Australian Government
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Social Policy Research Paper No 29

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GARY N MARKS

Improving the lives of Australians

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Executive summary

This paper focuses on financial disadvantage among Australians using data from the first two waves (2001 and 2002) of the Household, Income and Labour Dynamics in Australia (HILDA) survey.

HILDA has several features that make it particularly useful for investigating poverty and financial disadvantage. It is the first large-scale Australian longitudinal survey of adults specifically designed to investigate income dynamics; previous studies of poverty have relied on cross-sectional data. Second, it includes measures of financial disadvantage, subjective poverty and financial stress not found in previous studies. Third, income data was collected from all available (and eligible) household members, which improved the accuracy of income and other variables. Fourth, HILDA Wave 2 data includes wealth, assets and debts, which allows for the examination of their relationships with financial disadvantage. Finally, HILDA includes a range of data on other factors that are not usually collected in Australian surveys on income.

In this paper, three dimensions of financial disadvantage are investigated:

- income poverty (both before and after-housing)
- subjective poverty
- financial stress.

For this paper, being in income poverty is defined as living in a household with an income of less than 50 per cent of median equivalised disposable household income. The equivalence scale used was the modified Organisation for Economic Co-operation and Development (OECD) scale. Both before and after-housing measures were analysed. Subjective poverty is based simply on whether respondents view themselves as poor or very poor. The concept of financial stress is defined by cash flow problems resulting from **a shortage of money**. The following is a list of cash flow problems.

- 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.
- Asked for help from welfare or community organisations.

Households are considered to be in financial stress if they experienced two or more incidences of cash flow problems in a single year.

The rationale for using three dimensions of financial disadvantage is that an over-reliance on a single measure can be misleading. The concept of financial stress complements income poverty by indicating how households are actually coping financially. Subjective poverty is another approach to financial disadvantage, taking seriously people's own judgements of their financial situation.

This paper investigates the extent of financial disadvantage in Australia according to these three dimensions, the relationships of these dimensions with other factors, and the interrelationships between these measures and their performance over time.

Some of the major conclusions drawn from this paper are summarised below.

- Before-housing measures of poverty need to be complemented with the appropriate after-housing measures. Before-housing measures tend to inflate the poverty rates of older cohorts, single-person households and widows and widowers. These groups do not have notably high poverty rates on the after-housing measure since a substantial proportion have little or no housing costs. Older cohorts and widowers tend to have low levels of subjective poverty and financial stress.
- The high level of financial stress among younger cohorts may be a concern. It may reflect low levels of financial literacy or spendthrift attitudes. It is not clear whether this is an ageing effect—young people become more competent at managing finances and experience lower levels of financial stress as they age—or, of greater concern, a cohort effect, reflecting a change in the way in young generations spend and save money.
- Marriage greatly reduces the odds of financial disadvantage.
- Financial disadvantage is only weakly related to socioeconomic background.
- Wealth has a stronger relationship with subjective poverty than with income poverty.
- The judgement that one is poor is affected more by wealth than by income.
- Debt is only weakly related to income poverty, subjective poverty and financial stress. For the groups in income poverty, subjective poverty and financial stress, debt is much lower than assets.
- It appears that in Australia, as in other countries, the proportion in income poverty in successive years is much lower than the proportion in a single year. This is also true of subjective poverty and financial stress. This indicates that on any measure, financial disadvantage is more often transitory rather than permanent.
- The low correspondence between the three dimensions of financial disadvantage undermines attempts at using these measures to identify the 'truly disadvantaged'. Not only are the correlations lower than expected, but they also differ in their relationships with other factors such as sex, age, education, income, wealth and debt. This suggests that the three dimensions are to a large extent conceptually distinct. Income poverty is about relatively low annual incomes, subjective poverty is a psychological judgement that gives more weight to wealth than to income, and financial stress is about an imbalance between expenditure with income.

Summary of main findings

This section summarises the main findings in the analyses of before and after-housing income poverty, subjective poverty and financial stress.

Income poverty

The main findings on income poverty are summarised below.

Incidence and persistence

- Approximately 15 per cent of Australian households were in income poverty on the before-housing and 18 per cent on the after-housing measure. These figures are slightly higher than for individuals (13 and 17 per cent) since larger households tend to have higher incomes. The level of after-housing poverty is higher because the distribution of equivalised disposable income is more skewed when housing costs are taken into account.
- Persistent income poverty in the first two waves of HILDA was considerably lower than annual rates. About 7 per cent of households were in income poverty in both waves on the before-housing measure and about 9 per cent on the after-housing measure.

Sex

- Women tended to have higher levels of income poverty than men. Persistent income poverty (lasting more than two years) among women was about 3 percentage points higher than for men. However, when labour market variables are taken into account (for example, occupational status and proportion of time spent working and unemployed), men are more likely to be in income poverty than women.

Age

- The relationship between age and income poverty differed according to the measure used. On the before-housing measure, the two oldest cohorts (over 65 years) had the highest poverty rates, whereas these age cohorts were not so distinctive on the after-housing measure. The youngest age cohort (18 to 24 year-olds) had relatively high levels of income poverty on both measures, and 25 to 34 year-olds had the lowest rates of before-housing income poverty. Multivariate analyses showed that age was positively related to before-housing income poverty but negatively related to after-housing income poverty. This reflects the generally lower housing costs of older Australians. These findings indicate that using both before and after-housing measures provide a more comprehensive account of the relationship between age and income poverty.

Ethnicity

- Multivariate analyses showed that both a non–English speaking background and Indigenous status increased the odds of income poverty.

Socioeconomic background

- On average, the socioeconomic backgrounds (measured by parental occupational status) of the groups in income poverty were only slightly lower than for the groups not in poverty. In multivariate analyses, the effect of socioeconomic background on income poverty was weak.

Household type

- Of the household types studied, couples with older children (over 15 years) had the lowest income poverty rates, followed by couples with younger children and couples without children. Lone-parent households had the highest income poverty rates, especially on the after-housing measure. About 17 per cent of lone parents were in after-housing income poverty in both waves. The comparable figure for couples with young children was 7 per cent. Single-person households had the highest income poverty rate on the before-housing measure.

Marital status and children

- On both income poverty measures, income poverty was low among those who were married or in de facto relationships. On the before-housing measure, income poverty was highest among widows and widowers, but on the after-housing measure, the poverty rate for this group was similar to that for the separated, divorced and single (those who had never married and were not in a de facto relationship) groups.
- Multivariate analyses showed that marital status was strongly associated with income poverty. Its effects were stronger than for educational qualifications. Being married or in a de facto relationship substantially decreased the odds of income poverty, even when controlling for labour market experiences and wealth. Single and separated people were more likely to be in income poverty. Widowhood was associated with substantially lower odds of income poverty compared to single-person status.
- Having a larger number of children moderately increased the odds of income poverty, but the effects were much weaker than for marital status.

Education

- Income poverty declined with higher levels of education. Income poverty among bachelor degree holders and those with postgraduate qualifications was particularly low. Poverty rates were highest among those who had not completed school and next highest among those whose highest qualification was school completion (Year 12) or a Technical and Further Education (TAFE) certificate.
- In multivariate analyses, educational qualifications had strong effects on income poverty. The fairly strong protective effects of postgraduate qualifications and bachelor degrees against income poverty were still apparent when controlling for labour market variables and wealth.

Labour market experience

- Income poverty was strongly associated with labour force status: about 33 per cent of the unemployed were in poverty on the before-housing measure, and nearly 45 per cent on the after-housing measure. Of those who were unemployed and looking for full-time work in Wave 2, nearly 30 per cent were in after-housing poverty in both waves. The comparable figure for full-time workers was less than 3 per cent and for part-time workers was about 8 per cent.
- There were larger differences in between those in income poverty and those not in income poverty by occupational status (of present or previous job). The average occupational status of those in income poverty was about 10 to 12 points lower (on a zero to 100 point scale) than for those not in income poverty. Multivariate analyses indicated that the occupational status of present or prior job was moderately associated with income poverty.
- Spending time working since leaving full-time education decreased the odds of being in income poverty, whereas being unemployed increased the odds. However, the importance of these factors was limited to those who had spent relatively little time working or considerable time unemployed.

Wealth and debt

- On average, the level of wealth among those in income poverty was about half that of those not in income poverty.
- The average levels of debt of the in-poverty groups were substantially lower than for comparison groups. Assets among the groups in poverty were much greater than debts. Median debts of the in-poverty groups were close to zero.
- Wealth lowered the odds of income poverty, but the association was weaker than expected. Small differences in wealth did not substantially change the odds of income poverty. The effect of a difference of $1 million in wealth on income poverty was less than the effect of marriage.

Subjective poverty

The main findings on subjective poverty are summarised below.

Incidence and persistence

- Approximately 5 per cent of Australian households judged themselves as poor or very poor (subjective poverty).
- Only 2 per cent were in subjective poverty in both waves.

Sex

- In contrast to income poverty, a higher proportion of men than women were in subjective poverty.
- Multivariate analyses showed that men were more likely than women to be in subjective poverty. The difference between sexes increased when controlling for labour market factors.

Age

- The oldest cohort displays very low levels of subjective poverty (less than 2 per cent) of subjective poverty. On average, households in subjective poverty were younger.
- The tendency for younger households to be in subjective poverty could not be attributed to differences in labour market experiences, income or wealth.

Ethnicity

- In contrast to the findings for income poverty, there was no consistent relationship between subjective poverty and a non–English speaking background. However, Indigenous status was again strongly associated with increased odds of being in subjective poverty.

Socioeconomic background

- Subjective poverty was only weakly associated with socioeconomic background. Multivariate analyses showed no significant differences.

Household type

- Lone-parent households were more likely to judge themselves as poor or very poor. About 10 per cent were in subjective poverty in each wave, but only 5 per cent were in subjective poverty in both waves. Single-person households had the next highest level of subjective poverty. Couple households (with and without children) had much lower levels of subjective poverty.

Marital status and children

- Subjective poverty was very low among those who were married or widowed. It was only slightly higher among those in de facto relationships, and was highest among those who were divorced or separated, followed by single people.
- The effects of number of children and occupational status (of present or prior job) on subjective poverty were similar to their effects on income poverty.

Education

- Educational qualifications did not have as strong an effect on subjective poverty as on income poverty. Non-completion of school increased the odds of subjective poverty, but the difference was no longer significant when controlling for labour market experiences.

Labour market experience

- Subjective poverty was strongly associated with labour force status. About 20 per cent of those who were unemployed and looking for full-time work considered themselves as poor or very poor in each wave, but only 6 per cent in both waves. Unemployed people looking for part-time work also had high levels of subjective poverty. Subjective poverty was high among those not in the labour force but marginally attached to the labour force (wanting to work, but not looking for work or unable to start work). Subjective poverty among full-time workers was very low at around 2 per cent.
- Differences in occupational status (of present or previous job) between the groups in and not in subjective poverty were smaller (about eight units) than the differences found for income poverty.
- A higher percentage of time spent working since leaving full-time education decreased the odds of subjective poverty, but to a lesser extent than for income poverty. Spending time unemployed increased the odds of subjective poverty. Again, the effects of these factors were only significant for the small proportion of respondents who had spent little time working or considerable time unemployed.

Income, wealth and debt

- The average household income of the subjective poverty groups was about half that of the comparison groups. These differences were smaller than the income differences for income poverty since income poverty is based on household income.
- Having a relatively high equivalised disposable household income decreased the odds of subjective poverty, although the effect was not particularly large.
- On average, the wealth of the subjective poverty groups was between 20 and 25 per cent that of the comparison groups. This compares to about 50 per cent for the income poverty groups. These findings indicate that wealth was more closely associated with subjective poverty than with income poverty.
- The average level of debt among the subjective poverty groups was also substantially lower than for comparison groups, and was generally **lower** than for the income poverty groups. The median debt of the subjective poverty groups was only slightly above zero.

Financial stress

The main findings on financial stress are summarised below.

Incidence and persistence

- Approximately 18 per cent of Australian households in Wave 1 and 16 per cent in Wave 2 had two or more incidences of cash flow problems (financial stress).
- About 10 per cent had two or more incidences of cash flow problems in both waves.

Sex

- Financial stress was slightly higher among women than men. However, multivariate analyses revealed no statistically significant differences between the sexes.

Age

- Financial stress was much more common in the youngest cohort (18 to 24 year-olds) at around 40 per cent. The level of financial stress declined in each successive older cohort to about 5 per cent in the oldest cohort (over 70 years). This contrasts with the findings for the other measures, especially before-housing income poverty, where older people were more likely to be in poverty.
- Increases in age strongly reduced the odds of financial stress. This effect could not be accounted for by differences in education, marital status, labour market experiences, wealth or household income.

Ethnicity

- Having a non–English speaking background increased the odds of financial stress, but not to the same extent as for income poverty. Its effects were not always statistically significant.
- Indigenous status strongly increased the odds of financial stress. However, its effect was no longer significant when education and marital status are taken into account.

Socioeconomic background

- On average, the socioeconomic backgrounds of the groups in financial stress were only slightly lower than for the comparison groups.
- In multivariate analyses, socioeconomic background was only weakly associated with financial stress and its effect was no longer significant when controlling for educational qualifications.

Household type

- The incidence of financial stress was highest among lone-parent households. About 25 per cent of lone-parent households were in financial stress in both waves. This compares to about 10 per cent among couples with young children and 6 per cent among couples with older children. Single-person households also showed high levels of financial stress.

Education

- Financial stress declined with higher educational qualifications. It was lowest among those with diploma, bachelor degrees or postgraduate qualifications.
- Multivariate analyses showed that a postgraduate qualification or degree substantially reduced the odds of financial stress.

Marital status and children

- Financial stress was lowest among the widowed, with about 6 per cent of widows or widowers in financial stress. This compares with about 10 per cent of those who were married, 25 per cent of those in de facto relationships and 30 per cent or more among those who were separated, divorced or single.
- Marriage strongly reduced the odds of financial stress. Its effects were stronger than those of education. Widowhood also reduced the odds of financial stress. Being in a de facto relationship had much weaker effects on financial stress than on income poverty.
- The effects of number of children on financial stress were much stronger than on income poverty and subjective poverty.

Labour market experience

- Financial stress was also strongly associated with labour force status. Over 40 per cent of the unemployed were in financial stress in each wave, compared to about 15 per cent for full-time workers. It was lowest among the group not in the labour force and not marginally attached to the labour force. This group consisted mainly of retired people.
- Differences in occupational status (of present or previous job) between the groups in and not in financial stress were similar to the differences found for income poverty.
- Higher occupational status reduced the odds of financial stress, which was similar to its effects on income poverty and subjective poverty.
- A higher percentage of time spent working since leaving full-time education decreased the odds of financial stress, but to a lesser extent than for income poverty. A higher percentage of time spent unemployed increased the odds of financial stress. Again, the effects of these factors were only significant for the small proportion of respondents who had spent little time working or considerable time unemployed.

Income, wealth and debt

- Average household incomes of groups in financial stress were higher than for groups in subjective poverty (and, of course, the income poverty groups), suggesting that financial stress is not just confined to low-income households.
- Similarly, multivariate analyses showed that having a relatively high level of household equivalised disposable income modestly decreased the odds of financial stress.
- On average, the wealth of financial stress groups was higher than that of subjective poverty groups but lower than that of income poverty groups.
- Wealth had stronger effects on financial stress than on income poverty, but not as strong as its effects on subjective poverty.
- Household debt was higher among the groups in financial stress than among the groups in income poverty. However, mean debt was about 20 to 25 per cent of mean assets.

Interrelationships between indicators

Generally, the interrelationships between indicators, and the performance of the same indicators over time, were weaker than expected.

The correspondence between the two income poverty measures was lower than expected. Of those classified as being in income poverty on the before-housing measure, only 80 to 85 per cent were in income poverty on the after-housing measure. The correspondence in the other direction was greater since the incidence of

after-housing income poverty is higher. Of those in after-housing poverty, about 60 to 65 per cent were also in before-housing income poverty.

- About 40 per cent of those in before-housing income poverty in Wave 1 were also in before-housing income poverty in Wave 2. For the after-housing poverty measure, the comparable figure was 50 per cent.
- Over half of those who said they were poor in Wave 1 said they were more prosperous in Wave 2.
- On the single indicators of financial stress, more than half of those who were in financial stress on an item in Wave 1 were not in financial stress on that item in Wave 2. The correspondence across waves tended to be weaker for the more severe indicators of financial stress.
- About 66 per cent of those who judged their households as poor were in financial stress.
- Of those in before-housing income poverty, only 25 to 30 per cent had two or more cash flow problems. This increased to between 32 and 34 per cent on the after-housing measure.
- Defining financial disadvantage by combinations of income poverty, subjective poverty and financial stress substantially reduces the estimate of the percentage of financially disadvantaged households. About 4 per cent of households were in before-housing income poverty and financial stress and 6 per cent in after-housing income poverty and financial stress. Only 1 per cent of households were in these situations in both waves.

1 Introduction

This paper focuses on three dimensions of financial disadvantage in Australia: income poverty, subjective poverty and financial stress. It examines the relationships between these three aspects of financial disadvantage and a range of social and economic correlates, including wealth, assets and debt. Since these dimensions are often understood as different indicators of financial disadvantage, the paper also examines the interrelationships between these indicators and their dynamics.

Being in income poverty is defined as living in a household whose income, after adjusting for household composition, is below a designated poverty line. Subjective poverty is seeing oneself as poor or very poor. Individuals and households in financial stress are not coping financially; they have difficulty in meeting their financial obligations and may seek financial assistance from others.

Income poverty, subjective poverty and financial stress are by no means the only concepts of financial disadvantage. Other concepts include expenditure poverty which, similar to income poverty, is operationalised as an expenditure level that is lower than a designated level (FaCS 2003, p. 92; Saunders 1997, 1998b); relative deprivation, defined as an 'enforced lack of perceived social necessities in life' (Mack & Lansley 1985, p. 39); multi-dimensional approaches (Dewilde 2004; Kangas & Ritakallio 2004a), which are operationalised by combining several measures of poverty; and the social exclusion approach (Eurostat Task Force 1998; Saunders & Kayoko 2002, pp. 45–62; Tsakloglou & Papadopoulos 2002; Whelan et al. 2003), which broadens the concept of poverty to include social relationships and participation. However, because these other concepts of financial disadvantage are not well measured in the data upon which this paper is based—the first two waves of the HILDA survey—this paper is limited to income poverty, subjective poverty and financial stress.

Concepts such as subjective poverty, expenditure poverty, deprivation and financial stress were often developed to complement measures of income poverty. The concept of income poverty can be criticised because a low income does not necessarily mean that such households are not spending enough money on the basic necessities of life, are deprived of the basic household goods (such as cars and washing machines) widely understood as necessary for modern living, are judging themselves as poor, are excluded from 'normal' lifestyles, or are not coping financially. The implicit assumption in much of this work is that several indicators of financial disadvantage are better than a single indicator in identifying the truly disadvantaged in society.

One purpose of this paper is to examine whether subjective poverty and financial stress measures complement income poverty measures. Specifically, are they all indicators of the same underlying concept of financial disadvantage, and are the social profiles and risk factors for the three dimensions much the same?

1.1 Income poverty

Much more research has been conducted on income poverty than on other indicators of financial disadvantage. This is especially the case for Australia. The Henderson poverty line (HPL), developed by Ronald Henderson in the mid-1960s, formed the basis for most of the Australian poverty research from the early 1970s to the late 1990s. The original HPL was defined in absolute terms as the basic wage plus child endowment for a family of four in the mid-1960s (Henderson, Harcourt & Harper 1970; Saunders 1998a). The justification for this poverty line was that few would disagree that an income below this amount was not sufficient to support a family.

Over the last decade or so, relative measures of poverty have replaced the HPL. Relative measures draw a poverty line at a percentage (usually 50 per cent) of the median or mean household income. There are several reasons for the move from the HPL to relative measures. Relative measures of poverty are more commonly used by the OECD and by researchers in other industrialised nations (Förster 1994, 2001; Jarvis & Jenkins 1997; Organisation for Economic Co-operation and Development 2001; Oxley, Dang & Antolin 2000). In addition, the HPL is now so old that many of its assumptions—the basic wage, a male breadwinner, a typical family of four, patterns of expenditure in the 1950s and 1960s—are much less tenable today. Furthermore, in relative terms the HPL is now much higher than it was 20 years ago because of the way it has been updated.[1]

Although most research on poverty in Australia uses relative measures, there is little consensus on what those measures should be. The major issues are whether to use mean or median household income, where the poverty line should be drawn, how the equivalence scale should be used to make households with different compositions comparable and what constitutes disposable income. These issues are discussed in the following paragraphs. Appendix 2 presents a more detailed discussion of these and other issues. There is, however, broad consensus on three general issues regarding relative measures of income poverty: that disposable income—that is, income after adjusting for taxation and government benefits—is preferable to gross income, that disposable income should be adjusted for household size, and that household income rather than individual income should be used to assess whether a person is in income poverty.

The 2001 report from the University of Canberra's National Centre for Social and Economic Modelling (NATSEM) on financial disadvantage in Australia presented estimates for many measures of poverty, but the headline measure was based on mean disposable income (Harding, Lloyd & Greenwell 2001). Mean income appears to be the basis for the study of poverty in the United Kingdom (Jarvis & Jenkins 1998, 2000). However, poverty lines drawn at a percentage of the mean income can be criticised since they are more sensitive than median-based measures to changes in the distribution of income (Saunders & Kayoko 2002, pp. 1–22). A flattening of the income distribution will almost invariably increase the proportion in poverty on mean-based measures.

