Jobless Households in Australia: Incidence, Characteristics and Consequences

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Executive Summary

- This Report uses data from Wave 1 of the Household, Income and Labour Dynamics in Australia, or HILDA, Survey, conducted in 2001, to: (i) quantify the incidence of jobless households in Australia; (ii) identify the characteristics of individuals that are associated with membership of a jobless household; and (iii) examine some of the consequences of living in a jobless household.

- The HILDA Survey data suggest that of the almost 6.2 million households in Australia in 2001 that had at least one member of working age (15 to 64 years), almost 17 per cent were jobless. That is, none of the adult members were in any form of paid employment.

- Comparisons with estimates based on data from the ABS Survey of Income and Housing suggest that the incidence of jobless households has been falling since the mid- to late-1990s, but have still yet to return to the levels recorded prior to the recession of the early 1990s.

- While the incidence of jobless households may be declining, the incidence of children living in jobless households remains high, with close to 15 per cent of all children under the age of 15 years estimated to live in a household where no adult is in paid work.

- The household type where joblessness is most pronounced is lone parent families, particularly lone parent families with children under the age of 15 years. Almost 44 per cent of all such households are estimated to be jobless. In contrast, in couple households with children the rate of joblessness is less than 6 per cent.

- Cross-tabulated data suggest that the likelihood of living in a jobless household rises with age and falls with educational attainment, is relatively more pronounced for people without any children or people with large numbers of children (4 or more), and is more common among women, immigrants from a non-English-speaking background, persons living in regional Australia, and people living in public housing. There is also strong evidence of jobless households clustering together in neighbourhoods that score lowest on derived scales of socio-economic disadvantage.

- Multivariate analysis confirms the presence of most of these associations. It also reveals a strong association between household joblessness and occupational status with, as expected, persons at the lower end of the spectrum of occupational status being much more likely to be living in jobless households.

- Consistent with a wealth of previous research, joblessness is clearly associated with lower levels of subjective well-being and poorer self-assessed health outcomes. Nevertheless, the analysis presented here suggests that there is very little additional disadvantage that stems from living in a jobless household (that is, living with other jobless family members). Indeed, the only group for whom it seemed to matter were housewives. Housewives reported significantly higher levels of life satisfaction if they lived in a mix-work household than if they lived in a jobless household.

- While living in a jobless household does not appear to be associated with any serious ill effects for measures of subjective well-being, household joblessness is clearly associated with lower levels of financial wellbeing, with relative poverty and subjective measures of financial stress much more prevalent in jobless households than in other households.

1. Introduction

An emerging trend in Australia during recent decades has been for employment to become increasingly polarised into households where either no adult is working (jobless households) or where all adults are working (all-work households) (see Dawkins, 1996; Gregg and Wadsworth, 1996a, 1996b, 2000; Miller, 1997; OECD, 1998; Gregory, 1999; Dawkins, Gregg and Scutella, 2002a, 2002b). Furthermore, while studies have shown that the jobless household rate in Australia is not especially high by comparison with other OECD countries, this is not true once we focus on households with children (OECD, 1998; Dawkins et al., 2002a, 2002b; Nevile, 2002). Compared with other OECD countries, Australia has a relatively high incidence of children living in jobless households.

A major feature of this rise in the incidence of jobless households is that it does not mirror trends in unemployment and employment rates based on individual data. Most obviously, while the aggregate unemployment rate has been trending downwards since the recession of the early 1990s, the jobless household rate continued to rise, at least until 1996-97 (Dawkins et al., 2002b).[1] These trends imply that a growing proportion of those not in work at any point in time are located in households with no earned income, which in turn must mean that a growing proportion of households are dependent on savings, transfers from other households or, more often, from the State for income.

The policy significance of these trends has been given prominence in the recent McClure Report on Welfare Reform (Reference Group on Welfare Reform 2000). That report identified a growing divide between 'job rich' and 'job poor' households as one of the most significant and disturbing trends in contemporary Australian society. In particular, the view was expressed that unless this trend is reversed, 'significant concentrations of economic and social disadvantage might become entrenched' (p. 2).

But what do we actually know about jobless households? While there is a vast body of research evidence about unemployment and the unemployed, there has been relatively little serious research that has investigated the characteristics of jobless households in Australia (Miller 1997 and Dawkins et al. 2002b are notable exceptions) and almost nothing on the consequences of household (or family) joblessness. This paper seeks to add to this small literature. Specifically, it uses data from the first wave of the Household, Income and Labour Dynamics in Australia (HILDA) Survey to examine both characteristics of jobless households and some of the

[1] The data used by Dawkins et al. (2002b), however, only tracked changes until 1997-98.

consequences that household joblessness gives rise to. A key feature of the HILDA Survey which makes it well suited for this task is that unlike many other social surveys, interviews are conducted with all persons aged 15 years or over who are members of the selected households.

We begin in Section 2 by briefly introducing the HILDA Survey data and explaining how jobless households are defined. Section 3 then presents estimates of the incidence of jobless households and compares these with other estimates derived from Australian Bureau of Statistics (ABS) sources for earlier periods. We then move on, in Section 4, to present information about the characteristics of jobless households and the individuals that live in these households. This descriptive analysis is supported by results from the estimation of a multinomial logit model predicting the likelihood of an individual living in a jobless household in Section 5. In Section 6 we turn to outcomes of joblessness and examine how individuals living in jobless households fare with respect to various measures of mental health, general well-being and life satisfaction. Also examined in this section is the financial situation of jobless households, as assessed by both income and financial stress measures. Section 7 concludes.

2. Data and definitions

Sample

As already noted, the data used in this analysis come from the first wave of the Household, Income and Labour Dynamics in Australia (HILDA) Survey. Described in more detail in Watson and Wooden (2002a), the HILDA Survey is based on similar studies conducted in both Germany and the UK (the German Socio-Economic Panel and the British Household Panel Survey respectively). The HILDA Survey thus involved the selection of a large nationally representative sample of households. Within these households, interviews were sought with each member who was aged 15 or over. Specifically, a household interview was sought with at least one adult member. Individual interviews were then sought with all household members over the age of 15 years on the 30th June preceding interview. In addition to the collection of data through personal interview, all persons completing a personal interview were also given a self-completion questionnaire which they were asked to return, once completed, either by mail or by handing it to the interviewer at a subsequent visit to the household. Almost all of the interviews were conducted during the period between 24 August 2001 and 21 December 2001.

Households were selected into the sample by a multi-stage process. First, a random sample of 488 Census Collection Districts (CDs), based on 1996 Census boundaries, was selected from across Australia (each of which consists of approximately 200 to 250 households). Second, within each of these CDs all dwellings were fully enumerated and a sample of 22 to 34 dwellings randomly selected, depending on the expected response and occupancy rates within each area. Third, given dwellings can contain more than one household, rules were devised for the selection of households within dwellings. These rules stipulated that where a dwelling contained three or fewer households, all such households should be sampled. Where there were four or more households occupying one dwelling, all households had to be enumerated and a random sample of three households obtained (based on a predetermined pattern).

After adjusting for out-of-scope dwellings (e.g., unoccupied, non-residential) and households (e.g., all occupants were overseas visitors) and for multiple households within dwellings, the total number of households identified as in-scope was 11,693. Interviews were completed with all eligible members at 6872 of these households and with at least one eligible member at a further 810 households. The total household response rate was, therefore, 66 per cent.

Within the 7682 households at which interviews were conducted, there were 19,917 people. Of this group, 4790 were under 15 years of age on the preceding 30 June and hence were ineligible

for an interview in Wave 1. This left 15,127 persons eligible for a personal interview, 13,969 of whom completed the Person Questionnaire. Additionally, of this group, 13,159 (94%) completed and returned the Self-Completion Questionnaire.

As discussed in Wooden et al. (2002), these response rates compare favourably with the rates achieved in the first waves of similar major household panel surveys conducted in other Western nations. Comparison with population benchmark data from ABS sources suggests that the sample has characteristics that are broadly in line with what would have been expected if the sample were truly random. There is, however, at least one major disparity, with residents from Sydney under-represented, a result that Wooden et al. (2002) attribute to both greater difficulties making contact with some Sydney residents (e.g., those in living in high-rise apartments) and a greater reluctance to participate because of time commitments.

Definitional issues

Following ABS methodology, a household in the HILDA Survey was defined as a group of people living at the same address who share meals. The simplest definition of a jobless household is thus one where no adult member of that household is in paid work. For this analysis, an adult is defined as anyone of working age (15 to 64 years of age) who is not a full-time student. Full-time students are excluded since their economic inactivity is a productive investment in their future and thus joblessness on their part will, in the longer-term at least, typically not be associated with significant levels of economic distress. Further, joblessness is a common characteristic of students and hence carries no social stigma nor is likely to be associated with any significant degree of social exclusion. For similar reasons, individuals of retirement age (65 years or older, the age of eligibility for the age pension) are also excluded. Note that these exclusions mean that where a household contains a student or an individual aged 65 years over, that household is effectively redefined so as to exclude that individual.

The choice of these age-based criteria for inclusion is, however, somewhat arbitrary. For example, the definition employed in this analysis means that an older household where the male is of retirement age but his partner is below retirement age with no recent workforce experience will be treated as a single-adult jobless household, even though that household might more appropriately be described as retired from the workforce. Interestingly, this type of household would not be classified as jobless in the definition employed by Dawkins et al. (2002b). They only took into account the age of the nominated household reference person (often thought of as the household head), and omitted from their definition of jobless households all households where the nominated household reference person had reached the age for eligibility to the age pension, irrespective of the age of any other household members. The concept of household

head, however, is not employed in the HILDA Survey and hence we do not make a similar exclusion in this analysis. This has obvious ramifications when making comparisons with the figures reported in Dawkins et al. (2002b), and is an issue that we will return to in the next section.

At the other end of the age distribution, and again following ABS methodology, dependent children are defined as comprising all children less than 15 years of age as well as full-time students between the ages of 15 and 24 years who are still living at home with their parents. This means that any household where there is a part-time student aged between 15 and 24 years who also has a job, but where all other members are out of work, will not be defined as a jobless household. This is potentially a problem given that such households are almost certainly 'job poor', and hence of interest to policy makers. However, estimates from the HILDA Survey reveal that only 41,900 households (just 0.7 per cent of working-age households) avoid falling into the jobless basket because of the presence of a young adult (under 25 years of age). Moreover, in only 6600 of these households was the young adult a part-time student. This would seem to be an issue, therefore, that can be safely ignored.

It is also important to be aware that the concept of joblessness employed in this analysis makes no distinction between persons who are actively seeking work, and who would be classified by the ABS as unemployed, and those who are not, and hence would be classified as not in the labour force. In short, not every member of a jobless household has to be actively seeking work. Indeed, the ABS data analysed by Dawkins et al. (2002b) indicate that only 25 to 30 per cent of all adult members of jobless households are actually job seekers. However, just because an individual is not actively seeking work does not mean that individual does not face significant economic and social disadvantages. For example, many of the jobless may not be looking for work because they have given up hope of ever finding work or because they face significant barriers that prevent either job search or accepting employment. For instance, sole parents or those with a disability face very different barriers to securing work than other members of the community. In the case of sole parents, they are the primary carer of their child/children and thus may be unable to work many hours or may choose, in the interests of their children, not to work at all. But what happens to these parents (primarily women) in the future when their children are no longer so dependent on them? While they may now have both the desire and opportunity to return to the workforce, their long absence is likely to make it difficult to secure employment, and especially employment which is stable and offers attractive working conditions. These sole parents may thus find themselves reliant on income support indefinitely or alternatively are only able to obtain employment that is intermittent and relatively poorly paid.

Clearly the circumstances surrounding household joblessness are likely to be diverse. It thus follows that when considering the characteristics of jobless households, it may be important to distinguish between different households on the basis of the different reasons members of those households have for being out of work.

Finally, it needs to be recognised that the analysis reported on here mostly involves static comparisons. This is an obvious weakness given the significance of joblessness is a function of how long households are likely to remain jobless. Unfortunately, the cross-sectional nature of the Wave 1 HILDA Survey data renders a detailed analysis of the dynamics of joblessness not possible at this time.[2] The HILDA Survey, does, however, provide some retrospective information on the duration of joblessness and other aspects of employment history, such as occupation in any previous job, which are examined, albeit briefly.

[2] The dynamics are complicated further by the fact that household composition changes over time.

