005	2006	2007	2008
All persons	10.5	10.2	9.6	8.6	8.4	7.5	6.8	6.7
Higher degree	7.1	6.4	7.0	4.2	4.3	5.1	4.9	4.8
Grad. diploma or certificate	4.8	7.1	5.2	3.3	3.0	4.3	3.6	3.1
Bachelor degree	6.8	6.9	6.6	4.3	4.6	5.1	4.6	4.3
Advanced diploma	7.9	6.7	6.7	6.4	4.7	5.2	4.1	3.1
Diploma	6.9	8.6	6.4	5.2	6.6	5.7	4.9	4.4
Certificate III/IV	13.1	13.3	11.6	10.8	11.5	10.5	8.4	8.8
Trade certificate	8.1	8.5	6.7	5.6	5.0	4.8	4.6	5.3
Certificate I/II	9.6	9.1	9.3	8.1	8.0	6.8	5.9	6.5
No post-school qualifications and:								
At least Year 12	9.1	9.1	9.2	8.4	7.3	7.0	6.3	5.8
Less than Year 12	11.6	11.1	9.9	8.9	9.2	8.0	7.2	7.6

Note: Categories are not mutually exclusive. Respondents aged 18 or over only.
Source: HILDA data waves 1 to 8.

Influences on unemployment or not in the labour force

Table 12 presents the effects on unemployment or being not in the labour force. According to model 1, age reduces the risk of unemployment or not in the labour force. In the demographic model, a ten-year increase in age reduces the odds of unemployment or not in the labour force 1.2 times. The effect of age increases with the addition of qualifications (older persons have fewer qualifications), then declines with the addition of labour force experience and occupational status. This suggests that the effect of age on unemployment and not in the labour force can be attributed to older persons (on average) having higher proportions of their time since completing full-time education working and lower proportions unemployed.

Men are significantly less likely to be unemployed or not in the labour force than women. This effect is in the opposite direction from that found for the analysis of unemployment only. (Women show substantially higher proportions of being not in the labour force.) The gender effect in the demographic model is unchanged when controlling for qualifications in education and training. When controlling for labour force experiences, the gender effect declines to zero, suggesting that the smaller likelihood of men being unemployed or not in the labour force can be attributed to gender differences in labour force histories.

Table 12   Effects on unemployment or not in the labour force

	Model 1		Model 2		Model 3		Model 4	
Intercept	-1.90	***	-1.44	***	-2.38	***	-3.06	***
Age	-0.20	***	-0.25	***	-0.13	***	-0.09	**
Male	-0.33	***	-0.33	***	0.00		-0.01	
Married	-0.58	***	-0.55	***	-0.30	***	-0.38	***
De facto relationship	-0.30	***	-0.30	***	-0.11	*	0.02	
Divorced	0.00		0.00		0.19	*	0.23	†
Separated	0.00		-0.01		0.17	*	0.13	
Widowed	-0.19		-0.28	†	-0.26	†	-0.33	
Higher degree	.		-0.05		-0.18		-0.17	
Grad diploma or certificate	.		-0.16		0.01		-0.09	
Bachelor degree	.		-0.51	***	-0.27	***	0.04	
Advanced diploma	.		-0.26	*	-0.07		-0.11	
Diploma	.		-0.34	***	-0.05		0.23	*
Certificate III/IV	.		-0.12	*	-0.05		-0.23	**
Trade certificate	.		-0.28	***	0.08		0.11	
Certificate I/II	.		-0.20	***	-0.05		-0.28	***
At least Year 12	.		-0.66	***	-0.38	***	-0.37	***
Per cent time working	.		.		-0.24	***	-0.27	***
Per cent time unemployed	.		.		0.02	***	0.02	***
Occupational status	.		.		.		-0.16	***

Note: Categories are not mutually exclusive. Respondents aged 18 or over only.
Source: HILDA data waves 1 to 8.

Compared with being single, marriage reduces the odds of unemployment or not in the labour force 1.8 times. This effect is partially accounted for by labour force histories. In model 3 the coefficient declines from −0.55 to −0.30.

A de facto relationship reduces the odds of unemployment or not in the labour force 1.3 times. The effect does not change appreciably controlling for qualifications, declines by about two-thirds when controlling for labour force experiences and is reduced to statistical insignificance when controlling for occupational status. Therefore, the protective effect of a de facto relationship can be attributed to a labour force history and occupational status.

Being divorced, separated or widowed has no impact on unemployment or not in the labour force.

According to model 1 the predicted probability of unemployment or not in the labour force for single 45-year-old women is 0.13. For 25-year-old single women the probability increases to 0.18. For 25-year-old married women the probability is substantially lower at 0.11.

Model 2 adds the measures of qualifications in education and training. All post-school qualifications except postgraduate qualifications reduce the odds of unemployment or not in the labour force: 1.7 times for bachelor degrees, 1.3 times for advanced diplomas, 1.4 times for VET diplomas and 1.3 times for a trade certificates. Weaker effects were found for certificates. All these effects, except that for a bachelor degree, moved out of statistical significance when controlling for labour force experiences. Post-school qualifications reduce the likelihood of unemployment or not in the labour force because they promote better labour force histories (more employment and less unemployment). Bachelor degrees exert the strongest impact, which is accounted for by labour force experiences and occupation.

Completing Year 12 substantially reduces the odds of unemployment or not in the labour force 1.9 times. Nearly half of this effect can be attributed to labour force experiences.

The effects of labour force experiences on unemployment or not in the labour force are substantial. A ten-percentage point increase in time spent working reduces the odds of unemployment 1.3 times. A one-percentage point increase in time spent unemployed increases the odds of subsequent being unemployed or not in the labour force 1.02 times. These effects are relatively unchanged with the addition of the prestige of any prior occupation, which has a substantial impact.

The predicted probability of being unemployed or not in the labour force for 45-year-old women who did not complete school and obtained no post-school qualifications is 0.085. If they had spent 50 percentage points less of their time working than the average (79%), then the predicted probability rises substantially to 0.23. This is further evidence of scarring effects of unemployment.

The occupational status of the previous job has a strong impact on unemployment. A ten-unit increase (on a 0–100-point scale) reduces the odds of unemployment or not in the labour force 1.3 times. For a large 50-unit difference in occupational status, the odds ratio is considerably larger: 3.5 times.

With the addition of occupational status, the effect for a VET diploma becomes significant and positive, indicating an increased likelihood of unemployment or not in the labour force net of the other influences in model 4. However, lower-level VET qualifications showed moderate negative effects, reducing the odds of unemployment or not in the labour force.

Fixed effects

Table 13 presents the coefficients obtained from the fixed-effects analysis of unemployment or not in the labour force. There was a strong negative effect for age consistent with similar effects for age for financial stress, but not for income poverty. Older persons are much less likely to be unemployed or not in the labour force, net of stable unobserved influences and the other variables specified in the three models.

Being single increases the odds of unemployment or not in the labour force. Marriage and de facto relationships (relative to being single) reduce the likelihood of being unemployed or not in the labour force and continue to show significant negative effects with the addition of qualifications and labour force experiences. There are also negative effects for divorce and separation; these effects did not remain statistically significant with the addition of the labour force experience variables. There was no impact for widowhood.

Table 13   Fixed-effects model for influences on unemployment or not in the labour force

	Model 1		Model 2		Model 3	
Age	-1.62	***	-1.49	***	-1.83	***
Married	-0.39	***	-0.38	***	-0.27	*
De facto relationship	-0.33	***	-0.32	***	-0.25	*
Divorced	-0.29	*	-0.27	*	-0.22	
Separated	-0.28	*	-0.26	*	-0.20	†
Widowed	-0.06		-0.08		0.00	
Higher degree	.		-0.17		-0.27	
Grad diploma or certificate	.		0.33		0.55	†
Bachelor degree	.		-0.59	***	-0.34	
Advanced diploma	.		-0.22		0.07	
Diploma	.		-0.60	**	-0.45	*
Certificate III/IV	.		-0.32	**	-0.31	*
Certificate I/II	.		-0.17	†	-0.12	
At least Year 12	.		-0.06		-0.17	
Per cent time working	.		.		-0.54	***
Per cent time unemployed	.		.		0.01	*

Note: † 0.10<P<0.05; * 0.05<P<0.01; ** 0.01>P>0.001; *** P<0.001.
Source: HILDA data waves 1 to 8.

Bachelor degrees, VET diplomas and to a lesser extent certificate III or IV qualifications reduce the chances of being unemployed or not in the labour force. The effect of a bachelor degree can be attributed to its promotion of better labour force histories, since the effect was no longer significant in the third model, which includes the two measures of labour force experiences. Labour force experiences are only a partial explanation for the effects of a VET diploma and certificate III or IV. It appears that these qualifications guard against unemployment or not in the labour force, net of labour force histories. This suggests that these vocational qualifications are associated with unobserved factors, such as occupational networks, which militate against being unemployed or not in the labour force.

The percentage of the time spent in full-time work had strong negative effects. A 10% increase reduced the odds of unemployment or not in the labour force 1.7 times. Experience of unemployment had a small scarring effect on being unemployed or not in the labour force.

Table 14　Effects on exiting unemployment or not in the labour force

	Model 1		Model 2		Model 3		Model 4	
Intercept	0.58	***	0.24	**	0.89	***	2.17	***
Age	-0.01		0.02		-0.16	***	-0.32	***
Male	0.03		0.00		-0.11		-0.40	**
Married	0.32	***	0.32	***	0.14		0.30	†
De facto relationship	0.20	*	0.24	*	0.08		-0.11	
Divorced	0.04		0.09		-0.04		-0.27	
Separated	-0.06		-0.03		-0.10		-0.04	
Widowed	0.35		0.40	†	0.46	†	0.61	
Higher degree	.		-0.30		-0.17		0.10	
Grad diploma or certificate	.		0.01		-0.05		-0.20	
Bachelor degree	.		0.44	***	0.28	*	-0.14	
Advanced diploma	.		0.13		0.03		0.43	
Diploma	.		0.28	*	0.14		-0.22	
Certificate III/IV	.		0.08		-0.01		-0.06	
Trade certificate	.		0.01		-0.18		-0.38	
Certificate I/II	.		0.22	**	0.11		0.50	**
At least Year 12	.		0.51	***	0.33	***	0.09	
Per cent time working	.		.		0.15	***	0.15	***
Per cent time unemployed	.		.		-0.01	***	-0.02	***
Occupational status	.		.		.		0.21	***

Note:　Categories are not mutually exclusive. Respondents aged 18 or over only.
Source:　HILDA data waves 1 to 8.

Exiting unemployment or not in the labour force

Table 14 presents estimates for the effects on exiting unemployment or not attached to the labour force.

Age has only weak effects on exiting unemployment or not in the labour force. There were no significant effects for age in the demographic and demographic and qualifications models. Small negative effects were found when controlling for labour force experiences and a larger negative effect was observed when controlling for the occupational status of the previous job. In this model a ten-year increase in age reduces the odds of exiting 1.36 times. Therefore older persons are less likely to become unemployed or not in the labour force but are less likely to exit unemployment or not in the labour force if in this state, net of labour force factors and occupation.

In the first two models there were no gender effects. However, when controlling for labour force experiences and the occupational status of the previous job, men were less likely to exit unemployment or not in the labour force than women. The odds of women exiting were 1.4 times the odds for men.

Marriage only moderately increases the odds of exiting unemployment or not in the labour force. In the demographic-only model (model 1), marriage increased the odds 1.4 times. This effect cannot be attributed to qualifications in education and training, but can be attributed to labour force experiences. A similar but weaker pattern is observed for de facto relationships. There were no effects on exiting unemployment for divorce, separation or widowhood.

For a 45-year-old single woman (unemployed or not in the labour force), the predicted probability of exiting is better than even at 0.64. For married women of the same age, the probability increases to 0.71.

A bachelor degree increases the likelihood of exiting unemployment or not in the labour force. This effect is partially explained by labour force experiences and, when occupational status is included in the model, the effect of a bachelor degree is no longer statistically significant.

A VET diploma and entry-level VET qualifications (certificate I/II) also increase the odds on exiting unemployment or not in the labour force. These weak effects can be attributed to differences in labour force experiences, since the effects are not statistically significant in model 3. There were no significant effects for the other post-school qualifications.

Completion of Year 12 had a relatively strong positive effect on exiting unemployment or not in the labour force, increasing the odds 1.7 times. This effect was partially due to better labour force histories and was no longer significant when controlling for previous occupational status.

For a 45-year-old single woman who had not completed school with no post-school qualifications, the predicted probability of exiting unemployed or being not in the labour force is 0.51. With a bachelor degree, which almost invariably includes school completion, the probability increases substantially to 0.77. With a VET diploma and assuming a certificate I or II qualification, the probability is 0.67.