A second issue is where to draw the poverty line. Most often the poverty line is drawn at 50 per cent of the mean or median disposable household income, but there is no reason why it could not be drawn at another level. A 60 per cent cut-off is increasingly used in studies of poverty in the European Community (Eurostat Task Force 1998). Drawing poverty lines at 40, 50 and 60 per cent produces quite different estimates of the level of poverty and its persistence (Headey, Marks & Wooden 2005; Layte & Whelan 2003).

Equivalence scales are used to adjust for the number of adults and children in the household. The modified OECD equivalence scale is becoming standard. It assigns a weight of 1.0 to the first adult, 0.5 to the second adult and 0.3 to each child. An alternative equivalence scale simply weights by the square root of household size. In Australia, the equivalences for the HPL are often used. There are many equivalence scales that could be used to make households comparable, but different equivalence scales often produce different profiles of the types of households experiencing poverty (Coulter, Cowell & Jenkins 1992).

Finally, there is the general issue of what constitutes disposable income. Post-taxation and post-government transfer incomes do not take into consideration essential costs. After essential costs are deducted, discretionary income is probably a better indicator of a household's financial situation. Estimating essential costs is a difficult exercise, since there are a myriad of goods and services (ranging from motor cars to haircuts) that could be deemed essential. Housing is one cost that is commonly deducted to compute discretionary income (for example, Harding, Lloyd & Greenwell 2001).

In the examination of financial disadvantage, it may be important to consider housing expenditure. The cost of housing may comprise 40 per cent or more of a household's expenditure. A pensioner couple who have paid off their house are considerably better off than a comparable couple paying rent. Similarly, young people on low wages living at home rent-free have much larger discretionary incomes than their peers living away from home and paying rent. On the other hand, certain aspects of the costs of housing are discretionary; individuals or couples may choose to spend a large proportion of their income on housing. Importantly, before and after-housing measures produce noticeably different levels of poverty (Harding, Lloyd & Greenwell 2001, pp. 35–6).

1.2 Subjective poverty

A less common approach to measuring poverty is to ask people whether they see themselves as living in poverty. A person's own evaluation of whether he or she is living in poverty should not be disregarded. People will have a reasonably accurate idea about whether their financial situation is below what they regard as an acceptable standard. However, their opinions are necessarily subjective and may be reflective of past experiences and social context.

In the United Kingdom, Bradshaw and Finch (2003) asked respondents to estimate the amount of money necessary to keep households like theirs out of poverty. They were then asked the position of their households relative to this amount. Almost 20 per cent of households indicated that they were a little or a lot below their subjective poverty lines. However, there is little consensus on the minimum income required to live decently (Saunders 1998a).

1.3 Financial stress

Australian research on financial stress has its origins in the 1986 Australian Standard of Living Survey (ASLS). In that survey, respondents were asked if, over the last two years, they had cut back on food and heating, fallen behind on bill or loan repayments or sought financial help. About 25 per cent said they had cut back on food, about 20 per cent had cut back on heating and almost 20 per cent had received financial help from family or relatives.

The 1998–99 Household Expenditure Survey (HES) also included items on cash flow problems in addition to items on deprivation.[2] The results for cash flow items indicated that 15 per cent of households spent more money than they earned, 19 per cent were unable to raise $2,000 for an emergency, 16 per cent could not pay utility bills on time, 7 per cent could not pay car registration or insurance on time, 4 per cent pawned or sold something, 3 per cent went without meals, 2 per cent could not afford to heat their homes and 3 per cent sought assistance from welfare organisations. The incidence of financial stress was clearly related to income, but only a small number of households in the lowest income quartile were 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 per cent of households had high levels of financial stress, 21 per cent moderate stress and 66 per cent low or no stress.

Bray (2003a, 2003b) identified three components to financial stress after performing factor analyses on these items, as well as an item on living standards compared to a year ago. He described the three components as 'missing out', based mainly on the deprivation items; 'cash flow problems', based mainly on items about paying bills and borrowing money; and 'hardship', based on items tapping greater stress: going without meals, selling possessions or seeking help from community organisations. He classified about 3 per cent of households as experiencing 'multiple hardship', while 8 per cent experienced some hardship.

The 2002 Australian General Social Science Survey (GSS) included nine cash flow questions asked in a similar manner to the HES questionnaire.[3] About 13 per cent of respondents 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 per cent of households had no incidences of financial stress, 9 per cent one incidence, 5 per cent two incidences and 6 per cent three or more incidences.

Measures of financial stress may not identify households that are 'truly' in poverty. The high incidence of not paying utility bills on time in these surveys may reflect priorities of households; they prioritise other spending knowing they can delay these payments for at least a short time. In contrast, it is more difficult to delay paying rent or servicing mortgages. On the other hand, families in financial difficulties may be able to pay bills, registration and insurance on time with credit cards, but in doing so, they increase their debt. The high incidence of seeking financial assistance from family or friends may include the borrowing of small amounts of money, which may not necessarily constitute financial stress. Much less ambiguity surrounds the other items: pawning or selling something for cash, not being able to heat the home, going without food and seeking help from welfare or community organisations. However, the results for these items indicate that very few households (no more than 5 per cent) are in financial stress.

1.4 Poverty and risk factors

This section reviews studies on the relationships between poverty and demographic, sociological and economic factors. The first part of the review focuses on income poverty since few studies have explored its relationship with other measures of financial disadvantage. The second, much shorter part, reviews work on other indicators.

There are no strong differences between the sexes in income poverty, despite the fact that higher proportions of women head lone-parent families and work part-time. According to Harding, Lloyd and Greenwell (2001, p. 15), the risk of being in income poverty is no higher among women than men.

Younger people are more likely to be in income poverty than older people. On the before-housing half-mean income poverty measure with the Henderson equivalence measure, 16 per cent of 15 to 24 year-olds were in poverty in 2000, compared to 11 to 12 per cent of older age groups (Harding, Lloyd & Greenwell 2001, p. 17). Using the half-median measure, Korpi and Palme (1998) reported that poverty among Australians aged 65 and over was 5.2 per cent, compared to 9.1 per cent for the general population.

Poverty among those aged 65 and over is even lower after housing costs have been taken into account (Harding, Lloyd & Greenwell 2001, pp. 17, 19). This is because a sizeable proportion of older people have paid off their home loans and so have no housing costs. Saunders (1996) reported findings from the Australian Institute of Health and Welfare, with poverty among those aged 65 and older at 19 per cent on the before-housing measure but only 6 per cent after-housing.

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 the before-housing half-mean income with Henderson equivalences, Harding, Lloyd and Greenwell (2001) estimated that 22 per cent of sole parents were in poverty, compared to 18 per cent of singles, 12 per cent of couples with children and 6 per cent of couples without children. Since 1990, the proportion of sole parents in poverty has declined. Among sole parents with two or more children, the poverty rate is over 25 per cent (Harding, Lloyd & Greenwell 2001, pp. 7–8). Eardley (1998) also found that income poverty, defined by half the median income, is associated with sole parenthood and larger families.

Low education is also associated with income poverty. Among those with no post-secondary qualifications, poverty (on the half-mean disposable income measure) was 15 per cent, compared to 11 per cent among those with diploma, certificate or trade qualifications and only 6 per cent among those with bachelor degrees (or higher) qualifications (Harding, Lloyd & Greenwell 2001, p. 14).

Poverty is strongly associated with labour force status. In 2000, nearly 60 per cent of the unemployed were in poverty. This compares with 17 per cent of those not in the labour force, 12 per cent of part-time workers and just 5 per cent of full-time workers. Among families with no wage earners, 28 per cent were in poverty in 2000 compared to less than 7 per cent 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 half the median income, was very low at around 1 per cent.

Johnson (1991) found wide variations in income poverty according to birthplace. He estimated the national poverty rate at 12.5 per cent in 1985–86. Although the poverty rate among all immigrants was only slightly higher at 14.6 per cent, it was around 30 per cent among immigrants from Asia and the Americas and 25 per cent among immigrants from Oceania. Poverty among Indigenous Australians was very high: about three times the rate of non-Indigenous families (Ross & Whiteford 1992).

This discussion on risk factors may give the impression that income poverty is limited to sole parents, the less educated, the unemployed and certain racial and ethnic minorities. This is not the case, however, since these groups are typically small. The numerically large groups comprise the bulk of those in poverty. Of those in poverty in 2000, 42 per cent were couples with children and a further 12 per cent were couples without children. Similarly, 45 per cent of those in poverty are aged between 25 and 49 (Harding, Lloyd & Greenwell 2001 pp. 9, 17).

1.5 Other indicators of poverty

The author is not aware of any study that examines the relationship between demographic, sociological and other factors and subjective poverty.

The Department of Family and Community Services (FaCS 2003, p. 92) notes that expenditure poverty is high among elderly persons, no doubt because they have fewer financial obligations. In contrast, singles and couples are more likely to be in income poverty but not expenditure poverty.

There has been some research on the risk factors associated with financial stress. High levels of financial stress were more common among sole parents (41 per cent), the unemployed (45 per cent), and those on other government support pensions and allowances (40 per cent). Econometric analyses found that having a large family, being disabled, being a sole parent, being unemployed, having a mortgage, and paying interest on credit cards were associated with financial stress (McColl, Pietsch & Gatenby 2001).

Bray (2003b) found that 'multiple hardship' was highest among lone-parent households at around 14 per cent. Interestingly, couples with children had higher than average levels of 'missing out' and 'cash flow problems', but lower than average levels of 'hardship'. Young people were more likely to be experiencing cash flow problems.

Using data from the HILDA survey, la Cava and Simon (2003) reported that cash flow problems were negatively related to age, being in a couple without children, home ownership (and home value), disposable income and the number of credit cards, and was positively related to unemployment, family size, being a single parent and on being on welfare. Surprisingly, households with debt were generally less likely to experience cash flow problems.

Financial stress is related to income, but not as closely as often assumed. On nine indicators, financial stress was highest among households in the lowest income quintile, and declined in each subsequent quintile. Seventeen per cent of households in the lowest income quintile had two or more indicators of financial stress, compared to 12, 9 and 4 per cent of households in the top three quintiles respectively. However, 70 per cent of households in the lowest income quintile had experienced no cash flow problems in the previous 12 months (ABS 2004a).

1.6 Interrelationships between indicators of financial disadvantage

As suggested by the surprisingly low levels of financial stress among households in the lowest income quartile, the correspondences between income and income poverty and other measures of financial disadvantage are not strong.

The correspondence between income poverty and expenditure poverty is much weaker than expected. Only 2.2 per cent of Australian households were in poverty on both the income and expenditure measures, when they are defined at 50 per cent of median income and median expenditure. If the thresholds are raised to 60 per cent, the proportion increases to 8 per cent (FaCS 2003, p. 92). Similarly, Saunders, Bradshaw and Hirst (2002) found that the poverty rate in the United Kingdom fell by about half, if it were defined in terms of both income and expenditure. They also introduced the concept of 'core' poverty to describe households that are in poverty on both the income and expenditure measures and whose expenditure exceeds household income. Only 2 per cent of households in the United Kingdom were found to be in core poverty. For Australia, Saunders (2004) estimated that 12 per cent of single-income households were in core poverty in 1998–99, about half the rate for either income or expenditure poverty.

In the United Kingdom the relationship between deprivation and income is weak. Those in persistent income poverty—defined as households with incomes less than 70 per cent of the median income over three years—were more likely to experience deprivation. However, only between one in eight and one in five of those in persistent poverty experienced multiple incidences of deprivation (Whelan, Layte & Maître 2002). The authors conclude that other factors beside persistent income poverty are important in determining deprivation, and these factors vary depending on the type of deprivation.

A similarly low correspondence was found for deprivation measures. Incidences of deprivation were clearly higher in the lowest income quartile, but deprivation was not unknown in higher income quintiles (McColl, Pietsch & Gatenby 2001). Travers and Robertson (1996, p. 25) reported a correlation of only 0.2 between a deprivation index and income among social security recipients.

Saunders (2004) found that if poverty is defined in terms of the HPL and experiencing one of the five core indicators of financial stress—could not pay car registration or insurance on time, pawned or sold something, went without meals, was unable to heat home and sought assistance from a welfare or community agency—the rate declined from 25 per cent to less than 10 per cent. Therefore, 60 per cent of households defined as being in poverty on the HPL measure had, in the past 12 months, no experience of financial stress when measured by these indicators. Similarly, Bray (2003b) concluded that although low incomes are associated with hardship, missing out and cash flow problems, only a relatively small proportion of low-income households experience these problems.

Similarly, subjective judgements of being poor are also not closely related to income, at least in the United Kingdom. Bradshaw and Finch (2003) concluded that there is 'surprisingly little overlap' between income poverty, deprivation and subjective poverty.

1.7 Purpose of this paper

This paper contributes to the understanding of financial disadvantage in Australia by addressing areas not adequately covered by previous research.

Although there has been much work on the relationships between income poverty and demographic and social characteristics, the range of characteristics examined in a single paper has been fairly limited. For example, there are no recent Australian studies on the relationship between poverty and ethnicity or Indigenous status. Furthermore, we know little about the social reproduction of poverty in Australia, that is, the relationship between socioeconomic background and poverty. Finally, most Australian studies are limited to income poverty. The present paper examines the sociological and economic correlates of two other indicators of financial disadvantage, subjective poverty and financial stress, as well as income poverty.

Recent studies have not usually included multivariate analyses, which would enable identification of the independent effects of risk factors, that is, the effects of a factor on poverty taking into account the effects of other factors. For example, the analyses in the NATSEM report (Harding, Lloyd & Greenwell 2001) are bivariate analyses.

Researchers perform analyses on both the before-housing and after-housing income poverty measures. In the Australian and overseas literature, the before-housing measure is more frequently used and is usually the headline figure. However, the after-housing measure is arguably a better indicator of a household's financial situation given that a substantial proportion of owner–occupiers own their properties outright, the mortgage repayments of first home buyers are usually sizeable, and non-home owners almost invariably pay rent. Although the NATSEM report identified different relationships between before and after-housing measures of poverty and age, it did not systematically compare the effects of sociological and economic factors on before and after-housing poverty (Harding, Lloyd & Greenwell 2001).

Another contribution of this paper is to include income, wealth, assets and debt in the analysis of financial disadvantage. It is apparent from the literature that the correspondence between income-based and non-income based measures of wealth are weaker than expected. This may be a result of the income measures used. This paper examines the relationships of subjective poverty and financial stress with a range of income measures (individual, household, disposable and equivalised). No Australian study has compared the relationships these three indicators of financial disadvantage have with wealth, assets and debt.

Finally, this paper examines the interrelationships between the three financial disadvantage measures and their stability over time. Such analyses estimate the proportion of individuals who are financially disadvantaged on two or three indicators, and the movement of people into and out of financial disadvantage according to each indicator.

The purpose of this paper, therefore, is to examine before and after-housing income poverty, subjective poverty and financial stress in Australia using the first two waves of the HILDA survey.

The specific aims of this paper are outlined below.

- Estimate the levels of before and after-housing income poverty, subjective poverty and financial stress in 2001 and 2002.
- Examine the extent to which income poverty, subjective poverty and financial stress are stable over a two-year period, and, in particular, assess whether subjective poverty and financial stress are more stable than income poverty.
- Comprehensively document the relationships that these indicators of financial disadvantage have with a range of demographic, socioeconomic and economic factors; these include sex, age, household type, marital status, labour market experiences, income, wealth, assets and debt.
- Model these relationships to estimate the independent effects of these factors on indicators of financial disadvantage.
- Explore the interrelationships between and within these indicators of financial disadvantage and their performance over time.

2 Data, measures and analysis

2.1 Data

The data used in these analyses are from the first two waves (2001 and 2002) of the HILDA survey. HILDA has several features that make it particularly useful for investigating financial disadvantage. It is the first large-scale Australian longitudinal survey of adults specifically designed to investigate dynamics; previous studies of poverty have relied on cross-sectional data. Second, it includes other measures of financial disadvantage, subjective poverty and financial stress not found in previous studies. Third, income data was collected from all available (and eligible) household members, which improved the accuracy of income and other variables. Fourth, HILDA Wave 2 data includes wealth, assets and debts, which allows for the examination of their relationships with financial disadvantage. Finally, HILDA includes a range of data on other factors that are not usually collected in Australian surveys on income. The *HILDA User Manual* (Watson 2005) details the sampling, weighting, imputation and other technical aspects of the survey.

2.2 Measures

Measures of financial disadvantage

Four measures of financial disadvantage were used: before-housing income poverty, after-housing income poverty, subjective poverty and financial stress. The development of these measures is described in more detail in Appendix 2.

Households were defined as in before-housing income poverty if their equivalised disposable household income was below 50 per cent of the median. Disposable income is calculated as the income received after adjusting for taxes and government transfers such as pensions, unemployment and other benefits. The equivalence scale used is the modified OECD scale, which assigns a weight of 1.0 to the first adult, a weight of 0.5 to the second and each other adult and a weight of 0.3 to each child under 14 years of age (Förster 2001; Whelan, Layte & Maître (2002).

This measure differs slightly from other measures of before-housing income poverty constructed from the HILDA data. There are two main differences. In the measure used in this paper, the poverty line is drawn at the household with the median income, not the household that includes the individual with the median income. Second, households with negative incomes were not included in the calculation of income poverty. Such households are usually running businesses and are likely to have enough assets to carry on. Nonetheless, the estimates of before-housing income poverty in this paper are only slightly lower than estimates by Headey, Marks and Wooden (2005).

The second measure—after-housing income poverty—is similar to the first; the only difference is that housing costs are deducted from disposable household income. For some households, the cost of housing is large and thus disposable income is much lower than for a household with a similar income and little or no housing costs.

The third measure, subjective poverty, was defined by respondents indicating that they were 'poor' or 'very poor' in response to a question on their level of prosperity.

Financial stress, the final measure of financial disadvantage, was defined in terms of seven behaviours due to **a shortage of money**, sometimes described as cash flow problems. They are: 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 or community organisations. Individuals were defined as being in financial stress if they had experienced two or more of these events since the beginning of the year. It was not possible to use Bray's (2003b, p. v) three dimensions of financial stress—'missing out', 'cash flow problems' and 'hardship'—since the HILDA questionnaire did not include the items necessary for these classifications.

Measures of the correlates of financial disadvantage

The measures of many of the correlates of financial stress should be apparent from the tables following, for example, sex, education and marital status. The variables (household type, marital status, highest educational qualifications, labour market experiences, personal gross income and disposable income) are derived variables available in public releases of the HILDA data. The construction of the household income variables is described in Appendix 2. Occupational status was measured using the ANU4 occupational status scale (Jones & McMillan 2001).[4] For parental occupational status, the father's occupation at age 14 was used. If this information was missing, then the mother's occupation was used.

The measures of wealth, assets and debts were derived from the questions in the wealth module in Wave 2. Questions covering housing, unincorporated businesses, equity-type investments (for example, shares and managed funds), cash-type investments (for example, bonds and debentures), life insurance policies, vehicles and valuables (for example, jewellery and 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, higher education debt and other personal debt, however, were asked directly of individuals. For most questions, respondents were asked to provide exact dollar amounts.

For the income and wealth variables, missing data was handled by imputation. For other variables, the few cases with missing data were excluded from the corresponding analyses. Wealth is simply assets minus debts; details on the construction of the wealth variables are available (Headey 2003; Headey, Marks & Wooden 2004; Marks, Headey & Wooden 2005).

2.3 Analysis

Statistical significance tests require that the units of analysis be independent; however, individuals living in the same household are not independent in the statistical sense. Therefore, most of the analyses in the following sections (Tables 2 to 21, but not including Tables 15 to 17) are based on reference persons randomly selected from each household. The reference person was required to be over 18 years of age and not living with a parent. The results are almost identical for different random draws. This procedure is similar to the random selection of a household member at a survey interview who provides data on behalf of the household, as in the 2000–01 Survey of Income and Housing Costs (SIHC) and the HES and GSS surveys. Separate random selections were made for each wave. Therefore, the relevant unit for these analyses are households rather than individuals. This procedure is preferable to other ways of identifying a reference person. For example, choosing the household member with highest income would bias the results toward higher status individuals. Furthermore, it would not be possible to examine the relationships of poverty with sex and age if the reference person was selected using these characteristics. Similarly, if the characteristics of all household members were used, the results would be biased toward larger households and against households with only one adult.[5]

Weighting

The analyses reported here were weighted and limited to adults aged 18 years and older. Household weights were used for the bivariate and multivariate analyses.

Logistic regression

The sections on income poverty, subjective poverty and financial stress include logistic regression analyses of the independent effects of demographics, education, socioeconomic factors, labour market experiences and wealth on the respective measure of poverty. Logistic regression is the most appropriate statistical technique for the analysis of dichotomous dependent variables.

Highest educational qualification was entered as a categorical variable since preliminary bivariate analyses revealed that it does not have a truly ordinal relationship with indicators of financial disadvantage. For example, a certificate qualification was not associated with a lower incidence of income poverty than completing school. For the logistic regression analyses, household type was indicated by two variables, marital status and number of children, so that the independent effects of each could be assessed. Present labour force status was not

included in the multivariate analyses since it is was measured at the same time as poverty status. It was replaced by measures of the percentages of time spent, since leaving full-time education, in work (full-time or part-time) and in unemployment. Disposable income measures were not included in the analyses of income poverty, but were included in analyses of subjective poverty and financial stress. Assets and debts could not be included in the same regression analysis as wealth because they are the two components of wealth.