3. The incidence of jobless households

Figures 1 and 2 provide breakdowns of the population-weighted estimates of households and individuals, respectively, by work status. Figure 1 indicates that in mid-2001 (when the HILDA sample was drawn) there were 7.4 million households living in private residences in (non-remote parts of) Australia which, in turn, were comprised of just over 15 million members aged 15 years or older. Over six million of these households (or almost 84 per cent) had at least one member of working-age (as defined Section 2). We refer to these households as working-age households. Of these working-age households, close to 17 per cent (just over 1 million) had no working-age member in paid employment. These households are our *jobless households*. The remaining working-age households are either *all-work households* (63%) – that is households where all members of working age are in paid employment – or *mixed-work households* (21%) – that is, households where at least one adult member is employed and at least one other is not. Figure 2 reports a similar breakdown, but for individuals rather than households. Thus, once we focus on the working-age population who are not involved in full-time study, we find that almost 13 per cent are living in jobless households.

Figure 3 focuses on households with members of retirement age, and hence highlights the significance of the age-based criteria that are used to define joblessness in this study. Approximately 425,000 working-age households have at least one member of retirement age. Of these, almost 200,000 are defined as jobless, which amounts to around 19 per cent of all jobless households. In some of these households, however, the jobless adult will be a partner nearing retirement age and arguably would be better treated as a non-working-age household. Thus in Figure 2 we also report the number of jobless households where one adult is of retirement age and the other adult is at least 55 years of age. The data suggest that around 12 per cent (or 127,000) of all jobless households fall into this category. This is clearly a sizeable number and moreover is likely to grow given demographic dynamics.

Table 1 represents a different way of presenting these same data. It provides summary information on the distribution of employment among households in Australia. As already noted, almost 17 per cent of working-age households are estimated to have no adult in paid employment. This is what we describe as the jobless household rate. This translates to nearly 13 per cent of working-age adults living in households where no adult member is employed. Consistent with previous research, this table also reveals that joblessness is a relatively serious problem in households where there are dependent children present. While the rate of joblessness

Figure 1: The Composition of Australian Households by Household Employment Status, 2001

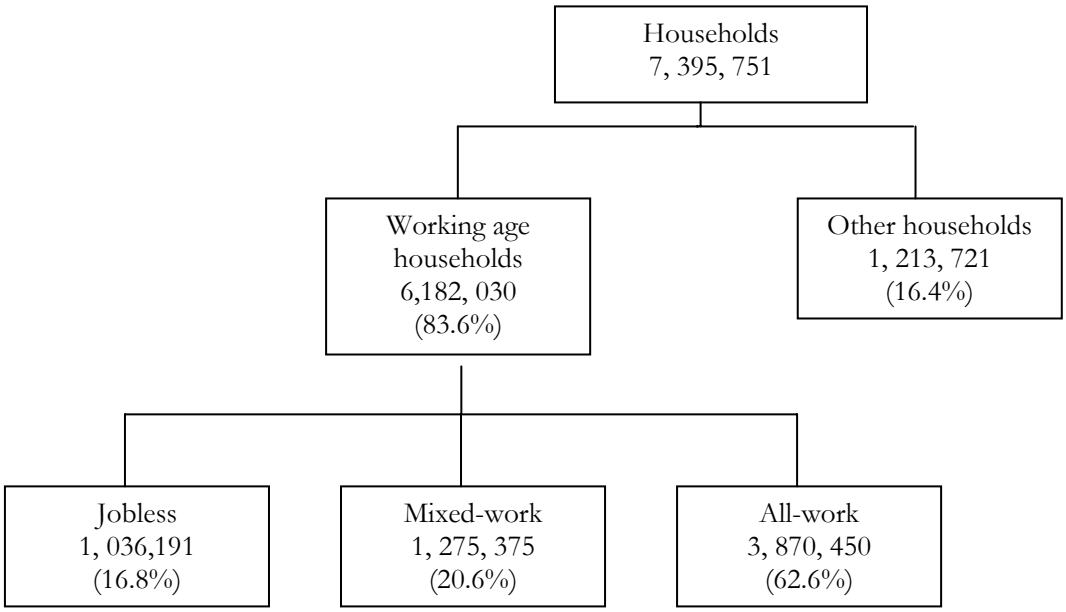

Figure 2: **The Composition of the Australian Population by Household Employment Status, 2001**

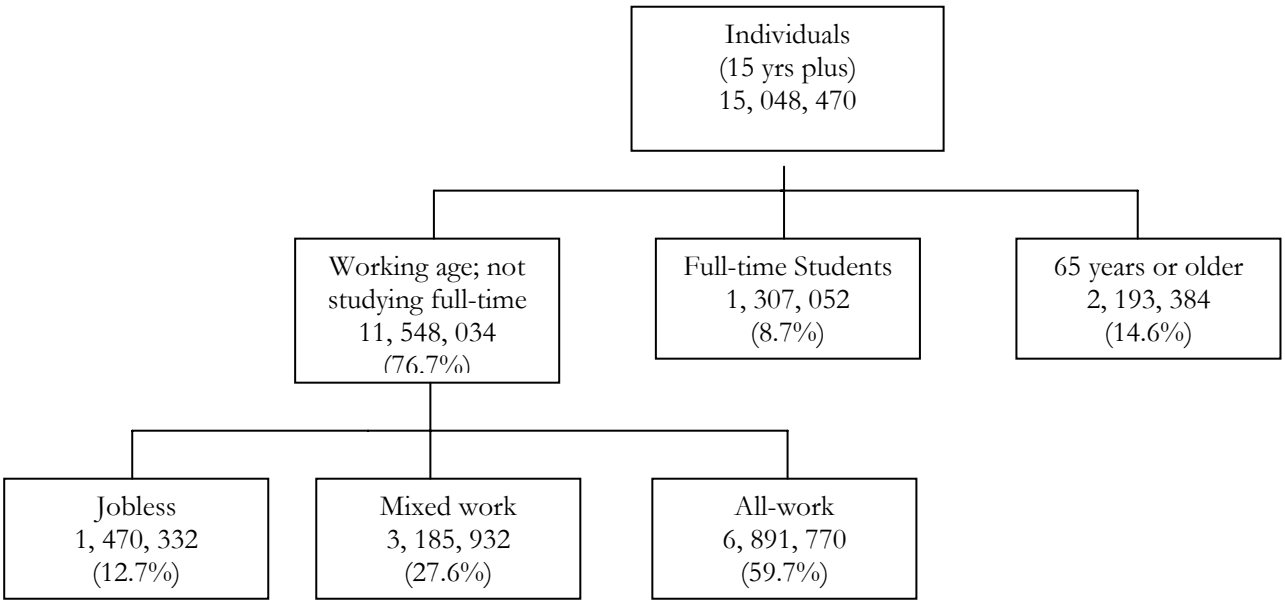

Figure 3: Working-age households with individuals of retirement age[1]

1. Retirement age defined as age of eligibility for age pension, 65 years.

Table 1: Aggregate statistics on the distribution of employment across households, 2001

	%	*Weighted population estimate*
Jobless household rate (% of households)	16.8	1,036,191
All-work household rate	62.6	3,870,450
Mixed-work household rate	20.6	1,275,375
Adults in jobless households (% of individuals 15 yr plus)	12.7	1,470,332
Jobless household rate – with kids (under 15 years)	13.6	295,436
Jobless household rate – with dependents (includes hh's with children under 15 years and full-time students aged 15-24 years	13.0	333,858
Children under 15 years living in jobless households	14.7	607,500
Jobless households – spent at least 12 months jobless	74.3	797,510

among households with children less than 15 years of age is, at 13.6 per cent, less than that for all households, this converts into an individual rate for children of 14.7 per cent. That is, 1 in 7 children under 15 years are growing up in a home where no adult is employed and with no earned income.

Table 1 also provides summary information about the duration of joblessness within households. As noted earlier, the dynamics of joblessness are clearly important, with the extent of economic disadvantage arising from joblessness likely to be a direct function of its duration. Wave 1 of the HILDA data, however, does not provide complete data on duration, though obviously such data will evolve as future waves of the panel are conducted. What is provided in the first wave, however, are retrospective data extending back to the start of the preceding financial year (30 June 2000). These data suggest that joblessness within households is generally not a short-term phenomenon – around three-quarters of all households that were defined as jobless at the time of interview had no adult members who had had any attachment to the labour force during the preceding twelve months.[3]

Finally, these data can also be compared with estimates for earlier periods reported in Dawkins et al. (2002b), but based on data from the ABS Survey of Income and Housing Costs. A summary of such comparisons is provided in Table 2. Taken at face value, the HILDA Survey estimates suggest that the upward trend in the incidence of jobless households came to an end around 1996/97, with the rate of jobless households in the HILDA Survey being identical to that calculated from ABS data using data for the 1996/97 financial year. In fact, this is entirely coincidental, since the definition of a jobless household that is employed here is not the same as that employed by Dawkins et al. (2002b). Specifically, the latter excluded all households where the notional household head was of retirement age or older and defined the female retirement age to be 60 years of age. Table 2 thus provides two different sets of estimates from the HILDA Survey. The first set – series A – is based on the definition set out earlier, and used in the rest of this study. The second set – series B – is intended to produce estimates that are based on a definition which is very similar (but not identical) to that used by Dawkins et al. (2002b). We thus excluded all females aged between 60 and 64 years from our definition of working-age. Further, we also excluded from our definition of working-age households all couple households where the male was 65 years or older. The estimated rate of jobless households under this definition is much lower – 14.9 per cent – and hence suggests that the incidence of jobless households has actually been falling since the mid-1990s. That said, the level of joblessness has still yet to return

[3] These data, however, are based on a sample of currently jobless households which are unlikely to be representative of all households that have ever been jobless. The former are likely to consist of a disproportionately large number of the long-term jobless and hence will provide estimates of duration that are upwardly biased.

to the levels experienced prior to the recession of the early 1990s. Further, the extent to which children are living in jobless households appears not to have declined by as much as the overall jobless household rate. According to Dawkins et al. (2002b), 15.6 per cent of children under the age of 15 years were living in jobless households in 1996/97. The HILDA Survey suggests that by 2001 this rate had fallen by about one percentage point.

Table 2: The changing incidence of jobless households: The HILDA Survey and ABS estimates compared

	ABS		*HILDA*	
	1990	*1996/97*	*2001 A*	*2001 B*
Jobless household rate (% of households)	14.2	16.8	16.8	14.9
Adult in jobless households (% of individuals aged 15 years plus)	10.5	12.3	12.7	10.9
Children in jobless households (% of individuals aged less than 15 years)	11.4	15.6	14.7	14.6

Note: The series "A" estimates from the HILDA Survey are based on the definition of jobless household provided elsewhere in this paper. The series "B" estimates use a definition that is compatible with that used in Dawkins et al. (2002b).

Source: ABS data come from Dawkins et al (2002b, Table 2, p. 137).

4. The characteristics of jobless households

Bivariate Results

We now turn to an examination of the characteristics of jobless households. We begin by presenting simple descriptive statistics for selected household and individual characteristics. Before proceeding, however, an important data issue needs to be noted. As observed earlier, interviews were not completed with all members of the households in the responding sample. Specifically, there were 1158 members of cooperating households that were eligible for interview but with whom a completed interview was not obtained. This represents 7.7 per cent of the total sample of adult household members. Fortunately, data on a small number of key characteristics were collected about all household members as part of the household interview, and one of these characteristics was labour force status. As a consequence, we are able to determine with a reasonable degree of accuracy the employment status of all households in the sample. However, apart from their age, sex, place of residence and relationship in the household, we know very little about the other characteristics of these non-responding sample members. Consequently, in many of the tables to follow there is a relatively high proportion of missing cases.

Demographics and socio-economic factors

Table 3 provides figures on the jobless household rate and the composition of jobless households by household type and the number of dependent children living in the household. This table reveals that jobless household rates are higher among single-adult households than among couple households, an entirely expected result given that a household with one adult can only be a jobless household or an all-work household. Of greater interest, this table also reveals that the rate of joblessness is highest among lone parents with young dependent children, with around 44 per cent of lone parent households with dependent children under the age of 15 years being jobless. Further, such households are clearly over-represented among the jobless – they represent about 18 per cent of all jobless households but only account for around 7 per cent of all households. As might be expected, the rate of joblessness is much lower in lone-parent households where the children are older. Nevertheless, the rate of joblessness for lone parents where the youngest child is 15 years or older is still quite high, and certainly much higher than among comparable couple households.