The labour force experience variables have predictable effects on exiting unemployment or not in the labour force. A ten-percentage point increase in time spent working increase the odds of exiting 1.2 times. A one-percentage point increase in time spent unemployed reduced the odds of exiting 1.01 times. This scarring effect would only be substantial for those who had spent a considerable part of their working lives unemployed.

Higher occupational status increases the chances of exiting unemployment or not in the labour force. A ten-point difference in occupational status of the previous job changes the odds of exiting by about 1.3 times.

Low wealth

Table 15 presents the incidence of low wealth (both unequivalised and equivalised) for all persons and by education level for the two waves in which wealth data were collected. There are no differences between 2002 and 2006. There appears to be little difference in the proportions whether the equivalised or unadjusted measures are used. Therefore, the next section of this chapter will focus on the equivalised measure.

Table 15 shows lower incidences of low wealth for higher degrees, graduate diplomas or certificates and to a lesser extent bachelor degrees. Of VET qualifications, advanced diplomas and diplomas are associated with low incidences of low wealth than for 'all persons' and the proportions are comparable with those for a bachelor degree. A trade qualification is also associated with lower proportions of low wealth. Entry-level VET certificates showed slightly lower proportions with low wealth than for 'all persons'. In contrast, for a certificate III or IV qualification the incidence of low wealth is substantially higher than that for 'all persons'. Year 12 completion does not appear to be associated with a lower incidence of low wealth: the proportion having 'at least Year 12' or 'less than Year 12' is similar to that for 'all persons'. A possible explanation for this may be that the effect does not control for age and changes in school completion over time. Older people are less likely than younger people to have Year 12 but have had a longer period to accumulate wealth.

Table 15   Incidence of low wealth by education and training qualification (%)

	2002		2006	
	Non-equivalised	Equivalised	Non-equivalised	Equivalised
All persons	22.4	21.6	22.3	21.2
Higher degree	14.9	13.9	17.4	16.4
Grad. diploma or certificate	12.2	11.8	11.0	8.9
Bachelor degree	17.9	16.7	17.3	15.4
Advanced diploma	15.0	13.6	14.2	13.2
Diploma	16.4	14.9	17.6	16.2
Certificate III/IV	26.1	26.5	28.9	27.1
Trade certificate	18.2	16.6	16.3	15.1
Certificate I/II	19.6	18.8	19.8	18.6
No post-school qualifications and:				
At least Year 12	22.2	21.0	22.5	20.9
Less than Year 12	22.6	22.0	22.2	21.5

Note: Categories are not mutually exclusive.
Source: HILDA data waves 1 to 8.

Table 16   Effects on (equivalised) low wealth

	Model 1		Model 2		Model 3		Model 4		Model 5	
Intercept	-1.28	***	-0.88	***	-1.30	***	-1.50	***	-1.78	***
Age	-0.51	***	-0.56	***	-0.56	***	-0.60	***	-0.69	***
Male	-0.06		-0.03		0.22	***	0.24	***	0.11	†
Married	-0.77	***	-0.74	***	-0.64	***	-0.64	***	-0.46	***
De facto relationship	0.32	***	0.35	***	0.43	***	0.43	***	0.50	***
Divorced	0.55	***	0.54	***	0.61	***	0.60	***	0.73	***
Separated	0.75	***	0.75	***	0.81	***	0.83	***	0.88	***
Widowed	0.34	†	0.23		0.20		0.16		0.05	
Higher degree	.		-0.21		-0.30	*	-0.25		-0.19	
Grad. diploma or certificate	.		-0.40	***	-0.40	**	-0.39	**	-0.34	*
Bachelor degree	.		-0.25	***	-0.21	**	-0.16	*	0.13	†
Advanced diploma	.		-0.43	**	-0.39	**	-0.36	*	-0.26	†
Diploma	.		-0.37	***	-0.28	**	-0.27	**	-0.21	*
Certificate III/IV	.		0.10	†	0.12	†	0.13	*	0.17	*
Trade certificate	.		-0.38	***	-0.21	**	-0.22	**	-0.25	**
Certificate I/II	.		-0.16	**	-0.10	†	-0.07		-0.01	
At least Year 12	.		-0.61	***	-0.43	***	-0.41	***	-0.32	***
Per cent time working	.		.		-0.17	***	-0.13	***	-0.13	***
Per cent time unemployed	.		.		0.01	***	0.01	***	0.01	***
Working part-time	.		.		.		0.02		-0.07	
Unemployed	.		.		.		0.61	***	0.48	**
Not in the labour force	.		.		.		0.53	***	0.52	***
Occupational status	.		.		.		.		-0.09	***

Note: † 0.10<P<0.05; * 0.05<P<0.01; ** 0.01>P>0.001; *** P<0.001.
Source: HILDA data waves 1 to 8.

Influences on low wealth

Table 16 shows the effects on equivalised low wealth using the five-model strategy employed for the analysis of the other dimensions of financial disadvantage. There is a strong negative effect for age, reflecting the lower wealth of younger people. A ten-year increase in age reduces the odds of falling into the low wealth group 1.7 times. The effect of age is unchanged when controlling for qualifications and experience in the labour force. It increases slightly when taking into account labour force status and increases further when controlling for occupational status. The effect for age is, therefore, due to general accumulation and asset price rises rather than the association of age with labour market factors.

No gender differences were found in the first two models. Controlling for labour force experiences, there is a moderate tendency for males to be more likely to fall into the low (equivalised) wealth group. However, when controlling for occupational status, the gender difference is no longer significant at the conventional level (P<0.05). These results can be interpreted as gender differences in low wealth (when controlling for labour force factors) accounted for by gender differences in occupational status. (Although as the mean level of occupational status is similar for both sexes, there are more men in low-occupational status jobs.)

Marriage has strong protective effects on avoiding low wealth. Compared with being single, marriage reduces the odds of low wealth by a factor of two. The effect of marriage can only be partially attributed to labour force histories, current labour force status and occupational status. In the final model, the effect is still quite substantial, reducing the odds of low wealth 1.6 times.

In contrast to the previous analyses, de facto relationships do not reduce the odds of falling into the low wealth group. In contrast, relative to being single, de facto relationships increase the odds of low wealth. This effect increases when taking into account qualifications, labour force experiences, current labour force situation and occupational status. In the final model, a de facto relationship increases the odds of low wealth 1.6 times, exactly the opposite of the effect of marriage. Divorce and separation also increase the chances of low wealth and the effects are stronger when labour force variables are included. Taken together, the effects of marital status on low wealth are quite substantial.

Model 2 adds education and training qualifications. Most qualifications reduce the chances of low wealth. The strongest effects are for a graduate diploma or certificate, an advanced VET diploma, a trade certificate and a VET diploma. The effects for a trade certificate and VET diploma survived controls for current labour force situation and occupational status. In the final model, the effect of an advanced diploma was moderate, in the expected direction but only statistically significant at the more generous $P<0.10$ level. So it can be concluded that these VET qualifications reduce the chances of low wealth, although the effects are only moderate.

The effect of a bachelor degree was weaker. Its effect declined with the addition of control variables and in the final model its effect was very weak and significant only at the $0.05<P<0.10$ level. Therefore, the moderate effect of bachelor degree on avoiding low wealth can be attributed to bachelor degrees promoting better labour force histories, full-time work and high-status jobs.

The effects of lower-level VET certificates were weak and a certificate level III or IV qualification had no significant effect. Controlling for other factors in the final model, a certificate level III or IV qualification *increased* rather than decreased the chances of (equivalised) low wealth. However, the effects were weak.

Completion of Year 12 has a strong negative effect, reducing the odds of low wealth 1.8 times. This effect could be partially explained by labour force histories, current labour force status and occupational status. In the final model, it had still had a substantial effect, reducing the chances of low wealth 1.4 times.

The labour force experience variables showed familiar patterns of positive effects on avoiding low wealth for time working and negative effects for unemployment. A ten-percentage point increase in time spent working reduced the odds of low wealth 1.2 times. Some of this effect could be attributed to present labour force situation but not to occupational status. The effect of time spent unemployed was the same in the three models.

There was no effect of part-time employment on low wealth. In contrast there were substantial effects for unemployment and not in the labour force. Being unemployed increased the odds of low wealth 1.8 times and not in the labour force 1.7 times. These effects cannot be attributed to the occupational status of the current or previous job.

Occupational status had a moderate negative effect on low wealth. A ten-unit difference in occupational status reduced the odds of low wealth 1.1 times.

Conclusions

The primary focus of this study was to investigate the effects of post-school qualifications in education and training on financial disadvantage and the extent that their effects were mediated by labour market factors.

Post-school qualifications and financial disadvantage

All post-school qualifications are important in avoiding income poverty but only bachelor degrees enhance exit from income poverty. Bachelor degrees have much stronger effects on avoiding income poverty than do vocational qualifications. Net of both observed and unobserved influences, only bachelor degrees had significant effects on avoiding income poverty.

The process by which post-school qualifications reduce the chances of income poverty involves labour market factors. So the explanation is that post-school education and training reduce the chances of income poverty, principally because they enhance labour market outcomes: increasing the proportion of time spent working, decreasing the time spent unemployed and promoting full-time work, rather than part-time work, unemployment, or not being labour force. However, the effects for bachelor degrees and postgraduate diplomas and some certificates could not be completely accounted for by these labour market factors. University degrees reduce the chance of income poverty, not only because they promote better labour market outcomes, but because they are associated with other factors that reduce the chances of income poverty.

In general, the impact of post-school qualifications on financial stress was much weaker than their effects on income poverty. The effects of a bachelor degree, or a postgraduate diploma or certificate can only be described as moderate. The effects for vocational qualifications were either not statistically significant or negligible. In the fixed-effects analysis none of the post-school qualifications had a substantial significant impact on financial stress. Similarly, only bachelor degrees and trade certificates weakly increase the chances of exiting financial stress. Possible explanations for the different findings for income poverty and financial stress is that financial stress reflects consumption as well as income and it includes financial management, making this concept quite distinct from income poverty.

For unemployment, a bachelor degree, a VET diploma and trade certificate all significantly reduced the chances of becoming unemployed. However, the effects were moderate and could be attributed to the effects on labour force experiences. More substantial effects were found for post-school qualifications on unemployment or not being in the labour force. There was a substantial impact for bachelor degrees and weaker but significant effects for post-school vocational qualifications. These effects can be attributed to superior labour market histories. In the fixed-effects model, both a bachelor degree and a vocational diploma substantially reduced the odds of unemployment or not being in the labour force. For exiting unemployment, bachelor degrees had a moderate impact, and weaker effects were found for a VET diploma and entry-level vocational qualifications.

Almost all post-school qualifications reduce the chances of falling into the low-wealth group. Similar-sized effects were found for graduate diplomas or certificates, advanced diplomas and trade

certificates. Weaker effects were found for bachelor degrees and entry-level VET certificates. These effects could not be wholly attributed to labour market experiences.

In addition to the effects of post-school qualifications and labour force factors, there were effects for demographic factors. Age effects were different for income poverty than for the other dimensions of financial disadvantage. There were substantial effects for marital status and for a range of labour force factors.

One of the most remarkable findings from this study is the strong effects of marriage on financial disadvantage. In the US, Waite (1995; Waite & Gallagher 2000) has documented the positive effects for marriage on a range of social outcomes, including its effects on wealth and poverty. In Australia, marriage has strong effects on avoiding all dimensions of financial disadvantage and promotes exiting from financial disadvantage. Its effects are strong, especially for income poverty and unemployment. Its effects on income poverty and low wealth cannot be attributed to married households having two incomes because the measures have been adjusted for the number of adults and children in the household. De facto relationships also exerted protective effects on financial disadvantage, but not nearly to the same degree as marriage. They have particularly positive effects on income poverty. In contrast, de facto relationships increase the likelihood of low wealth. Separation and divorce tend to have quite strong negative consequences for financial disadvantage. In general, the effects of marital status on financial disadvantage are stronger than the effects for post-school qualifications.

References

Abello, A & Harding, A 2004, *The dynamics of child poverty in Australia*, National Centre for Social and Economic Modelling, University of Canberra, Canberra.

ABS (Australian Bureau of Statistics) 2001, *Labour statistics: concepts, sources and methods,* cat.no.6102.0, ABS, Canberra.

——2002a, 'Income and welfare – household income, living standards and financial stress', in *Year Book Australia,* cat.no.1301.0 2002, ABS, Canberra.

——2002b, *Measuring Australia's progress,* cat.no.1370.0, ABS, Canberra.

——2006, *Labour force, Australia, spreadsheets table 02: labour force status by sex – trend seasonally adjusted,* cat.no.6202.0.55.001, ABS, Canberra.