Within each section, the logistic regression analyses of the Wave 2 data are presented. The analyses of the Wave 1 data are presented in Appendix 3. The statistical significance of the coefficients is indicated in the standard manner (and described in the table notes). In the text, the logistic regression coefficients in the tables are discussed as odds ratios, which are the exponents of the coefficients. For categorical variables—sex, Indigenous status, language background, type of school attended, education and marital status—the effects are interpreted relative to the appropriate contrast group, that is, females, the non-Indigenous, those with an English-speaking background, those who attended a government school, and those who had never married and were not in de facto relationships. The interpretation of the odds ratio is relative to the contrast group; thus, the odds of men being in poverty are so many times the odds for women, the odds of married people being in poverty are so many times the odds for single people, and so on. Unlike other interpretations of logistic regression coefficients, odds ratios do not change depending on the values of the other independent (predictor) variables.

The interpretation of the logistic regression coefficients for continuous variables depends on the unit of measurement. The coefficient refers to a single unit change in the predictor variable, so its magnitude depends on how the variable is measured. For example, the number of siblings and number of children are continuous variables ranging from zero. Therefore, the coefficients of these variables are the effects on poverty status for a one-unit change, that is, for one additional sibling or child. For two siblings or two children, the effects are doubled and the odds ratios are squared. Similarly, the effects for three siblings or three children are 3.0 times the effects for one sibling or child and the odds ratios are cubed. Age has been divided by 10, so the effects are the change in the odds of being in poverty for a 10-year difference in age. Similarly, parental and respondents' occupational status have each been divided by 10, so the effects are for a 10-unit difference on the zero to 100 occupational status scale. Again, the effect for a 20-year difference is twice that for a 10-year difference and the odds ratio is squared. The percentage of time spent working was divided by 10, so the effects relate to an increase of 10 percentage points in the time spent working since leaving school. For unemployment, the effects are for an increase of 1 percentage point in time spent unemployed. Income was divided by 10,000, so the effects are for a $10,000 difference in income. Similarly, wealth was divided by 100,000, so the effects are for a $100,000 change in wealth.

Where appropriate, the variables were centred about their means so that the estimate for intercept would be meaningful. Parental and respondents' occupational status were centred at their respective means (about 43 and 47 on the 100 point scale). Percentage of time spent working since leaving school was centred at its mean of 73 per cent. Wealth was centred at average household wealth, which was approximately $420,000. Therefore, the estimate for the intercept can be understood as the log odds of being in income poverty (or subjective poverty or financial stress) for an individual who scores zero on all variables. That individual is female and 45 years old, has an average socioeconomic background, attended a government school, completed school (Year 12), is single with no children, works in a job with an average occupational status, since leaving full-time education has spent the average percentage of time working but no time unemployed, and has an average income and average wealth.

For the logistic regression analyses, groups of variables were added sequentially, beginning with a model comprising only demographic and socioeconomic background factors. The first group added was education, followed by marital status and number of children, then occupational status and labour market and unemployment history. The final variables added were wealth and, in the analyses of subjective poverty and financial stress, disposable income. The sequential modelling procedure shows which variables have statistically significant independent effects on financial disadvantage and which variables have effects that are mediated by variables added in later model specifications. For example, if 'first language not English' has a significant negative effect, this may be because 'first language not English' is associated with lower levels of education, different experiences in the labour market and lower levels of wealth. Alternatively, 'first language

not English' may increase the likelihood of financial disadvantage, even when differences between first language groups in educational attainment, labour market experiences, wealth and, for analyses of subjective poverty and financial stress, disposable income are taken into account. In other words, education, labour market experiences and wealth may not account for the higher odds of this group being financially disadvantaged.

Included in these tables are the pseudo R square values, which indicate how well the independent variables account for the distribution of households on the respective indicator of financial disadvantage.[6]

3 Income poverty

Table 1 presents estimates of the percentage of individuals in income poverty on the before and after-housing measures. In both measures, the poverty lines are drawn at 50 per cent of median household income after taxes and government transfers. The modified OECD equivalence scale was used to adjust for household size. About 13 per cent are defined as being in income poverty on the before-housing measure and nearly 17 per cent on the after-housing measure. These HILDA Wave 1 and 2 estimates are higher than comparable estimates for 2000: 10 per cent on the before-housing measure and 15 per cent after-housing (Harding, Lloyd & Greenwell 2001, pp. 35–6). These differences of 2 to 3 percentage points are probably due to differences in sampling, data processing or other technical aspects rather than reflecting a trend of increasing income poverty. The most important technical difference is that the HILDA estimates are based on annual income, whereas the Australian Bureau of Statistics (ABS) survey estimates are based on weekly income. Weekly income measures are less likely to include income from all sources.

Table 1 Estimates of the percentage of individuals in income poverty

Measure	Definition of poverty line	Wave 1	Wave 2
Before-housing income poverty	50 per cent or below of median equivalised disposable household income not adjusting for housing costs	12.8	12.0
After-housing income poverty	50 per cent or below of median equivalised disposable household income after deducting housing costs	16.6	16.4

Note: The unit of analysis is the individual. Weighted by enumerated person weights.

3.1 Bivariate relationships

Tables 2 through 5 report the relationships between income poverty and a range of demographic, sociological and economic factors. Tables 2 and 3 present the relationships with categorical variables, and Tables 4 and 5 focus on continuous variables.

The percentage of households defined as in income poverty on the before-housing measure was slightly higher at 15.5 per cent in Wave 1 and 14.4 per cent in Wave 2 than the percentage for individuals (12.8 per cent in Wave 1 and 12.0 per cent in Wave 2). This is because larger households tend to have higher incomes than smaller households. About 7 per cent were categorised on this measure as in poverty in both waves (Table 2). On the after-housing measure, the percentage of households in poverty was 18.1 per cent in Wave 1 and 17.4 per cent in Wave 2; 8.9 per cent were defined as in poverty on the after-housing measure in both waves (Table 3). Again, the percentages for household levels of poverty are higher than for individuals.

Tables 2 and 3 present the percentages in income poverty for each and both waves by sex, age cohort, household type, marital status, highest education level and labour force status. For estimates of income poverty in both years, the characteristics were measured from the second wave data. It is important to note that these percentages are of the group in income poverty, not the percentage of those in poverty that belong to that group.

On the before-housing measure, poverty is higher among women than men. In Wave 1 the poverty rate among women was nearly 6 percentage points higher, and in Wave 2, 4 percentage points. About 8 per cent of women were defined as in poverty in both waves, compared to about 5 per cent of men.

Before-housing poverty is higher in the youngest cohort (18 to 24 year-olds) and two oldest age cohorts (65 to 70, and 70 and older). In Wave 1, among those aged between 25 and 54, about 10 per cent were in poverty, compared to around 20 per cent of 18 to 24 year-olds and over 30 per cent of those older than 70. Wave 2 showed much the same pattern, with a slightly higher level of poverty among the youngest cohort, and a slightly lower level among the oldest cohort. Less than 4 per cent of 25 to 54 year-olds were in poverty in both waves.

Table 2 Percentage in before-housing income poverty by demographic and other factors

Characteristic	Wave 1	Wave 2	Waves 1 and 2
All	15.5	14.4	6.7
Sex			
Male	12.3	12.3	5.3
Female	18.0	16.1	7.8
Age cohort			
18–24	20.8	25.7	9.1
25–34	8.9	9.7	3.4
35–44	11.2	8.4	3.8
45–54	11.0	9.5	3.7
55–64	17.5	16.9	9.1
65–70	23.2	21.8	10.5
>70	32.0	28.2	16.1
Household type			
Couple without children	11.3	10.0	3.1
Couple with children < 15	9.3	8.0	3.3
Couple with children > 15	5.8	6.8	1.5
Lone parent	17.8	15.9	5.7
Single person	29.5	27.4	16.2
Other	11.5	14.7	4.1
Marital status			
Legally married	10.0	9.2	3.0
De facto	7.4	8.1	2.4
Separated	22.2	21.0	8.4
Divorced	23.9	19.8	12.9
Widowed	38.1	33.0	21.2
Never married and not de facto	19.6	20.4	9.7
Highest education level			
<Year 12	23.3	21.4	11.3
Year 12	15.5	16.3	5.4
Certificate	14.5	16.2	6.9
Advanced certificate	13.2	10.9	4.9
Diploma/advanced diploma	11.5	8.6	4.3
Bachelor degree	7.9	7.2	2.7
Postgraduate qualification	4.0	5.7	1.8
Labour force status			
Working full-time	4.4	3.8	0.9
Working part-time	9.2	11.1	3.3
Unemployed, looking for full-time work	32.5	31.9	17.3
Unemployed, looking for part-time work	31.4	36.0	11.4
Not in the labour force, marginally attached	26.6	29.6	14.1
Not in the labour force, not marginally attached	30.2	26.1	14.3

Table 3 Percentage in after-housing income poverty by demographic and other factors

Characteristic	Wave 1	Wave 2	Waves 1 and 2
All	18.1	17.4	8.9
Sex			
Male	14.7	15.6	7.3
Female	20.8	18.9	10.2
Age cohort			
18–24	28.6	36.3	17.1
25–34	16.8	18.4	9.2
35–44	16.9	15.9	8.5
45–54	13.9	12.0	5.5
55–64	17.8	17.2	9.4
65–70	18.6	16.0	10.2
>70	24.0	18.6	9.6
Household type			
Couple without children	12.6	10.7	4.7
Couple with children < 15	14.3	14.3	6.7
Couple with children > 15	6.3	7.7	2.7
Lone parent	30.3	31.0	16.8
Single person	27.9	26.0	14.7
Other	17.2	18.9	10.6
Marital status			
Legally married	12.0	12.0	5.2
De facto	12.9	11.1	6.1
Separated	32.3	31.8	16.3
Divorced	25.0	23.9	14.8
Widowed	28.4	19.1	12.7
Never married and not de facto	27.4	29.7	15.2
Highest education level			
<Year 12	24.0	22.1	12.7
Year 12	19.9	22.0	8.9
Certificate	20.3	21.5	11.8
Advanced certificate	15.5	15.1	7.1
Diploma/advanced diploma	15.5	11.0	5.3
Bachelor degree	12.1	11.1	5.4
Postgraduate qualification	7.1	8.5	3.6
Labour force status			
Working full-time	7.4	7.7	2.4
Working part-time	14.6	18.1	8.1
Unemployed, looking for full-time work	44.2	43.2	27.0
Unemployed, looking for part-time work	47.0	47.6	19.4
Not in the labour force, marginally attached	34.9	38.8	24.6
Not in the labour force, not marginally attached	28.2	23.1	13.4

Of household types, lone-parent and single-person households had the highest before-housing income poverty levels. On this measure, nearly 30 per cent of single-person households, which included widow and widower households, were in poverty in each year. Sixteen per cent were in poverty in both years. Lone-parent households show the next highest level of poverty, at around 16 per cent in each year, although only 6 per cent were in poverty in both years. The incidence of poverty among couples is low, at about 10 per cent among couples without children, less among couples with children younger than 15, and even less among couples with older children.

Before-housing income poverty levels differ considerably by marital status. Married couples enjoyed the lowest poverty rates at around 10 per cent in each year (with only 3 per cent in poverty in both years). This compares to over 20 per cent of widows and widowers, and 13 per cent of divorcees. De facto couples had levels of poverty similar to (or, in Wave 2, slightly lower than) the levels of poverty for married couples.

Income poverty has a generally ordinal relationship with education: the higher the educational qualification, the lower the percentage in poverty. Among those whose highest qualification was less than Year 12, over 20 per cent were in poverty in each year. Over 10 per cent were in poverty in both years. This contrasts with less than 3 per cent of those with bachelor degrees or postgraduate qualifications. The only exception to the ordinal pattern was the slightly higher levels of poverty among certificate holders than among those whose highest qualification was Year 12 or school completion.

Labour force status has an even stronger relationship with income poverty than educational qualification . Less than 5 per cent of full-time workers were in poverty each year, and only 1 per cent were in poverty in both years. Part-time workers showed higher poverty rates at around 10 per cent each year, but only 3 per cent were in poverty in both years. Poverty rates are substantially higher among those who were not working. Of the unemployed, about 30 per cent were in poverty in a single year and about 15 per cent in both years. The group not in the labour force shows similarly high levels of before-housing income poverty. There is little difference between the poverty rates of the marginally attached and not marginally attached groups.[7]

Although the overall levels of after-housing poverty are higher, the pattern of its relationship with sex and education are similar to that found with the before-housing measure (Table 3). In each wave, after-housing poverty was substantially higher among women than men, and 10 per cent of women were in poverty in both years compared to 7 per cent of men. After-housing poverty shows the familiar inverse relationship with education: over 10 per cent of those without post-secondary education were in poverty in both years compared to about 5 per cent or less among those with diplomas, bachelor degrees or postgraduate qualifications.

However, the relationships between income poverty and the other variables are quite different with the after-housing measure. The after-housing poverty rate among 55 to 70 year-olds is similar to that among 25 to 44 year-olds, whereas it is substantially higher on the before-housing measure. Single-person households do not show substantially higher levels of after-housing poverty than other household types. On the before-housing measure they have the highest rates. Lone parents had much higher levels of poverty on the after-housing measure compared to the before-housing measure. Couple households with older children clearly have much lower levels of poverty than those with children under 15 on the after-housing measure. The differences between these groups are less significant on the before-housing measure.

Similarly, the relationship between income poverty and marital status is different on the after-housing measure. Widowers had the highest level of poverty on the before-housing measure, but had similar levels of poverty to the separated, divorced and single groups on the after-housing measure. Differences in poverty levels between the married, de facto and other marital status groups are larger on the after-housing measure.

After-housing income poverty is less than 10 per cent among those working full-time and 15 to 20 per cent among those working part-time. However, it is over 40 per cent among the two unemployed groups. Of those not in the labour force, the group marginally attached to the labour market has higher proportions in poverty than those unattached to the labour market. This is because the second group is more often older, retired and home owners. This difference is not apparent on the before-housing measure.

Tables 4 and 5 present the means and medians of those in income poverty and not in income poverty for a range of continuous variables. The medians are included because mean values may be misleading, as they are more sensitive to very high and very low incomes. The before-housing measure was used in Table 4 and the after-housing measure in Table 5. The comparison variables were measured in the same year, except that data for wealth, assets and debt were collected only in Wave 2. The tables are arranged in three groups of four columns; the first two groups of columns compare those in poverty and not in poverty in Waves 1 and 2, and the third group of columns compares those in poverty in both waves with those not in poverty in both waves.

On the before-housing poverty measure, those in poverty tend to be older, with average median ages in the low to mid 50s. These summary statistics hide the cohort differences presented in Table 2, which show higher

levels of before-housing income poverty in the youngest and two oldest age cohorts. On average, adults from households in poverty had more children, although the differences were small. There was no difference in the median number of children.

The average occupational status of the in-poverty group's present or previous jobs is about 10 score points lower than for the comparison groups. Thus, those in poverty worked, or more accurately had worked, in lower status jobs than those not in poverty. However, the difference is relatively small considering that this measure of occupational status ranges from zero to 100. There were even smaller differences in socioeconomic origins. The socioeconomic backgrounds of those in poverty were only 3 to 4 score points lower than for the comparison groups not in poverty. There was almost no difference in the medians. These results suggest that poverty is not closely associated with socioeconomic background.

Table 4 Characteristics of households in and not in poverty (before-housing income poverty measure)

Factor	Wave 1				Wave 2				Waves 1 and 2			
	Means		Medians		Means		Medians		Means		Medians	
	Poverty	Not in poverty	Poverty	Not in poverty	Poverty	Not in poverty	Poverty	Not in poverty	Poverty	Not in poverty	Poverty	Not in poverty
Age	53.9	46.4	54.0	44.0	52.5	46.7	54.0	45.0	56.6	47.2	60.0	45.0
Number of children	2.4	1.9	2.0	2.0	2.1	1.8	2.0	2.0	2.3	1.8	2.0	2.0
Occupational status	34.2	45.1	31.8	39.5	34.7	45.1	32.2	39.9	32.8	44.4	30.1	39.5
Parental occupational status	38.7	42.0	39.9	40.6	39.7	42.5	40.4	40.6	38.2	42.4	39.9	40.6
Personal income ($)	7.6	34.6	8.2	28.0	8.7	36.6	9.4	30.0	9.5	34.3	10.1	27.0
Personal disposable income ($)	7.0	26.7	8.2	23.0	7.9	28.1	9.4	24.3	8.8	26.4	10.0	22.4
Household income ($)	11.1	65.4	10.3	54.3	11.8	66.9	11.0	55.8	12.1	62.0	10.8	50.5
Equivalised household income ($)	10.1	50.5	10.2	43.5	10.7	51.4	10.9	44.1	11.1	47.8	10.8	40.8
Equivalised disposable household income ($)	6.6	29.8	8.6	25.5	7.2	30.9	9.4	26.7	8.2	28.8	9.9	25.1
Equivalised disposable household income after housing costs ($)	3.8	25.7	5.9	21.6	4.5	26.8	6.7	22.9	6.0	24.8	7.7	21.2
Household wealth $ (Wave 2 only)	239.3	458.4	120.9	266.7	243.6	432.4	100.2	244.2	190.4	425.0	80.2	239.0
Household assets $ (Wave 2 only)	269.2	535.3	130.2	344.7	269.9	508.2	114.6	322.9	202.7	498.1	90.2	311.0
Household debt $ (Wave 2 only)	30.5	77.2	0.0	15.5	27.3	75.6	0.0	15.5	15.7	72.5	0.0	12.7

Note: All dollar amounts are in thousands of dollars.

Table 5 Characteristics of households in and not in poverty (after-housing income poverty measure)

Factor	Wave 1				Wave 2				Waves 1 and 2			
	Means		Medians		Means		Medians		Means		Medians	
	Poverty	Not in poverty	Poverty	Not in poverty	Poverty	Not in poverty	Poverty	Not in poverty	Poverty	Not in poverty	Poverty	Not in poverty
Age	48.2	47.5	45.0	46.0	45.6	48.0	43.0	46.0	46.9	47.9	43.0	46.0
Number of children	2.2	1.9	2.0	2.0	1.9	1.8	2.0	2.0	2.2	1.9	2.0	2.0
Occupational status	35.3	45.2	32.2	39.5	36.1	45.2	32.8	39.9	33.6	44.6	31.3	39.5
Parental occupational status	39.6	41.9	39.5	40.6	41.2	42.3	40.5	40.6	40.0	42.3	39.6	40.6
Personal income ($)	10.2	34.9	8.9	28.4	12.3	36.9	10.5	30.0	12.4	34.6	10.7	27.6
Personal disposable income ($)	9.0	26.9	8.8	23.1	10.7	28.2	10.4	24.5	10.9	26.6	10.7	22.5
Household income ($)	15.4	66.2	12.5	55.5	17.5	67.7	14.3	57.0	17.0	62.7	13.5	51.7
Equivalised household income ($)	13.4	51.1	12.1	44.4	15.1	52.0	14.0	45.1	14.8	48.3	13.4	41.6
Equivalised disposable household income ($)	8.3	30.2	9.3	26.0	9.4	31.3	10.4	27.3	9.5	29.2	10.5	25.6
Equivalised disposable household income after housing costs ($)	3.6	26.5	5.9	22.1	4.1	27.6	6.4	23.5	4.6	25.3	6.6	21.7
Household wealth $ (Wave 2 only)	225.4	468.3	64.0	278.1	202.6	448.0	32.3	261.1	144.9	435.3	13.0	249.9
Household assets $ (Wave 2 only)	273.2	542.7	81.2	351.0	248.0	521.5	48.4	332.6	178.3	507.7	15.4	321.0
Household debt $ (Wave 2 only)	45.8	75.4	0.6	14.5	44.5	73.7	1.0	14.0	33.9	72.1	0.1	12.0

Note: All dollar amounts are in thousands of dollars.

Because poverty is measured by income, the mean and median personal and household incomes are much lower for the in-poverty group. The equivalised annual disposable incomes of the in-poverty groups are very low: $6,000 to $8,000 before housing and $3,800 to $6,000 after deducting housing costs. They are about 20 to 25 per cent of the incomes of the comparison groups.

In both waves, the groups defined as in poverty had considerable amounts of wealth, on average between $200,000 and $250,000. However, they were only about half as wealthy as the not-in-poverty groups. The group that was in poverty in both years had substantially less wealth (at around $190,000), suggesting some running down of assets. Similarly, the in-poverty groups had fewer assets than the comparison groups, but the differences are not as large as they are for income. Incomes differ by a factor of around five, whereas wealth and assets differ by a factor of two. A surprising result is that the in-poverty groups have less debt than the comparison groups. In each of Waves 1 and 2, the mean debt of those in poverty was around $30,000, compared to over $70,000 in the comparison groups. The group in poverty in both waves had even less debt at around $16,000. The median household in poverty had no debt.

For the after-housing measure of income poverty, the age differences are minimal. In Wave 2 the in-poverty group tended to be slightly younger. This was also true of the smaller group that was in poverty in both waves. As was the case for the before-housing measure, the groups in poverty had, on average, slightly more children. Similarly, the results for the occupational status of present or previous job and parental occupational status are the same as for the before-housing measure. There are no striking differences between before and after-housing measures on the mean and median incomes of the two groups. The results for wealth, assets and debts are almost identical between the two poverty measures.