In contrast to lone parents, the rate of joblessness among couple households with children is relatively low – just 5.8 per cent of couple households with children under the age of 15 years are classified as jobless. This stark difference between the rate of household joblessness of lone

parents and coupled parents would seem to suggest that it is growth in sole parent households that accounts for the rise over time in the proportion of children living in jobless households. Indeed, the HILDA Survey data suggest that about 60 per cent of all children (under 15 years of age) living in jobless households are members of sole parent households. The earlier research of Dawkins et al. (2002a), however, suggests that such a conclusion would be misleading. Their analysis of changes over time using successive cross-sections from the ABS Survey of Income and Housing Costs revealed that while lone-parent families account for a large proportion of the children living in jobless households, growth in the likelihood of household joblessness has actually been more pronounced in couple households.

Table 3: Jobless Household Rates by Household Type and Number of Children

	Jobless household rate (%)	*% of jobless households*
Household type		
Couple-no children	19.4	28.3
Couple-children under 15	5.8	9.4
Couple-dependent students	*	*
Couple-non dependent children	8.1	3.6
Lone parent – children under 15	43.8	17.7
Lone parent – dependent students	22.8	2.0
Lone parent – non-dependent children	18.0	3.8
Lone person	26.7	30.0
Other	11.1	3.5
Number of dependent children		
None	18.5	71.5
1 child	13.9	12.0
2 children	11.0	8.6
3 children	13.8	4.4
4 or more children	26.6	3.5
Total	16.8	100.0

Note: * Estimate is based on too small a sample (less than 20 observations) to be reliable.

Finally, as Table 3 makes very clear, it is not true that most jobless households have children present. Indeed, the reverse is very much the case – almost 72 per cent of all jobless households do not have any members under the age of 15 years. Furthermore, Table 3 reveals that the

incidence of joblessness actually falls with the number of children until three children are reached. The rate of jobless households, however, is most pronounced in the largest households – those with 4 or more children.

In Table 4, the emphasis shifts to individual, rather than household, characteristics. Specifically, we report the proportion of individuals living in jobless households and their distribution by gender, age, place of birth, place of residence, home ownership status, educational attainment and labour force status. For example, this table shows that 57 per cent of all individuals living in jobless households are female. More importantly, females are more likely to be living in a jobless household than males, with almost 15 per cent of working-age females living in jobless households compared with 11 per cent of men. In part, this difference reflects the high incidence of joblessness among single-adult households, which are more likely to be female. In addition, this gender difference will also reflect age differences within couples, with many of the women in the oldest age group likely to be married to older retired men.

Jobless household rates also tend to rise markedly with age, particularly at the end of the age distribution. Indeed, individuals aged 55 years or over easily represent the largest group of those living in jobless households. This is not surprising, with the high rates of joblessness among older persons likely to reflect both voluntary early retirement decisions and forced redundancy. Further, many of these older jobless households are likely to be best described as quasi-retired. That is, while the individual may not have reached the age for eligibility to the age pension, their partner might have. Such people are unlikely to be of the same level of concern to policy makers as other jobless households.

Another demographic factor that might be expected to be of importance is country of birth. It has, for example, been well established in previous research that immigrants from a non-English-speaking background are much more likely to experience spells of unemployment than individuals born in Australia or in English-speaking countries (see Wooden 1994). The data presented here are consistent with this finding, with immigrants from non-English-speaking countries at greatest risk of residing in jobless households. Almost 18 per cent of adults in this group live in jobless households compared with only 12.5 per cent of the Australia-born and 12.8 per cent of immigrants born overseas in the main English-speaking countries.

The distribution of employment across households by area of residence is also presented in Table 4. As a general rule, it is more common for those living outside capital cities to be in a jobless household. This is most clear when we focus on the relationship between joblessness and a measure of remoteness (i.e., distance from major centres). With the exception of the very remote parts of Australia, the likelihood of living in a jobless household appears to rise the

further the distance from major cities, yet another indicator of the higher levels of economic disadvantage associated with living in regional Australia.

We also might expect patterns of household joblessness to be associated with patterns in home ownership, with the jobless households expected to be much less likely to own their home or to have a mortgage. The figures presented in Table 4, however, suggest that the situation is somewhat more complicated than this. First, it is important to distinguish between those with mortgages and those who own their home outright. Rates of household joblessness are less than 5 per cent among the former compared with close to 17 per cent among the latter. Persons who own their home outright, of course, will tend to be older and hence will be closer to retirement age. Further, such individuals will typically be under far less financial pressure to stay in paid employment. Second, when considering those in the rental market it is important to distinguish between those in the private rental market and those renting from public housing authorities. Among the former, the rate of household joblessness is around 14 per cent, compared with over 45 per cent for those living in public housing. No doubt these findings are a reflection of the two-way relationship between housing affordability and employment. Without income from employment, many households simply cannot afford quality housing without some level of public subsidy. Further, joblessness will almost certainly be associated with a greater likelihood of securing public housing. Finally, we expect a causal link running in the other direction, with living in lower-cost subsidised housing at least alleviating some of the pressure on households to secure employment incomes.

In line with the predictions of human capital theory, it has long been established that the likelihood of employment is sensitive to educational attainment. Combined with the impact of assortative mating, wherein individuals with similar socio-economic characteristics are more likely to enter relationships and hence form families, it is expected that education would be a significant factor in determining household joblessness. This appears to be confirmed by the HILDA Survey data. Living in a jobless household is strongly associated with educational attainment, with the incidence of household joblessness much more pronounced among individuals with relatively little formal education. Approximately 45 per cent of persons with no formal education beyond primary school are living in jobless households, and for those with some secondary school education, but not up to or past Year 10, the rate is almost 30 per cent. In contrast, only around 5 per cent of individuals with degree-level qualifications live in jobless households (and, in fact, around 75 to 80 per cent live in all-work households).

Table 4: Individuals in Jobless Households by Selected Individual Characteristics

Characteristic	*% in jobless hh's*	*% of persons in jobless hh's*	*Characteristic*	*% in jobless hh's*	*% of persons in jobless hh's*
Gender			*Remoteness*[a]		
Male	10.8	42.6	Major city	11.5	57.9
Female	14.8	57.4	Inner regional	14.7	28.4
Age group			Outer regional	17.0	13.2
15-19 years	8.5	2.8	Remote	*	*
20-24 years	7.9	5.6	*Home ownership*[b]		
25-34	7.9	14.8	Own outright	16.7	44.7
35-44 years	8.6	16.8	Paying off mortgage	4.6	13.3
45-54 years	10.3	18.4	Rent – private landlord	14.3	26.5
55 years or older	34.0	41.7	Rent – public housing	45.5	13.9
Country of birth			Other	11.0	1.6
Australia	12.5	64.8	*Educational qualification*		
Main English-speaking	12.8	10.1	Postgraduate qual.	4.9	2.3
Other country	17.7	19.6	Undergraduate qual.	5.3	6.6
Place of residence			Certificate	8.3	4.6
Sydney	10.1	17.6	Cmpld secondary school	9.3	7.1
Rest of NSW	16.7	15.3	Cmpld at least Year 10	13.7	40.6
Melbourne	11.5	16.6	Did not complete Year 10	28.6	25.8
Rest of Victoria	13.9	7.0	Primary school or less	45.6	6.9
Brisbane	12.0	8.4	Education level unknown	7.6	6.2
Rest of Queensland	15.0	12.0	*Labour force status*		
Adelaide	17.0	7.5	Looking for work	50.2	18.0
Rest of South Australia	19.5	3.0	Retired	73.9	36.1
Perth	8.9	5.1	Home duties	33.7	28.6
Rest of Western Australia	12.4	2.6	Non-working student	22.9	2.7
Tasmania	21.3	3.9	Other not in LF	68.5	14.6
Northern Territory	*	*			
ACT	*	*	TOTAL	12.7	100.0

Notes: a Derived from the Accessibility/Remoteness Index of Australia (ARIA) scores from the 1996 Census. See ABS, *Australian Standard Geographical Classification* (cat. no. 1216.0, pp. 36-37).

b The categories are defined as: own outright: own home with any loan completely paid off, paying off mortgage: currently paying off mortgage or involved in a rent-buy arrangement, rent-private: renting or paying board, public housing: landlord is a Government housing authority or housing provided by public housing, other: includes those living in rent-free accommodation, those with life tenure etc.

* Estimate is based on too small a sample (less than 20 observations) to be reliable.

Finally, Table 4 presents data on the labour force status of persons living in jobless households. The key result of interest here is not the rates of household joblessness, which obviously are high, but how jobless individuals are distributed across the different labour force status categories. Most persons living in jobless households (over 80 per cent) are not actively seeking work. They are instead much more likely to regard themselves as retired from the labour force, engaged in home duties or have some other reason for not participating in the labour force (e.g., ill health or disability).

Employment history and preferences for work

Although only around a fifth of individuals in jobless households are actively searching for work, many other jobless individuals may have become discouraged from searching for work due to prolonged job search in the past that was unsuccessful, or even just due to a perception of poor employment opportunities. The HILDA survey asks respondents not searching for work what their intentions for work are at the time of the interview. A summary of responses to this question by respondents living in jobless households is presented in Table 5. Note that these data do not seem consistent with that reported in Table 4. This is because the data presented in Table 5 are based entirely on self-reported data, and hence are affected by missing data given that not all household members were successfully interviewed. In contrast, Table 4 is based on data collected at the time of household contact, and thus answers are provided by one household member responding on behalf of all other persons living in the household.

If we ignore the missing cases, arising mainly because not all individuals in a household were successfully interviewed, then Table 5 suggests that around 23 per cent of individuals in jobless households are actively seeking employment. In addition, another 25 per cent claim that they want to work even though they are not actively searching for work, while around 6 per cent say that they may want to work depending on various circumstances. This thus leaves 45 per cent saying that they definitely do not want to work. Overall, our best assessment is that close to one-half of all individuals in jobless households would definitely work if they were offered reasonable employment.

Table 5 also shows the preferences for work for those individuals in jobless households with dependent children. The proportion of respondents wanting to work here is much greater, with over two-thirds either currently seeking work or explicitly stating that they do wish to work even though they have given up active job search.

Table 5: Preferences for work by individuals in jobless households

	% of individuals in jobless households		*% of individuals in jobless households with children*	
	% of total N	*% of valid N*[b]	*% of total N*	*% of valid N*[b]
Searching for work[a]	17.3	23.3	22.5	26.4
Want to work	18.9	25.3	34.7	40.7
Maybe wants to work	4.6	6.2	4.5	5.4
Does not want to work	33.9	45.3	22.9	26.4
Missing	25.3		15.5	
Total	100	100	100	100
Weighted population estimate (N)	1,470,332	1,162,114	438,685	394,412

Notes: a Based on a positive answer to a question determining whether the respondent had looked for work at any time during the preceding 4 weeks.

b The weights used to derive the population estimate in this column are adjusted to reflect only responding persons.

Table 6 sheds some light on what individuals in jobless households have been doing since leaving employment and searching for work. We know from the previous information presented that, after adjusting for missing cases, around 23 per cent of those living in jobless households had been looking for employment during the 4 weeks preceding the interview. Home duties or caring for children were the main activities of 30 per cent of those in jobless households, with around 26 per cent either retired or voluntarily inactive. Over 10 per cent reported that they had some kind of sickness or injury which inhibited job search. The remaining 10 per cent were in a caring role for the ill or elderly (3.2%), spent their time mainly in pursuit of leisure activities (2.5%), were involved in voluntary work (2.1%), or were involved in study or other activities (2.2%).

More information on the circumstances of the group of individuals in jobless households can be found by examining the main reason their last job ended. This clarifies further the circumstances of individuals in jobless households and to what extent social policy makers should be concerned with the class of jobless households. As shown in Table 7, the largest single reason reported by individuals in jobless households for why their last job ended is sickness or disability. Other common reasons include pregnancy or caring for dependents, being laid off or there not being work available, or a desire to move into retirement. Also of interest, this table reveals that only around 14 per cent of individuals in jobless households reported that the main reason their last

Table 6: Individuals in jobless households, main activity since looking for work

	% of total N	*% of valid N*[a]
Searching for work	17.3	23.1
Retired/voluntarily inactive	19.8	25.9
Home duties/child care	22.5	29.8
Study	*	*
Sickness/injury	8.1	11.0
Carer	2.4	3.3
Leisure time	1.9	2.5
Voluntary work	1.5	2.0
Other	*	*
Total individuals in jobless households	1,470,332	1,169,350

Notes: a The weights used to derive the population estimate in this column are adjusted to reflect only responding persons.