——2009, *Household income and income distribution, Australia, 2007–08*, cat.no.6523, ABS, Canberra.

Allison, P 2005, *Fixed effect regression methods for longitudinal data using SAS*, SAS Institute, Cary, NC.

Arulampalam, W 2001, 'Is unemployment really scarring? Effects of unemployment experiences on wages', *Economic Journal*, vol.111, no.475, pp.585–606.

Atkinson, A 1998, *Poverty in Europe*, Blackwell, Oxford.

Australian Senate 2004, *A hand up not a hand out: renewing the fight against poverty*, Community Affairs Reference Committee, Australian Senate, Canberra.

Bækgaard, H 1998, *The distribution of household wealth in Australia: 1986 and 1993*, National Centre for Social and Economic Modelling, University of Canberra, Canberra.

Brady, D 2003, 'Rethinking the sociological measurement of poverty', *Social Forces*, vol.81, no.3, pp.715–52.

Bray, R J 2003, 'Hardship and Australian families', in 8th Australian Institute of Family Studies Conference, Australian Institute of Family Studies, Sydney.

Chiswick, BR, Lee, YL & Miller, PW 2003, 'Schooling, literacy, numeracy and labour market success', *Economic Record*, vol.79, no.245, pp.165–81.

Department of Family and Childhood Services (FaCS) 2003, *Inquiry into poverty and financial hardship*, Commonwealth Department of Family and Community Services, Canberra.

Eardley, T 1998, *Working but poor? Low pay and poverty in Australia*, Social Policy Research Centre, University of New South Wales, Sydney.

Eckersley, S, Nelson, J & Atkins, J 2006, *Financial stress and its impact*, Wesley Mission Research, Sydney.

Eurostat Task Force 1998, *Recommendation on social exclusion and poverty statistics*, document CPS/98/31/2, Statistical Office of the European Communities, Luxembourg.

Förster, MF 2000, *Trends and driving factors in income distribution and poverty in the OECD area*, OECD, Paris.

Fouarge, D & Layte, R 2005, 'Welfare regimes and poverty dynamics: the duration and recurrence of poverty spells in Europe', *Journal of Social Policy*, vol.34, no.3, pp.407–26.

Harding, A, Lloyd, R & Greenwell, H 2001, *Financial disadvantage in Australia, 1990–2000: the persistence of poverty in a decade of growth*, The Smith Family, Camperdown, NSW.

Headey, B 2003, *Income and wealth – facilitating multiple approaches to measurement and permitting different levels of aggregation*, Melbourne Institute for Applied Economic and Social Research, University of Melbourne.

——2008, 'Poverty is low consumption and low wealth, not just low income', *Social Indicators Research*, vol.89, no.1, pp.23–39.

Headey, B, Marks, GN & Wooden, M 2005a, 'The dynamics of income poverty in Australia: evidence from the first three waves of the HILDA Survey', *Australian Journal of Social Issues*, vol.40, no.4, pp.541–52.

——2005b, 'The structure and distribution of wealth in Australia', *Australian Economic Review*, vol.38, pp.159–75.

Henderson, RF, Harcourt, A & Harper, RJA 1970, *People in poverty: a Melbourne survey*, Institute of Applied Economic and Social Research, Melbourne.

Hill, MS 1981, 'Some dynamic aspects of poverty', in *Five thousand American families – patterns of economic progress,* eds MS Hill, DH Hill & JN Morgan, Institute for Social Research, University of Michigan, Ann Arbor.

Horton, NJ & Lipsitz, SR 1999, 'Review of software to fit generalized estimating equation regression models', *American Statistician*, vol.53, pp.160–9.

Jarvis, S & Jenkins, S 1997, 'Low income dynamics in 1990s Britain', *Fiscal Studies*, vol.18, no.2, pp.123–42.

Kangas, O & Ritakallio, V-M 2004, *Relative to what? Cross-national picture of European poverty measured by regional, national and European standards*, EU, Luxembourg.

Kelly, S 2001, 'Trends in Australian wealth – new estimates for the 1990s', in 30th Annual Conference of Economists, University of Western Australia, Perth.

Long, M 2005, *How young people are faring 2005*, Dusseldorp Skills Forum, Sydney.

Marks, GN 2005, 'The dynamics of financial disadvantage in Australia', *Agenda: A Journal of Policy Analysis and Reform*, vol.12, no.4, pp.309–22.

——2006, *The transition to full-time work of young people who do not go to university*, Australian Council for Educational Research, Melbourne.

——2007, *Income poverty, subjective poverty and financial stress*, Department of Family, Community Services and Indigenous Affairs, Canberra.

Marks, GN & Fleming, N 1998, *Factors influencing youth unemployment in Australia: 1980–1994*, Australian Council for Educational Research, Melbourne.

Marks, GN, Headey, B & Wooden, M 2005, 'Household wealth in Australia: its components, distribution and correlates', *Journal of Sociology*, vol.41, no.1, pp.47–68.

McColl, B, Pietsch, L & Gatenby, J 2001, 'Household income, living standards and financial stress', in National Social Policy Conference, ABS, Sydney.

McMillan, J, Beavis, A & Jones, FL 2009, 'The AUSEI06: a new socioeconomic index for Australia', *Journal of Sociology*, vol.45, no.2, pp.123–49.

Moller, S, Heber, E, Stephens, JD, Bradley, D & Nielsen, F 2003, 'Determinants of relative poverty in advanced capitalist democracies', *American Sociological Review*, vol.68, no.1, pp.22–51.

Northwood, K, Rawnsley, T & Chen, L 2002, *Experimental estimates of the distribution of household wealth, Australia, 1994–2000*, ABS, Canberra.

O'Brien, M, Valadkhani, A & Townsend, K 2008, 'The Australian labour market in 2007', *Journal of Industrial Relations*, vol.50, no.3, pp.383–98.

Oxley, H, Burniaux, J-M, Dang, T-T & d'Ercole, MM 1997, 'Income distribution and poverty in 13 OECD countries', *OECD Economic Studies*, vol.29, no.II, pp.55–94.

Oxley, H, Dang, TT & Antolin, P 2000, 'Poverty dynamics in six OECD countries', *OECD Economic Studies*, vol.30, no.1, pp.7–52.

Ringen, S 1998, 'Direct and indirect measures of poverty', *Journal of Social Policy*, vol.17, no.3, pp.351–65.

Rodgers, JR, Siminski, P & Bishop, J 2009, 'Changes in poverty rates during the Howard Era', *Australian Economic Review*, vol.42, no.3, pp.300–20.

Saunders, P 1996, 'Poverty and deprivation in Australia', in *Year Book Australia*, ABS, Canberra.

——1998, *Defining poverty and identifying the poor: reflections on the Australian experience*, Social Policy Research Centre, University of New South Wales, Sydney.

——2004, *Towards a credible poverty framework: from income poverty to deprivation*, Social Policy Research Centre, University of New South Wales, Sydney.

Saunders, P, Bradshaw, J & Hirst, M 2002, 'Using household expenditure to develop an income poverty line', *Social Policy and Administration*, vol.36, no.3, pp.217–34.

Saunders, P & Hill, T 2008, 'A consistent poverty approach to assessing the sensitivity of income poverty measures and trends', *Australian Economic Review*, vol.41, no.4, pp.371–88.

Saunders, P & Naidoo, Y 2009, 'Poverty, deprivation and consistent poverty', *Economic Record*, vol.85, no.271, pp.417–32.

Saunders, P & Tsumori, K 2002, *Poverty in Australia: beyond the rhetoric*, Centre for Independent Studies, St. Leonards, NSW.

Waite, L 1995, 'Does marriage matter?' *Demography*, vol.32, no.4, pp.483–507.

Waite, L & Gallager, M 2000, *The case for marriage: why married people are happier, healthier, and better off financially*, Double Day, New York.

Watson, N 2004, *Income and wealth imputation for waves 1 and 2*, Melbourne Institute for Applied Economic and Social Research.

——2010, *HILDA user manual – release 8*, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Wilkins, R, Warren, D & Hahn, M 2009, 'Incomes and economic wellbeing', in *Families, incomes and jobs: a statistical report on waves 1 to 6 of the HILDA survey*, Melbourne Institute of Applied Economic and Social Research.

Woods, D 2008, 'The impact of VET on transition to work for young people in Australia', *Education and Training*, vol.50, no.6, pp.465–73.

Appendix A:
Financial disadvantage in Australia

Research on financial disadvantage in Australia has focused mainly on poverty. Poverty is usually defined as living in a household with an income below that of a designated poverty line. Income poverty is at best an imperfect measure of financial disadvantage. It does not take into account the expenditure which may be substantially lower or higher than income, consumption patterns, housing expenses or accumulated wealth. These factors all have a bearing on a household's standard of living. A retired couple on low incomes with few expenses who own their own home are likely to have a higher standard of living than a family on much higher incomes with a large mortgage and substantial expenses.

Other measures of financial disadvantage have been developed aiming to overcome perceived inadequacies with income poverty. One of the major points of the Department of Family and Community Services (2003, p.xi) submission to the Senate Enquiry into Poverty (Australian Senate 2004, pp.xvii,18–20) was that financial disadvantage was too narrowly defined by income. Financial stress which measures a household's financial situation should complement understanding of financial disadvantage (McColl, Pietsch & Gatenby 2001). Headey (2008) argues that poverty should be measured by low income, low consumption and low wealth.

There is an implicit assumption that the different indicators of financial disadvantage are tapping the same underlying concept, but all do so imperfectly. In other words, it is assumed there is a relatively stable group of people in society who are financially disadvantaged and these indicators will to varying extents identify them. However, financial stress, income poverty and subjective poverty (respondents' own evaluations of their standard of living) are quite distinct and do not involve the same people (although there is overlap) and their social, educational and labour force characteristics differ (Marks 2005, 2007)

Poverty

The study of poverty has its origins with Rowntree's study of York in the early 1900s, in which poverty was defined as having insufficient income to purchase the very basic physical necessities of life, such as not having enough to eat.[6] In that study, poverty was defined in absolute terms, which became the dominant approach for the first half of the 20th century (Saunders, Bradshaw & Hirst 2002). In the mid-1960s the official poverty line for the United States was defined as three times the cost of a basic food basket.[7] In Australia, the original Henderson poverty line was defined in absolute terms as the basic wage plus child endowment for a family of four (Henderson, Harcourt

---

[6] The Australian public also understands poverty in absolute terms. About three-quarters of Australian adults define poverty in subsistence terms (Saunders 2004, p.8). However, there is little consensus on what income level is required not to be in poverty (Saunders 1998).

[7] The factor of three was used because food constitutes about a third of household expenditure. The food basket was stipulated according to American Nutrition standards (Ringen 1998).

& Harper 1970; Saunders 1998).[8] The income required for other family types was calculated from this benchmark. However, the Henderson poverty line is no longer applicable because of the way it is updated. It shows a substantially higher proportion of Australians living in poverty than other measures since it has been updated using per capita disposable family income rather than the consumer price index (Harding, Lloyd & Greenwell 2001, p.37). Between the mid-1990s and until recently, increases in real incomes outstripped increases in the cost of living.

Absolute poverty defined at subsistence levels is no longer appropriate. Very few citizens of industrialised societies live without shelter, running water, or sufficient food. To define poverty in such absolute terms would be to define it out of existence. Similarly, there would be little agreement among experts on the selection and level of goods and services required to live decently in contemporary Australia.[9]

Currently, the dominant approach to poverty research in Australia and other Western countries is the concept of relative poverty. The poverty line is most often drawn at half the median disposable household income after adjusting (equivalised) for household size (Atkinson 1998; Brady 2003; Moller et al. 2003; Oxley et al. 1997).

There are a variety of conceptual and technical issues surrounding the conceptualisation and measurement of income poverty, which means that any estimate of the level of income poverty can be challenged.

A common criticism of measures of relative income poverty is their inherent arbitrariness. There is no particular reason why the 50% of median income was chosen as the poverty line. Eurostat recommended that the poverty line should be set at 60% of median household income (Eurostat Task Force 1998). Less often, the poverty line has been drawn at half the mean (rather than median) disposable income (Harding, Lloyd & Greenwell 2001).

The half median or mean income measures provide no indication of the standard of living. An income below half the median income may provide a very different standard of living in Australia from that in other industrialised countries (Kangas & Ritakallio 2004) or in Australia to the past. Such relative measures do not resonate with common societal understandings of poverty (Saunders 2004, p.8).