3.2 Effects on before-housing income poverty

Table 6 presents the results from regression analyses of the influences on before-housing income poverty. There are significant differences between the sexes.

In the initial model, sex, age, number of siblings, Indigenous status, language background and school type accounted for about 7 per cent of the variation in before-housing income poverty. This rises to about 9 per cent with the addition of education, and it increases more substantially to 16 per cent with the addition of marital status and the number of children. Labour market experiences and occupation increase the R square value to 19 per cent, and the addition of wealth increases it very slightly to just over 20 per cent.

The odds for women being in poverty rather than not in poverty are about 1.4 times the odds for men.[8] This effect is net of other factors in the initial model (Table 6). Differences between the sexes decrease when controlling for education and marital status. This is because the average education level of men is still higher than that of women, and the bulk of lone parents and widowers are women. When taking into account labour market history, the situation is reversed: the odds of men being in poverty are about 1.3 times the odds for women. So, among men and women with the same labour market experiences, men are more likely to be in poverty than women. The addition of wealth slightly decreases the difference, but men are still more likely to be in poverty than women when labour market experiences and wealth are taken into account.

A 10-year age difference increases the odds of being in before-housing income poverty by about 1.2 times. Controlling for education, marital status and other factors makes little difference to the age effect.

In the initial model, an increase in the number of siblings is associated with increased odds of being in poverty. Compared to having no siblings, one sibling increases the odds of being in poverty by a factor of 1.04, two siblings 1.08, and three siblings 1.12. This is a weak effect and disappears when controlling for educational qualifications.

'Not living with both parents at age 15' is not associated with before-housing income poverty in Wave 2. Analyses of income poverty in Wave 1 show significant effects for 'not living with both parents at age 15', suggesting that there is some effect.

Table 6 Effects on income poverty (before-housing), Wave 2

Variable	Background		+Education		+Marital status		+Work		+Wealth	
Intercept	-2.01	***	-1.81	***	-1.10	***	-1.53	***	-1.60	***
Male	-0.31	***	-0.20	**	-0.13		0.23	*	0.21	*
Age	0.22	***	0.17	***	0.17	***	0.20	***	0.21	***
Number of siblings	0.04	*	0.02		0.01		0.00		0.00	
Not living with both parents at age 15	0.04		0.03		-0.04		-0.07		-0.07	
First language not English	0.61	***	0.65	***	0.84	***	0.65	***	0.63	***
Indigenous	0.96	***	0.91	***	0.65	**	0.43		0.42	
Parental occupational status (10s)	-0.05	**	0.00		0.00		0.00		0.01	
Catholic school	-0.15		-0.09		-0.12		-0.10		-0.08	
Independent school	0.13		0.25	*	0.27	*	0.23		0.26	
Postgraduate qualification	–		-1.14	***	-1.06	***	-0.57	*	-0.53	*
Bachelor degree	–		-0.88	***	-0.90	***	-0.51	**	-0.51	**
Diploma	–		-0.66	***	-0.68	***	-0.50	**	-0.48	*
Advanced certificate	–		-0.40	**	-0.36	*	-0.23		-0.22	
Certificate	–		0.05		0.08		0.05		0.06	
<Year 12	–		0.17		0.15		-0.06		-0.06	
Married	–		–		-1.56	***	-1.23	***	-1.13	***
De facto	–		–		-1.29	***	-1.02	***	-0.97	***
Separated	–		–		-0.43	**	-0.08		-0.08	
Divorced	–		–		-0.52	***	-0.18		-0.18	
Widowed	–		–		-0.51	**	-0.40	*	-0.37	*
Number of children	–		–		0.10	***	0.05		0.04	
Occupational status (10s)	–		–		–		-0.09	***	-0.08	***
% time in work (10s)	–		–		–		-0.16	***	-0.15	***
% time unemployed (1s)	–		–		–		0.01	***	0.01	**
Wealth ($100,000)	–		–		–		–		-0.05	***
Rescaled R square	0.06		0.09		0.15		0.20		0.20	

Note: ***p<0.001, **0.001<p<0.01, *0.01<p<0.05.

Those whose first language is not English are more likely to be in income poverty. The effects are reasonably large: according to the initial model their odds of being in poverty (rather than not in poverty) are 1.8 times the odds for the comparison group. This effect is net of parental occupational status, type of school attended and other variables in the initial model. The difference remains the same when controlling for other factors. This is a remarkable finding—even when education, marital status, children, labour market history and wealth are taken into account, this group is still nearly twice as likely to be in poverty (rather than not in poverty) than those with English-speaking backgrounds.

In the initial model, the effect of being Indigenous is even larger than for having a non–English speaking background. The odds for the Indigenous group being in poverty (rather than not in poverty) are 2.6 times the odds for the non-Indigenous group. This effect is much the same when controlling for educational qualifications, decreases more substantially when marital status and children are taken into account, and is no longer significant when labour market history is taken into account.

In the initial model, parental occupational status is significantly associated with being in income poverty. However, the effect is rather weak. A 10-unit increase in parental occupational status decreases the odds of being in poverty by 1.05 times. Comparing the highest possible occupational background (medical practitioners, with a ANU4 score of 100) with the lowest (agricultural labourers, with a ANU4 score of zero) also shows that

poverty is only weakly associated with occupational background. The odds ratio for this extreme comparison is 1.7, comparable to that for a non–English speaking background and much less than that for a bachelor degree or marriage. The effect of occupational background is not statistically significant when differences in educational qualifications are taken into account, so it appears to be mediated through educational attainment.

There was no significant relationship between type of school attended and income poverty in Wave 2. In Wave 1, on the other hand, respondents who had attended a catholic school were less likely to be in after-housing income poverty than those who had attended a government school (Table A13). However, this effect is barely significant and is no longer significant when controlling for educational attainment.

Educational qualifications have a strong relationship with income poverty. In the model that includes the variables in the initial model and educational qualifications, postgraduate qualifications reduce the odds of being in poverty compared to school completion by 3.1 times, bachelor degrees by 2.4 times, diplomas by 1.9 times and advanced certificates by 1.5 times. These effects are slightly reduced when marital status is taken into account, and apart from the advanced certificate, the effects are significant when controlling for occupational status, labour market experiences and wealth. In the final model, postgraduate qualifications and bachelor degrees reduce the odds of income poverty by a factor of 1.7. These are strong effects, and indicate that the reduced chances of being in poverty from higher educational qualifications can be only partially attributed to the associations between education and labour market experiences, occupational status and wealth.

A certificate does not appear to affect the chances of being in income poverty compared to school completion. In Wave 2, not completing school was not associated with an increased likelihood of being in poverty, although in Wave 1 the coefficient was significant at the $p<0.05$ level. However, its magnitude (0.24) is not much larger than that estimated for Wave 2, and it is no longer statistically significant when controlling for labour market experiences.

Marital status has an even stronger relationship with income poverty than educational qualifications. The odds of married couples being in poverty, net of the variables in the initial model and educational qualifications, are 4.8 times less than the odds for single people. This effect remains large after controlling for labour market experiences and wealth. According to the final model, compared to being single, marriage reduces the odds of being in poverty by 3.1 times, net of differences in social background, education level, occupational status, labour market experiences and household wealth. De facto relationships also reduce the chances of being in poverty. In the final model, being in a de facto relationship reduces the odds of being in poverty by 2.6 times.

It should be noted that the effects of marriage and being in a de facto relationship are sensitive to the equivalence scale used. The older OECD scale assigned a weight of 0.7 to the second adult instead of 0.5. Using the older scale results in a weaker effect. However, the relevant poverty lines would increase by only about $2,000, which would not change the general conclusion that marriage and de facto relationships strongly reduce the odds of poverty. On the other hand, if the international equivalence scale were used, the protective effects of marriage and de facto relationships would appear even stronger, since this scale gives less weight to the second adult.

Being separated, divorced or widowed also reduces the odds of being in income poverty compared to being single, although not nearly to the same extent as being married or in a de facto relationship. Separation, divorce and widowhood reduce the odds of being in poverty by between 1.5 and 1.7 times, a larger effect than that for sex or occupational background. The effects for the separated and divorced are substantially lower when labour market experiences are taken into account. However, widowhood is associated with a reduced risk of poverty even when controlling for wealth.

In the third model, comprising of variables in the initial model plus education, marital status and number of children, one child increases the odds of being in income poverty by 1.1 times. By extension, two children increase the odds by 1.2 times and three children by 1.3 times. Thus, having a small number of children does not substantially increase the risk of being in poverty, although having many children does. Of course, these effects are sensitive to the equivalence scale employed. This result did not survive further controls; the number of children has little or no effect on the odds of being in poverty once labour market experiences are taken into account.

A respondent's occupational status, either present occupation or, if not working, previous occupation, is not unexpected – it is inversely related to the odds of being in poverty. However, the relationship is not particularly strong. A 10-unit increase in occupational status reduces the odds of being in poverty by 1.09 times. A 40-unit difference reduces the odds by about 1.4 times.

Labour market history had a moderate effect on the odds of being in income poverty. A 10 percentage point increase in the time spent working since leaving full-time education decreases the odds of being in poverty by 1.2 times. A 30 percentage point difference decreases the odds by 1.6 times and a 50 percentage point difference—for example, contrasting those who have worked the entire time since leaving school and those who have worked only half the time—decreases the odds by 2.2 times. Experience of unemployment increases the odds of being in poverty, although the effect is also not large. A 10 percentage point difference in the time spent unemployed since leaving school increases the odds of being in poverty by 1.2 times. The effects of labour market history remain significant when controlling for household wealth.

A $100,000 increase in wealth reduces the odds of income poverty by only 1.05 times. The odds of households with average levels of wealth (at around $400,000) being in poverty are 1.2 times less than for households with no wealth. A $1 million difference in wealth is associated with a change of odds by a factor of 1.6. This is less than the effects for marriage, de facto relationships, postgraduate qualifications and bachelor degrees. Therefore, the effect of wealth on before-housing income poverty is not particularly strong. The relatively weak effects for wealth reflect the moderate correlation between income and wealth.

3.3 Effects on after-housing income poverty

Table 7 presents the results on after-housing income from regression analyses identical to those performed on the before-housing measure. Generally the pattern of effects is very similar, although the effects are a little weaker for many variables, which accounts for the lower rescaled R square values.

Differences between the sexes in after-housing income poverty follow the same pattern as for the before-housing measure. Women are more likely to be in poverty in the initial model and when controlling for other labour market experiences, men are more likely to be poverty than women. The odds ratio of women being in poverty (rather than not in poverty) is about 1.2 times that for men. However, once experience in the labour market is taken into account, men are more likely to be poverty than women. This effect is not large.

In contrast to the before-housing measure, age is negatively associated with after-housing income poverty. A 10-year increase in age decreases the odds of being in income poverty by about 1.1 times. For a 30-year difference in age, the odds of being in poverty are reduced by between 1.2 and 1.3 times. These are not large effects and, as was concluded from the bivariate analyses, they reflect the generally lower housing costs of older households.

The effect of the number of siblings on the after-housing poverty measure is also small, and is reduced further when controlling for education and marital status. The effects for 'first language not English' and 'Indigenous status' are weaker on the after-housing measure. This implies that these two groups have, on average, lower housing costs. The effects for language background are notable. Compared to native English speakers, the odds of being in after-housing poverty for those with non–English speaking backgrounds increased by 1.4 times, net of differences in education, labour market experiences and wealth.

The weaker effect for educational qualifications on after-housing compared to before-housing poverty suggests that education has a stronger effect on income than on housing costs. However, the effect is still substantial. Compared to school completion, postgraduate qualifications, bachelor degrees and diplomas reduce the odds of being in after-housing poverty by between 1.5 and 1.6 times, net of labour market experiences, occupational status and household wealth.

Marriage substantially reduces the odds of being in post-housing income poverty by 3.9 times. The effect for being in a de facto relationship is even stronger. The effect for marriage is stronger on the before-housing measure, but for de facto relationships the effect is stronger on the after-housing measure.

The effect of widowhood on poverty is stronger on the post-housing measure. The odds of widows and widowers being in income poverty on the post-housing measure are less than half the odds for single people.

Table 7 Effects on income poverty (after-housing), Wave 2

Variable	Background		+Education		+Marital Status		+Work		+Wealth	
Intercept	-1.70	***	-1.60	***	-0.98	***	-1.30	***	-1.42	***
Male	-0.23	***	-0.15	*	-0.13		0.21	*	0.19	*
Age	-0.08	***	-0.12	***	-0.11	***	-0.09	**	-0.05	
Number of siblings	0.05	***	0.03	*	0.02	*	0.01		0.00	
Not living with both parents at age 15	0.14		0.14		0.08		0.03		0.02	
First language not English	0.40	***	0.45	***	0.60	***	0.36	***	0.34	***
Indigenous	0.79	***	0.73	***	0.51	*	0.29		0.27	
Parental occupational status (10s)	-0.03		0.02		0.02		0.02		0.03	
Catholic school	-0.11		-0.03		-0.07		-0.04		-0.02	
Independent school	0.07		0.18		0.22		0.21		0.25	*
Postgraduate qualification	–		-0.92	***	-0.85	***	-0.50	*	-0.44	*
Bachelor degree	–		-0.68	***	-0.69	***	-0.40	*	-0.40	*
Diploma	–		-0.60	***	-0.65	***	-0.49	**	-0.47	**
Advanced certificate	–		-0.25	*	-0.25		-0.15		-0.14	
Certificate	–		0.18		0.19		0.14		0.16	
<Year 12	–		0.27	*	0.24		0.02		0.01	
Married	–		–		-1.37	***	-1.05	***	-0.89	***
De facto	–		–		-1.41	***	-1.20	***	-1.14	***
Separated	–		–		-0.15		0.18		0.17	
Divorced	–		–		-0.45	***	-0.14		-0.15	
Widowed	–		–		-0.83	***	-0.76	***	-0.75	***
Number of children	–		–		0.14	***	0.08	***	0.08	***
Occupational status (10s)	–		–		–		-0.09	***	-0.07	***
% time in work (10s)	–		–		–		-0.15	***	-0.14	***
% time unemployed (1s)	–		–		–		0.01	**	0.01	**
Wealth ($100,000)	–		–		–		–		-0.07	***
Rescaled R square	0.02		0.05		0.12		0.16		0.17	

Note: ***p<0.001, **0.001<p<0.01, *0.01<p<0.05.

In contrast to the analyses for the before-housing measure, the effect of number of children on after-housing income poverty is stronger and remains significant in the final two models. The odds of being in poverty increase by about 1.2 times for each additional child. Thus, on the after-housing measure, having more children increases the odds of being in poverty, reflecting the costs associated with raising children. The discrepancy in the findings for the before and after-housing measures probably arises because, on average, households with larger numbers of children have higher housing costs. However, with the exception of households with very large numbers of children, the effects for the number of children are smaller than for marriage, suggesting that the reason that sole parents are more often in poverty has more to do with not being in a couple than with having children.

Wealth has a stronger influence on after-housing than on before-housing poverty. This reflects the fact that about half of household wealth in Australia is tied up in housing. As was the case for the before-housing measure, the effects of wealth on poverty are only comparable with the effects of educational qualifications and marital status when there are large differences in wealth.

4 Subjective poverty

Subjective poverty is an understudied aspect of poverty. The rationale for examining subjective poverty is that people's own opinions about their financial situation should be given some consideration.

The percentage of households that described themselves as poor or very poor was small: 5.3 per cent in Wave 1 and 4.5 per cent in Wave 2. The proportion that indicated they were poor or very poor in both waves was only 2.0 per cent (Table 8). The small percentage that considers themselves in poverty in both waves reflects the only moderate stability of respondents' judgements of their level of prosperity (see Table 16).

4.1 Bivariate relationships

The rates of subjective poverty by social groups are presented in Table 8. Men are more likely to indicate they are in poverty than women, contrasting with the higher rates of women in before and after-housing income poverty (see Tables 2 and 3). Subjective poverty does not show the strong age differences apparent in before-housing income poverty. Compared to older cohorts, the youngest age cohort were more likely to say they were poor in Wave 1 but not in Wave 2, and the percentage of the youngest cohort who indicated that they were in poverty in both waves was lower than the average for all cohorts. Generally, there is little difference among cohorts except that the level of subjective poverty among the oldest cohort is very low, at less than 2 per cent in each year and less than 1 per cent in both years.

As was the case for income poverty, subjective poverty is highest among lone parents. In Wave 1, 13.0 per cent of lone parents saw themselves as poor or very poor, and in Wave 2, 9.5 per cent. However, even among lone parents, feeling poor is often transitory: only 4.5 per cent of lone parents see themselves as in poverty in both waves. Despite the considerable financial outlays involved in bringing up children, very few couples with young children see themselves as poor: 3.1 per cent in Wave 1, 2.7 per cent in Wave 2 and less than 1 per cent in both waves. Slightly higher percentages of couples with older children (15 years and older) judge themselves as poor or very poor. Single-person and other (usually shared) households are more likely to indicate they are in poverty than couple households.

Marriage is associated with lower levels of subjective poverty. Less than 3 per cent of those who were legally married saw themselves as in poverty in each year and only 1 per cent in both years. This contrasts with 5.3 and 4.3 per cent of the divorced and separated groups. Low levels of subjective poverty were also observed among those in de facto relationships. Subjective poverty among those who have never married and were not in de facto relationships is only a little lower than the divorced and separated groups.

Education is also associated with subjective poverty. Subjective poverty tends to be highest among those who did not complete school. It is lowest among the groups with bachelor degrees or postgraduate qualifications. However, the differences in subjective poverty across education levels do not appear as great as for the before and after-income poverty measures.

Labour force status has a strong relationship with subjective poverty. Nearly 20 per cent of the unemployed saw themselves as in poverty compared to less than 3 per cent of full-time workers. Subjective poverty among part-time workers is only slightly higher at around 4 per cent. The group not in the labour force but marginally attached had moderate levels of subjective poverty, whereas the not in the labour force, not marginally attached group had much lower levels. Subjective poverty is very low among full-time workers and only a little higher among part-time workers.

Table 8 Percentage in subjective poverty (poor and very poor) by demographic and other factors

Characteristic	Wave 1	Wave 2	Waves 1 and 2
All	5.3	4.5	2.0
Sex			
Male	5.9	5.1	2.6
Female	4.8	4.2	1.5
Age cohort			
18–24	7.2	4.4	2.3
25–34	4.7	4.8	1.9
35–44	6.2	6.3	2.8
45–54	5.5	4.1	1.6
55–64	6.3	6.1	3.2
65–70	4.6	2.3	0.3
>70	1.9	1.4	0.7
Household type			
Couple without children	2.9	2.2	0.9
Couple with children < 15	3.1	2.7	0.9
Couple with children > 15	2.7	4.2	1.3
Lone parent	13.0	9.5	4.5
Single person	7.6	7.2	3.6
Other	6.9	4.6	2.2
Marital status			
Legally married	2.6	2.4	0.8
De facto	5.1	5.2	2.0
Separated	11.0	9.2	4.3
Divorced	13.0	10.9	5.3
Widowed	2.5	1.7	0.8
Never married and not de facto	9.6	8.2	4.2
Highest education level			
<Year 12	6.6	5.9	2.5
Year 12	4.8	4.5	2.0
Certificate	6.5	5.4	1.9
Advanced certificate	6.3	4.4	2.2
Diploma/advanced diploma	4.0	3.7	1.7
Bachelor degree	3.3	2.6	1.0
Postgraduate qualification	2.1	2.9	1.6
Labour force status			
Working full-time	2.4	2.2	1.0
Working part-time	4.3	4.7	2.2
Unemployed, looking for full-time work	19.5	18.2	6.0
Unemployed, looking for part-time work	20.4	10.7	8.3
Not in the labour force, marginally attached	13.6	11.8	4.6
Not in the labour force, not marginally attached	6.3	5.1	2.2

Table 9 presents the means and medians for the groups who judged themselves as poor or very poor and those who did not.

On average, those who see themselves as poor are slightly older. This is because the level of subjective poverty among 35 to 64 year-olds is slightly higher than for the other age cohorts. It is not because the oldest age group judges themselves as poor.

There is no consistent relationship between subjective poverty and the number of children. In Wave 1, the subjective poverty group had a slightly higher mean level of children than the Wave 2 group. The median numbers of children are identical for both waves.

Differences in occupational status are very similar to the differences observed for before and after-housing income poverty; the average occupational status of the in-poverty group is about 10 units lower than for the comparison groups. As was the case for income poverty, the groups in subjective poverty in both waves did not have a particularly low occupational status.

There are only small differences in socioeconomic origins. The socioeconomic backgrounds of those in poverty are only 3 to 4 score points lower than the comparison groups not in poverty. Subjective poverty is not closely associated with parental occupational status; there are only small differences in mean and median parental occupational status.

Subjective poverty is more strongly associated with income. The mean and median personal and household incomes are much lower in the subjective poverty groups. Their mean household income was about $30,000, compared to about $60,000 for the comparison groups. The equivalised annual disposable income of the in-poverty groups was about $16,000, compared to about $27,000 for not-in-poverty groups. The income differences are, of course, smaller than those for income poverty, since income poverty is defined by household income. The mean and median equivalised incomes of the group in subjective poverty in both waves are about $2,000 lower than for the group that was in subjective poverty only in Wave 2.