* Estimate is based on too small a sample (less than 20 observations) to be reliable.

Table 7: Individuals in jobless households – reason last job ended

	% of total N	*% of valid N*[a]
Job was temporary/holiday job	5.2	5.9
Laid off/no work available	15.6	17.6
Not satisfied/ to obtain better job	3.8	4.3
Self employed – business closed down	2.2	2.5
Retired	12.3	13.9
Sickness/disability	22.7	25.7
Pregnancy/Care for children or other dependents	16.8	19.0
Other	9.9	11.1
Missing	11.5	
Total	1,470,332	1,374,601

Notes: a The weights used to derive the population estimate in this column are adjusted to reflect only responding persons.

Job ended was due to retirement, whereas Table 4 revealed that around 36 per cent are reported as retired at the time of the interview. In other words, while a relatively large proportion of persons in jobless households describe themselves as retired, a much smaller fraction described their transition into joblessness as a retirement. This is further confirmed in Table 8, where we

present figures on the main reason for last job ending for that subset of individuals in jobless households reporting that they were currently in retirement. Less than one-third reported that the reason they left their last job was to retire, with sickness or disability, being laid off from their job and pregnancy or care for dependents being other common reasons why these individuals ceased employment and subsequently found themselves retired from the paid workforce.

Table 8: Retired individuals in jobless households – reason last job ended

	% of valid N[a]
Job was temporary/holiday job	*
Laid off/no work available	15.0
Not satisfied/ to obtain better job	*
Self employed – business closed down	*
Retired	31.3
Sickness/disability	28.0
Pregnancy/Care for children or other dependents	11.9
Other	7.3
Missing	
Total	535,075

Notes: a The weights used to derive the population estimate in this column are adjusted to reflect only responding persons.

* Estimate is based on too small a sample (less than 20 observations) to be reliable.

Neighbourhood characteristics

It has been well established that unemployment tends to be concentrated in specific communities and neighbourhoods (e.g., Gregory and Hunter, 1995). We thus would expect jobless households to be more common in localities where average levels of unemployment are high and mean incomes are low. As a simple test of this, we correlated joblessness with measures of socio-economic disadvantage within areas.

These measures of socio-economic disadvantage come from the ABS, which have used data from the Census of Population and Housing to construct several summary indices to measure various aspects of social and economic conditions across areas in Australia.[4] Since the HILDA sample employs a clustered sample using 1996 Census boundaries, it was a relatively simple

4 For more information on the construction of these indices, see ABS (1996).

matter to match these socio-economic indicators for areas (SEIFA) scores from the 1996 Census to individuals and households in the HILDA Survey. As recommended by the ABS, however, the raw scores are not provided in the HILDA data set, only the sorting of areas (Collection Districts) into deciles ranked according to these scores (and based on population counts).

Three different indices produced by the ABS are available in HILDA: the Index of Relative Socio-Economic Disadvantage; the Index of Economic Resources; and the Index of Education and Occupation. "High scores on the Index of Relative Disadvantage occur when the area has few families of low income and few people with little training and in unskilled occupations. Low scores on the index occur when the area has many low income families and people with little training and in unskilled occupations" (ABS, 1996, p. 3). Whereas "a higher score on the Index of Economic Resources indicates that the area has a higher proportion of families on high income, a lower proportion of low income families, more households purchasing or owning dwellings and living in large houses. A low score indicates the area has relatively large proportions of households on low incomes and living in small dwellings" (ABS, 1996, p. 3). Regarding the Index of Education and Occupation: "An area with a high score on this index would have a high concentration of persons with higher education or undergoing further education, with people being employed in the higher skilled occupations, rather than being labourers or unemployed. A low score indicates an area with concentrations of either persons with low educational attainment or unskilled or unemployed people" (ABS, 1996, p. 4). The raw scores are available in HILDA with Australia-wide deciles matched by Collection District to the household. To make the indices comparable, the values of the index of socio-economic disadvantage have been reversed so that relatively advantaged areas have high scores and relatively disadvantaged areas have low scores. The relationship between individuals in jobless households and the three indices by decile are presented in Figures 3 to 5. The graphs compare the proportion of individuals in jobless households in each decile with other individuals.

From the figures the relationship is clear; as expected, individuals living in jobless households are, compared with other individuals, much more likely to live in areas that are disadvantaged and much less likely to live in affluent areas than other individuals. Thus jobless households are more likely to reside in areas where there are large proportions of families with low incomes, low educational attainment and working in unskilled occupations, high levels of unemployment, and low rates of home ownership. The importance of neighbourhood characteristics to household joblessness is revisited in the next section.

Figure 4: SEIFA index of relative socio-economic disadvantage

Figure 5: SEIFA index of economic resources

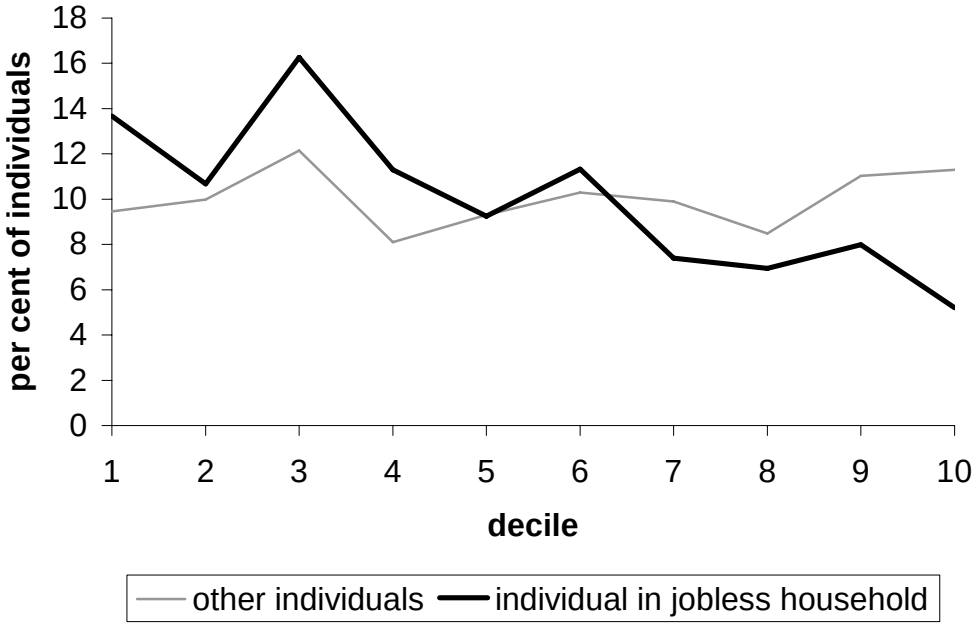

Figure 6: SEIFA index of education and occupation

Summary

Overall, the cross-tabulated data indicate that jobless households and the members of those households have quite distinctive characteristics. First, it is very clear that joblessness is most pronounced is lone parent families, and especially lone parent families with children under the age of 15 years. Almost 44 per cent of all such households are estimated to be jobless. In contrast, in couple households with children the rate of joblessness is less than 6 per cent.

Second, the data suggest that the likelihood of living in a jobless household is associated with numerous individual characteristics. It rises with age and falls with educational attainment, is relatively more pronounced for people without any children or people with large numbers of children (4 or more), and is more common among women, immigrants from a non-English-speaking background, persons living in regional Australia (but not the most remote regions), and people living in public housing.

Third, while less than one-quarter of all persons living in jobless households have actually been looking for work in the month prior to interview, there is another quarter that would actually prefer to be in work even though they are not looking.

Finally, there is strong evidence of jobless households clustering together in neighbourhoods that score lowest on derived scales of socio-economic disadvantage.

5. The determinants of household joblessness: Multivariate analysis

In this section we examine the determinants of household joblessness more formally. A model is set up where the household employment status of each individual is determined by a set of independent variables. Using a multinomial logit model we estimate the joint probability of living in i) a jobless household, ii) a mix-work household or iii) an all-work household. More formally, the multinomial model takes the form:

$$P_{ij} \mid X_i = e^{X_i\beta_j} / \sum e^{X_i\beta_h}$$

where $P_{ij} \mid X_i$ is the probability that individual *I* ends up in outcome *j* given the observable characteristics of individual *I* (embodied in X_i). There are a possible J+1 outcomes (in this application there are three possible outcomes) and the first is set to zero in order to identify the model parameters. Here we set the jobless household outcome to zero. It now follows that:

$$\ln(P_{ij}/P_{i0}) = \ln(e^{X_i\beta_j} / e^{X_i\beta_0}) = X_i\beta_j$$

That is, the parameters estimated from the multinomial logit model (β_{jk}) are interpreted as the percentage change in the odds of ending up in destination *j* (either a mixed-work or all-work household) relative to that of ending up in destination 0 (a jobless household) for a one unit change in X_k.

Non-independence of observations within census collection districts is accounted for with robust standard errors estimated.[5]

Care needs to be taken to ensure that the explanatory variables included in the model are not determined by the jobless outcome, and thus endogenous to the dependent variable. Income is a good example of an endogenous variable – incomes are clearly determined by the employment status of household members. Similarly, the various measures of health and well-being examined in the previous section are also likely to be endogenous given they can both contribute to, and are affected by, joblessness. We thus do not include income and subjective measures of health and well-being in the analysis. Nevertheless, there are variables included that are potentially endogenous. The socio-economic status of the area in which respondents reside is an obvious example. Low socio-economic status areas generally offer more affordable accommodation, thus when adult members of a household lose employment with a significant cut in income, they may

[5] The cluster option in Stata was used. This procedure uses the Huber/White/Sandwich estimate of variance, which relaxes the assumption of independent errors across all observations and only assumes that errors are independent across areas but not necessarily within areas.

have to move to an area that is more affordable. Thus their decision on where to live is, to an extent, determined by their employment state. While we try to restrict covariates to those that are largely exogenous, the possibility of endogeneity is something that we have to be aware of when analysing the results. The covariates used are discussed below. Definitions and summary statistics for all explanatory variables are included in Appendix Table A1.

Covariates

Included in the specification are variables representing the usual influences included in any model examining the determinants of employment status (see for instance Brooks and Volker, 1985; Inglis and Stromback, 1986; and Harris, 1996). As such, most of the covariates included in the analysis are straightforward and need little by the way of explanation. As noted by Le and Miller (2000), factors determining labour force participation are quite different from the factors determining employment, with the former generally reflecting supply side factors and the latter reflecting the demand for labour. As we focus on an individuals' situation relative to other members of the household in this analysis, combining the unemployed with those not in the labour force, the covariates included are intended to pick up both demand and supply side factors in the specification. Separate equations are estimated by gender as we expect males and females with similar characteristics to behave differently.

Age and age squared are included to capture the possibility of a non-linear relationship between age and household joblessness. To keep the age variables to a similar scale to the other covariates, age is divided by 10 (and thus the age squared variable divided by 100).

Educational attainment is generally thought to be the single most important contributor to labour market productivity and hence a major influence on the likelihood of being unemployed (Inglis and Stromback, 1986; Miller and Neo, 1997; and Chiswick et al, 1997). With the additional presence of assortative mating in household formation we expect quite a strong negative relationship between educational attainment and household joblessness. Included are zero-one indicators for: postgraduate qualification, which includes master degrees, doctorates and graduate diplomas or certificates; undergraduate qualification, including bachelor degrees and advanced diplomas or diplomas; certificate, including certificate levels I to IV and those not defined; completion of Year 12; not completing secondary school but having at least reached Year 10 or 11; and some secondary school but no completion of Year 10. The reference group is individuals not reaching secondary school and having either no formal education or a primary level of education.

Family influences are captured through the inclusion of variables for marital status and the presence and number of children. Individuals never married are the reference group. Ex ante, the effect of children is unclear. It is possible that families with children may make an additional effort to find work given they have greater need for income. However, the relationship between family size and income is far from straightforward. Single-parent families face the additional responsibility of being the primary carer of their child/children and thus are less likely to be employed than multiple-parent households and so we also include a dummy variable for sole parents. As noted in Sections 3 and 4, many older jobless households include women with a partner of retirement age. We, therefore, also include a variable that indicates whether any member of a household is of retirement age to control for this. Analogously, we also include a variable indicating the presence of a full-time student in the household. The presence of a retired household member is expected to be associated with an increase probability of living in a jobless household, especially among women. The presence of full-time students in the household is less certain, but to the extent they increase costs, they might be expected to be associated with an increased incentive to work on the part of other household members.