Arguably, relative measures of income poverty are measures of distribution rather than financial disadvantage (Saunders & Tsumori 2002). There is a sense that with relative measures, poverty will always be with us no matter how much the standard of living of low-income households increases. For example, if the real incomes of all households doubled over the next ten years, relative poverty would remain the same. Mean-based measures are particularly sensitive to the distribution of income; if the real incomes of higher-income households grew more strongly than that of other households, relative income poverty would increase. Relative poverty can only be eliminated by radical changes to the distribution of household income, which is not a feasible or desirable policy option. It is more practical to increase the standard of living, and the social and economic opportunities of the lowest income households.

Incidence

Mean- and median-based measures can lead to quite different conclusions on changes in poverty over time. According to the half-mean measure with Henderson equivalences, poverty increased from 11.3% in 1990 to 13.0% in 2000. However, with the half-median measure the incidence is

---

[8] Saunders (2004) notes that the original Henderson poverty line was based on the basic wage, whereas nowadays the updated Henderson poverty line is used to argue for increases in the minimum wage.

[9] For a recent study on deprivation in Australia see Saunders and Naidoo (2009).

lower and the increase during the 1990s much smaller, from 8.2 to 8.7% (Harding, Lloyd & Greenwell 2001, p.4-5).

If different cut-offs are used there are substantial changes to estimates of the proportion living in poverty. Using 60% of median income as the cut-off, Saunders and Hill (2008) estimated income poverty in Australia at 24% in 2003–04. Headey, Marks and Wooden (2005a) also obtained estimates above 20% using the 60% cut-off but less than 7% using the 40% cut-off. This compares with around 13% using the standard 50% cut-off.

Annual estimates show the proportion in income poverty in Australia is quite stable. According to analysis of the HILDA longitudinal data, with income-poverty defined by the half-median equivalised household disposable income measure, about 14% of the Australian population were in income poverty in 2001 (for the financial year 2000–01), 13% in 2002 and 12% in 2003 (Headey, Marks & Wooden 2005a) . More recent estimates for 2004 to 2006 are around 12 and 13% (Wilkins, Warren & Hahn 2009, p.33).

However, if the poverty line is calculated by adjusting for price or income increases from a benchmark year, income poverty shows substantial declines. This is sometimes referred to as 'absolute poverty'. Using changes in real incomes to update the 1984 half-median poverty line for subsequent years, the Department of Family and Community Services (2003, pp.79–80) concluded that poverty had declined from about 11% in 1984 to just over 5% in 1998–99. Performing the same exercise with the 1984 half-mean measure also indicates a decline in poverty from over 17% in 1984 to less than 10% in 1998–99. Using 2001 as the benchmark year and adjusting the poverty line by the consumer price index for the following years, poverty had declined substantially from 13.4 % in 2001 to 6.9% in 2006 (Wilkins, Warren & Hahn 2009, p.33). Similarly, comparing the financial years 2002–03 with 1995–96, Rodgers, Siminski and Bishop (2009) found that during the Howard years relative poverty increased but absolute poverty decreased (using the benchmark year method). These anomalies may be attributed to changes in the income distributions together with increases in real wages.

Dynamics

Although a common perception of poverty is that it is very stable, people are either living in poverty or not, the unambiguous conclusion from longitudinal surveys is that there is substantial movement into and out of poverty. Therefore, estimates of the poverty level for a single year are substantially higher than the proportion living in poverty over a longer time period.

One of the first major findings from the US Panel Study of Income Dynamics was that over half of those in poverty in one year were still in poverty the next (Hill 1981, p.105). Similarly, in Britain, about 50% of those in poverty, defined at less than 50% of the mean income, were not in poverty in the next year. Only about 4% were in income poverty continuously for four years (Jarvis & Jenkins 1997).

Only recently has it been possible to study the dynamics of income poverty in Australia. Marks (2005) found that of those in income poverty about 40 to 50% were also in poverty the subsequent year and only about 25% were in poverty in the two subsequent years. Headey, Marks and Wooden (2005a) found that 50% exited poverty between year one and two and of those in poverty in both years, 60% were in poverty in the third year. Wilkins, Warren and Hahn (2009, p.34), focusing on the first six waves of HILDA, found that the level of poverty persistence was a little higher, around 60% for adjacent years, falling to 40% between year 1 and year 6 (respondents may have moved out and back into poverty over the time frame). Of those exiting poverty, between 30 and 40% enter poverty in the next two years (Wilkins, Warren & Hahn. 2009, p.34).

Exits from poverty are more often associated with labour force changes such as changes in participation or an increase in hours, and less frequently through marriage (Fouarge & Layte 2005; Oxley, Dang & Antolin 2000, pp.22–36).

Poverty persistence over a longer time frame is much lower than the incidence in any one year. In a study of the dynamics of child poverty in Australia, Abello and Harding (2004, pp.18, 33) estimated that about 5–7% of children were poor persistently over a three-year period. About 30% were in poverty in one of the three years examined (Abello & Harding 2004, p.20). Between 2001 and 2003 about 4% of adults were consistently in poverty (defined as below 50% of median equivalised disposable household income) compared with annual rates of between 12 and 14%. About 76% were never in poverty over the three-year period (Headey, Marks & Wooden 2005a). Wilkins, Warren and Hahn (2009, p.34), focusing on the first six waves of HILDA, found only 2.6% of the population were in poverty in each of the six years and 69% were never in poverty. Therefore, 29% had at least one year in poverty between 2001 and 2006. At least 8% were in poverty for half of the six-year period. Persistent poverty is associated with very little or no attachment to the labour force (Fouarge & Layte 2005).

Correlates of poverty and risk factors

Sole parents are at most risk of being in poverty. According to estimates from the Australian Institute of Health and Welfare, poverty was about three times higher among sole parents in 1989–90 (Saunders 1996). Using a half-mean income poverty measure with Henderson equivalences, Harding, Lloyd and Greenwell (2001) estimated that 22% of sole parents were in poverty, compared with 18% of single persons, 12% of couples with children and 6% of couples without children. Among sole parents with two or more children the poverty rate was over 25% (Harding, Lloyd and Greenwell 2001, pp.7–8). Eardley (1998) also found that poverty, defined by half the median income, is associated with sole parenthood and larger families.

Analysing the first two waves of the HILDA data, Marks (2005) found that marriage and being in a de facto relationship very strongly reduced the odds of being in poverty compared with being single. Divorce, separation and widowhood were also (but more weakly) associated with a lower incidence of poverty. Marks (2007) notes that the impact of marital status was stronger than that of education. Children were associated with an increased risk of being in poverty.

Although a much higher proportion of women are sole parents and women are more likely to be working part-time, the risk of being in poverty is no higher among women than men (Harding, Lloyd and Greenwell 2001, p.15). Marks (2005) found males were significantly less likely to be experiencing income poverty, although the effect was not particularly strong. When controlling for labour force experiences, women tended to show lower odds of being in poverty than men (Marks 2007).

Younger people are more likely to be in poverty than older people. Using a half-mean income with the Henderson equivalence measure, 16% of 15 to 24-year-olds were in poverty in 2000 compared with 11–12% of older age groups. By contrast, multivariate analyses of the HILDA data tend to show that the odds of being in poverty increase with age (Marks 2005).

Low education is also associated with income poverty. Among those with no post-secondary qualifications, poverty (on the half-mean disposal income measure) was 15% compared with 11% among those with diploma, certificate and trade qualifications and only 6% among those with a bachelor degree (or higher) qualification (Harding, Lloyd & Greenwell 2001, p.14). Saunders and Naidoo (2009) found that the incidence of poverty for those without a high school education was 18% compared with 12% among those who had a university degree or trade certificate. Analysing wave 1 of HILDA, Marks (2005) found that university qualifications, especially a postgraduate degree, substantially reduced the odds of being in income poverty relative to school completion, net of other sociodemographic factors. There was no impact of a vocational diploma, advanced

certificate or standard certificate. In contrast, in the wave 2 data, not only did university qualifications reduce the odds of being in poverty, but also VET diplomas and advanced certificates (Marks 2007).

Poverty is strongly associated with labour force status. In 2000, nearly 60% of the unemployed were in poverty. This compares with 17% of those not in the labour force, 12% of part-time workers and only 5% of full-time workers. Among families with no wage earners, 28% were in poverty in 2000 compared with less than 7% of families with at least one full-time wage earner (Harding, Lloyd & Greenwell 2001, p.12). Eardley (1998) found that, among full-year full-time employees, poverty defined by the half-median income, is extremely low at around 1%. This is evidence that the concept 'the working poor' is not appropriate to the Australian context.

Financial stress

In 2006 the Wesley Mission commissioned a research report on financial stress and its impact on the individual, family and community. The study was based on a telephone survey of 400 people randomly selected from the Sydney metropolitan area. The study found that about one-third of households had experienced some kind of anxiety when it came to meeting expenses for the next year, and about four in ten households were unable to use their savings if an unexpected expense had arrived. Furthermore, the study found that almost half of the households was more concerned 'now more than ever' about their money. The strong prevalence of financial anxiety and stress was underlined by the finding that 80% of the respondents had experienced some kind of financial stress during the previous six years (Eckersley, Nelson & Atkins 2006) .

The Wesley Mission report also found that financial stress affects relationships with family members and the community as a whole. Financial stress was associated with relationship break-ups, substance abuse, gambling and domestic violence. Thus financial stress has substantial implications for community services, health organisations and the police. The research also highlighted the factors that may have contributed to financial stress, such as access to credit including short-term credit, low levels of financial literacy and poor financial management (Eckersley, Nelson & Atkins 2006).

A variety of items on financial difficulties have been included in Australian household surveys since the 1986 Australian Standard of Living survey. In that survey, respondents were asked if over the last two years they had cut back on food and heating, got behind on bill or loan repayments or sought financial help. In these data, about a quarter said they cut back on food, about 20% cut back on heating and almost 20% received financial help from family or relatives.

The 1998–99 Household Expenditure Survey (HES) also included items on cash-flow problems in addition to financial deprivation items.[10] The cash-flow items indicated that 15% of households spent more money than was earned, 19% were unable to raise $2000, 16% could not pay utility bills on time, 7% could not pay car registration or insurance on time, 4% pawned or sold something, 3% went without meals, 2% could not afford to heat their home and 3% sought assistance from

---

[10] The Household Expenditure Survey cash-flow questions were as follows:

Over the last 12 months, which of the following best describes your household's financial situation?
  ✧ *Spend more money than we get*   ✧ *Just break even most weeks*   ✧ *Able to save money most weeks*
If all of a sudden you had to get $2000 for something important, could the money be obtained within a week?
  ✧ *Yes*   ✧ *No*
Over the past year have any of the following happened to your household because of a shortage of money?
  ✧ *Could not pay electricity, gas or telephone bills on time*   ✧ *Pawned or sold something*
  ✧ *Could not pay for car registration or insurance on time*   ✧ *Went without meals*
  ✧ *Unable to heat home*   ✧ *Sought assistance from welfare/community organisations*
  ✧ *Sought financial help from friends or family.*

welfare organisations. The incidence of financial stress was clearly related to income, but only a minority of households in the lowest income quartile was financially stressed on the individual indicators. The deprivation and cash-flow items were used to construct a summary measure of financial stress comprising three levels: five or more incidences of financial stress defined high stress, two to four moderate stress, and one or none no stress (ABS 2002a; McColl, Pietsch & Gatenby 2001). About 13% of households had high levels of financial stress in the Household Expenditure Survey, 21% moderate stress and 66% low or no stress.

Bray (2003) identified three components to financial stress after performing factor analysis on the Household Expenditure Survey items, as well as an item on living standards compared with a year ago. He described the three components as: 'missing out', based mainly on the deprivation items; 'cash-flow problems', based mainly on the items about paying bills and borrowing money; and 'hardship', based on the items such as going without meals, selling possessions or seeking help from community organisations. He classified about 3% of households as experiencing 'multiple hardship', while 8% experienced some hardship. The incidence of 'multiple hardship' was highest among single-parent households, at around 14%. Interestingly, couples with children had higher-than-average levels of 'missing out' and 'cash-flow' problems, but lower than average levels of 'hardship'.

The 2002 General Social Survey included nine cash-flow items asked in a similar manner to the Household Expenditure Survey question. About 13% were unable to pay their utility bills on time because of a shortage of money. Eight per cent sought financial help from friends and relatives. The incidence of cash-flow problems in other areas was lower. Nearly 80% of households had no incidences of financial stress, 9% one incident, 5% two incidences, and 6% three or more incidences.

Marks (2005) used the HILDA data to define financial stress by two or more instances of cash-flow problems since the beginning of the year. Each year between 14 and 17% of adults experienced financial stress and about 32% experienced financial stress in any one of the three-year periods studied.