Household wealth is more strongly associated with subjective poverty than with income poverty. The average wealth of the subjective poverty group in Wave 1 was about $100,000 and in Wave 2 about $107,000. The comparative figures for income poverty are around $240,000 and $270,000. The small group in subjective poverty in both years had a mean household wealth of $71,000, which is less than half that of the group that was in income poverty in both years. Mean household wealth of the subjective poverty groups is about 25 per cent that of the comparison groups. Median wealth differences are even larger. In contrast, income differences for subjective poverty are much less than for income poverty. Therefore, judgements about whether one is in poverty are to a large extent influenced by household wealth.

Interestingly, the subjective poverty groups are not characterised by large debt. The average debt of these groups is consistently smaller than that of the comparison groups.

Table 9 Characteristics of households in and not in subjective poverty (poor and very poor)

Factor	Wave 1				Wave 2				Waves 1 and 2			
	Means		Medians		Means		Medians		Means		Medians	
	Poverty	Not in poverty	Poverty	Not in poverty	Poverty	Not in poverty	Poverty	Not in poverty	Poverty	Not in poverty	Poverty	Not in poverty
Age	45.1	47.8	44.0	46.0	44.1	48.0	42.0	46.0	44.7	48.4	43.0	47.0
Number of children	2.1	2.0	2.0	2.0	1.8	1.9	2.0	2.0	1.8	1.9	2.0	2.0
Occupational status	35.9	44.2	31.7	39.5	36.0	44.3	32.1	39.5	37.6	44.2	33.7	39.5
Parental occupational status	39.6	41.6	39.5	40.5	39.9	42.1	37.3	40.5	39.8	42.1	40.5	40.6
Personal income ($)	18.8	31.2	12.0	24.3	17.7	33.7	13.1	26.1	16.6	33.3	12.6	25.6
Personal disposable income ($)	15.8	24.2	11.9	20.4	15.3	26.0	12.9	21.7	14.6	25.6	12.6	21.2
Household income ($)	30.1	58.3	21.7	47.8	30.2	60.8	22.3	49.3	23.3	59.9	17.6	48.1
Equivalised household income ($)	25.2	45.2	20.4	38.8	25.4	46.8	20.4	39.7	20.5	46.2	17.2	38.8
Equivalised disposable household income ($)	16.2	26.8	12.7	23.1	16.7	28.3	13.8	24.7	14.7	27.9	12.5	24.3
Equivalised disposable household income after housing costs ($)	12.2	23.0	9.7	19.6	12.6	24.4	10.6	20.8	10.7	24.1	9.2	20.6
Household wealth $ (Wave 2 only)	99.6	447.2	21.8	262.3	107.5	429.8	32.3	244.0	71.3	428.9	11.5	247.0
Household assets $ (Wave 2 only)	124.1	519.0	34.1	333.5	133.5	500.3	57.1	314.0	91.8	497.9	21.4	317.0
Household debt $ (Wave 2 only)	24.5	72.7	3.5	10.5	31.3	70.8	3.7	11.0	20.5	69.1	4.0	10.5

Note: All dollar amounts are in thousands of dollars.

4.2 Effects on subjective poverty

Table 10 presents the results from regression analyses of the influences on subjective poverty in Wave 2. The results for identical analyses of subjective poverty in Wave 1 are presented in Appendix 3 (Table A14). The modelling procedure is the same as that for income poverty, except that the final model includes equivalised disposable household income. Details on the measures used, the modelling procedure and the interpretation of the coefficients are presented in Section 2 .

Table 10 Effects on subjective poverty (poor and very poor), Wave 2

Variable	Background	+Education	+Marital Status	+Work	+Income and wealth
Intercept	-3.38 ***	-3.69 ***	-3.18 ***	-3.36 ***	-4.12 ***
Male	0.21	0.27 *	0.29 *	0.39 *	0.40 *
Age	-0.16 ***	-0.20 ***	-0.14 *	-0.09	0.01
Number of siblings	0.06 *	0.05 *	0.04	0.03	0.03
Not living with both parents at age 15	0.62 ***	0.62 ***	0.51 **	0.48 **	0.47 *
First language not English	0.21	0.30	0.47 **	0.33	0.22
Indigenous	0.80 *	0.75 *	0.51 *	0.32	0.20
Parental occupational status (10s)	-0.04	0.00	0.01	0.02	0.03
Catholic school	-0.33	-0.23	-0.27	-0.21	-0.21
Independent school	-0.24	-0.10	-0.07	-0.18	-0.12
Postgraduate qualification	–	-0.13	-0.07	0.26	0.44
Bachelor degree	–	-0.38	-0.37	-0.06	0.01
Diploma	–	0.12	0.05	0.26	0.33
Advanced certificate	–	0.19	0.16	0.22	0.27
Certificate	–	0.47	0.44	0.29	0.32
<Year 12	–	0.68 *	0.65 **	0.47	0.43
Married	–	–	-1.43 ***	-1.26 ***	-0.78 ***
De facto	–	–	-0.55 *	-0.49 *	-0.19
Separated	–	–	-0.09	0.06	-0.03
Divorced	–	–	0.26	0.37	0.40
Widowed	–	–	-1.69 ***	-1.74 ***	-1.58 ***
Number of children	–	–	0.13 **	0.10 *	0.08 *
Occupational status (10s)	–	–	–	-0.09 *	-0.02
% time in work (10s)	–	–	–	-0.09 ***	-0.05
% time unemployed (1s)	–	–	–	0.02 ***	0.02 ***
Wealth ($100,000)	–	–	–	–	-0.24 ***
Equivalised disposable household income ($10,000)	–	–	–	–	-0.03 ***
Rescaled R square	0.03	0.04	0.11	0.13	0.18

Note: ***p<0.001, **0.001<p<0.01, *0.01<p<0.05.

The extent to which these variables accounted for differences in subjective poverty is generally less than the before-housing income poverty measure, but comparable to the after-housing measure. Socioeconomic background factors accounted for only about 2 per cent of the variation in subjective poverty. The addition of educational qualifications increased this figure marginally to 3 or 4 per cent. There is a more substantial increase to around 11 per cent with the addition of marital status and number of children. Occupational status and

labour market experiences add little, but there is a substantial increase to around 18 per cent with the addition of wealth and equivalised disposable household income. The same pattern is found for Wave 1 (Appendix 3, Table A14).

Men are more likely to judge themselves as poor or very poor than women. In the initial models, the effects are not particularly large; the odds of men seeing themselves in poverty are about 1.2 times the odds for women. However, the odds ratio increases to around 1.6 with the inclusion of occupational status and labour market experiences. Therefore, men's judgements of subjective poverty are more sensitive to their position in the labour market. The addition of wealth and income does not change the differences between the sexes. In the final two models, differences between the sexes for subjective poverty are greater than for income poverty.

In the initial model, a 10 year increase in age decreases the odds of subjective poverty by about 1.2 times. The effect does not change substantially when controlling for education, but declines with the addition of marital status and number of children. There are no significant age differences after controlling for occupational status and labour market experiences. This result implies that age differences in subjective poverty can be largely attributed to differences in labour market experiences.

A higher number of siblings are associated with increased odds of subjective poverty. Compared to having no sibling, one sibling increases the odds of subjective poverty by a factor of 1.06, and two siblings by 1.12. As was the case for income poverty, this effect is weak and is not statistically significant when controlling for educational qualifications and marital status.

For Wave 2, 'not living with both parents at age 15' is associated with subjective poverty. For Wave 1, the effects just fail to reach statistical significance ($p=0.055$ for the initial two models). In analyses of Wave 2 data, this effect is reasonably large. In the initial model, 'not living with both parents at age 15' increases the odds of subjective poverty by about 1.8 times. The effect remains significant with the addition of other variables. According to the final model, the odds ratio is about 1.6.

For Wave 2, a non–English speaking background is not significantly associated with subjective poverty, except in the third model. In contrast, analyses of Wave 1 data suggest that this group are more likely to see themselves in subjective poverty. The inconsistency can be attributed to the small sample sizes for the non–English speaking background and subjective poverty groups.

Such inconsistency is also apparent for the Indigenous group, where significant effects are found for Wave 2 but not for Wave 1. In analyses of Wave 2, the odds for Indigenous Australians being in subjective poverty are 2.2 times the odds for non-Indigenous Australians. As was the case for income poverty, the effect is not significant when controlling for occupational status and labour market experiences.

Parental occupational status and type of school attended are not associated with subjective poverty in either wave.

Educational qualifications have a much weaker influence on subjective poverty than on income poverty. For before-housing income poverty, the effects for postgraduate, bachelor degree and diploma qualifications are large. On the after-housing measure they are smaller but still substantial. In contrast, these qualifications have no effect on subjective poverty, with the exception of postgraduate qualifications in Wave 1. However, non-completion of school is associated with a sizeable increase in the odds of subjective poverty. The odds for non-school completers indicating they were poor or very poor were almost twice the odds for school completers. This difference was not significant in Wave 2 when differences in occupational status and labour market experiences are taken into account.

Similar to income poverty, marital status is strongly associated with subjective poverty. Marriage reduces the odds of subjective poverty by about 4.0 times. This effect declines only marginally to 3.5 times when controlling for occupational status and labour market experiences. The effect for marriage is still substantial (an odds ratio of 2.2) when controlling for wealth and income. The effect for being in a de facto relationship is weaker although still substantial. The odds of this group being in subjective poverty are about 1.7 times less than for single persons. In Wave 2 analyses, the effects for a de facto relationship disappear when controlling for wealth and income.

Widows and widowers are particularly unlikely to judge themselves as in poverty. The effects for widowhood are large, with odds ratios around 5.0. This effect for subjective poverty is much larger than for income poverty and does not decline substantially with the addition of control variables.

Children are associated with subjective poverty. Each child increases the odds of subjective poverty slightly by about 1.1 times. Obviously, a large number of children will substantially increase the likelihood of subjective poverty; one, two or three children do not have a large impact.

Higher occupational status (of present or previous job) reduces the odds of subjective poverty. Its effects are of a similar magnitude to its effects on income poverty, reducing the odds by about 1.1 times for each 10-unit difference in the occupational status scale. As expected, lower occupational status jobs are associated with subjective poverty, although the relationship is not particularly strong. When controlling for income and wealth, its effect on subjective poverty is no longer statistically significant, suggesting that its influence is mediated through these variables.

The effect of experience in the work force on subjective poverty is about half its effect on income poverty. The effect is not significant when controlling for wealth and income. In contrast, the effect of time unemployed on subjective poverty is similar to its effect on income poverty and survives controls for income and wealth. Therefore, subjective evaluations of poverty are more sensitive to experiences of unemployment than to time spent working.

Confirming the bivariate analyses presented in Section 4.1, regression analyses indicate that subjective poverty is sensitive to household wealth. A $100,000 difference in wealth decreases the odds of subjective poverty by 1.4 times, and a $200,000 difference by 1.9 times. The coefficient for wealth on subjective poverty is about 5.0 times larger than the coefficient for wealth on before-housing income poverty.

Equivalised disposable household income also affects subjective poverty, but much more weakly than wealth. A $10,000 difference decreases the odds of subjective poverty by 1.03 times, and a $20,000 difference by 1.06 times. A $100,000 difference in equivalised disposable income—a very large difference—decreases the odds by about 1.3 times.

5 Financial stress

This section follows the same structure as Sections 3 and 4. Section 5.1 describes the relationships of financial stress with a variety of demographic, socioeconomic and economic variables. Section 5.2 models financial stress to identify the factors with the strongest effects.

Financial stress is defined by two or more incidences of cash flow problems in a single year. This follows from the ABS analysis of HES, in which moderate stress was defined by two to four cash flow problems (drawn from a slightly larger pool of items). Under this definition, 18.2 per cent of households were in financial stress in Wave 1, 16.1 per cent in Wave 2 and 9.9 per cent in both waves (Table 11).

5.1 Bivariate relationships

There is only a weak relationship between sex and financial stress, with males having slightly lower levels of financial stress. Differences between the sexes for financial stress are much smaller than for income poverty or subjective poverty.

Financial stress is substantially more common among young people. In Wave 1, 44 per cent of 18 to 24 year-olds had experienced two or more cash flow problems. In Wave 2, the comparable figure was 38 per cent. Around 25 per cent of this age cohort was in financial stress in both waves. In each successively older age cohort, financial stress is less common. In the oldest cohort, only 5 per cent had two or more incidences of financial stress in a single year and less than 2 per cent in both years. The relationship between age and financial stress is very different to that between age and income or subjective poverty. The oldest cohort showed the highest incidence of before-housing income poverty and higher than average levels of after-housing income poverty. For subjective poverty, there were no clear age cohort differences.

Financial stress is particularly high in lone-parent households. In Wave 1, 42 per cent of lone-parent households had two or more cash flow problems. In Wave 2, the comparable figure was 34 per cent, and about 25 per cent were in financial stress in both years. Financial stress was lowest (around 10 per cent) among couple households without children and couple households with children older than 15.

Financial stress varies with marital status. It was around 10 per cent among married couples, and substantially higher among those in de facto relationships. It was higher again among the separated and divorced, and particularly high among singles. In the two waves, 34 and 30 per cent of 'singles' were in financial stress. Financial stress was particularly low among widows and widowers.

The incidences of financial stress among non-school completers, school completers and certificate holders are relatively similar. About 20 per cent of these groups had two or more cash flow problems in each year and over 10 per cent in both years. This pattern is similar to that for subjective poverty but is different to that for income poverty, which is much higher among non-school completers than the other groups. Financial stress is lower among those with diplomas, lower again among degree holders and lowest among those with postgraduate qualifications.

Financial stress is highest among the unemployed. In Wave 1, about 45 per cent of the unemployed were in financial stress and in Wave 2, around 50 per cent. This contrasts with about 15 per cent of full-time workers and nearly 20 per cent of part-time workers. Financial stress was low among the group not in the labour force and not marginally attached to the labour force, but substantially higher among the not in the labour force and marginally attached group. Of all groups examined, the unemployed showed the highest incidence of financial stress in both years.

Table 11 Percentage in financial stress (two or more incidences) by demographic and other factors

Characteristic	Wave 1	Wave 2	Waves 1 and 2
All	18.2	16.1	9.9
Sex			
Male	17.0	15.1	8.9
Female	19.1	16.8	10.7
Age cohort			
18–24	44.2	37.8	26.8
25–34	27.0	24.1	16.6
35–44	21.3	19.5	13.6
45–54	14.7	13.8	7.2
55–65	11.1	9.0	5.5
65–70	7.7	5.4	0.6
>70	5.2	4.6	1.4
Household type			
Couple without children	9.9	8.4	3.3
Couple with children < 15	16.9	16.0	9.8
Couple with children > 15	8.8	9.5	5.8
Lone parent	42.0	34.4	25.6
Single person	20.4	19.3	13.0
Other	31.8	23.0	11.3
Marital status			
Legally married	10.1	9.1	4.7
De facto	25.7	25.4	16.8
Separated	36.6	31.2	22.5
Divorced	30.7	24.5	16.4
Widowed	6.6	6.3	3.1
Never married and not de facto	34.2	30.0	20.6
Highest education level			
<Year 12	20.3	15.9	10.4
Year 12	22.7	21.5	13.4
Certificate	24.3	19.4	12.9
Advanced certificate	19.3	18.5	11.7
Diploma/advanced diploma	15.6	14.2	8.7
Bachelor degree	13.2	12.3	6.5
Postgraduate qualification	6.2	7.2	2.2
Labour force status			
Working full-time	15.3	13.5	7.9
Working part-time	19.8	17.8	10.9
Unemployed, looking for full-time work	45.5	51.4	36.9
Unemployed, looking for part-time work	44.6	49.4	34.8
Not in labour force, marginally attached	37.4	28.5	21.3
Not in labour force, not marginally attached	13.7	12.1	6.9

Table 12 presents the means and medians for the groups in and not in financial stress, which is defined by two or more cash flow problems in a single year.

The cohort analysis in Table 11 showed that financial stress was more common among younger cohorts. This is reflected in the younger mean and median ages of the financial stress groups compared to the comparison groups.

There are no substantial differences in the number of children variable between the financial stress and comparison groups.

The mean occupational status of the financial stress groups is about 8 to 10 score points lower than for the comparison groups. This result is similar to the occupational status differences for subjective poverty, but less than the differences found for income poverty. There is little difference in the effects of parental occupational status, which is consistent with the findings for the other measures of financial disadvantage.

Households with two or more incidences of financial stress have lower mean and median incomes than the comparison groups. However, the income differences for financial stress are lower than for subjective poverty and much lower than for income poverty. For example, in Wave 1, the mean household income of the financial stress group was around $40,000, compared to about $60,000 for the group not in financial stress. The comparable figures for subjective poverty are $30,000 and $60,000, and for after-housing income poverty, $11,000 and $65,000. The same pattern was observed for the other income measures. The equivalised disposable household income in financial stress in Wave 1 was $19,000, compared to $16,000 for the subjective poverty group. These findings indicate that household income has less to do with financial stress than with subjective poverty.

Similarly, household wealth is less strongly associated with financial stress than with subjective poverty. The average wealth of households in financial stress in Wave 1 was about $138,000 and in Wave 2 was $142,000, compared to $100,000 and $107,000 for subjective poverty. However, the wealth of households in financial stress is considerably less than the wealth of households in income poverty; the comparable figures for before-housing poverty are $239,000 and $243,000. Therefore, financial stress is more strongly associated with lower levels of wealth than income poverty, but not to the same degree as subjective poverty.

Households in financial stress have a larger average debt than households in income or subjective poverty. In Wave 1, the mean debt of households in financial stress was $43,800, compared to mean debts of $24,500 and $30,500 for the subjective and income poverty groups. A similar pattern was found for Wave 2. Therefore, households experience incidences of financial stress in part because of loans or other debts.

Households experiencing financial stress tend to have higher incomes and larger debts than households in subjective or income poverty.

Table 12 Characteristics of households in financial stress (two or more incidences) compared to those not in financial stress

Factor	Wave 1				Wave 2				Waves 1 and 2			
	Means		Medians		Means		Medians		Means		Medians	
	Financial stress	Not in financial stress	Financial stress	Not in financial stress	Financial stress	Not in financial stress	Financial stress	Not in financial stress	Financial stress	Not in financial stress	Financial stress	Not in financial stress
Age	39.2	49.6	37.0	48.0	39.3	49.6	37.0	48.0	37.8	49.6	36.0	48.0
Number of children	1.9	2.0	2.0	2.0	1.7	1.9	2.0	2.0	1.8	2.0	2.0	2.0
Occupational status	36.9	45.2	32.8	39.6	37.6	45.0	34.7	39.9	36.7	44.8	32.2	39.6
Parental occupational status	40.5	41.6	39.5	40.6	40.8	42.2	39.5	40.6	39.8	42.2	37.3	40.6
Personal income ($)	21.9	32.4	17.8	25.1	24.0	34.6	18.9	27.0	22.3	34.0	17.9	26.1
Personal disposable income ($)	18.1	25.0	16.3	21.1	19.5	26.5	17.5	22.3	18.4	26.1	16.9	21.7
Household income ($)	39.6	60.5	32.0	50.5	41.0	62.6	32.0	51.1	36.1	61.4	29.1	50.1
Equivalised household income ($)	32.2	46.7	26.9	40.7	33.0	48.1	27.2	41.3	29.4	47.3	24.5	40.4
Equivalised disposable household income ($)	19.4	27.7	16.7	24.1	20.5	29.1	17.0	25.4	18.7	28.6	15.2	25.0
Equivalised disposable household income after housing costs ($)	14.8	24.0	12.6	20.5	15.6	25.3	13.1	21.8	13.8	24.9	11.6	21.3
Household wealth $ (Wave 2 only)	138.1	489.9	40.8	302.7	142.3	464.8	34.0	275.7	93.5	455.4	16.2	271.7
Household assets $ (Wave 2 only)	180.0	564.8	67.0	370.0	190.2	536.8	59.3	345.7	129.5	526.5	29.5	342.0
Household debt $ (Wave 2 only)	43.8	75.6	9.0	10.0	46.9	72.9	9.1	10.5	38.6	70.9	8.0	10.5

Note: All dollar amounts are in thousands of dollars.

5.2 Effects on financial stress

This section discusses results obtained from logistic regression analyses on two or more incidences of financial stress. The models and procedures are identical to those used for subjective poverty in Section 4. The measures and interpretation of the coefficients are presented in Section 2. The coefficients for Wave 2 are presented in Table 13 and for Wave 1 in Table A15 in Appendix 3.