Studies such as Inglis and Stromback (1986) and Miller and Neo (1997) show that immigrants of non-English-speaking backgrounds face language and cultural barriers in the Australian labour force affecting their employment status. To control for this, indicator variables for country of birth are included. The reference group are individuals born in Australia with dummy variables indicating immigrants from English-speaking and non-English-speaking backgrounds. Year of arrival is also interacted with each group of immigrants as it is expected that those living in Australia for longer periods of time will have had a chance to adapt to the situation in Australia. A dummy variable for English language ability is also included which picks up whether the individual in question does not speak English well. This is likely to be correlated with year of arrival as recent immigrants will have had less time to learn the English language. Also included is an indicator variable for Aboriginal and Torres Strait Islanders.

To control for the almost definitional concept that larger households are less likely to be jobless, we include a variable for the number of working-age adults.

While self-assessed health is likely to be endogenous, we nevertheless believe it necessary to control for the presence of work-limiting disabilities. Moreover, we also distinguish between people with disabilities according to the severity of the disability. A disability is defined in the HILDA Survey as any long-term health condition, impairment or disability that restricts the respondent in their everyday activities and has lasted or is likely to last for 6 months or more. Serious conditions are defined here as those where the respondent indicates that the condition

makes it impossible for them to undertake any work at all, while minor conditions are those where it is reported that there is no impact on the amount or type of work that can be done.

Studies such as Harris (1996) and Miller and Neo (1997) have found that rates of unemployment are higher in rural areas than elsewhere. We expect a similar relationship with participation in the labour market. As members of households all live at the same location we expect locational factors to affect household joblessness. To pick up these likely structural effects we include two sets of regional indicators in the specification. State and Territory dummies are included to control for differences in employment opportunities across the States. Also included are remoteness indicators based on the ABS's ARIA scores from the 1996 Census.[6] 'Major city' is used as the reference group.

Previous studies have shown that family background, particularly the employment status of the father while growing up, can have quite significant effects on an individual's current socio-economic status (e.g., Broom et al, 1980; Prior and Beggs, 1989; Jensen and Seltzer, 2000). To control for this influence, we include variables indicating whether an individual's mother and father were both present when they were aged 14 years, whether they were employed and whether their father was unemployed for six months or greater were included in the list of covariates. It is expected that fathers' employment history will have a significant effect on current joblessness. The effect of mothers' employment history, however, is less certain.

We also include the ABS SEIFA indices by decile reflecting the degree of well-being across geographic areas in an effort to determine whether living in an area with low socio-economic status has a significant effect on household joblessness. As these indices are highly correlated we ran three different models including indicator variables by decile for the index of relative socio-economic disadvantage, index of economic resources and index of education and occupation separately. The results were all very similar across the specifications and thus we only present the outcome using the index of relative socio-economic disadvantage. The reference group is the most advantaged group of individuals in the top decile.

In a second model specification we also include indicator variables for occupation at the 2-digit ASCO level. For individuals not currently working, occupation of last job is used. Additional indicator variables denoting individuals who have never worked or have missing occupation information were also included. We tried including a variable denoting the importance of religion

6 These remoteness indicators are likely to be correlated with the SEIFA indices thus we estimated alternative specifications omitting i) the remoteness indicator and ii) the SEIFA index. While the significance of each of the variables increased slightly with the exclusion of the other variable, the results were not markedly different and thus have both been retained in the final specification.

in a person's life as a crude proxy for work ethic but found this to be insignificant and thus was omitted from the final specification.

Results

Tables 9a and 9b present the results of our estimation of the probability of being in a jobless household or all-adult household relative to a mix-work household. To assist readers in interpreting the results, relative risk ratios (RRR) – or odds ratios – are presented rather than the coefficients. These ratios are simply the exponent of the estimated coefficients, and indicate the likelihood (or risk) of a particular factor contributing to a particular state relative to the base state[7]. Note that for each variable there are two parameters – one provides the relative risk of being in a mixed-work household relative to a jobless household, while the other provides the relative risk of being in an all-work household relative to a jobless household. Consider, for example, the variable 'married'. In the male specification the two odds ratios are 3.5 and 2.8 respectively. This means that, relative to men who are single and who have never married (the reference group), married men are approximately 3.5 times more likely to be living in a mixed-work household (i.e., one where at least one adult is working and at least one adult is jobless) than they are to be living in a jobless household, and 2.8 times more likely to be living in an all-work household (i.e., one where all adults are working) than they are to be living in a jobless household.

Overall, the estimates are generally in line with expectations. Age has the expected non-linear relationship, with the quadratic function suggesting that the risk of household joblessness is most apparent among the very young and the very old. The turning points in the function lie at quite high ages.[8] Hence the risk of living in a jobless household falls with age at a decreasing rate, and then increases again for older age groups.

Single males were found to be more at risk of being in a jobless household than married men or men in de facto couple relationships. Among females a similar finding exists, though it mainly applies to single women who have never been previously married. Indeed, widows and divorcees were the most likely female groups to be living in all-work households.

The risk of women living in jobless households was also found to be significantly associated with the presence of another household member who was retired. Men, on the other hand, were not

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7 Note that while constant terms were estimated, as the odds ratios are presented, the constant terms are irrelevant.

8 The turning points, lie between 50 and 70 years of age in the male and femaile specifications.

Table 9a: Multinomial logit estimates of the determinants of household employment status, males (base category = jobless household)

	Mix-work household		*All-work household*	
	Relative risk ratio	*z-statistic*	*Relative risk ratio*	*z-statistic*
Age/10	4.948	4.070	16.950	7.840
$(Age/10)^2$	0.782	-5.320	0.667	-9.500
Married	3.545	4.880	2.756	4.280
De facto	2.634	3.550	1.739	2.180
Separated	0.777	-0.630	1.258	0.780
Divorced	0.943	-0.180	1.397	1.230
Widowed	0.811	-0.180	1.503	0.700
Retired household member	0.846	-0.510	0.793	-0.820
Full-time student (15-64) in household	1.237	1.030	1.629	2.460
Presence of children	1.728	1.820	0.950	-0.180
Number of children	0.785	-2.160	0.666	-3.620
Number of working-age adults	4.192	9.410	1.586	3.180
Lone parent	1.051	0.190	0.555	-2.430
Born O/S – English speaking	0.721	-0.770	0.631	-1.160
Born O/S – Non English speaking	0.494	-2.050	0.236	-4.480
English-speaking immigrant * years in Australia	1.006	0.470	1.009	0.750
Non-English-speaking immigrant * years in Australia	1.007	0.630	1.021	2.050
Aboriginal or Torres Strait Islander	0.655	-1.070	0.367	-3.120
English speaking ability poor	0.678	-0.900	0.479	-1.500
Severe illness or disability	0.140	-2.840	0.049	-4.060
Moderate illness or disability	0.289	-8.260	0.126	-15.030
Minor illness or disability	0.927	-0.250	0.788	-0.840
Postgraduate qual.	2.533	1.810	4.663	2.970
Undergraduate qual.	1.683	1.220	2.932	2.480
Certificate	1.734	1.220	2.804	2.180
Completed Year 12	1.177	0.390	1.812	1.370
Completed Year 10/11	1.408	0.900	1.532	1.030
Secondary school -- < Year 10	0.957	-0.120	0.757	-0.680
Inner regional	0.930	-0.410	1.119	0.690
Outer regional	0.654	-1.740	0.918	-0.370
Remote	1.725	0.950	2.318	1.190

Table 9a (cont'd)

	Mix-work household		*All-work household*	
	Relative risk ratio	*z-statistic*	*Relative risk ratio*	*z-statistic*
New South Wales	0.670	-0.640	0.709	-0.790
Victoria	0.746	-0.470	0.754	-0.640
Queensland	0.628	-0.730	0.559	-1.300
South Australia	0.337	-1.620	0.412	-1.820
Western Australia	0.792	-0.360	0.669	-0.850
Tasmania	0.307	-1.640	0.338	-1.880
Northern Territory	0.535	-0.520	0.639	-0.390
Not living with both parents at age 14	0.842	-1.160	0.744	-2.210
Father not employed at age 14	0.728	-0.970	0.411	-2.930
Father unemployed for > 6 mths	0.794	-1.270	0.699	-2.090
Mother not employed at age 14	1.151	1.160	0.959	-0.360
Index of relative socio-economic disadvantage (deciles)				
Decile 1	0.250	-3.690	0.213	-4.680
Decile 2	0.424	-2.240	0.453	-2.230
Decile 3	0.330	-3.320	0.444	-2.690
Decile 4	0.338	-3.380	0.288	-4.130
Decile 5	0.263	-4.070	0.363	-3.470
Decile 6	0.549	-1.720	0.463	-2.350
Decile 7	0.420	-2.480	0.491	-2.230
Decile 8	0.569	-1.790	0.539	-2.110
Decile 9	0.583	-1.600	0.580	-1.850
Wald chi-sq =	1641.39			
Prob>chi-sq =	0.000			
Pseudo R^2 =	0.220			
Log likelihood =	-3532.902			
n	5055			

Table 9b: Multinomial logit estimates of the determinants of household employment status, females (base category = jobless household)

	Mix-work household		*All-work household*	
	Relative risk ratio	*z-statistic*	*Relative risk ratio*	*z-statistic*
Age/10	2.936	2.960	15.600	8.430
$(Age/10)^2$	0.829	-4.240	0.662	-10.310
Married	2.829	3.710	1.785	2.440
De facto	2.199	2.720	1.304	1.040
Separated	0.903	-0.360	1.673	2.250
Divorced	1.273	0.840	2.988	4.760
Widowed	2.190	2.010	3.349	3.680
Retired household member	0.619	-1.820	0.470	-3.270
Full-time student (15-64) in household	0.915	-0.520	1.074	0.460
Presence of children	1.404	1.540	0.805	-1.080
Number of children	0.781	-2.820	0.613	-5.900
Number of working-age adults	7.077	10.700	2.808	6.040
Lone parent	1.072	0.310	0.425	-4.710
Born O/S – English speaking	1.176	0.370	0.881	-0.320
Born O/S – Non English speaking	0.669	-1.470	0.275	-4.760
English-speaking immigrant * years in Australia	0.987	-0.900	1.001	0.100
Non-English-speaking immigrant*years in Australia	1.004	0.460	1.022	2.410
Aboriginal or Torres Strait Islander	0.347	-3.180	0.398	-3.480
English speaking ability poor	0.674	-1.300	0.407	-2.190
Severe illness or disability	0.376	-1.940	0.022	-4.360
Moderate illness or disability	0.721	-2.330	0.214	-10.560
Minor illness or disability	1.323	0.910	1.166	0.550
Postgraduate qual.	2.622	2.120	20.250	6.490
Undergraduate qual.	2.986	2.950	13.330	6.540
Certificate	1.557	1.110	5.953	4.200
Completed Year 12	2.138	2.020	6.308	4.780
Completed Year 10/11	1.909	1.910	4.934	4.330
Secondary school -- < Year 10	1.398	0.980	2.170	2.040
Inner regional	0.845	-1.120	0.955	-0.350
Outer regional	0.613	-2.320	0.824	-0.950
Remote	4.647	2.290	4.609	1.920

Table 9b (cont'd)

	Mix-work household		*All-work household*	
	Relative risk ratio	*z-statistic*	*Relative risk ratio*	*z-statistic*
New South Wales	0.897	-0.210	0.839	-0.430
Victoria	0.902	-0.200	0.816	-0.500
Queensland	0.802	-0.430	0.597	-1.240
South Australia	0.671	-0.750	0.709	-0.760
Western Australia	1.152	0.270	0.927	-0.170
Tasmania	0.623	-0.730	0.706	-0.650
Northern Territory	3.839	0.970	3.704	1.020
Not living with both parents at age 14	0.825	-1.430	0.712	-2.890
Father not employed at age 14	1.452	1.360	1.128	0.430
Father unemployed for > 6 mths	0.935	-0.410	0.754	-1.900
Mother not employed at age 14	0.826	-1.720	0.655	-4.210
Index of relative socio-economic disadvantage (deciles)				
Decile 1	0.343	-3.430	0.257	-4.720
Decile 2	0.432	-2.890	0.406	-3.270
Decile 3	0.494	-2.510	0.498	-2.490
Decile 4	0.432	-3.070	0.315	-4.540
Decile 5	0.328	-3.810	0.375	-3.770
Decile 6	0.550	-2.000	0.440	-2.930
Decile 7	0.799	-0.800	0.806	-0.790
Decile 8	0.619	-1.800	0.520	-2.690
Decile 9	0.553	-2.040	0.530	-2.520
Wald chi-sq =	1933.24			
Prob>chi-sq =	0.000			
Pseudo R^2 =	0.252			
Log likelihood =	-3850.734			
n	5486			

so affected. This result is entirely expected, and reflects traditional gender-based relationships within households based around a male breadwinner model. The behaviour of males was, however, affected by the presence of full-time students, with as hypothesized, the effect being away from joblessness towards all-work households.