Relationships with social and economic factors

In 2001 the ABS published a paper focusing on household income, living standards and financial stress. The paper had a particular focus on the acquisition of goods and services by households and the factors that may affect this, such as geographic location and income. This paper highlighted the factors associated with what the authors termed 'deprived households' as expense elements which households may not be able to meet, including holidays, eating out, entertaining in the home, purchasing of new clothes or affording leisure or hobby activities. It was noted that while households may look at acquiring just one of these goods or services, this would impact on affording other elements. For example, if a household was saving for a family holiday, then they may have to forego new clothes and leisure activities (McColl, Pietsch & Gatenby 2001).

High levels of financial stress were more common among sole parents (41%), the unemployed (45%), and those on other government support (40%). Econometric analyses found that larger families, disability, sole parenthood, unemployment, having a mortgage, and paying interest on credit cards were associated with financial stress (McColl, Pietsch & Gatenby 2001).

The inclusion of items related to financial stress in the 1998–99 ABS Household Questionnaire gave rise to a dataset that recognised financial hardship in Australian households. This research looked specifically at couples and sole-parent households with children and clear distinctions could be made between the two cohorts of families. For example, sole parents were seen to have suffered a more distinctive pattern of financial stress than couples and were more likely to depend on welfare financial assistance (Bray 2003). The level of income played a role in financial stress, with those households located in higher-income brackets experiencing less financial stress than those households placed in the lower financial income bracket (Bray 2003). Furthermore, family characteristics, such as the number of children, parental education, housing and employment also had an impact on financial stress.

Marks (2005) found that financial stress was negatively related to age but unrelated to gender. He also found that a non-English speaking background increased the odds of financial stress as did being Indigenous. Higher levels of education were associated with lower levels of financial stress.

Unemployment and not in the labour force

Unemployment is a major concern for industrialised societies. At the individual level unemployment may have serious negative consequences. For those experiencing long and frequent bouts of unemployment, their chances of obtaining secure and stable employment (much less careers) are substantially diminished: the so-called scarring effect. They become disillusioned with their job prospects and make less effort in their search for jobs or employers judge their time unemployed as indicative of poor skills and abilities. Many opt out of the labour force altogether.

Unemployment in Australia has declined from nearly 11% in 1993 to less than 5% in 2006 (ABS 2006; O'Brien, Vladkhani & Townsend 2008). Among young people aged 15 to 19 years old unemployment declined from over 25% in 1991–93 to less than 15% in 2005 (Long 2005, p.20). The recent global financial crisis had only a marginal effect on unemployment, pushing the national unemployment rate towards 6%.

Policy initiatives directed specifically at youth unemployment involve increasing education and training in three major areas: school retention, university participation and vocational education. Not only does full-time education decrease the proportion of young people looking for work, it potentially increases the marketability of youth labour. Young people, who in earlier times would have entered the labour force with few formal skills, now enter the labour force later with more skills. Vocational education appears to promote more successful school-to-work transitions (Woods 2008). Marks (2006) found that the proportion of young people looking for work was between 3 and 5% among those with VET qualifications compared to 10% among those with no post-school (VET) qualifications.

In an earlier study on four youth cohorts, VET certificate qualifications were associated with higher levels of unemployment (compared with the overall incidence) but the incidence was lower among than those with higher VET qualifications (Marks & Fleming 1998). For exiting unemployment, the major influences were school achievement, Year 12 completion (only at age 18), having a degree (at age 22), marriage, and especially unemployment experience. The detrimental effect of unemployment experience had increased over time (Marks & Fleming 1998)

For the adult population, higher levels of education are associated with lower unemployment rates (Chiswick, Lee & Miller 2003). Analysis of the British socioeconomic panel found scarring effects of unemployment on wages and subsequent employment (Arulampalam 2001).

Low wealth

There been no Australian research specifically focused on low wealth. This contrasts with large literature on income poverty (reviewed above). However, a number of clues about the influences on low wealth can be gained from literature on household wealth (Headey, Marks & Wooden 2005b; Marks, Headey & Wooden 2005).

Age has one of the strongest relationships with household wealth. This probably reflects lifecycle processes, wherein households accumulate wealth as individuals and couples enter the housing market and subsequently increase their home equity. Furthermore, the value of superannuation and other investments almost invariably increases with time. Thus net worth has been found to be relatively low among 15 to 24-year-olds, but increases substantially with each successive age cohort

before peaking in the 55 to 64-year-old cohort, after which it declines (Bækgaard 1998; Marks, Headey & Wooden 2005; Northwood, Rawnsley & Chen 2002).

Wealth is associated with marital status. Marks, Headey and Wooden (2005) found strong effects for marriage, and being in a de facto relationship. However, the measure of wealth was not adjusted for household size so may simply reflect that couple households often have two incomes and so accumulate wealth more quickly than single-person households. Not unsurprisingly, divorce reduces net worth, although there was no effect for marital separation.

Education has also been found to be associated with wealth. Kelly (2001, pp.24–5) reported that degrees and diplomas were associated with greater wealth, while vocational qualifications appeared to make little difference among most age groups. Differences in wealth according to education were generally small among younger cohorts but substantial among older age groups. Analyses of HILDA wealth data showed that the strongest influences on wealth were postgraduate qualifications followed by a bachelor degree. A VET diploma had similar effects on wealth as a bachelor degree. VET certificates were not found to increase wealth and for males the effect was negative (Marks, Headey & Wooden 2005).

Appendix B:
Data, measures and methods

Data

The data used in these analyses are from the first eight waves (2001 to 2008) of the longitudinal Household, Income and Labour Dynamics in Australia (HILDA) survey. HILDA has several features that make it particularly useful for the investigation of financial disadvantage. It is the first large-scale Australian longitudinal survey of adults specifically designed to investigate social and economic dynamics. Circumstances change; people enter and exit from financial disadvantage, partner, separate, divorce, change jobs, gain qualifications, become employed, re-enter the labour force, exit from the labour force. Second, income data were collected from all available (and eligible) household members, improving the accuracy of the measurement of income poverty. Third, HILDA includes data from waves 2 and 6 on wealth, assets and debts, allowing for the examination of the influences on low wealth. Finally, a longitudinal study of this duration allows the analysis of fixed-effects models which provide estimates of effects on financial disadvantage, net of stable unobserved influences. This method relies on changes in respondents' characteristics during the survey period.

The HILDA survey commenced in 2001, with households sampled by a two-stage probability sample. In the first stage 488 census collection districts (CDs), based on 1996 census district boundaries were randomly selected. Within each CD, all households (approximately 200 to 250) were enumerated and 22 to 34 dwellings randomly selected. An adult member of the household was asked to answer questions on the household questionnaire about the household. Interviews were obtained from 7682 households, 66% of the 11 693 households identified as in-scope. The household grid enumerated basic information (age, gender, relationship with other household members) on all 19 914 enumerated household members. Personal interviews were attempted with the 15 203 household members aged 15 years and over.

Successful interviews were obtained from 13 969 household members, a response rate of 90%. Respondents were also asked to complete the self-completion questionnaire, which included the questions on financial stress. Of the 13 969 individuals who responded to the person questionnaire, 13 055 (or 93%) provided usable data from the self-completion questionnaire.

Subsequent waves were based on recontacting previous wave respondents. There are also follow-on rules for collecting survey data from new household members (most often new partners) of original respondents and their children. Details can be found in the *HILDA user manual* (Watson 2010). The response rates for each wave are presented in the *HILDA user manual* (Watson, pp.104–12)

For each wave, three survey data files were created: a household data file derived from the household questionnaire, a responding person file derived from the person questionnaire and the self-completion questionnaire. In addition, the enumerated person data file was derived from the household grid. The questionnaires can be downloaded from the Melbourne Institute website.

Person-year data

To make effective use of longitudinal data, it is best to use all observations, not just those observations for a particular or the most recent year. For the analyses of financial disadvantage using all available data, it is necessary to construct a 'stacked' person-year dataset.

The person-year dataset was constructed by manipulating the annual data (see figure B1).

The person-year dataset allows simultaneous analysis of all years, 2001–08, with approximately 212 304 observations or 'person years'. In addition, the effects of attrition and missing data are substantially reduced and this approach avoids inconsistencies in the estimates that may arise from analysis of data from different waves.

Figure B1 Relationship between person data and person-year data

Person data		Person-year data
		Data for 2001
		Data for 2002
		Data for 2003
		Data for 2004
Data for years 2001–08	to	Data for 2005
		Data for 2006
		Data for 2007
		Data for 2008

In the person-year or stacked datasets there is a record of the respondents' statuses on the financial disadvantage variables for each year. For example, in the standard person dataset the records for being in poverty and in financial stress (scored 1 for yes in the respective state, and zero for not) for individuals with ID numbers 1 to 3 for 2001–04 would be as follows:

Figure B2 Example of translation from person data to person-year data

ID	Poverty 2001	Poverty 2002	Poverty 2003	Poverty 2004	Financial stress 2001	Financial stress 2002	Financial stress 2003	Financial stress 2004
1	1	1	0	0	0	1	1	0
2	0	1	0	1	0	0	0	1
3	1	1	Missing	Missing	0	0	Missing	Missing

In the person-year data these same data are rearranged (stacked):

ID	Year	Poverty	Financial stress
1	2001	1	0
1	2002	1	1
1	2003	0	1
1	2004	0	0
2	2001	0	0
2	2002	1	0
2	2003	0	0
2	2004	1	1
3	2001	1	0
3	2002	1	0
3	2003	Missing	Missing
3	2004	Missing	Missing

This example is for four waves of data, but all eight were processed in this way. Note that the respondent with ID number 3 shows missing data for 2003 and 2004 but their valid observations for 2001 and 2002 are also manipulated in this way and included in the analyses.

Any person-year observation in which the respondent's age is between 18 and 65 years (inclusive) represents a valid observation. If the observation is outside this range, it is not included.

Measures

This section provides an overview of the measures used in this report. For the measures of financial disadvantage, a code of one is assigned to respondents experiencing that form of financial disadvantage in that year and zero otherwise.

Income poverty

The measure of income poverty is based on household disposable income. Household annual income is the total income from wages and salaries, self-employment, investments, superannuation and government benefits for all household members. Disposable income is the income after taxes (federal tax and the Medicare levy) and government transfers (e.g. welfare benefits). These were imputed from gross income. For more details see Headey (2003).

Deductions were not made for employer, employee or private superannuation or insurance contributions, land taxes and rates or health insurance

Table C1 presents the means and medians for annual gross income, disposable income and both gross and disposable income equivalised for household size (using the modified OECD procedure). Missing values were imputed (see Watson 2004).

Table B1 presents the poverty line (disposable income for a single person) and the percentage of persons (children and adults) calculated to be in income poverty from Wilkins, Warren and Hahn (2009, p.33) with comparable statistics calculated for this report.

Table B1   Comparison of poverty lines 2001–08 ($)

	2001	2002	2003	2004	2005	2006
Poverty line[1]	12 259	12 727	13 443	14 138	14 998	16 120
Poverty line calculated for this report	11 808	12 567	13 415	13 875	14 912	15 957
% In relative poverty[1]	13.4	12.9	12.8	12.5	13.6	11.9
% In relative poverty for this report	10.9	11.6	11.6	11.4	13.6	11.1

Note: Poverty lines in current dollars.
Source: From Wilkins, Warren and Hahn (2009, p.33).

The discrepancies can be attributed to differences in the handling of zero and negative incomes, the identification of the median household, and the use of the confidentialised or unconfidentialised data. Furthermore, with each new release of the HILDA, data adjustments are made to data already released.

Financial stress

The measure of financial disadvantage is based on responses to question C2 in the HILDA self-completion questionnaire, which asked respondents whether because of a shortage of money they could not pay bills, mortgage or rent on time, sold or pawned possessions, went without meals, could not heat their home, sought financial help from friends or family, or asked for help from welfare or community organisations. These are understood as cash-flow problems. The item battery for wave 4 is reproduced below.

C2   Since January 2004 did any of the following happen to you because of a shortage of money?