Table 13 Effects on financial stress (two or more incidences), Wave 2

Variable	Background		+Education		+Marital status		+Work		+Income and wealth	
Intercept	-1.87	***	-1.84	***	-1.55	***	-1.68	***	-2.08	***
Male	-0.08		-0.09		-0.04		0.03		0.04	
Age	-0.46	***	-0.48	***	-0.49	***	-0.45	***	-0.36	***
Number of siblings	0.06	***	0.05	**	0.04	*	0.03		0.02	
Not living with both parents at age 15	0.20		0.21		0.12		0.10		0.09	
First language not English	0.07		0.15		0.32	**	0.25	*	0.17	
Indigenous	0.75	***	0.71	**	0.45		0.31		0.22	
Parental occupational status (10s)	-0.06	***	-0.02		-0.02		-0.01		-0.01	
Catholic school	-0.17		-0.08		-0.12		-0.06		-0.04	
Independent school	-0.18		-0.07		-0.03		-0.09		-0.05	
Postgraduate qualification	–		-0.86	***	-0.77	***	-0.46	*	-0.28	
Bachelor degree	–		-0.56	***	-0.53	***	-0.25		-0.14	
Diploma	–		-0.17		-0.21		-0.02		0.07	
Advanced certificate	–		0.15		0.13		0.15		0.21	
Certificate	–		0.11		0.07		-0.04		-0.03	
<Year 12	–		0.20		0.15		0.00		-0.03	
Married	–		–		-1.25	***	-1.09	***	-0.75	***
De facto	–		–		-0.33	*	-0.27	***	0.01	
Separated	–		–		0.11		0.24		0.21	
Divorced	–		–		0.13		0.23		0.26	
Widowed	–		–		-0.84	***	-0.82	***	-0.74	**
Number of children	–		–		0.19	***	0.17	***	0.15	***
Occupational status (10s)	–		–		–		-0.08	***	-0.03	
% time in work (10s)	–		–		–		-0.06	***	-0.02	***
% time unemployed (1s)	–		–		–		0.02	***	0.02	***
Wealth ($100,000)	–		–		–		–		-0.12	***
Equivalised disposable household income ($10,000)	–		–		–		–		-0.03	***
Rescaled R square	0.11		0.12		0.19		0.21		0.26	

Note: ***p<0.001, **0.001<p<0.01, *0.01<p<0.05.

The initial model comprising social background variables accounted for more variation in financial stress than it did for income or subjective poverty. The adjusted R square value for Wave 2 was 11 per cent, compared to 3 per cent for subjective poverty and 6 per cent for before-housing income poverty. The greater explanatory power of the model can be attributed to the stronger effect of age on financial stress.

The explanatory power of the model increased marginally (12 per cent in Wave 2 and 15 per cent in Wave 1) with the addition of educational qualifications. The addition of marital status and number of children produced a

larger increase to around 19 per cent in Wave 2 and 24 per cent in Wave 1. Occupational status and labour market experiences did not substantially increase the explanatory power of the model. The final model, which included income and wealth, accounted for about 26 per cent of the variation in financial stress in Wave 2 and 30 per cent in Wave 1. The final model was better at predicting financial stress than income or subjective poverty.

There were no statistically significant differences between the sexes in any of the models of financial stress in either wave. This was not the case for the other measures: women were more likely to be in income poverty (until controls were included for labour market experiences) and men were more likely to be in subjective poverty.

Confirming the bivariate analyses, regression analyses showed that age has a much stronger effect on financial stress than it has on income or subjective poverty. In the model, a 10-year increase in age decreases the odds of financial stress by 1.6 times. A 30-year increase in age decreases the odds of financial stress by 3.9 times. The effect for age does not change substantially until wealth and income are added. Even so, the effect is still substantial: a 10-year increase in age decreases the odds of financial stress by 1.4 times and a 30-year difference by 3.0 times. Therefore, younger households are more likely to experience financial stress, even when differences in occupational status, labour market experiences, income and wealth are taken into account.

Similar to income and subjective poverty, the number of siblings tends to be weakly associated with financial stress. Compared to having no sibling, one sibling increases the odds of financial stress by a factor of 1.06, and two siblings by 1.12. The effect was not significant after controlling for occupational status and labour market experiences.

In Wave 2 analyses, 'not living with both parents at age 15' is not associated with financial stress. It just fails to reach statistical significance in the two initial models. In these two models for Wave 1, however, it does have statistically significant effects: 'not living with both parents at age 15' increases the odds of financial stress by 1.2 times.

A non–English speaking background is significantly associated with financial stress only in the third and fourth models after controlling for marital status and number of children. The reason for this is not clear. The same result is found in analysis of the Wave 1 data, which is based on a different group of reference persons.

Indigenous status increased the odds of financial stress by 2.1 times in the initial model in both waves. The magnitudes of the effect for Indigenous status on the three measures of financial disadvantage are very similar. The effects also show a similar pattern; in the initial model the effect was reasonably large with a coefficient of around 0.80, declined slightly with the addition of educational qualifications, declined more substantially with the addition of marital status and children, and was not significant when controlling for occupational status and labour market experiences. These results indicate that financial disadvantage among Indigenous Australians would be reduced if their occupational status and labour market participation were more similar to the occupational status and participation of non-Indigenous Australians.

Parental occupational status is only weakly associated with financial stress. The effect is of a similar magnitude to that found for before-housing income poverty. The type of school attended is not associated with financial stress.

Financial stress is more common among the less educated. A postgraduate qualification reduces the odds of financial stress by 2.3 times and a bachelor degree by 1.8 times. The effects for postgraduate and degree qualifications declined substantially when controlling for labour market variables; neither had significant effects in the final model.

As was the case for income and subjective poverty, marriage strongly reduces the odds of financial stress. Compared to being single, marriage reduces the odds of financial stress by 3.5 times. Its effect is smaller when controlling for occupational status and labour market experiences and further reduced with the addition of wealth and income. However, in the final model, marriage reduces the odds of financial stress by 2.1 times. This is a large effect considering it is net of differences in wealth and income between married and single households. The effect of a de facto relationship on financial stress was much weaker, especially in Wave 2. In contrast, the effect on income poverty was only slightly smaller for de facto relationships than marriage. Therefore, a de facto relationship more strongly reduces the likelihood of income poverty than financial stress.

Widow and widowers are less likely to experience financial stress. Compared to never married and not de facto single status, widowhood reduces the odds of financial stress by 2.3 times. This effect does not decrease with the addition of labour market variables and, in the final model, income and wealth.

Having children substantially increases the odds of financial stress. Each additional child increases the odds of financial stress slightly by about 1.2 times. In Wave 1 the effect is larger, with one additional child increasing the odds of financial stress by 1.3 times. The number of children has a greater effect on financial stress than for income poverty and subjective poverty. This is likely because children involve unanticipated expenses that may lead to financial stress.

Higher occupational status reduces the odds of financial stress. Its effects are of a similar magnitude to its effects on income and subjective poverty, reducing the odds by about 1.1 times for each 10-unit rise in occupational status. Its effect is not significant when controlling for income and wealth.

Time spent working has a weaker effect on financial stress than it does on income poverty. The estimated coefficient is -0.06 for financial stress compared to around -0.15 for income poverty. Therefore, a 10 percentage point increase in time spent working reduces the odds of financial stress by 1.06 times, compared to around 1.2 times for income poverty. The comparable odds ratios for a 50 percentage point difference are 1.3 and 2.1. Therefore, while work experience has a substantial influence on subsequent income poverty, it has a significantly weaker influence on financial stress.

The effect of time spent unemployed on financial stress is similar to its effects on income poverty and subjective poverty. Although the coefficient is of a similar magnitude to that for work experience—the coefficient for a 10 percentage point difference was 0.20—this variable is relevant to only a small proportion of people. About 75 per cent of respondents had no experience of unemployment. Of those who had experienced unemployment, 90 per cent had been unemployed for less than 10 per cent of the time since leaving school and 3 per cent had been unemployed for more than 30 per cent of the time since leaving school. For this small minority, the odds of financial stress are 1.8 times the odds for those who have spent no time unemployed. This effect is similar to that for marriage. Thus, experience of unemployment increases the odds of financial stress, as well as the odds of income and subjective poverty, but a relatively short time spent unemployed does not have strong detrimental consequences.

The effect of wealth on financial stress is stronger than its effect on income poverty but weaker than its effect on subjective poverty. A $100,000 increase in wealth reduces the odds of financial stress by 1.1 times and a $400,000 difference 1.6 times. The effect is weaker than expected, indicating that financial stress is not unknown in wealthy households.

Equivalised disposable household income has a similar effect on financial stress as it does on subjective poverty. The effect is surprisingly small: a $10,000 difference changes the odds by 1.03 times, and a $100,000 difference changes the odds by about 1.3 times. Thus, financial stress is not closely associated with disposable income.

6 Interrelationships between and within indicators

This section summarises the interrelationships between and within income poverty, subjective poverty and financial stress. Section 6.1 examines the interrelationship between the two measures of income poverty, Section 6.2 focuses on the performance of each measure across the two HILDA waves and Section 6.3 examines the proportion that were financially disadvantaged on two or three indicators in each wave and in both waves.

6.1 Interrelationships between before and after-housing income poverty

The correspondence between the two measures of income poverty is by no means perfect (Table 14). Of individuals classified as in poverty on the before-housing measure in Wave 1, 84 per cent were also classified as in poverty on the after-housing measure. For Wave 2, this figure was 83 per cent. This result reflects that adjusting for housing costs substantially changes the ranking of equivalised disposable incomes. The correspondence in the other direction is weaker; a substantially smaller proportion is classified as in poverty on the before-housing measure than on the after-housing measure. Of individuals classified as in poverty on the after-housing measure in Wave 1, 65 per cent were also classified as in poverty on the before-housing measure. For Wave 2, the figure was even lower at 61 per cent.

Table 14 Correspondence of poverty measures

Measure	Percentage also classified as in income poverty according to measure	
	Before-housing	**After-housing**
Wave 1		
Of those classified as in before-housing income poverty	–	84
Of those classified as in after-housing income poverty	65	–
Wave 2		
Of those classified as in before-housing income poverty	–	83
Of those classified as in after-housing income poverty	61	–

Note: The unit of analysis is the individual. Weighted by enumerated person weights.

6.2 Interrelationships within measures across waves

Income poverty

Table 15 shows the percentages staying in and moving out of income poverty for the two HILDA waves. The proportions are quite sensitive to whether the before-housing or after-housing measure is used. According to the before-housing measure, 41 per cent of individuals in poverty in Wave 1 were 'stayers', that is were also in poverty in Wave 2. Nearly 60 per cent were 'movers', that is had moved out of poverty in Wave 2. On the after-housing measure, half were stayers and half were movers. These results are not simply due to differences in how the two measures define the proportions in poverty . Odds ratios, which summarise the association between variables independent of the marginal distributions, also show higher stability with the after-housing measure. On the before-housing measure, the odds for those in poverty in Wave 1 being in poverty in Wave 2 (rather than not being in poverty) are 7.9 times of the odds for those who were not in poverty in Wave 1.

This compares to an odds ratio of 9.1 on the after-housing measure. Therefore, the after-housing measure of income poverty shows higher levels of stability, probably because housing costs are more stable from year to year than annual household income.

Table 15 Proportions staying in and moving out of income poverty

Measure	Status according to Wave 2	
	Stayers	Movers
Before-housing income poverty in Wave 1	41.0	59.0
After-housing income poverty in Wave 1	50.0	50.0

Note: The unit of analysis is the individual. Weighted by the longitudinal weights.

Subjective poverty

The measure of subjective poverty was based on responses to a question on subjective prosperity. The association across waves in respondents' subjective evaluation of their level of prosperity is presented in Table 16. Because of the small numbers who said they were poor or very poor, the table represents all respondents with valid questionnaires, not the randomly selected group. Of the 348 respondents who said they were poor in Wave 1, 42 per cent said they were poor or very poor in Wave 2. A larger proportion judged themselves as more prosperous, nearly half (49 per cent) said they were 'just getting along' and 10 per cent said they were 'reasonably comfortable' or 'very comfortable'. Of the 64 respondents who said they were very poor in Wave 1, only 19 per cent judged themselves as very poor, and a further 33 per cent as poor, in Wave 2. Forty-seven per cent of the very poor group in Wave 1 judged themselves not to be poor in Wave 2.

Assuming that subjective prosperity constitutes an ordinal variable, the correlation of subjective prosperity among 10,295 respondents who answered the question in both waves is 0.62, which is similar to the correlation for income across waves.

Table 16 Correspondence in subjective evaluations of prosperity

Prosperity, Wave 1		Prosperity, Wave 2						All
		1	2	3	4	5	6	
1 Prosperous	n	49	58	31	7	1	1	147
	Row %	33	39	21	5	1	1	–
	Column %	46	4	1	0	0	1	1
2 Very comfortable	n	40	649	536	55	7	2	1,289
	Row %	3	50	42	4	1	0	–
	Column %	38	50	10	2	2	3	13
3 Reasonably comfortable	n	10	534	3,806	956	30	3	5,339
	Row %	0	10	71	18	1	0	–
	Column %	9	41	72	30	9	4	52
4 Just getting along	n	6	54	894	1,963	165	26	3,108
	Row %	0	2	29	63	5	1	–
	Column %	6	4	17	62	48	37	30
5 Poor	n	–	6	28	170	117	27	348
	Row %	–	2	8	49	34	8	–
	Column %	–	0	1	5	34	38	3
6 Very poor	n	1	–	3	27	21	12	64
	Row %	2	–	5	42	33	19	–
	Column %	1	–	0	1	6	17	1
All	n	106	1,301	5,298	3,178	341	71	10,295
	%	1	13	51	31	3	1	100

Note: Data are from merged responding person questionnaires and are unweighted. Questionnaires with missing data were excluded. n=10,295.

Financial stress

There is not a strong correlation across waves in the incidences of cash flow problems (Table 17). Of those who could not pay their utility bills on time in Wave 1, nearly 56 per cent were in the same situation in Wave 2. About half of those who asked for financial assistance from friends or family in Wave 1 also asked for assistance from friends or family in Wave 2. The correspondence across waves for the other items tended to be lower, between 30 and 40 per cent. Table 17 also shows the correlations between waves for the single items and for the summary measure, which simply sums the number of incidences of financial stress. There is a tendency for the cross-wave correspondence to be weaker for the more severe cash flow problems. The wave-to-wave correlation for the summary measure was 0.60, which is similar to the wave-to-wave correlations for the income and subjective prosperity measures.

Table 17 Year-to-year correspondence of financial stress

Measure	Percentage*	Correlation
Could not pay electricity, gas or telephone bills on time	55.7	–
Could not pay mortgage/rent on time	40.8	–
Pawned or sold something	37.2	–
Went without meals	42.3	–
Was unable to heat home	32.6	–
Asked for financial help from friends or family	47.6	–
Asked for help from welfare/community organisations	35.2	–
Summary measure of financial stress	–	0.60

Note: *Percentage of respondents answering ‘yes’ to item in Wave 2 who answered ‘yes’ to same item in Wave 1. n=10,445. Data is unweighted.

6.3 Interrelationships between indicators

Table 18 shows the before and after-housing poverty rates by subjective prosperity. Poverty is higher among households that judge themselves as poor or very poor, but the relationship is not particularly strong. Among households whose standard of living, according to a randomly selected household member, was prosperous or very comfortable, 6 to 10 per cent were in income poverty. About 10 per cent of the reasonably comfortable group were also defined as in income poverty. Of the group who judged themselves as poor, only 30 to 40 per cent were in income poverty, indicating that 60 to 70 per cent were above the poverty line. Only among the very small group (about 1 per cent of households) that judged themselves as very poor, was the level of income poverty, on the after-housing measure only, above 50 per cent.

Table 18 Percentages in income poverty by subjective level of prosperity

Measure	Before-housing			After-housing		
	Wave 1	Wave 2	Waves 1 and 2	Wave 1	Wave 2	Waves 1 and 2
Prosperous	7.0	8.0	3.1	6.0	6.2	1.9
Very comfortable	7.8	10.3	4.3	10.4	10.2	5.1
Reasonably comfortable	10.8	10.2	3.8	12.1	10.2	4.2
Just getting along	20.6	17.4	8.9	24.7	21.9	12.9
Poor	35.8	29.8	15.2	42.6	40.4	25.0
Very poor	38.4	40.2	25.0	58.2	50.1	36.8

Table 19 presents the results from a similar analysis of subjective prosperity and financial stress. Here the correspondence is stronger. About 66 per cent of poor and over 80 per cent of very poor households experienced two or more incidences of financial stress. About 30 per cent of households that were 'just getting along' experienced financial stress. Financial stress was much lower among more prosperous households. Of households that indicated they were poor or very poor in Wave 2, just over half had two or more incidences of financial stress in both waves.

Table 19 Percentages in financial stress (two or more incidences) by subjective level of prosperity

Measure	Wave 1	Wave 2	Waves 1 and 2
Prosperous	6.7	6.0	4.1
Very comfortable	4.4	4.6	1.3
Reasonably comfortable	7.5	6.6	3.5
Just getting along	32.3	27.3	17.2
Poor	66.5	65.4	50.7
Very poor	80.9	76.4	55.7

Note: Percentages indicate two or more incidences of financial stress within each group. The last column is the percentage with two or more incidences of financial stress in both years.

Financial stress is not closely associated with income poverty (Table 20). Less than 30 per cent of households in before-housing poverty had two or more incidences of financial stress. Therefore, more than 70 per cent reported no incidences of financial stress. The relationship between after-housing income poverty and financial stress was a little stronger; just over 33 per cent of households in after-housing income poverty had two or incidences of financial stress.

Table 20 Percentages in financial stress (two or more incidences) by income poverty

Measure	Wave 1	Wave 2	Waves 1 and 2
In poverty, before housing	29.1	25.7	18.6
Not in poverty, before housing	16.3	14.5	8.6
In poverty, after housing	34.4	32.0	23.4
Not in poverty, after housing	14.7	12.9	7.3

Note: Percentages indicate two or more incidences of financial stress within each group. The last column is the percentage with two or more incidences of financial stress in both years .

Table 21 summarises the percentage of households that are financially disadvantaged on one, two or three measures. The first two lines show the percentages for before and after-housing income poverty. If subjective poverty (poor or very poor) is added as a criterion, the percentage that is financially disadvantaged falls substantially to around 2 per cent. If financial stress is the additional criterion, the decline is not as substantial—only 4 to 6 per cent of households were in income poverty and experienced financial stress. Only 1 to 2 per cent of Australian households in income poverty that indicated they were poor or very poor had experienced two or more cash flow problems. For persistent financial disadvantage across both Waves 1 and 2, the estimates are more than halved.

Table 21 Percentages in poverty on two or three measures

Poverty measures	Wave 1	Wave 2	Waves 1 and 2
Before-housing income poverty	15.5	13.9	6.7
After-housing income poverty	18.1	16.3	8.9
Before-housing income poverty + subjective poverty	1.9	1.5	0.4
After-housing income poverty + subjective poverty	2.4	2.1	0.7
Before-housing income poverty + financial stress	4.1	3.5	1.0
After-housing income poverty + financial stress	6.1	5.3	1.2
Before-housing income poverty + subjective poverty + financial stress	1.4	0.9	0.3
After-housing income poverty + subjective poverty + financial stress	1.7	1.5	0.5

7 Discussion

A striking finding from these analyses is the protective role of marriage and, to a lesser extent, de facto relationships. Marriage strongly reduces the odds of income poverty, subjective poverty and financial stress. This is due in part to a second adult who can provide additional income. However, the benefits of marriage appear to be more than just higher incomes and greater wealth since it has strong effects on both subjective poverty and financial stress even when these factors are taken into account.[9] It appears that marriage is also associated with a set of attitudes and behaviours that mitigate against financial disadvantage.

Another important finding is the strong relationship between age and financial stress. Financial stress is highest in the youngest cohort, and declines in successively older cohorts. The negative influence of age was apparent in the final model, which included controls for education, marital status, labour market experiences, wealth and income. This finding may be due to an ageing effect: young people are less experienced in financial management, but as they get older they become more skilled at organising their finances. An alternative explanation is that it is a cohort effect, in other words, that it is due to a range of factors influencing young people today. For example, perhaps the availability of credit and expensive consumer goods such as mobile phones, and pressures to spend rather than save, have caused an enduring change in young people's attitude toward finances. If the second explanation proves correct, efforts should be made to improve the financial literacy of young people.

These analyses of the HILDA data show that the proportion in income poverty in successive years is much lower than the proportion in a single year. Such movement out of income poverty is well established for other countries. There is also considerable movement into and out of subjective poverty and financial stress. This indicates that financial disadvantage for many households is transitory rather than permanent. Analyses of future HILDA waves will show the proportions of 'movers' going back into poverty and financial stress. Furthermore, it is important to determine what factors are associated with staying in and moving out of financial disadvantage. Prime candidates are relationship formation (and dissolution), further education and training, health and changes in labour force participation.

When performing analyses of poverty data, it is important to be aware of the differences between the before and after-housing income poverty measures. Although the before-housing measure is increasingly used in poverty research, the results it gives must be approached with caution. For example, the before-housing measure indicates high poverty rates among those aged over 70, single people, and widows and widowers. However, this is very likely to be misleading since sizeable proportions of these groups have little or no housing costs and so have relatively high discretionary incomes. On the after-housing measure, these groups do not have particularly high levels of poverty. Further evidence that these groups are not facing particularly severe financial difficulties was shown by the low proportion of the 70-plus age group and widows and widowers who viewed themselves as poor or very poor, or who were suffering financial stress. Thus, relying on the before-housing measure of income poverty in these instances can be misleading.

More generally, poverty research needs to move away from reliance upon a single indicator. All indicators can be criticised—for being absolute or relative, for setting the poverty line too high or too low, for the weights assigned to second adults or children, for taking or not taking into account costs and expenditures, or for including or not including cash flow problems, to name a few. Almost all criticisms of an individual indicator make valid points. Although a large body of research literature has been built up over the last 30 years, it is unlikely that any consensus will be reached on the conceptualisation and measurement of poverty. While it may be convenient to have a single indicator, a better understanding of poverty can be gained from examining a range of indicators with different criteria and evaluating whether they support the same conclusions.

An initial understanding was that subjective poverty and financial stress are both indicators of financial disadvantage that when combined with measures of income poverty would more accurately identify the 'truly' disadvantaged. However, these three dimensions do not appear to be indicators of the same underlying concept. For a start, their correspondence is not as strong as would be expected if they were indicators of the same

concept. Furthermore, their relationships with social background, demographic, work-related and other variables are in many instances very different.