Perhaps more surprising, the number of children appears to be associated very clearly with a greater risk of joblessness. Once the presence of children is controlled for, which only appears to make men more likely to be in a mix-work household, it appears that the risk of living in a jobless household rises in proportion with the number of children. Furthermore, this result is common to both men and women. Earlier, when examining the cross-tabulated data, it was found that this effect of children was only pronounced in very large families. While not reported in Tables 9a and 9b, we tested for this effect by re-specifying the number of children as a quadratic. These results confirmed the earlier finding, with the probability of living in a mix-work or all-work household relative to a jobless household declining in larger families. It cannot, however, be assumed from these findings that the causality necessarily runs from children to joblessness. Indeed, while this hypothesis makes obvious sense for lone-parent families (and note that a separate control is included for lone parents), it runs counter to how couples in 'traditional' families are usually assumed to behave. We would usually assume that additional children increase the incentive for one of the parents to remain in employment and, if possible, increase earned income. There may also be causality running in the other direction, with joblessness increasing the incentive to have children. Possible explanations include income support arrangements that provide greater assistance to families with large families and the reduced opportunity cost of time. However what is more likely is that there is some unobserved factor driving the result for large families.

Turning now to country of birth, in line with previous research on employment and unemployment probabilities, individuals born in non-English-speaking countries are found to be at much greater risk of being in a jobless household than either the Australian born or respondents born in the main English-speaking countries. Men born in non-English-speaking countries, for example are, ceteris paribus, nearly twice as likely to be in a jobless household relative to a mix-work household as the Australian born, and over four times more likely to be in a jobless household relative to an all-work household. Interestingly (and worryingly), as time spent in Australia increases, the risk of household joblessness falls only marginally. That said, it needs to be acknowledged that retrospective cross-sections are not able to appropriately disentangle aging effects from cohort effects. The disadvantage associated with being from a non-English-speaking background is also exacerbated if English language speaking ability is poor, though the estimated standard errors on these coefficients are generally quite large.

Like non-English-speaking background immigrants, research has invariably found that employment probabilities are very low among our indigenous population, even when other contributing factors such as low levels of education are taken into account. The findings reported in Table 9 provide further confirmation for such conclusions. Aboriginal males, for example, have a relative risk of living in a mix-work household that is 0.67 that of non-Aboriginal males, and a relative risk of living in an all-work household that is 0.37 that of non-Aboriginal males.

Not surprisingly, a long-term health condition or disability also increases the risk of household joblessness, with the risk increasing with the severity of the illness or disability. Indeed, minor illnesses appear to be no hindrance to a household's employment situation. The effects of illness or disability also appear to be somewhat larger for males than females, though such differences are not statistically significant.

In line with all of the literature on the determinants of employment status of individuals, education exhibits the expected pattern in determining household joblessness. Females who have attended secondary school but did not complete even Year 10, for example, are estimated to have a probability of living in an all-work household as against a jobless household that is only 0.16 that of a female with a university degree (2.170/13.330). Even their probability of living in a mixed-work household relative to a jobless household is relatively lower – 0.47 (1.398/2.986). For males the magnitude of these effects are similar, though there is considerable imprecision in the estimates, such that the differences across most of the pairs of education parameters are insignificant. Nevertheless, a joint test for the significance of the education variables confirms the importance of the education variables.

As hypothesized, the family employment history variables, while crude, also exerted significant impacts. For males, for example, the probability of living in an all-work household as compared with a jobless household is markedly lower if the father was not employed at age 14 or if the father had been unemployed for 6 months or more when the respondent was growing up. For females, on the other hand, it was the employment experience of the mother that was more relevant, though again a father who experienced extensive unemployment also appears to be associated with a greater risk of future joblessness for the daughter. Note also that for both men and women, family stability, as reflected in living with both parents also makes a difference. The probability of living in a jobless household relative to an all-work household is at least 33 per cent greater for respondents coming from a family home characterised by non-traditional parent child structures.

Turning to the effect of where people live, once other factors are held constant, inter-State differences in the propensity to live in a jobless household appear to be relatively modest. Nevertheless, a test of the joint significance of these terms leads us to reject the null hypothesis of no relationship. There is also a noticeable tendency for persons residing in an outer regional area, and especially females, to be at a greater risk of household joblessness. The reverse, however, is true of persons residing in remote areas, presumably because a jobless household in a remote area would in most instances leave the area.

Even more striking evidence of the importance of where people live is provided by the estimated coefficients on variables proxying the effect of socio-economic status. Specifically, the results show a significant negative relationship between the risk of being in a jobless household and each of the ABS SEIFA indices by decile. Thus individuals living in lower socio-economic status areas (with higher levels of unemployment, a large proportion of the population on low incomes, lower levels of resources and lower levels of education and training) are more likely to be in a household with no adult in paid employment than those in higher socio-economic status areas. This is in line with the other studies examining the effect of neighbourhood characteristics on things such as family income, educational attainment and other employment related characteristics (e.g., Jensen and Seltzer, 2000; Jensen, 2002). Note again that these results tell us nothing about causality. That is, we cannot determine to what extent joblessness is a factor that causes households to choose to live in lower socio-economic status (e.g., because of lower housing costs) or the extent to which residence in a lower socio-economic area raises the risk of household joblessness.

There are numerous possibilities for extending the analysis. For example, we tested for the impact of occupation differences. Given the large number of additional parameters estimated, these results are presented separately, in Appendix Table A2. The first point to note is that the inclusion of occupation dummy terms has quite a powerful effect in raising the overall explanatory power of our equations. Second, the inclusion of these terms does not, for the most part, have much effect on the underlying relationships with the other covariates. Even the education terms, which are quite strongly correlated with occupation, are not greatly affected, though the size and significance of many of the parameters on the individual education variables do decline.

A second possible extension might be to allow for more flexible functional forms, and permit different groups to display different patterns in relation to their probabilities of joblessness. The results reported in Tables 9a and 9b only allow for differences in parameter estimates between men and women. For example, there might be good reason to expect different responses

between sole parent and couple families. Small sample sizes, however, do constrain the extent to which we can disaggregate the data. For example, there are only just over 500 lone parents with children under the age of 15 years in the HILDA Survey wave 1 sample. There is, however, still sufficient sample to consider differences between lone parents and coupled parents among females. Re-estimating separate models and comparing the log likelihood functions confirms that the pooling restriction is not valid. That is, joblessness probabilities do respond differently to different explanatory variables depending on whether you are a lone or coupled parent. Nevertheless, one of the variables where the parameter estimates do not differ is arguably the one of most importance – the number of children. For both groups, the likelihood of living in a jobless household rises with the number of children. The full set of results is presented in Appendix Table A3.

Overall, however, this multivariate analysis has revealed very little that was not obvious in the cross-tabulated data. Even when we hold constant the effect of other influences, the associations with age, marital status, children, country of birth, disability, and the socio-economic status of the neighbourhood are all confirmed. One additional insight that was provided concerned family employment history with male joblessness linked to the father's employment, and female joblessness much more closely linked to the mother's employment history. Finally, these multivariate results confirm the importance of occupation status.

6. The consequences of household joblessness

In this section we shift the focus away from the characteristics of jobless households towards the consequences of joblessness. In particular, we briefly consider relationships between joblessness and indicators of financial, physical and psychological well-being. It is, for example, generally expected that periods of joblessness will be associated with relatively poor financial circumstances, a problem which we would expect to be exacerbated when all members of a household are out of work. Similarly, there is a considerable literature concerned with the detrimental effects of unemployment and joblessness on mental health and other indicators of well-being, and again it might be presumed that such effects would be magnified where other household members are also out of work.

Psychological and physical well-being

Psychologists have long been interested in the effects of unemployment on mental health (see for instance Jahoda, 1979; Fryer and Payne, 1986; Fryer, 1992a, 1992b), and it is now well established that spells of unemployment actually cause, rather than merely result from, poor psychological health.[9] In recent Australia studies, Flatau, Galea and Petridis (2000) and Dockery (2003) find that the unemployed do experience worse mental health and well-being outcomes than those in full-time employment, the latter study using the HILDA dataset. Here we extend the analysis to examine aspects of the mental and physical well-being of individuals living in households where no working-age member is employed. Note that we can only examine the correlation between mental health and periods of joblessness and cannot make any claims as to whether the jobless spell itself causes deterioration in psychological well-being. We simply do not have the information to separate out these effects.

Also, there are two further differences between the present study and the other studies referred to. The first is that we do not restrict the analysis to comparisons between the unemployed and the employed. Since the focus here is on joblessness rather than the narrower concept of unemployment, we include all persons. We, however, recognise the possibility that well-being may differ with the reason for being out of work and so distinguish between the unemployed (i.e., those looking for work) and individuals who are jobless for other reasons. The second difference is that in this study the focus is not simply on whether well-being varies with the employment status of an individual, but whether such associations are affected by the presence

[9] See Mathers and Schofield (1998) and Headey (2002) for recent overviews of the literature on the relationship between unemployment and health.

of other individuals in the household who are jobless. A priori, the effects of other jobless household members are uncertain. Given financial stress tends to be a direct function of the number of persons in the household in work (see below), then we might expect individual well-being to be lower for jobless individuals who are members of jobless households. On the other hand, the adverse consequences associated with social isolation that often accompanies joblessness might be expected to be mitigated where the jobless experience is shared.

We make use of two sets of indicators. The first provide broad measures of satisfaction with life, which have been widely used to evaluate well-being (see Diener et al., 1999). More specifically, survey respondents were asked to indicate how satisfied they were with eight distinct aspects of their life using a scale ranging from 0 (totally dissatisfied) to 10 (totally satisfied). The eight life aspects or domains were: (i) the home in which people live; (ii) employment opportunities; (iii) financial situation; (iv) personal safety; (v) feeling part of the local community (vi) personal health; (vii) the neighbourhood in which people live; and (viii) amount of free time. Respondents were then asked to rate their overall satisfaction with their life using the same 11-point scale. The format of these questions is essentially identical to a similar set of questions that have been asked as part of the German Socio-Economic Panel since 1984. The wording of the individual items, however, is quite different, and owes much to the work of Cummins (1996).

Figures 6 through 13 graph the frequency of responses to each of the satisfaction questions for both persons in jobless households and all other respondents. Perhaps surprisingly, differences in the level of satisfaction between these two groups with respect to many of the life domains were not marked. Individuals in jobless households, for example, were no less satisfied with the home in which they live than other persons, and nor were there large differences with respect to satisfaction with feeling part of the local community or with the neighbourhood in which people live. Of course, where differences were very marked was with respect to employment opportunities. As we might expect, very few of the individuals in jobless households scored high on satisfaction with employment opportunities (see Figure 7). Indeed, only 30.1 per cent of the members of jobless households reported a score above the scale mid-point, compared with 62.2 per cent of all others. The absence of employment can also be expected to translate into greater financial difficulties and hence greater dissatisfaction with financial situation. Again, this is exactly what we find (see Figure 8). On the other hand, the members of jobless households were much more likely to report being totally satisfied with the amount of free time. Overall, these differences do translate into significantly lower levels of overall life satisfaction among members of jobless households, though arguably these differences are still not large. The mean overall life satisfaction among jobless household members is 7.5 compared to 7.9 for others.