(Cross ☒ one box on each line)

		YES	NO
a	Could not pay electricity, gas or telephone bills on time	☐	☐
b	Could not pay the mortgage or rent on time	☐	☐
c	Pawned or sold something	☐	☐
d	Went without meals	☐	☐
e	Was unable to heat home	☐	☐
f	Asked for financial help from friends or family	☐	☐
g	Asked for help from welfare / community organisations	☐	☐

Table B2   Summary statistics for financial stress (%)

	One or more incidences		Two or more incidences		Three or more incidences		Four or more incidences	
	Mean	Std. error	Mean	Std. error	Mean	Std. error	Mean	Std. error
Wave 1 (2001)	29.3	0.40	16.8	0.33	9.0	0.25	4.3	0.18
Wave 2 (2002)	25.2	0.40	14.1	0.32	6.9	0.23	3.3	0.16
Wave 3 (2003)	24.2	0.40	13.4	0.32	6.8	0.23	3.3	0.16
Wave 4 (2004)	22.4	0.39	12.0	0.31	6.0	0.22	3.0	0.16
Wave 5 (2005)	21.3	0.38	11.7	0.30	5.9	0.22	2.6	0.15
Wave 6 (2006)	19.8	0.37	10.4	0.28	5.1	0.21	2.3	0.14
Wave 7 (2007)	20.3	0.38	10.8	0.29	5.6	0.22	2.6	0.15
Wave 8 (2008)	18.8	0.38	9.4	0.29	5.0	0.21	2.2	0.14

Table B2 shows the incidence of financial stress according to four summary measures. As expected, the incidence of financial stress is dependent on the restrictiveness or severity of the measure. On the most unrestricted measure, nearly 30% of the population aged 18–65 years had experienced at least one incidence of financial stress in wave 1 (2001). Restricting the measure to two or more incidences reduces it to 17%, three or more incidences to 9% and on the most restrictive measure of four or more, only 4% were in financial stress in wave 1 according to this definition.

The converse of these percentages is the proportions not experiencing any financial stress. On the least restrictive measure, 70% of respondents did not experience financial stress in wave 1 (2001). This estimate increases to over 80% on the two or more instances measure, 90% on three or more instances measure and over 95% on the most restrictive measure.

The summary measures also show declines over the eight-year period. On the least restrictive measure, financial stress declined from 30% in wave 1 to less than 20% in wave 8. On the two or more incidences measure, the decline was from 17 to 9% and on the most restrictive measure from 4 to 2%.

The summary measure of financial stress was based on two or more instances of cash-flow problems from the beginning of the year. This measure strikes a balance between incidence and severity. It has a similar incidence to that for income poverty.

Unemployment and not in the labour force

The following definitions are from the Australian Bureau of Statistics (ABS 2001).

Unemployment is defined by the following criteria:

✧ without work

✧ actively seeking work

✧ currently available for work.

The active job search criterion is waived for people waiting to start a new job that they have already obtained.

Not in the labour force includes both those marginally attached to the labour force and the not marginally attached.

Marginal attachment is determined by first establishing whether a person not in the labour force has a desire to work, and then by whether they have been actively seeking work or are available to start work within a short period of time. Individuals who are marginally attached may satisfy some, but not all, of the criteria required to be classified as unemployed. Individuals not in the labour force are considered to be marginally attached if they:

✧ want to work and are actively looking for work but not available to start work in the reference week; or

✧ want to work and are not actively looking for work but are available to start work within four weeks.

Table B3 presents summary statistics for unemployment and not in the labour force for each of the eight waves of HILDA (without age limitations). The incidence of unemployment or not in the labour force is similar to that for income poverty and financial stress. In addition, declines are found between 2001 and 2008.

Table B3   Summary statistics for unemployment and not in the labour force (%)

	Unemployed		Unemployed or not in the labour force	
	Mean	Std. error	Mean	Std. error
Wave 1 (2001)	4.4	0.17	12.1	0.28
Wave 2 (2002)	3.9	0.17	11.4	0.28
Wave 3 (2003)	3.6	0.16	11.0	0.28
Wave 4 (2004)	3.3	0.16	10.1	0.27
Wave 5 (2005)	3.2	0.16	9.7	0.26
Wave 6 (2006)	2.9	0.15	9.2	0.25
Wave 7 (2007)	2.8	0.15	8.1	0.24
Wave 8 (2008)	2.8	0.15	8.0	0.24

Low wealth

The measures of wealth, assets and debts were from the questions in the wealth modules in waves 2 and 6. Questions covering housing, unincorporated businesses, equity-type investments (e.g. shares and managed funds), cash-type investments (e.g. bonds and debentures), life insurance policies, vehicles and valuables (e.g. jewellery, art works) were asked at the household level and answered by one adult on behalf of the entire household. Questions about superannuation, bank accounts, credit cards, HECS debt and other personal debt were asked directly of individuals. For most questions, respondents were asked to provide exact dollar amounts. Wealth is simply assets minus debts. Details on the construction of the wealth variables are available in several publications (Headey 2003; Headey, Marks & Wooden 2005b, Marks, Headey & Wooden 2005).

Qualifications in education and training

Qualifications in education and training are measured by the following variables:

✧ university higher degree qualification

✧ graduate diploma or graduate certificate

✧ advanced diploma

✧ bachelor degree

✧ diploma

✧ trade certificate and apprenticeship

✧ VET certificate III and IV

✧ VET certificate I and II + unknown level.

They form a series of binary variables, scored one for having the qualification and zero for not having the qualification. The constituent variables are not mutually exclusive so there is no need to consider them as hierarchical. In other words, if respondents hold a VET certificate III or IV and have an associate diploma they score one on both variables. This procedure is much more informative about the impact of these individual qualifications on financial disadvantage.

There is an additional variable for school completion (Year 12), which was also scored one-zero.

Other variables

The measures of other influences on financial disadvantage are apparent from the tables and the text. For the categorical variables, gender is a dichotomous dummy variable scored one for males and zero for females. Marital status comprises five dummy variables: married, in a de facto

relationship, divorced, separated, widowed and single and never married. Current labour force status comprises four dummy variables: full-time work, part-time work, unemployed, and not in the labour force. The appendix presents the frequencies for the categorical measures.

The continuous measures include: the two labour history measures; the percentages of time since leaving full-time education spent employed and unemployed; and occupational status.

The occupational status measures were measured using the occupational status scale called the Australian Socioeconomic Index 2006 known by the acronym AUSEI06 (McMillan, Beavis & Jones 2009).[11] If during that year no occupation was recorded then previous occupation was used (if available).

Methods

The analyses presented in this report include bivariate and multivariate analyses. All analyses are restricted to respondents aged 18 to 65 years in the year the survey was conducted.

Cross-tabulations show the percentage experiencing financial disadvantage by educational and training status. The incidence for all persons is included for reference purposes.

For the multivariate analyses, groups of variables were added sequentially, beginning with demographic factors, referred to as the demographic model (model 1). It comprises age, gender and marital status. The next model (model 2) comprises post-school qualifications in education and training, and school completion. The third block of variables added are work and unemployment histories (model 3); the fourth, current labour force status (model 4) and the final model added occupational status of the current or prior job (model 5). Note that model 5 involves fewer observations since a high proportion (about 20–23%) of respondents aged 18 to 65 have no present or recent prior occupation. This includes mainly students and home makers and others classified as not in the labour force, such as early retirees and those on welfare benefits. Current labour force status variable was not included in the analyses of unemployment or not in the labour force since current labour force status comprises categories for both unemployment and not in the labour force. Occupational status could not be included in the fixed-effects analysis of unemployment or not in the labour force due to high collinearity.

This sequential modelling strategy allows evaluations of which variables have 'independent' effects on financial disadvantage and if the effects of post-school qualifications are mediated by subsequent labour force factors. If a demographic variable or post-school qualification has substantial and significant effects in the final model, then its effect is 'independent' of the other factors modelled. In other words the processes that account for its effects do not involve the labour force variables included in the final models. On the other hand, if in the final model its effect is not statistically significant (which means there is no net effect) or trivial (statistically significant but the effect close to zero), then the labour force factors added in models 3 to 5 'account' for its initial effects. In a number of instances the labour force factors partially account for the initial effects indentified in model 1 (for demographic factors) or model 2 (for post-school qualifications and school completion).

---

[11] A list of occupations and their ANU4 occupational status scores is available on the internet <http://www.dest.gov.au/ archive/highered/eippubs/eip02_4/appendix_02.htm>.

Logistic regression

The multivariate analyses include repeated measures and fixed-effects models. Such techniques can be used for continuous, dichotomous or discrete dependent variables. Since all the outcomes are binary, the logistic (or binominal) regression is used.

For categorical variables, for example, the coefficients for gender are males compared with females, the coefficients for the marital status variables are relative to being single and the coefficients for the labour force status variables are relative to full-time employment.

For education and training qualifications, the effects are relative to the appropriate contrast group that is not holding the particular educational or training level or qualification. In other words the qualifications comprise a series of dummy variables scored one for possessing the particular qualification and scoring zero if not.

The interpretation of the logit coefficients for continuous variables (age, percentage of time spent employed and unemployed and occupational status) depends on the unit of measurement. The coefficients refer to a single unit change, so their magnitude depends on how the variable is measured. Therefore, the coefficients of these variables are the effects on being financially disadvantaged for a one-unit change, that is, for one additional unit of age, time spent or occupational status. To aid interpretation, age and percentage of time spent working have been divided by ten so the effects are for a ten-year difference in age or ten-percentage point different in time spent working. Similarly, the measure of occupational status has been divided by 10 so that effects are for a ten-unit difference on the zero to 100 occupational status scale. The proportion of time spent unemployed was left as (unit) percentages.

Where appropriate, the variables have been centred about their means so the estimate for the intercept is meaningful. The percentage of time spent working since leaving school was centred at its mean at 78.7%. Therefore, the estimate for the intercept can be understood as the log odds of being financially disadvantaged for individuals who score zero on all predictor variables. For the first model this is for 45-year-old single women; for the second model this is for 45-year-old single women who did not complete school and obtained no post-school qualifications.

The statistical significance of the coefficients is indicated in the usual way, three asterisks (***) for $P< .001$, two (**) for $0.001<P.0.010$ and one (*) for $0.01<P.0.05$. A 'dagger' sign (†) flags estimates that could be considered significant at the less demanding $0.05<P<0.10$ level. By convention statistical significance is indicated by a probability of less than 1 in 20 for the null hypothesis, that is $P<0.05$.

Odds ratios

In the text, the logistic coefficients in these tables are discussed as odds ratios, which are the exponents of the coefficients. Unlike other interpretations of logit coefficients, odds ratios do not change, depending on values of the other independent (predictor) variables.

For categorical variables, the interpretation of the odds ratio is relative to the contrast group. For the variable 'male', the odds ratio is the odds of being in a financially disadvantaged state (poverty, financial stress, etc.) rather than not being in that state, for males, relative to the same odds (in financial disadvantage/not in financial disadvantage) for the contrast group (females). The four components odds ratio equation for gender and poverty is as follows:

$$Odds\ Ratio = \frac{\left(\frac{\text{In Poverty}}{\text{Not in Poverty}}\right)\text{For Males}}{\left(\frac{\text{In Poverty}}{\text{Not in Poverty}}\right)\text{For Females}}$$

This is what the exponent of the coefficient for gender is best interpreted.

It is a ratio of odds. It is not the same as saying men are x times more likely to be in poverty than women.

For continuous variables the odds ratio is for a unit change. If other words, it is the odds ratio for observations scoring j on the continuous variable compared with respondents scoring j-1. For a two-unit change, the odds ratio can be calculated as the exponent of twice the coefficient or equivalently the odds ratio for one-unit change squared. For an n-unit change, the odds ratio is either exp(n times the coefficient) or the odds ratio for a one-unit change to the power n.

Note that the education and training variables are not mutually exclusive, so for multiple qualifications or levels of education and training the coefficients can be summed and then converted to odds ratios or equivalently the odds ratios multiplied.

Predicted probabilities

In the text reference is made to the predicted probabilities of entering into or exiting from financial disadvantage for individuals with particular characteristics. (This is not possible for fixed-effects models.) Odds ratios can be converted into predicted probabilities by adding the exponents of the estimates appropriate for the group of interest with the intercept. The formula is

$$Prob = \frac{\exp(e^x)}{\exp(e^x) + 1}$$

Where x is the sum of the respective coefficients (and intercept).

For example if in the analyses of income poverty (from table 2) the effects are -1.33 for the intercept, -0.16 for men and -1.09 for marriage, the predicted probability of married men being in poverty is a follows:

$$Prob = \frac{\exp(e^{-1.33 - 0.16 - 1.09})}{\exp(e^{-1.33 - 0.16 - 1.09}) + 1}$$

$$Prob = \frac{\exp(e^{-2.58})}{\exp(e^{-2.58}) + 1}$$

$$Prob = \frac{0.075773}{0.075773 + 1} = 0.070$$

GEE (Generalised Estimating Equations)

The person-year dataset was analysed by Generalised Estimating Equations (GEE) using PROC GENMOD in SAS. GEE provides a method of analysing correlated data that otherwise could not be modelled as a generalised linear model (Horton & Lipsitz 1999). GEEs are useful for the analysis of correlated data, which is the case here in the HILDA longitudinal study. Observations from the same respondents measured at different points in time are clustered, so the estimation procedures must take into account that these observations are not statistically independent (but correlated). The correlation structure was specified as unstructured, which is the most appropriate specification for these analyses.