Income poverty is about having an income less than that defined by the poverty line. Its relationships with other variables are similar to those for income. It is associated with some social background variables, a non–English speaking background and Indigenous status, and is strongly associated with education, marital status and experiences in the labour market. Households that are in income poverty do not have high levels of debt. In contrast, subjective poverty, which is a personal judgement of one's level of prosperity, is much less associated with education and more strongly associated with wealth. It is a psychological judgement that probably involves a range of other factors such as type and standard of housing, area of residence, social networks and future prospects.

Finally, financial stress is about a shortage of cash. It is much more strongly associated with age and number of children than either income poverty or subjective poverty. A shortage of cash may result from inexperience in the management of expenses (or lack of financial literacy), large debts or unforeseen expenses. It is possible to have a moderate or even high household income and experience financial stress. Therefore, these three indicators of financial disadvantage are quite distinct concepts and should be understood and treated as such.

Appendix 1: Conceptual and technical issues

There are a variety of technical and measurement issues that affect estimates of the level of poverty. These issues include the definition of disposable income, the establishment of equivalence scales between different types of households, the underreporting of household incomes, the method of sampling, the handling of missing income data, the assignment of weighting, the unit of analysis and whether to use weekly or annual income. In the Australian context, these issues have been discussed elsewhere (Greenwell, Lloyd & Harding 2001; Harding, Lloyd & Greenwell 2001; Johnson 1987, 1996). The purpose of this appendix is to provide an overview of issues relevant to the estimates presented in this paper.

Absolute and relative measures

Relative measures are the dominant approach to the study of income poverty in Australia and in other western countries. The poverty line is most often drawn at half the median disposable household income after adjusting for household size (Atkinson 1998; Brady 2003; Moller et al. 2003; Oxley et al. 1997). Less often, the poverty line has been drawn at half the mean disposable income (Harding, Lloyd & Greenwell 2001). Relative measures are easy to understand and especially well suited to cross-national studies. Unlike absolute measures, they do not require justifications for a particular basket of goods and services. Furthermore, they do not require updating.

A common criticism of the relative approach to income poverty is that it measures distribution rather than financial disadvantage (Saunders & Kayoko 2002). There is a sense that with relative measures, poverty will always be with us. It is often pointed out that if the real incomes of all households doubled over the next 10 years, relative poverty would remain the same. Mean-based measures are particularly sensitive to the distribution of income; if the real income of higher income households grew more strongly than that of other households, poverty would increase. Relative poverty can only be eliminated by making radical changes to the distribution of household income—not a feasible or desirable policy option—rather than substantially increasing the standard of living of the lowest income households. Another criticism of relative measures is their arbitrariness. There is no particular reason why 50 per cent was chosen for drawing the poverty line. For example, the Eurostat Task Force recommended it be drawn at 60 per cent of median income (Eurostat Task Force 1998). Furthermore, relative measures do not have the support of the Australian public that absolute measures do (Saunders 2004, p. 8). Finally, half the median or mean income measures give no indication of the standard of living. An income below half the median income provides a very different standard of living in Australia to that in other industrialised countries (Kangas & Ritakallio 2004b).

An alternative approach is to use absolute measures of poverty. Absolute measures are defined as having insufficient income to purchase the very basic physical necessities of life, such as food to eat.[10] Absolute measures of poverty were the dominant approach for the first half of the 20th century (Saunders Bradshaw & Hirst, 2002). In Australia, the original HPL was defined in absolute terms as the basic wage plus child endowment for a family of four in the mid-1960s (Henderson, Harcourt & Harper 1970; Saunders 1998a).[11] The income required for other family types was calculated from this benchmark. Also formulated in the 1960s was the official poverty line for the United States, which was defined as three times the cost of a basic food basket.[12]

The problem with absolute measures of income poverty is that very few citizens of industrialised societies live without shelter, running water or sufficient food, and so to define poverty in such absolute terms would be to define it out of existence. Furthermore, there is no community consensus on the minimum income required to live decently (Saunders 1998a). Similarly, there would be little agreement among experts on the selection and level of goods and services required to live in contemporary Australia.

There is an argument that distinguishing absolute and relative conceptions of poverty is a false dichotomy. The Henderson and official United States poverty lines first formulated in the 1960s have been continuously updated

in an attempt to preserve their original levels. Sen's (1987) influential theoretical work on poverty combines absolute and relative approaches. Poverty is defined in terms of not having the capabilities to function in society at minimally acceptable levels. This includes adequate nourishment, clothing, shelter and access to health services as well as participation, or at least the capacity to choose to participate in a wide range of aspects of modern society. Nevertheless, making a distinction between absolute and relative approaches to poverty remains useful.

Estimates of the extent of poverty in Australia

Absolute and relative measures of income produce different estimates of the extent of poverty in Australia and are very sensitive to the criteria used. In the year 2000, 22 per cent of adults and children were below the HPL. Absolute measures based on half-mean and half-median disposable incomes indicate substantially lower levels of poverty, at 13 and 9 per cent respectively (using the same Henderson equivalences). The HPL also shows much higher rates of poverty among children at around 25 per cent, compared to 15 and 10 per cent respectively with the mean and median measures (Harding, Lloyd & Greenwell 2001, p. 35).

Different cut-off lines for the relative measures provide very different estimates of the extent of poverty in Australia. About 6 per cent of Australians are in poverty when the poverty line is defined at 40 per cent of the median equivalised disposable income; the proportion rises to about 20 per cent when the cut-off is 60 per cent (Förster 1994; Harding & Mitchell 1992).

Mean-based 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 (see below for a discussion of equivalence scales), poverty increased from 11.3 per cent in 1990 to 13.0 per cent in 2000. The half-median measure shows a much smaller increase from 8.2 to 8.7 per cent (Harding, Lloyd & Greenwell 2001, pp. 4–5). It is difficult to reconcile an increase in poverty during the late 1990s with increases in the real incomes of low-income households. Using changes in real incomes to update the 1984 half-median poverty line for other years, FaCS (2003, pp. 79–80) concluded that poverty had declined from about 11 per cent in 1984 to just over 5 per cent in 1998–99. Performing the same exercise with the 1984 half-mean measure also showed a decline in poverty from over 17 per cent in 1984 to less than 10 per cent in 1998–99.

Disposable income, discretionary income and housing

Almost all studies of income poverty use disposable income, which is the income after adjusting for taxes and government transfers. Government transfers include pensions, unemployment, disability and family benefits. Moller et al. (2003) reported a substantial reduction in poverty estimates in Australia after deducting taxes and government transfers. Poverty, defined by half-median income, declined from 16.2 per cent before taxes and transfers to 9.2 per cent post-tax, post-transfer.

Discretionary income and estimates of the poverty

Before and after-housing measures produce notably different estimates of poverty levels. According to the half-median income before-housing measure, with the modified OECD equivalence scale, 10 per cent of the population is in poverty. After deducting housing costs, the poverty rate increases to 15.5 per cent. Higher estimates of poverty, after taking into account housing costs, are also apparent on the other relative measures. On the half-median measure using the international equivalence scale, 12 per cent were in poverty before deducting housing costs, compared to nearly 16 per cent after deducting housing costs (Harding, Lloyd & Greenwell 2001, pp. 35–6). In contrast, the HPL does not show higher levels of poverty on the after-housing measure. Saunders (1996) reports data from the Australian Institute of Health and Welfare that shows a slightly higher level of poverty on the before-housing measure at 13.0 per cent compared to 13.8 per cent for the after-housing measure. Chotikapanich et al. (2003) reports substantially lower levels of poverty for the after-housing HPL measure compared to the before-housing measure.[13] The reason for this discrepancy is that with relative measures, the poverty line is recalibrated with changes in the distribution of disposable incomes, whereas the HPL is based on fixed before and after-housing poverty lines that may not accurately reflect housing costs.

In contrast to the results for housing costs, estimates of poverty decline after non-cash benefits in health and education are taken into account. According to Smeeding et al. (1993), the estimated level of poverty in Australia (in 1981–82), defined by half the median disposable income, was only 7.4 per cent after taking into account these non-cash benefits compared to 15.1 per cent before adjustment.

Equivalence scales

Measures of poverty must adjust for household size. An income of $50,000 provides a very different standard of living for a single person than for a family of five. There are two common procedures to adjust for household size: the calculation of a multitude of poverty lines for different family arrangements and equivalence scales. One example of the first approach is the HPL, where the required expenditure for different family types was calculated using survey data on expenditure patterns in New York households in the mid-1950s (Johnson 1987).[14] The Melbourne Institute of Applied Economic and Social Research publishes regular updates of the HPL. Separate poverty lines are calculated for ten different household arrangements with and without the household head working, and including and not including housing costs—giving a total of 40 poverty lines (for example, Melbourne Institute of Applied Economic and Social Research 2002). The ten household types do not cover all household types. The HPL is often referred to as the Henderson equivalence scale, although it is really a series of poverty lines for different family types.

More commonly, adjustments are made with equivalence scales that assign weights to additional adults and children. The modified OECD equivalence scale is becoming the most widely used equivalence scale. It assigns a weight of 1.0 to the first adult and a weight of 0.5 to the second and each subsequent adult. A weight of 0.3 is assigned to each child under 14 years of age (Förster 2001; Whelan, Layte & Maître 2002).[15] The main disadvantage of this equivalence scale is that it does not incorporate economies of scale for a larger number of children or adults. Another popular equivalence scale that does incorporate economies of scale is the international scale, which simply takes the square root of household size (Organisation for Economic Co-operation and Development 1998; Osberg & Xu 2000, p. 6; Oxley et al. 1997).[16] In Australia, the choice of equivalence scale changes the estimate of the proportion in poverty (see below). An international study based on data from the Luxembourg equivalence scale concluded that the choice of equivalence scale does not substantially change the proportion in poverty but does change the composition (Buhmann et al. 1988).

Equivalence scales and estimates of income poverty in Australia

Estimates of the level of poverty in Australia are sensitive to the equivalence scale employed. On the half–median disposable income measure before deducting housing costs, the proportion of persons living in poverty was 8.7 per cent with the Henderson equivalence scale, 10.1 with the modified OECD equivalence scale and 11.9 per cent with the international equivalence scale (Harding, Lloyd & Greenwell 2001, p. 35). In an international study of equivalence scales, Förster (1994) found that the estimates of poverty in Australia were particularly sensitive to the weight assigned to additional household members.

Zero and very low incomes

In most surveys of income, there is a small proportion of respondents who claim to have very low, zero or negative incomes. Logically, it is not possible for households to have little or no income for substantial periods. The reason for these responses may be that not all income sources have been documented or that there is considerable underreporting. Low-income households tend to underestimate government transfer payments (Oxley et al. 1997, p. 59). FaCS (2003, p. 91) reported that the aggregate level of income support benefits in the SIHC was about 20 per cent less than expected.[17] Excluding households with unrealistically low or zero incomes would reduce the estimate of the proportion in poverty.

Appendix 2: Details on the data, measures and weights

Data

The data used in this paper are from the first and second waves of HILDA, a longitudinal survey of households focusing on the interactions between the labour market, families and social welfare. The survey commenced in 2001 with a two-stage probability sample. In the first stage, 488 Census Collection Districts (CD), based on 1996 Census boundaries, were randomly selected. Within each CD, all households (approximately 200 to 250) were enumerated and 22 to 34 dwellings randomly selected.[18] An adult representative of the household was asked to answer questions on a household questionnaire about the household. Interviews were obtained from 7,682 households, or 66 per cent of all households identified as 'in scope'. For the household grid basic information was collected (age, sex and relationships between household members) from all 19,914 enumerated household members. Personal interviews were attempted with the 15,127 household members aged 15 years and over. Person questionnaires were completed for 13,969 household members, a response rate of 92 per cent.[19] Respondents were also asked to fill in a self-completion questionnaire, which included questions on financial stress, subjective prosperity, and spending and saving behaviour. Of the 13,969 individuals who responded to the person questionnaire, 13,058 (or 93.5 per cent) provided useable data for the self-completion questionnaire.

For this and subsequent waves, three 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, and an enumerated person data file derived from the household grid. The survey instruments can be downloaded from the Internet.[20]

In 2002, all responding households from Wave 1 were contacted again. Sixty-nine households were out of scope due to deaths or moves overseas, and there were 713 new households arising from changes in household composition.[21] Thus, a total of 8,326 households were in scope for Wave 2. Interviews with the household questionnaire were obtained from 7,245 households, a response rate of 87 per cent. Interviews were again sought with all household members aged 15 or over, including people who did not respond in Wave 1, as well as new household members. In total, person questionnaires were completed for 13,041 individuals. Of this group, almost 12,000 were respondents from Wave 1, which represented almost 87 per cent of the Wave 1 individual sample.[22] A slightly lower response rate was obtained for the self-completion questionnaire at around 90 per cent. Of the 13,041 respondents who were interviewed, 11,691 completed and returned self-completion questionnaires (Watson & Wooden 2004).

Income poverty

The measure of income poverty is based on disposable household income. Household income is the **annual** 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. These amounts 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
- health insurance.

Table A1 presents the means, medians, 25th and 75th percentiles for annual gross income, disposable income and disposable income after deducting housing costs. For these measures, missing incomes are imputed (see Watson 2004a).

Table A1 Summary statistics for household incomes ($)

Measure	Mean	Median	Bottom quartile	Top quartile
Wave 1				
Annual household income	57,298	46,060	22,574	77,588
Annual disposable household income	44,490	37,657	20,521	59,804
Annual disposable household income after housing costs	38,284	31,120	16,406	52,005
Wave 2				
Annual household income	58,943	47,500	23,500	79,758
Annual disposable household income	45,608	38,451	21,210	61,263
Annual disposable household income after housing costs	39,448	32,198	17,264	52,852

For comparison, the ABS estimate for gross household income in SIHC was $972 per week or $50,544 per year. The estimate for median income was $773 per week or $40,196 per year (ABS 2000–01; 2004b). Although the HILDA and ABS surveys are for different years and there are technical differences in their estimation procedures, the estimates they give are not too dissimilar. For example, Watson (2004a, pp. 9–10) estimates average household income (not including Family Tax Benefit A and B and Child Care Benefit) at $54,689 per year for HILDA Wave 1 and $57,810 per year for HILDA Wave 2.

Housing costs were defined as the sum of the costs of home mortgages and rent. For 245 households in Wave 1 and 39 households in Wave 2, data for missing housing costs were imputed by the nearest neighbour method. A regression model of housing costs based on household income, tenure and household type was estimated and the predicted values were used to impute housing costs for these cases. The estimates are presented in Table A2.

Table A2 Summary statistics for housing costs

Measure	Wave 1	Wave 2
Proportion owning/paying off	68.0	67.7
Proportion renting	29.5	29.2
Proportion other tenure	2.5	3.2
Proportion of owners with no first mortgage	59.4	59.7
Proportion of owners with no second mortgage	94.0	92.6
Mean annual repayment, first mortgage (of those with outstanding mortgage)	$11,635	$12,071
Mean annual repayment, second mortgage (of those with outstanding mortgage)	$11,694	$12,386
Mean annual rent (of renters)	$8,134	$8,240
Mean annual housing costs (all households)	$5,956	$5,981

Note: The unit of analysis is the household.

Table A3 presents the correlations for individual and household income measures from the first two waves of HILDA. Generally, the correlations are between 0.50 and 0.65, indicating substantial year-to-year movement in incomes. Watson (2004a, p. 17) presents Wave 1 and 2 correlations for imputed and non-imputed wages and salaries, and benefit incomes.

Table A3 Correlations for Waves 1 and 2 for individual and household income measures

Measure	Correlation
Individual gross income	0.60
Individual disposable income	0.61
Annual household income	0.61
Annual disposable household income	0.60
Annual disposable household income after housing costs	0.56
Equivalised household income	0.60
Equivalised disposable household income	0.57
Equivalised disposable household income after housing costs	0.52

Note: The unit of analysis is the individual. The sample includes individuals who have moved households.

Table A4 presents the mean and median equivalised household incomes for Waves 1 and 2. For comparison, the ABS estimate for mean equivalised disposable household income in 2000–2001 was $469 per week or $24,388 per year. The ABS used the same equivalence scale as used here. The ABS estimate for median equivalised disposable household income was $414 per week or $21,528 per year (ABS 2000–01; 2004b). Again, the estimates from HILDA are not too dissimilar from the ABS estimates.

Table A4 Summary statistics for equivalised household incomes ($)

Measure	Mean	Median	50% of median
Wave 1			
Equivalised household income	33,609	27,467	13,734
Equivalised disposable household income	26,227	22,350	11,175
Equivalised disposable household income after housing costs	22,363	18,924	9,462
Wave 2			
Equivalised household income	35,282	29,412	14,706
Equivalised disposable household income	27,438	23,850	11,925
Equivalised disposable household income after housing costs	23,545	20,224	10,112

Note: Estimates are weighted.

The last column of Table A4 shows the half-median equivalised incomes. These estimates are for single-person households. Therefore, in Wave 1, the before-housing equivalised disposable income poverty line was drawn at $11,175 and the after-housing poverty line at $9,462. For Wave 2, the poverty lines are slightly higher at $11,925 and $10,112. Note that if the poverty lines were drawn at 40 or 60 per cent of median income they would differ only slightly. The 40, 50 and 60 per cent after-housing poverty lines for Wave 1 are $7,570, $9,462 and $11,354. However, these poverty lines generate quite different estimates of the proportions in poverty.

The half-median poverty lines are higher for larger households. On the modified OECD equivalence scale, the poverty line for a couple is 1.5 times that for a single person; for a sole parent, 1.6 times; and for a couple with two children, 2.1 times. Table A5 presents the poverty lines for a selection of household structures calculated using the modified OECD equivalence scale. For example, for a family of two adults and two children, the cut-off line for before-housing income poverty was at $23,467.

Table A5 Poverty lines (annual disposable income) for different household structures ($)

Household structure	Wave 1		Wave 2	
	Before housing	After housing	Before housing	After housing
Couple with no children	16,762	14,193	17,887	15,168
Couple with one child	20,115	17,031	21,465	18,201
Couple with two children	23,467	19,870	25,042	21,235
Couple with three children	26,820	22,708	28,620	24,268
Single adult	11,175	9,462	11,925	10,112
Single adult with one child	14,527	12,300	15,502	13,145
Single adult with two children	17,880	15,139	19,080	16,179
Single adult with three children	21,232	17,977	22,657	19,212

Subjective poverty

The measure of subjective poverty was based on the following question in the HILDA responding person questionnaire:

C1: Given your current needs and financial responsibilities, would you say you and your family are:

- Prosperous
- Very comfortable
- Reasonably comfortable
- Just getting along
- Poor
- Very poor

Table A6 presents estimates of the response frequencies to the question on standard of living. Very few indicated they were prosperous, whereas over 60 per cent said they were very comfortable or reasonably comfortable. Less than 4 per cent indicated they were poor and a further 1 per cent indicated they were very poor. The frequency distributions for the two waves are very similar. If continuous variables are constructed from the responses to this question (ranging from a score of 1 for 'prosperous' to a score of 6 for 'very poor'), the mean scores for both years were 3.2.

Table A6 Distributions of subjective prosperity (%)

Measure	Wave 1	Wave 2
Prosperous	1.6	1.2
Very comfortable	12.4	12.9
Reasonably comfortable	51.0	50.9
Just getting along	30.6	31.1
Poor	3.6	3.3
Very poor	0.7	0.7

Note: Responding Person Questionnaires. For Wave 1, n = 12,953; for Wave 2, n= 11,519. Data is unweighted.

Financial stress

For this paper, financial stress was measured using question C2 in the HILDA self-completion questionnaire. The question was designed to elicit information from respondents about their cash flow problems. It was asked in an identical form in both waves, and was worded as follows:

Since January (Year), did any of the following happen to you **because of a shortage of money**?

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

This question is very similar to the one used in HES. The difference is the replacement of the item on car registration by an item on mortgage or rent. The timeframe for the HILDA question is shorter—since the beginning of the year rather than in the last 12 months.

These items were re-coded with a score of one if the respondent answered 'yes' to the item and zero if 'no'. Respondents who completed the self-completion questionnaire, but did not provide a valid response to the item, were also assigned a score of zero. Data for respondents who did not return a useable self-completion questionnaire were declared missing.

Table A7 presents the distributions of financial stress items for the first two waves of HILDA. In Wave 1, 19 per cent did not pay utility or telephone bills on time, 17 per cent asked for financial help from friends and family, 9 per cent did not pay their rent or mortgage on time, 9 per cent pawned or sold something because of a shortage of money, 5 per cent went without meals, 4 per cent were unable to heat their home and 5 per cent sought help from welfare or community groups. In Wave 2, the results were about 2 percentage points lower. The sample includes more than one respondent in many households; however, the frequency distribution changes only marginally if the sample is restricted to one adult randomly selected from each household (Table A8).

The incidences of cash flow problems are higher in HILDA than in other surveys (Table A9). The figures for ASLS are not really comparable due to differences in question wording and the longer (two-year) timeframe. Even so, they indicate higher levels of financial stress; 16 per cent of ASLS respondents had trouble paying utility bills on time in the previous two years compared to over 20 per cent of HILDA respondents since the beginning of the year.