Figure 7: Home in which you live

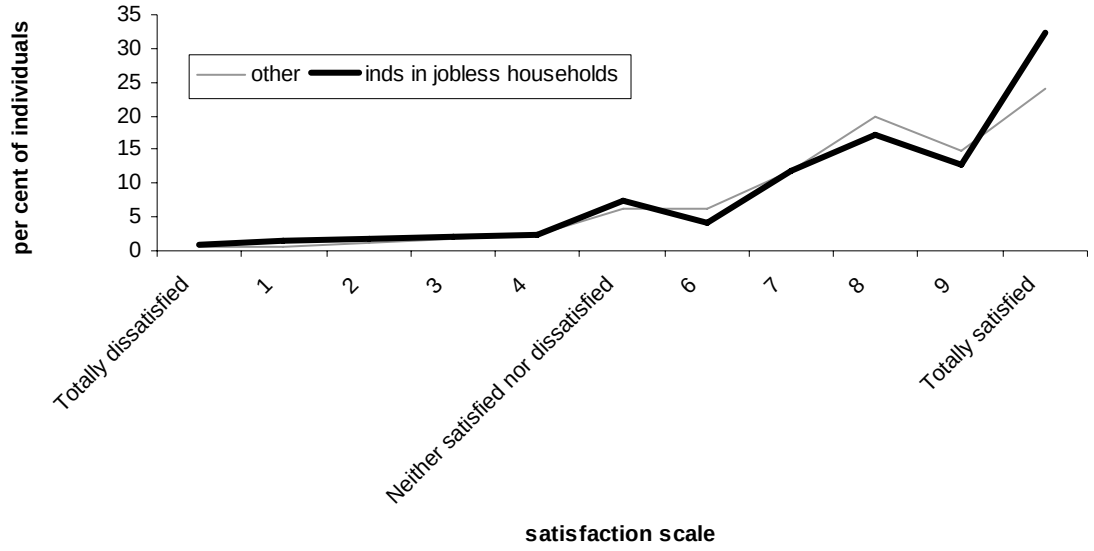


Figure 8: Employment opportunities

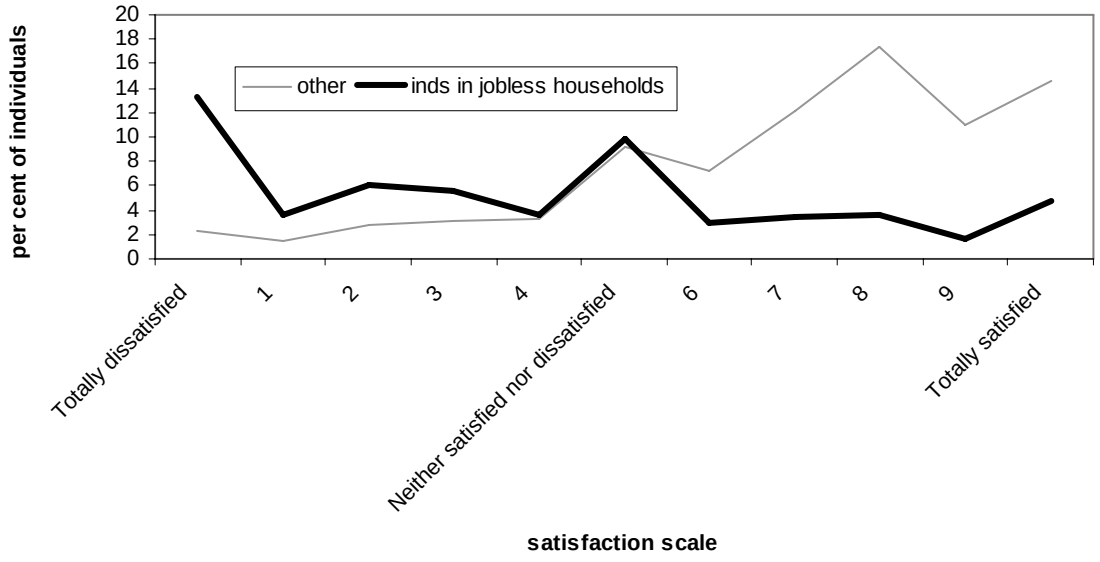


Figure 9: Financial situation

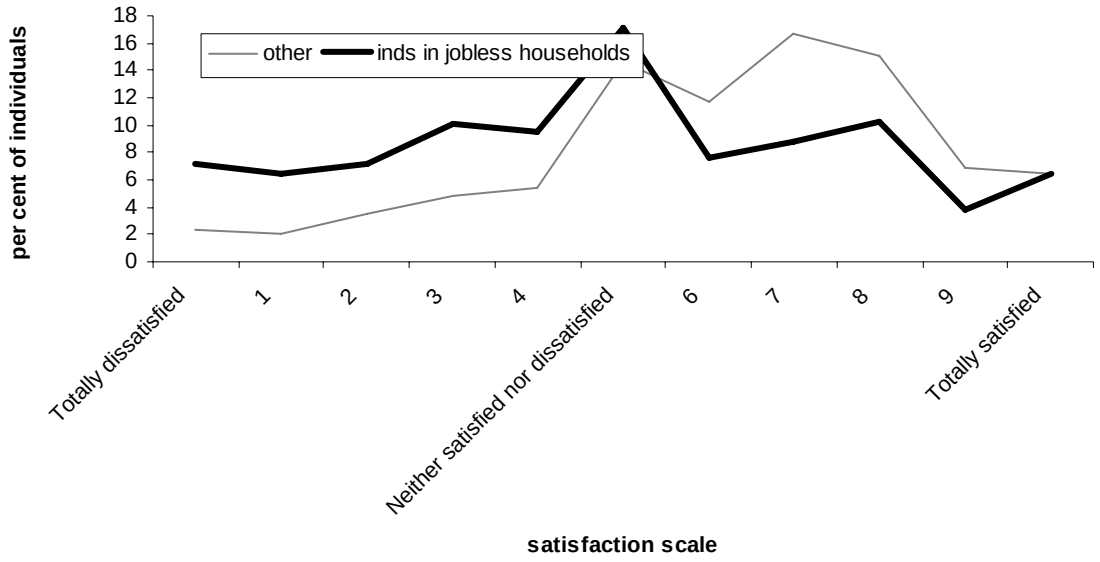


Figure 10: Feelings of safety

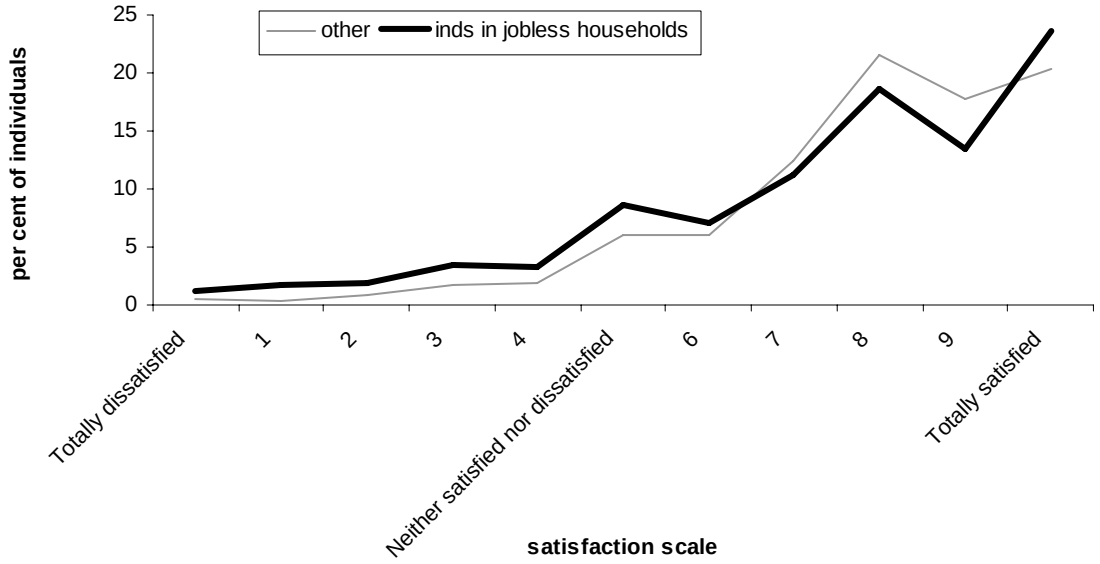


Figure 11: Feeling part of the local community

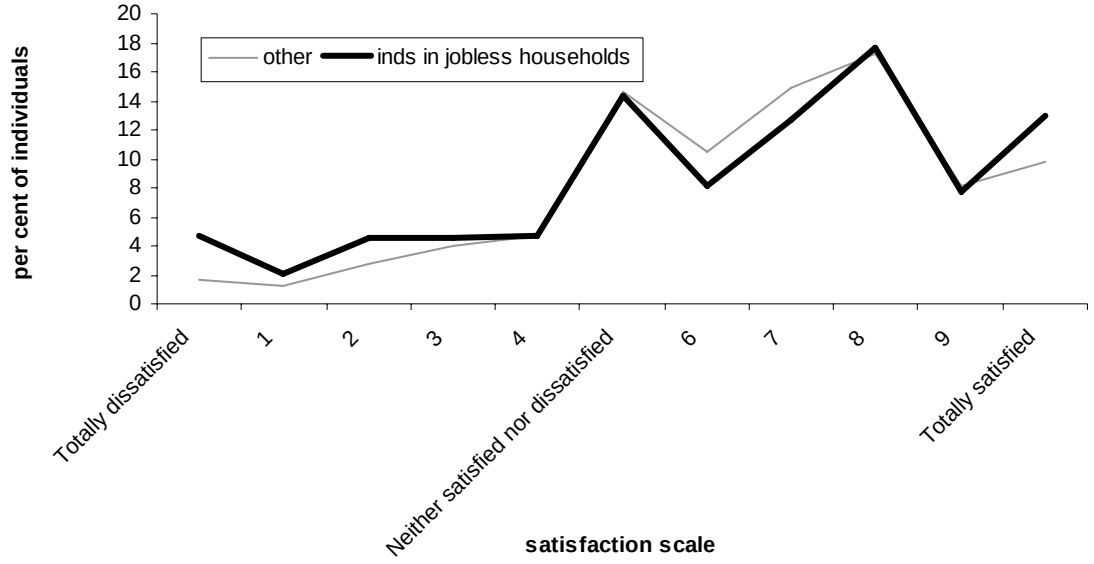


Figure 12: Neighbourhood in which you live

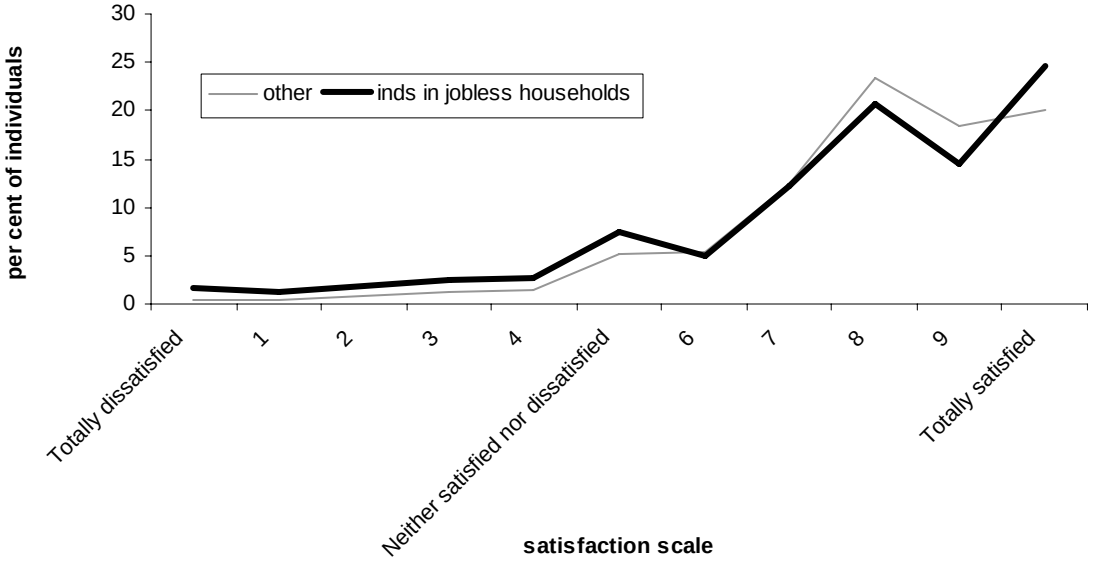


Figure 13: Amount of free time

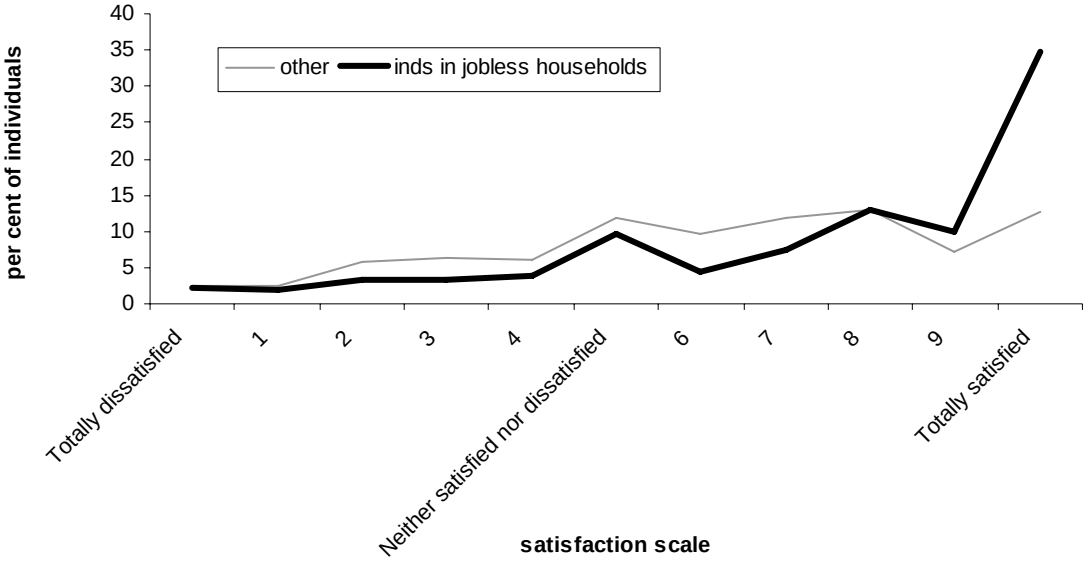
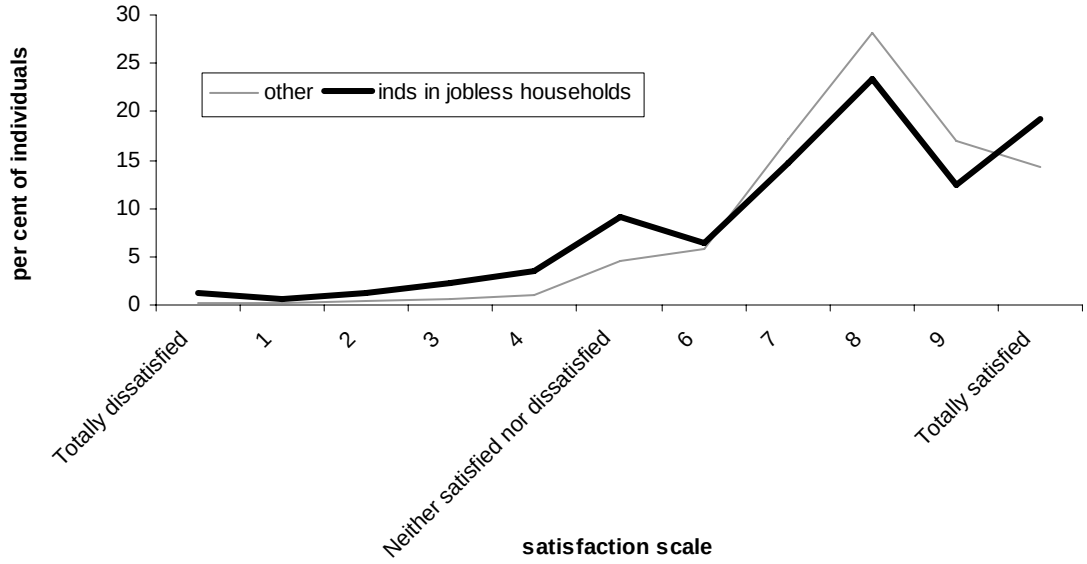


Figure 14: Overall life satisfaction



We saw in Section 3 that the characteristics of individuals living in jobless households are very different to the remainder of the population; they are typically females, often sole parents, either quite young or old, and have low levels of education. The combination of these characteristics may help explain the differences in life satisfaction observed in the above figures. We thus need to control for these influences. In addition, we are also interested in determining whether individuals in a jobless household experience lower levels of life satisfaction than the other jobless members of society. To do this we estimate linear regression models of life satisfaction for males and females. In the most part we follow the specification adopted by Shields and Wooden (2003), but include additional employment status variables that differentiate not only between different types of jobless (i.e., the unemployed, retired, individuals involved in home duties, etc.) but between those living in jobless households or not.

The least squares regression results are presented in Table 10 and are in line with those reported by Shields and Wooden.[10] Higher levels of life satisfaction are evident for people that are younger, in relationships, born in Australia, have lower levels of education (it seems that ignorance is bliss), have higher incomes and are employed. Females with children, whether a lone parent or otherwise, are less satisfied than other females. Individuals with an illness or disability also have much lower levels of life satisfaction.

Turning now to the variables of most interest for this analysis, consistent again with Shields and Wooden (2003), and with most previous research, the jobless generally report lower levels of life satisfaction than those in employment. Among men, however, the effect is only pronounced among the unemployed; that is, among the jobless actively seeking work. Satisfaction levels among other jobless males, irrespective of whether their joblessness is enforced or voluntary, are not much different from men in full-time jobs. Most importantly, there is little evidence here that a jobless male is likely to report significantly lower levels of life satisfaction if they live in a jobless household. While it is true that the size of the negative coefficient on the unemployment variable is larger for unemployed males in jobless households, the difference is a long way from achieving statistical significance.

For females, on the other hand, the employment status of other household members appears to matter more. In particular, women engaged in home duties where someone else is working (in most cases this will be their male partner) report significantly higher levels of life satisfaction than otherwise comparable women living in jobless households. Indeed, housewives with

[10] Some differences are evident in the coefficients. These, however, can be mostly explained by differences in the population of interest (i.e., in this analysis we only examine the non-student working-age population).

Table 10: Least squares regression estimates for life satisfaction by gender

	Males		*Females*	
	coefficients	*t-statistic*	*coefficients*	*t-statistic*
Constant	9.405	21.830	8.223	22.100
Age/10	-1.078	-6.310	-0.581	-3.540
$(Age/10)^2$	0.133	6.490	0.074	3.650
Married	0.590	6.900	0.425	5.380
De facto	0.389	4.140	0.162	1.940
Separated	-0.328	-1.610	-0.467	-3.190
Divorced	-0.204	-1.310	-0.086	-0.720
Widowed	0.508	1.420	0.188	1.000
Presence of children	-0.030	-0.350	-0.258	-2.790
Number of children	-0.027	-0.660	0.041	1.010
Number of working-age adults	0.072	2.150	0.060	1.940
Lone parent	-0.036	-0.260	-0.210	-2.070
Born O/S – English speaking	0.133	1.060	-0.051	-0.340
Born O/S – Non-English speaking	-0.194	-1.660	-0.158	-1.280
English-speaking immigrant * years in Australia	-0.002	-0.410	0.004	0.860
Non-English-speaking immigrant * years in Australia	0.002	0.510	0.000	0.020
Aboriginal or Torres Strait Islander	0.415	1.830	0.158	0.880
English speaking ability poor	-0.227	-0.920	-0.545	-2.220
Severe illness or disability	-0.950	-2.100	-1.459	-2.810
Moderate illness or disability	-0.795	-7.580	-0.896	-9.290
Minor illness or disability	-0.128	-1.200	-0.124	-0.990
Postgraduate qual.	-0.140	-0.650	-0.045	-0.200
Undergraduate qual.	-0.215	-1.030	-0.056	-0.250
Certificate	-0.178	-0.790	-0.059	-0.260
Completed Year 12	-0.126	-0.570	0.045	0.190
Completed Year 10/11	-0.047	-0.220	0.066	0.300
Secondary school – < Year 10	0.074	0.340	0.003	0.010
Inner regional	0.140	2.620	0.224	4.150
Outer regional	0.299	3.430	0.415	5.420
Remote	0.286	1.520	0.402	4.490
New South Wales	-0.064	-0.390	0.319	2.400
Victoria	-0.042	-0.260	0.325	2.430

Table 10 (cont'd)

	Males		*Females*	