Measure of fit

Since the analysis is based on multiple observations for the same individuals, there is no equivalent to the R square statistic in ordinary least squares regression. The program provides a measure of fit, the QIC statistic.[12] However, models can only be compared with the same number of observations. In these analyses the models have different numbers of observations due to missing values on the

---

[12] QIC is the quasi-likelihood under the independence model criterion.

variables added in models 3 to 5. It is not possible to impute plausible missing values for all instances of missing data.

Fixed-effects models

Fixed-effects models control for all unobserved but stable influences on the outcome variable. Unobserved characteristics that may be relevant to financial disadvantage include cognitive ability, physical appearance, personality, interests, motivation, and financial literacy. Therefore, fixed-effects models allow for the estimation of (largely) unbiased effects. It, however, does not control for unmeasured time variant influences (e.g. changes in attitudes).

Fixed-effects models ignore the between subject (person) variability and focus only on the within person variation. This is very different from standard regression analyses of cross-sectional data.

Fixed-effects models will not produce estimates for the observed time invariant variables (e.g. gender, race, ethnicity) since they have no within person variability. However, the effects of these variables are controlled for in the fixed-effects models but estimates cannot be produced. A standard intercept is also not estimated since it is 'differenced out'; see below.

In this context, the fixed-effects model relies on changes in education and training qualifications and other specified influences over the time period investigated. If an individual acquires a qualification, the contrast is between their odds of becoming financially disadvantaged with this qualification compared with before, when they did not have this qualification. Therefore, the fixed-effects model pertains mainly to younger cohorts, although the acquisition of qualifications in education and training occurs across the age range. The fixed-effects analyses control for age.

Note that the fixed effects cannot estimate an effect for a trade qualification, since trade qualifications have been replaced by certificates and diplomas in the Australian Qualifications Framework after 1995. There were no newly acquired trade qualifications in this data.

What follows is a simplified summary from Allison (2005):

Mathematically, for a cross-sectional design the standard equation for a general linear model is:

$$Y_i = \alpha_i + \beta x_i + \epsilon_i \quad i=1\ldots,n$$

Where:

Y_i is the value of Y (the dependent variable) for person i.

α_i is the intercept

x_i is the values of the vector of x variables for person i.

ϵ_i is the normally distributed error term

β is estimate of the effects of x_i on Y_i.

Note that β is a vector of fixed effects and ϵ_i is a random error term. The standard linear model has fixed and random effects.

In random effects models α_i is treated as a random variable and is independent of (uncorrelated) with all measured variables in the model (x_i).

In fixed-effects models α_i is treated as a set of fixed parameters and is not independent (uncorrelated) with the measured variables in the model (x_i). It is typically the intercept for each i.

For longitudinal data (with T waves) analysis more terms are added, since there are several observations per subject.

$$Y_{it} = \mu_t + \beta x_{it} + \gamma z_i + \alpha_i + \epsilon_{it} \quad \text{i=1....,n t=1,....T}$$

Where:

Y_{it} is the observation on the dependent variable for subject (person i) at time t.

μ_t is an intercept that is allowed to vary with time.

z_i is a column vector of variables that describe persons but do not vary over time (age, gender)

x_{it} is a column vector of variables vary between people and over time (marital status, occupation, number of children)

β & γ are row vectors of coefficients for x_{it} and z_i respectively.

α_i represents all differences between persons that are stable over time.

The relationships at two time points can be rewritten as a difference equation:

At time 1

$$Y_{i1} = \mu_1 + \beta x_{i1} + \gamma z_i + \alpha_i + \epsilon_{i1} \quad \text{i=1....,n}$$

At time 2

$$Y_{i2} = \mu_2 + \beta x_{i2} + \gamma z_i + \alpha_i + \epsilon_{i2} \quad \text{i=1....,n}$$

Taking the differences

$$Y_{i2} - Y_{i1} = (\mu_2 - \mu_1) + \beta(x_{i2} - x_{i1}) + (\epsilon_{i2} - \epsilon_{i1})$$

Note that both γz_i & α_i have been differenced out. So all differences between persons that are stable over time (α_i) and (z_i) have been eliminated. These are 'fixed effects', so the fixed-effects model is a misnomer since it does not actually estimate fixed effects, but effects for time-variant variables net of fixed effects. The estimates for $\beta(x_{i2} - x_{i1})$ or $\beta(x'_i)$ are net of fixed effects.

Since the intercept is also subtracted out so there can be no calculation of predicted probabilities. This is logical because the values that individuals have on unobserved influences is by definition, unknown.

Appendix C:
Frequencies of variables

Table C1 Summary statistics for household incomes 2001–08 ($)

	Mean	Median
Wave 1 (2001)		
Annual household income	57 192	46 000
Annual HH disposable income	46 073	39 727
Equivalised annual household income	33 584	27 507
Eq. annual HH disposable income	27 091	23 615
Wave 2 (2002)		
Annual household income	59 741	47 821
Annual HH disposable income	47 944	41 317
Equivalised annual household income	35 463	29 412
Eq. annual HH disposable income	28 526	25 134
Wave 3 (2003)		
Annual household income	61 403	49 481
Annual HH disposable income	49 142	42 695
Equivalised annual household income	36 328	30 353
Eq. annual HH disposable income	29 145	25 876
Wave 4 (2004)		
Annual household income	65 074	52 212
Annual HH disposable income	52 153	45 167
Equivalised annual household income	38 381	32 564
Eq. annual HH disposable income	30 848	27 749
Wave 5 (2005)		
Annual household income	70 420	58 000
Annual HH disposable income	56 359	49 698
Equivalised annual household income	41 535	35 014
Eq. annual HH disposable income	33 320	29 824
Wave 6 (2006)		
Annual household income	75 037	61 595
Annual HH disposable income	60 343	52 730
Equivalised annual household income	44 470	37 380
Eq. annual HH disposable income	35 826	31 913
Wave 7 (2007)		
Annual household income	79 727	65 442
Annual HH disposable income	64 916	56 351
Equivalised annual household income	46 946	39 854
Eq. annual HH disposable income	38 266	34 029
Wave 8 (2008)		
Annual household income	85 784	70 302
Annual HH disposable income	70 691	61 428
Equivalised annual household income	50 427	42 500
Eq. annual HH disposable income	41 592	36 870

Note: Current dollars, household weights.

For comparison, the ABS estimate for gross household income in the 2007–08 Survey of Income and Housing Costs was $1649 per week or $85 748 per annum and for median income it was $1285 per week or $66 820 per annum (ABS 2009). This compares with estimates of $85 784 and $70 302 calculated here. The ABS estimates for 2007–08 for equivalised mean and median household disposable incomes are $818 per week ($42 172 per annum) and $818 per week ($35 984 per annum). The comparable estimates in the above table for 2008 are $41 592 and $36 870. (The ABS also uses the 'modified OECD' equivalence scale.) Although the HILDA and ABS estimates are for different years and there are technical differences in the estimation procedures, they do indicate that the HILDA estimates are not too dissimilar from the ABS estimates. Both estimates are survey estimates of population parameters so are associated with sampling errors.

For comparison with other analyses of HILDA, Wilkins, Warren and Hahn (2009, pp.26–7) provide estimates of household income from HILDA for 2006, with the other years have been adjusted for inflation. The mean disposable household income, not including family tax benefits A and B and Child Care benefit, was estimated at $63 007 and median disposable income at $53 343 compared with $60 343 and $52 730 in the table above. For equivalised mean and median household disposable incomes the Wilkins, Warren and Hahn (2009, pp.26–7) report presents figures of $37 986 and $33 228 compared with $35 826 and $31 913 in the table above. The differences are minor and are most likely due to the use of top-coding for income in the confidentialised data used here, the treatment of negative incomes and small changes to the data with each release.

Table C2 Frequencies of education and training variables

Variable	Group	Wave 1 Count	%	Wave 2 Count	%	Wave 3 Count	%	Wave 4 Count	%	Wave 5 Count	%	Wave 6 Count	%	Wave 7 Count	%	Wave 8 Count	%
Less than	Not	5 339	40.5	5 134	41.8	5 178	43.1	5 170	44.2	5 419	45.2	5 579	46.1	5 649	47.0	5 728	47.8
Year 12	Less than Year 12	7 851	59.5	7 161	58.2	6 839	56.9	6 521	55.8	6 579	54.8	6 526	53.9	6 359	53.0	6 258	52.2
Year 12	Not Year 12	7 890	59.8	7 194	58.5	6 867	57.1	6 549	56.0	6 605	55.1	6 552	54.1	6 386	53.2	6 281	52.4
Year 12	Year 12	5 300	40.2	5 101	41.5	5 150	42.9	5 142	44.0	5 393	44.9	5 553	45.9	5 622	46.8	5 705	47.6
Certificate	Not cert. I/II	9 630	73.0	8 934	72.7	8 571	71.3	8 286	70.9	8 324	69.4	8 344	68.9	8 201	68.3	8 105	67.6
I/II	Certificate I/II	3 560	27.0	3 361	27.3	3 446	28.7	3 405	29.1	3 674	30.6	3 761	31.1	3 807	31.7	3 881	32.4
Certificate	Not cert. III/IV	12 248	92.9	11 309	92.0	10 923	90.9	10 535	90.1	10 684	89.0	10 725	88.6	10 547	87.8	10 482	87.5
III/IV	Certificate III/IV	942	7.1	986	8.0	1 094	9.1	1 156	9.9	1 314	11.0	1 380	11.4	1 461	12.2	1 504	12.5
Diploma	Not diploma	12 389	93.9	11 505	93.6	11 228	93.4	10 895	93.2	11 141	92.9	11 214	92.6	11 105	92.5	11 054	92.2
Diploma	Diploma	801	6.1	790	6.4	789	6.6	796	6.8	857	7.1	891	7.4	903	7.5	932	7.8
Advanced	Not advanced diploma	12 742	96.6	11 869	96.5	11 587	96.4	11 263	96.3	11 567	96.4	11 666	96.4	11 573	96.4	11 549	96.4
Diploma	Advanced diploma	448	3.4	426	3.5	430	3.6	428	3.7	431	3.6	439	3.6	435	3.6	437	3.6
Trade	Not trade cert.	11 244	85.2	10 509	85.5	10 293	85.7	10 064	86.1	10 367	86.4	10 508	86.8	10 448	87.0	10 456	87.2
Trade	Trade certificate	1 946	14.8	1 786	14.5	1 724	14.3	1 627	13.9	1 631	13.6	1 597	13.2	1 560	13.0	1 530	12.8
Bachelor	Not bachelor	10 981	83.3	10 107	82.2	9 844	81.9	9 483	81.1	9 659	80.5	9 710	80.2	9 607	80.0	9 538	79.6
Degree	Bachelor degree	2 209	16.7	2 188	17.8	2 173	18.1	2 208	18.9	2 339	19.5	2 395	19.8	2 401	20.0	2 248	20.4
Graduate	Not grad. cert.	13 174	99.9	12 265	99.8	11 972	99.6	11 641	99.6	11 918	99.3	12 004	99.2	11 895	99.1	11 854	98.9
Certificate	Grad certificate	16	0.1	30	0.2	45	0.4	50	0.4	80	0.7	101	0.8	113	0.9	132	1.1
Graduate	Not grad. diploma	12 679	96.1	11 782	95.8	11 506	95.7	11 169	95.5	11 452	95.4	11 554	95.4	11 442	95.3	11 406	95.2
Diploma	Grad. diploma	511	3.9	513	4.2	511	4.3	522	4.5	546	4.6	551	4.6	566	4.7	580	4.8
Masters	Not master degree	12 898	97.8	12 004	97.6	11 707	97.4	11 372	97.3	11 660	97.2	11 748	97.1	11 634	96.9	11 589	96.7
Masters	Master degree	292	2.2	291	2.4	310	2.6	319	2.7	338	2.8	357	2.9	374	3.1	397	3.3
Doctorate	Not doctorate	13 108	99.4	12 211	99.3	11 933	99.3	11 599	99.2	11 905	99.2	12 007	99.2	11 910	99.2	11 887	99.2
Doctorate	Doctorate	82	0.6	84	0.7	84	0.7	92	0.8	93	0.8	98	0.8	98	0.8	99	0.8

Note: Age restricted to 18 and older. Raw (unweighted) frequencies and percentages.