Table A7 Frequencies of individuals answering 'yes' to financial stress items

Measure	Wave 1		Wave 2	
	n	%	n	%
Could not pay electricity, gas or telephone bills on time	2,463	18.9	1,902	16.4
Could not pay mortgage or rent on time	1,151	8.9	891	7.7
Pawned or sold something	850	8.8	608	5.2
Went without meals	603	4.6	448	3.9
Was unable to heat home	482	3.7	369	3.2
Asked for financial help from friends or family	2,151	16.5	1,579	13.6
Asked for help from welfare/community organisations	687	5.3	451	3.8

Note: For Wave 1, n=13,058; for Wave 2, n=11,636.

Table A8 Frequencies of randomly selected adult household member answering 'yes' to financial stress items

Measure	Wave 1		Wave 2	
	n	%	n	%
Could not pay electricity, gas or telephone bills on time	1,461	20.7	1,188	18.6
Could not pay mortgage or rent on time	682	9.6	564	8.9
Pawned or sold something	505	7.1	373	5.9
Went without meals	396	5.6	278	4.3
Was unable to heat home	310	4.4	243	3.8
Asked for financial help from friends or family	1,187	16.8	893	14.0
Asked for help from welfare or community organisations	396	5.6	276	4.3

Note: Percentages are weighted by household weights. Data are for a random selection of non-child respondents aged 18 to 90.

Table A9 Percentages of households answering 'yes' to financial stress items in surveys

Measure	ASLS (1986)	HES (1998–99)	GSS 2002
Could not pay utility bills on time	16	16	13
Could not pay mortgage or rent on time	–	–	5
Pawned or sold something	–	4	3
Went without meals	–	3	2
Was unable to heat home	–	2	1
Asked for financial help from friends or family	19	10	8
Asked for help from welfare or community organisations	3	3	3

Note: ASLS frequencies over two years from P. Travers, 2004 (pers. comm.); HES frequencies from McColl, Pietsch & Gatenby 2001; GSS frequencies from the ABS (ABS 2004a).

Similarly, the proportion seeking financial help from friends and family is the same in HILDA since the beginning of the year as in ASLS over the previous two years. Comparisons with HES and GSS also show that HILDA yields higher levels of financial stress.

Differences in data collection modes are the most likely explanation for higher levels of financial stress in HILDA than other surveys examined (HES and GSS). The HES and GSS surveys were conducted by personal interview, whereas information on financial stress in HILDA was obtained from self-completion questionnaires. It is plausible that respondents are less likely to admit cash flow problems in face-to-face interviews than in self-completion questionnaires.

Table A10 investigates whether the financial stress items all relate to the same underlying or latent concept. These analyses serve only as a guide since such analyses are not usually performed on dichotomous variables. Factor analysis is used to determine whether a group of items relate to a single underlying concept (or dimension) or relate to two or more underlying concepts. It is based on the pattern of responses: if a group of items elicit similar responses, they are likely to be tapping the same underlying concept.

Table A10 Item statistics for financial stress measures

Measure	Wave 1			Wave 2		
	Mean	Correlation	Load	Mean	Correlation	Load
Could not pay electricity, gas or telephone bills on time	0.21	0.56	0.65	0.16	0.56	0.64
Could not pay mortgage or rent on time	0.17	0.52	0.61	0.08	0.49	0.56
Pawned or sold something	0.07	0.45	0.54	0.05	0.43	0.50
Went without meals	0.05	0.46	0.57	0.04	0.49	0.57
Was unable to heat home	0.05	0.39	0.46	0.03	0.37	0.45
Asked for financial help from friends or family	0.17	0.54	0.60	0.14	0.54	0.60
Asked for help from welfare or community organisations	0.06	0.41	0.50	0.04	0.42	0.49
Cronbach's alpha	–	–	0.74	–	–	0.74

Note: For Wave 1, n=13,058; for Wave 2, n=11,636.

Factor analysis showed that the items loaded a single factor. Each item had a factor loading of over 0.4, which can be understood as the correlation between the item and the latent factor. Loadings over 0.4 are usually considered as part of the latent construct. The item on not paying utility bills on time had the highest loading. Correlation analyses, which estimate the correlation of each item with the sum of the other variables, also indicated substantial interrelationships between the financial stress items. Cronbach's alpha, a statistic that indicates the consistency with which respondents answer the items, was 0.74 in both waves.[23] Because of the high inter-item correlations, there is no need to discard items or to discard the non-core items and focus only on the five core items identified by Saunders (2004).

Table A11 presents the number of incidences of financial stress reported by households. In Wave 1, 70 per cent had not experienced any financial stress, 13 per cent answered 'yes' to one of the seven financial stress items, 8 per cent two items, 5 per cent three items and a further 5 per cent four or more items. In Wave 2, 75 per cent had not experienced any financial stress. Across both waves, 63 per cent of households reported no incidences of financial stress, 11 per cent one incidence and 8 per cent two incidences. Direct comparisons with the GSS data are not possible since financial stress in that survey was measured by eight rather than seven items. Even so, financial stress is higher in the HILDA data with lower proportions indicating no stress.

Table A11 Frequencies for summary measures of financial stress

Number of incidences	Wave 1		Wave 2	
	n	%	n	%
0	9,185	70.3	8,700	74.8
1	1,645	12.6	1,234	10.6
2	999	7.7	848	7.3
3	625	4.8	432	3.7
4	315	2.4	220	1.9
5	171	1.3	111	1.0
6	72	0.5	50	0.4
7	46	0.4	41	0.4
Total	**13,058**		**11,636**	

Note: Unweighted data.

Weights

Several weights were constructed for each wave of HILDA, including cross-sectional weights for households; enumerated person and responding person weights; longitudinal enumerated person and longitudinal responding person weights; and weights adjusted to either the sample or population size.

The household weights for Wave 1 were constructed in three steps. The design weights adjusted for the probability of selection of households into the sample . The second step was to model response/non-response probabilities by a number of household and neighbourhood characteristics. The inverses of the probabilities of response were included in the weights, so that responding units with characteristics associated with non-response received larger weights. The third step was to adjust for differences in the distributions of benchmark variables between the sample and the population. The final household weights provided the basis for the enumerated person and responding person weights. The responding person weight was further adjusted by using information on responding and non-responding persons. The enumerated person weights were adjusted in relation to state or territory, region, sex and age. The responding person weights were adjusted by these variables as well as by labour force status. Further details on the construction of the Wave 1 household and person weights can be found in Watson and Fry (2002).

The weights for Wave 2 were based on the Wave 1 weights.

The Wave 2 household weights adjusted for:

- changes in selection probabilities resulting from new household entrants to the survey
- characteristics relating to Wave 2 response/non-response among Wave 1 responding households
- differences in the distributions of benchmark variables in the sample and population using ABS estimates for 30 September 2002.

The Wave 2 person weights adjusted for:

- person and household characteristics relating to Wave 2 response/non-response among Wave 1 respondents.
- differences in the distributions of benchmark variables in the sample and population using ABS estimates for 30 September 2002.

The enumerated person weights were adjusted in relation to state or territory, region, sex and age. The responding person weights were adjusted by these variables as well as by labour force status.

See Watson (2004b) for further details on the construction of Wave 2 weights.

Appendix 3: Analyses of Wave 1 data

Table A12 Effects on income poverty (before-housing), Wave 1

Variable	Background		+Education		+Marital status		+Work		+Wealth	
Intercept	-1.96	***	-1.83	***	-1.21	***	-1.54	***	-1.69	***
Male	-0.42	***	-0.36	***	-0.29	***	0.02		-0.03	
Age	0.26	***	0.22	***	0.19	***	0.22	***	0.25	***
Number of siblings	0.06	***	0.04	***	0.04	**	0.03	*	0.03	*
Not living with both parents at age 15	0.33	**	0.33	**	0.25	*	0.20		0.30	*
First language not English	0.49	***	0.53	***	0.66	***	0.51	***	0.56	***
Indigenous	0.61	**	0.56	*	0.27		0.03		0.03	
Parental occupational status (10s)	-0.05	**	0.00		0.00		0.00		0.01	
Catholic school	-0.18		-0.12		-0.17		-0.12		-0.14	*
Independent school	-0.10		0.04		0.02		-0.02		0.02	
Postgraduate qualification	–		-1.46	***	-1.37	***	-0.86	***	-0.80	*
Bachelor degree	–		-0.70	***	-0.71	***	-0.38	*	-0.32	
Diploma	–		-0.37	*	-0.37	*	-0.14		-0.18	*
Advanced certificate	–		-0.12		-0.06		0.01		0.07	
Certificate	–		-0.09		-0.07		-0.16		-0.17	
<Year 12	–		0.24	*	0.23	**	-0.01		-0.02	
Married	–		–		-1.48	***	-1.23	***	-1.12	***
De facto	–		–		-1.30	***	-1.13	***	-1.08	***
Separated	–		–		-0.46	**	-0.23		-0.22	
Divorced	–		–		-0.39	**	-0.13		-0.14	
Widowed	–		–		-0.40	**	-0.36	*	-0.32	
Number of children	–		–		0.12	***	0.07	**	0.07	**
Occupational status (10s)	–		–		–		-0.11	***	-0.09	***
% time in work (10s)	–		–		–		-0.14	***	-0.12	***
% time unemployed (1s)	–		–		–		0.02	***	0.02	***
Wealth ($100,000)	–		–		–		–		-0.07	***
Rescaled R square	0.07		0.10		0.16		0.21		0.22	

Note: ***p<0.001, **0.001<p<0.01, *0.01<p<0.05.

Table A13 Effects on income poverty (after-housing), Wave 1

Variable	Background		+Education		+Marital status		+Work		+Wealth	
Intercept	-1.63	***	-1.62	***	-1.05	***	-1.32	***	-1.50	***
Male	-0.41	***	-0.35	***	-0.31	***	-0.04		-0.07	
Age	0.01		-0.02		-0.03		0.00		0.03	
Number of siblings	0.06	***	0.04	**	0.03	*	0.03	*	0.03	*
Not living with both parents at age 15	0.20	*	0.21	*	0.12		0.08		0.12	
First language not English	0.57	***	0.62	***	0.75	***	0.59	***	0.64	***
Indigenous	0.45	*	0.41	*	0.11		-0.12		-0.21	
Parental occupational status (10s)	-0.04	**	0.00		0.00		0.01		0.01	
Catholic school	-0.15	*	-0.09		-0.15		-0.09		-0.08	
Independent school	-0.06		0.05		0.05		0.02		0.12	
Postgraduate qualification	–		-1.04	***	-0.94	***	-0.47	*	-0.39	*
Bachelor degree	–		-0.49	***	-0.48	***	-0.17		-0.14	*
Diploma	–		-0.18		-0.19		0.03		-0.01	
Advanced certificate	–		-0.08		-0.02		0.07		0.12	
Certificate	–		0.13		0.16		0.09		0.10	
<Year 12	–		0.33	***	0.31	**	0.09		0.05	
Married	–		–		-1.43	***	-1.21	***	-1.05	***
De facto	–		–		-1.11	***	-0.96	***	-0.86	***
Separated	–		–		-0.18		0.03		0.05	
Divorced	–		–		-0.49	***	-0.27	*	-0.27	
Widowed	–		–		-0.54	***	-0.56	***	-0.53	**
Number of children	–		–		0.14	***	0.10	***	0.09	***
Occupational status (10s)	–		–		–		-0.11	***	-0.10	***
% time in work (10s)	–		–		–		-0.13	***	-0.12	***
% time unemployed (1s)	–		–		–		0.01	***	0.01	***
Wealth ($100,000)	–		–		–		–		-0.06	***
Rescaled R square	0.03		0.06		0.12		0.17		0.18	

Note: ***p<0.001, **0.001<p<0.01, *0.01<p<0.05.

Table A14 Effects on subjective poverty (poor and very poor), Wave 1

Variable	Background		+Education		+Marital status		+Work		+Income and wealth	
Intercept	-3.22	***	-3.45	***	-2.86	***	-3.06	***	-3.92	***
Male	0.26	*	0.28	*	0.29	*	0.44	***	0.38	**
Age	-0.11	**	-0.15	***	-0.07		-0.03		0.08	
Number of siblings	0.06	**	0.04		0.03		0.03		0.02	
Not living with both parents at age 15	0.32		0.32		0.18		0.15		0.09	
First language not English	0.36	*	0.46	**	0.62	***	0.52	***	0.30	
Indigenous	0.38		0.33		-0.03		-0.19		-0.39	
Parental occupational status (10s)	-0.04		0.00		0.00		0.01		0.01	
Catholic school	-0.23		-0.14		-0.19		-0.15		-0.04	
Independent school	-0.25		-0.10		-0.12		-0.17		-0.28	
Postgraduate qualification	–		-0.80	*	-0.71	*	-0.35	*	-0.10	
Bachelor degree	–		-0.30		-0.28		-0.05		-0.02	
Diploma	–		-0.04		-0.08		0.09		0.14	
Advanced certificate	–		0.36		0.38		0.44	*	0.27	
Certificate	–		0.49	*	0.47	*	0.40		0.33	
<Year 12	–		0.56	**	0.54	**	0.41	*	0.19	
Married	–		–		-1.67	***	-1.50	***	-1.00	***
De facto	–		–		-0.82	***	-0.72	***	-0.51	**
Separated	–		–		-0.16		-0.02		-0.18	
Divorced	–		–		0.12		0.25		0.10	
Widowed	–		–		-1.64	***	-1.69	***	-1.63	***
Number of children	–		–		0.14	***	0.11	**	0.06	
Occupational status (10s)	–		–		–		-0.08	*	0.01	
% time in work (10s)	–		–		–		-0.08	**	-0.03	
% time unemployed (1s)	–		–		–		0.01	**	0.01	*
Wealth ($100,000)	–		–		–		–		-0.33	***
Equivalised disposable household income ($10,000)	–		–		–		–		-0.04	***
Rescaled R square	0.02		0.03		0.11		0.13		0.22	

Note: ***p<0.001, **0.001<p<0.01, *0.01<p<0.05.

Table A15 Effects on financial stress (two or more incidences), Wave 1

Variable	Background		+Education		+Marital status		+Work		+Income and wealth	
Intercept	-1.81	***	-1.89	***	-1.61	***	-1.73	***	-2.10	***
Male	-0.11		-0.09		-0.02		0.03		0.01	
Age	-0.47	***	-0.51	***	-0.55	***	-0.51	***	-0.40	***
Number of siblings	0.09	***	0.08	***	0.06	***	0.06	***	0.04	**
Not living with both parents at age 15	0.27	**	0.28	**	0.18		0.15		0.14	
First language not English	0.01		0.11		0.24	*	0.16		0.07	
Indigenous	0.74	***	0.70	***	0.38		0.30		0.19	
Parental occupational status (10s)	-0.04	*	0.01		0.02		0.03		0.02	
Catholic school	-0.14		-0.03		-0.08		-0.03		-0.04	
Independent school	-0.23		-0.09		-0.07		-0.08		0.08	
Postgraduate qualification	–		-1.17	***	-1.09	***	-0.79	***	-0.51	*
Bachelor degree	–		-0.53	***	-0.50	***	-0.29	*	-0.23	
Diploma	–		-0.11		-0.16		-0.04		0.09	
Advanced certificate	–		0.15		0.14		0.18		0.06	
Certificate	–		0.35	**	0.33	*	0.26		0.16	
<Year 12	–		0.47	***	0.41	***	0.29	*	0.13	
Married	–		–		-1.44	***	-1.31	***	-0.92	***
De facto	–		–		-0.63	***	-0.57	***	-0.38	**
Separated	–		–		0.03		0.13		0.12	
Divorced	–		–		0.19		0.27	*	0.16	
Widowed	–		–		-0.95	***	-0.95	***	-1.04	***
Number of children	–		–		0.26	***	0.23	***	0.19	***
Occupational status (10s)	–		–		–		-0.07	***	-0.02	
% time in work (10s)	–		–		–		-0.05	**	-0.01	
% time unemployed (1s)	–		–		–		0.02	***	0.01	***
Wealth ($100,000)	–		–		–		–		-0.18	***
Equivalised disposable household income ($10,000)	–		–		–		–		-0.03	***
Rescaled R square	0.12		0.15		0.24		0.26		0.30	

Note: ***p<0.001, **0.001<p<0.01, *0.01<p<0.05.

List of shortened forms

ABS	Australian Bureau of Statistics
ASLS	Australian Standard of Living Survey
FaCS	Department of Family and Community Services
GSS	Australian General Social Science Survey
HPL	Henderson poverty line
HES	Household Expenditure Survey
HILDA	Household, Income and Labour Dynamics in Australia
NATSEM	National Centre for Social and Economic Modelling, University of Canberra
OECD	Organisation for Economic Co-operation and Development
SIHC	Survey of Income and Housing Costs
SPRC	Social Policy Research Centre, University of New South Wales

Endnotes

1 Between 1990 and 2000, household disposable income rose 36 per cent compared to 18 per cent for the Consumer Price Index [CPI] (Greenwell, Lloyd & Harding 2001, p. 22). This is why the HPL shows a higher proportion of Australians living in poverty than other measures (Harding, Lloyd & Greenwell 2001, p. 37). In 2002, the HPL was about 35 per cent higher than it would have been if it had been updated with the CPI (Melbourne Institute of Applied Economic and Social Research 2002).

2 The HES 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 $2,000 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
- Could not pay for car registration or insurance on time
- Pawned or sold something
- Went without meals
- Unable to heat home
- Sought assistance from welfare/community organisations
- Sought financial help from friends or family

3 The GSS question wording was as follows:

In the last 12 months, have any of these happened to you/members of this household because (any of) you were short of money?

Interviewer: If 'yes', prompt for which ones. More than one response is allowed. Press space bar between.

- Could not pay electricity, gas or telephone bills on time
- Could not pay mortgage or rent payments on time
- Could not pay for car registration or insurance on time
- Could not make minimum payment on credit card
- Pawned or sold something because you needed cash
- Went without meals

- Were unable to heat your home
- Sought financial assistance from friends or family
- Sought assistance from welfare or community organisations
- No/none of these
- Don't know

4 A list of occupations and their ANU4 occupational status scores is available at <http://www.dest.gov.au/archive/highered/eippubs/eip02_4/appendix_02.htm>.

5 A superior but more time-consuming procedure would be to perform this random selection many times and take the mean of the estimates. However, estimates of percentages and other statistics from the two random selections are very close. There is no difference in the overall estimates of the proportion in poverty, but differences become larger in the smaller categories.

6 In the context of logistic regression, there is no R square or proportion of variance explained which indicates how well the model accounts for variation in the dependent variable. However, the likelihood ratios for the null and predicted models provide a pseudo R square measure. This measure compares the likelihood ratio of the null model to that of the model with predictor variables. Mathematically:

Pseudo R square

$$= 100 \times \frac{\text{(Likelihood Ratio of Null Model)} - \text{(Likelihood Ratio of Model with predictors)}}{\text{(Likelihood Ratio of Null Model)}}$$

The rescaled R square is the pseudo R square adjusted for the maximum possible R square.

7 Marginal attachment to the labour force 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 to the labour force if they:

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

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

Individuals not in the labour force are not marginally attached if they:

(i) do not want to work; or

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

For more details, see the relevant ABS publication (ABS 2001).

8 The exponent of the estimate -0.31 is 0.73. This is the odds ratio for men compared to women. It is more meaningful for the odds ratio to be above 1, so taking the inverse of 0.73 (1.36), the estimate can be interpreted as indicating that the odds of women being in poverty (rather than not in poverty) are 1.4 times the odds for men.

9 This proposition was also tested controlling for unequivalised household income.

10 The Australian public also understands poverty in absolute terms. About 75 per cent 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 1998a).

11 Saunders (2004) notes that the original HPL was based on the basic wage, whereas the updated HPL is now used to argue for increases in the minimum wage.

12 The factor of three was used because food constitutes about 33 per cent of household expenditure. The contents of the food basket were stipulated according to American nutrition standards (Ringen 1998).

13 In that study, the notional cost of rent was deducted from the incomes of owner-occupiers.

14 Apparently, the budget did not include motor vehicle costs (FaCS 2003).

15 The original OECD equivalence scale assigned a score of 1.0 for the first adult, 0.7 for the second and 0.5 for each child.

16 Oxley et al. (1997, p. 60) note that the international equivalence scale, which adjusts incomes in proportion to the square root of household size, is just one of a number of 'elasticities' for the relationship between household size and income. In the international scale the elasticity is 0.5, but it could theoretically be any value. A value of 1.0 assumes there are no economies of scale, whereas a value less than 0.5 assume stronger economies of scale.

17 Saunders (2004), in his discussion paper on developing a framework for examining poverty, excludes all households with negative incomes since the data may be unreliable. Similarly, in the section on financial disadvantage in the 2002 edition of *Measuring Australia's Progress*, the ABS (2002b, p. 40) excludes households in the lowest 10 per cent of incomes since they were doubtful about the accuracy of the information.

18 In dwellings that included fewer than four households, all households were selected.

19 For further details on the HILDA survey, including Wave 1 outcomes, see Watson and Wooden (2001) and Wooden, Freidin and Watson (2002).

20 The Internet address is <http://www.melbourneinstitute.com/hilda/sinstruments.html>.

21 'Split households' are new households created by individuals from households in Wave 1. New households are most often formed by separation and divorce and as a result of young adults leaving the parental home.

22 Further details on the methodology for Wave 2 are available in Watson and Wooden (2004).

23 A Cronbach's alpha over 0.70 is acceptable (Nunnally 1978).

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