Table C3 Frequencies economic variables

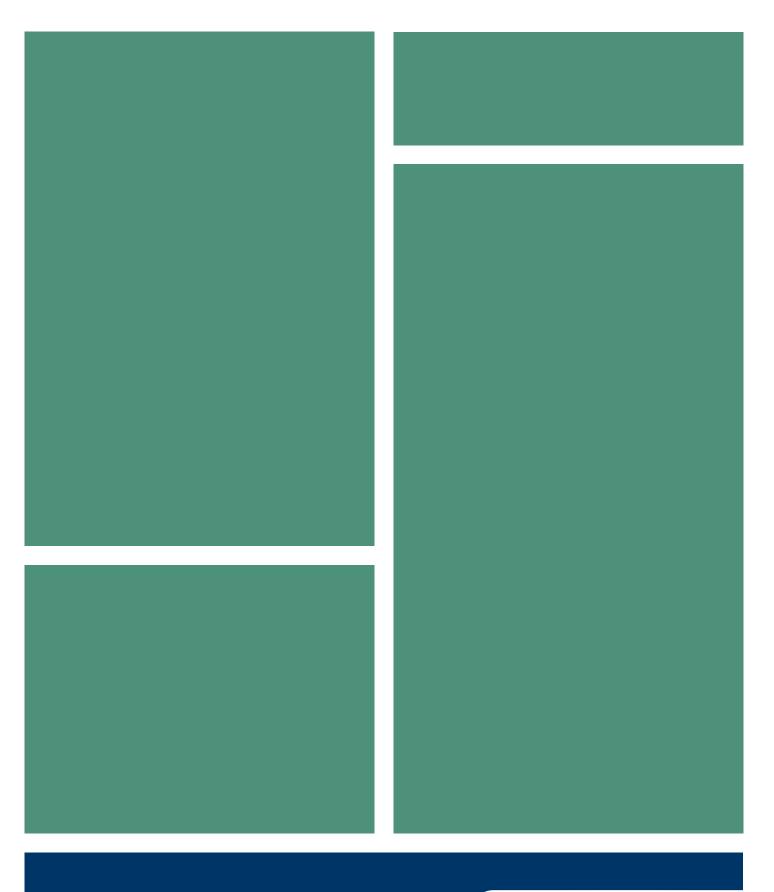| Variable	Group	Wave 1		Wave 2		Wave 3		Wave 4		Wave 5		Wave 6		Wave 7		Wave 8	
		Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Income	Not in poverty	12 200	87.7	11 077	86.6	10 955	88.2	10 621	88.0	10 805	87.7	10 941	88.0	10 706	86.8	10 607	86.0
Poverty	In poverty	1 707	12.3	1 714	13.4	1 466	11.8	1 444	12.0	1 521	12.3	1 489	12.0	1 622	13.2	1 729	14.0
Financial	No incidences	8 523	69.8	8 340	73.6	8 158	74.3	8 066	75.8	8 265	77.1	8 533	78.8	8 267	78.6	7 745	79.2
Stress	One or more incidences	3 694	30.2	2 988	26.4	2 827	25.7	2 573	24.2	2 461	22.9	2 290	21.2	2 246	21.4	2 039	20.8
	One or less incidences	10 076	82.5	9 581	84.6	9 409	85.7	9 224	86.7	9 379	87.4	9 580	88.5	9 286	88.3	8 711	89.0
	Two or more incidences	2 141	17.5	1 747	15.4	1 576	14.3	1 415	13.3	1347	12.6	1 243	11.5	1 227	11.7	1 073	11.0
	Two or less incidences	11 037	90.3	10 449	92.2	10 164	92.5	9 913	93.2	10 037	93.6	10 183	94.1	9 875	93.9	9 210	94.1
	Three or more incidences	1 180	9.7	879	7.8	821	7.5	726	6.8	689	6.4	640	5.9	638	6.1	574	5.9
	Three or less incidences	11 632	95.2	10 900	96.2	10 584	96.3	10 245	96.3	10 392	96.9	10 512	97.1	10 216	97.2	9 506	97.2
	Four or more incidences	585	4.8	428	3.8	401	3.7	394	3.7	334	3.1	311	2.9	297	2.8	278	2.8
Unemployed	Not unemployed	12 665	96.0	11 858	96.4	11 653	97.0	11 354	97.1	11 677	97.3	11 776	97.3	11 697	97.4	11 665	97.3
	Unemployed	525	4.0	437	3.6	364	3.0	337	2.9	321	2.7	329	2.7	311	2.6	321	2.7
Marginally	Neither	12 490	89.8	11 561	90.4	11 329	91.2	11 090	91.9	11 402	92.5	11 538	92.8	11 518	93.4	11 545	93.6
Attached +	Marginal/unemployed	1 417	10.2	1 230	9.6	1 092	8.8	975	8.1	924	7.5	892	7.2	810	6.6	791	6.4
Unemployed																	

Note: Age restricted to 18 and older. Raw (unweighted) frequencies and percentages.

Table C4   Frequencies of social group variables

Variable	Group	Wave 1 Count	Wave 1 %	Wave 2 Count	Wave 2 %	Wave 3 Count	Wave 3 %	Wave 4 Count	Wave 4 %	Wave 5 Count	Wave 5 %	Wave 6 Count	Wave 6 %	Wave 7 Count	Wave 7 %	Wave 8 Count	Wave 8 %
Gender	Female	6 944	52.6	6 445	52.4	6 341	52.8	6 188	52.9	6 355	53	6 417	53	6 394	53.2	6 351	53
	Male	6 246	47.4	5 850	47.6	5 676	47.2	5 503	47.1	5 643	47	5 688	47	5 614	46.8	5 635	47
Location	City	8 248	62.5	7 626	62.0	7 436	61.9	7 206	61.6	7 433	62.0	7 502	62.0	7 398	61.6	7 379	61.6
	Inner Regional	3 062	23.2	2 971	24.2	2 923	24.3	2 871	24.6	2 949	24.6	2 946	24.3	2 936	24.5	2 939	24.5
	Outer Regional	1 574	11.9	1 430	11.6	1 397	11.6	1 362	11.6	1 375	11.5	1 417	11.7	1 438	12.0	1 413	11.8
	Remote	306	2.3	268	2.2	260	2.2	252	2.2	240	2.0	240	2.0	236	2.0	255	2.1
Household type	Couple without children	3 979	28.6	3 768	29.5	3 685	29.7	3 625	30.0	3 730	30.3	3 805	30.6	3 776	30.6	3 840	31.1
	Couple with children <15	4 021	28.9	3 525	27.6	3 389	27.3	3 265	27.1	3 315	26.9	3 269	26.3	3 285	26.6	3 209	26.0
	Couple with children >15	1 942	14.0	1 784	13.9	1 649	13.3	1 526	12.6	1 512	12.3	1 565	12.6	1 578	12.8	1 587	12.9
	Lone parent	1 156	8.3	1 061	8.3	1 056	8.5	1 053	8.7	1 115	9.0	1 059	8.5	1 034	8.4	1 021	8.3
	Single person	1 956	14.1	1 970	15.4	2 007	16.2	2 029	16.8	2 084	16.9	2 104	16.9	2 071	16.8	2 097	17.0
	Other	853	6.1	683	5.3	635	5.1	567	4.7	570	4.6	628	5.1	584	4.7	582	4.7
Age group	18–24	1 476	11.2	1 393	11.4	1 467	12.2	1 453	12.5	1 587	13.3	1 630	13.5	1 658	13.9	1 236	11.2
	25–34	2 616	19.9	2 333	19.0	2 147	17.9	2 048	17.6	2 058	17.2	2 060	17.1	2 038	17.0	1 791	16.2
	35–44	3 010	22.9	2 745	22.4	2 648	22.1	2 516	21.6	2 508	21.0	2 470	20.5	2 318	19.4	2 171	19.7
	45–54	2 405	18.3	2 281	18.6	2 222	18.5	2 160	18.5	2 227	18.6	2 254	18.7	2 298	19.2	2 204	20.0
	55–65	1 674	12.7	1 607	13.1	1 618	13.5	1 600	13.7	1 654	13.8	1 659	13.7	1 646	13.8	1 642	14.9
	65–70	733	5.6	712	5.8	692	5.8	700	6.0	692	5.8	737	6.1	744	6.2	729	6.6
	>70	1 246	9.5	1 191	9.7	1 189	9.9	1 176	10.1	1 233	10.3	1 256	10.4	1 265	10.6	1 254	11.4
Marital status	Legally married	7 527	57.1	6 844	55.7	6 516	54.2	6 232	53.3	6 290	52.4	6 282	51.9	6 141	51.1	6 139	51.2
	De facto	1 337	10.1	1 313	10.7	1 378	11.5	1 416	12.1	1 510	12.6	1 619	13.4	1 734	14.4	1 688	14.1
	Separated	431	3.3	427	3.5	384	3.2	396	3.4	371	3.1	341	2.8	336	2.8	378	3.2
	Divorced	742	5.6	752	6.1	780	6.5	745	6.4	788	6.6	801	6.6	774	6.4	769	6.4
	Widowed	684	5.2	685	5.6	665	5.5	686	5.9	698	5.8	701	5.8	690	5.7	671	5.6
	Never married and not de facto	2 459	18.6	2 274	18.5	2 294	19.1	2 216	19.0	2 341	19.5	2 360	19.5	2 331	19.4	2 340	19.5

Variable	Group	Wave 1		Wave 2		Wave 3		Wave 4		Wave 5		Wave 6		Wave 7		Wave 8	
		Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Educational level	<Year 11	4 961	37.6	4 432	36.1	4 157	34.6	3 924	33.6	3 865	32.2	3 807	31.5	3 664	30.5	3 553	29.7
	Year 12	1 998	15.2	1 841	15.0	1 850	15.4	1 783	15.3	1 832	15.3	1 869	15.4	1 899	15.8	1 921	16.0
	Certificate	252	1.9	236	1.9	248	2.1	251	2.1	261	2.2	260	2.1	256	2.1	253	2.1
	Adv. certificate	2 399	18.2	2 306	18.8	2 317	19.3	2 278	19.5	2 389	19.9	2 446	20.2	2 462	20.5	2 474	20.6
	Diploma/adv. diploma	1 132	8.6	1 072	8.7	1 047	8.7	1 027	8.8	1 085	9.0	1 087	9.0	1 088	9.1	1 086	9.1
	Bachelor	1 540	11.7	1 492	12.1	1 469	12.2	1 492	12.8	1 562	13.0	1 597	13.2	1 571	13.1	1 594	13.3
	Postgraduate	902	6.8	910	7.4	923	7.7	932	8.0	998	8.3	1 034	8.5	1 062	8.8	1 100	9.2
Labour force status	Employed full-time	5 748	43.6	5 390	43.8	5 343	44.5	5 215	44.6	5 492	45.8	5 580	46.1	5 600	46.6	5 659	47.2
	Employed part-time	2 443	18.5	2 333	19.0	2 320	19.3	2 262	19.3	2 386	19.9	2 412	19.9	2 353	19.6	2 327	19.4
	Unemployed, looking for FT work	392	3.0	319	2.6	270	2.2	223	1.9	243	2.0	245	2.0	207	1.7	225	1.9
	Unemployed, looking for PT work	133	1.0	118	1.0	94	0.8	114	1.0	78	0.7	84	0.7	104	0.9	96	0.8
	NILF, Not in the labour force	892	6.8	793	6.4	728	6.1	638	5.5	603	5.0	563	4.7	499	4.2	470	3.9
	NILF, not not in the labour force	3 582	27.2	3 342	27.2	3 262	27.1	3 239	27.7	3 196	26.6	3 221	26.6	3 245	27.0	3 209	26.8
Employed	All the time (100 %)	3 326	23.9	2 767	21.6	2 631	21.2	2 409	20.0	2 498	20.3	2 378	19.1	2 273	18.4	2 201	17.8
	70–99 %	5 438	39.1	5 299	41.4	5 284	42.5	5 226	43.3	5 300	43.0	5 452	43.9	5 473	44.4	5 479	44.4
	50–69 %	1 771	12.7	1 627	12.7	1 591	12.8	1 541	12.8	1 559	12.6	1 575	12.7	1 538	12.5	1 547	12.5
	30–49 %	1 127	8.1	970	7.6	950	7.6	866	7.2	841	6.8	789	6.3	770	6.2	770	6.2
	10–29 %	910	6.5	821	6.4	766	6.2	699	5.8	651	5.3	664	5.3	645	5.2	618	5.0
	Less than 10 % of the time	1 335	9.6	1 307	10.2	1 199	9.7	1 324	11.0	1 477	12.0	1 572	12.6	1 629	13.2	1 721	14.0
Receipt of government benefits	Not in receipt	11 464	86.9	10 759	87.5	10 598	88.2	10 307	88.2	10 579	88.2	10 724	88.6	10 723	89.3	10 807	90.2
	Receipt of these benefits	1 726	13.1	1 536	12.5	1 419	11.8	1 384	11.8	1 419	11.8	1 381	11.4	1 285	10.7	1 179	9.8

Note: Age restricted to 18 and older. Raw (unweighted) frequencies and percentages.