	coefficients	*t-statistic*	*coefficients*	*t-statistic*
Queensland	-0.151	-0.900	0.240	1.750
South Australia	-0.004	-0.020	0.484	3.370
Western Australia	-0.165	-0.930	0.302	2.080
Tasmania	0.057	0.240	0.508	2.320
Northern Territory	-0.077	-0.290	-0.124	-0.540
Not living with both parents at age 14	-0.249	-3.760	-0.105	-1.820
Father not employed at age 14	-0.023	-0.140	0.025	0.190
Father unemployed for > 6 mths	-0.063	-0.750	-0.098	-1.330
Mother not employed at age 14	0.121	2.490	-0.083	-1.750
Employed – part time	-0.163	-1.770	0.108	2.040
Unemployed – in jobless household	-0.552	-3.270	-0.499	-2.250
Unemployed – other	-0.428	-2.920	-0.431	-1.850
Retired – in jobless household	-0.042	-0.280	0.184	1.380
Retired – other	-0.103	-0.490	0.179	0.890
Home duties – in jobless household	-0.026	-0.070	-0.027	-0.230
Home duties – other	0.241	1.020	0.276	3.840
Other jobless – in jobless household	-0.022	-0.120	-0.799	-2.530
Other jobless	-0.279	-1.310	-0.520	-2.050
Gross yearly household income/10000	0.018	3.310	0.027	4.600
Missing income	0.032	0.480	0.090	1.470
F- stat =	10.65		12.37	
Prob > F =	0.000		0.000	
R-squared =	0.101		0.126	
RMSE =	1.604		1.573	
n	5050		5478	

Note: Strictly speaking the R^2 term is invalid with robust estimation of standard errors but nevertheless still provides a general guide to overall explanatory power.

working partners emerge as more satisfied than any other group of women, including those in employment. Females in the 'other jobless' category, which mostly comprises persons who are not in the labour force because of illness, are also less satisfied if living in a jobless household. In contrast, males in the same situation are on average more satisfied if other household members are not working, and presumably spending their time caring for the male. T-tests performed on

differences in the coefficients on the various jobless groups in a jobless household with their counterparts in mix-work households, however, revealed that with exception of women involved in home duties, none of these apparent differences in life satisfaction levels are significant.

Also estimated were linear regression models for each of the eight elements of satisfaction. The results are similar to what we find for overall life satisfaction. While the jobless, and particularly the unemployed, tend to report lower levels of satisfaction across most elements of life (for instance with employment opportunities and financial circumstances, feeling like being part of a community and with their neighbourhood in general) than those employed full-time, in general the jobless in jobless households do not face very different levels of satisfaction to individuals in otherwise similar circumstances but who live in a household where other members are employed. There are however some exceptions to this. For instance males in the 'other jobless' group in a jobless household are significantly less satisfied with employment opportunities but more satisfied with their financial situation than those not in a jobless household. Also females involved in home duties in jobless households are significantly less satisfied with employment duties and financial situation than other females involved in home duties.

The second set of indicators examined relates more specifically to physical and mental health. As noted earlier, the HILDA Survey involved not just personal interviews, but also the administration of a self-completion questionnaire (SCQ). Included as part of the SCQ was the SF-36, a survey of generic health concepts that has been extensively tested and used around the world (including in Australia as part of the 1995 National Health Survey). Described in more detail by Ware et al. (2000), the SF-36 comprises 36 items that can then be used to construct multi-item scales measuring each of the following eight health concepts:

(i) physical functioning;
(ii) role limitations due to physical health problems;
(iii) bodily pain;
(iv) general health;
(v) vitality;
(vi) social functioning;
(vii) role limitations due to emotional problems; and
(viii) mental health.[11]

Raw scores on each of the scales are standardised so that the scale values range from 0 to 100.

[11] In addition, one item is used to provide information about changes in health status during the year prior to survey.

A comparison of the arithmetic means for each of these scales for individuals in jobless households, other jobless individuals and employed individuals are presented in Table 11. It is clear from this table that individuals living in jobless households experience lower level of physical and emotional well-being than other jobless individuals and the employed.

Table 11: Average physical and mental health scores

	Individuals in jobless households[1]	*Other jobless individuals*	*Employed individuals*
Physical functioning	61.6	71.0	81.3
Role-physical	54.0	63.9	79.7
Bodily pain	55.8	62.8	72.2
General health	50.9	57.9	67.0
Vitality	49.4[2]	51.2[2]	57.4
Social functioning	63.4	69.0	78.8
Role-emotional	60.1	68.0	79.2
Mental health	60.3	62.8	69.1
N	1,470,332	1,511,645	8,566,057

Notes: 1. Testing for difference in means shows that all means are statistically lower for the jobless household group than the other two groups at the 1% significance level. Likewise the means for other jobless individuals were significantly lower than for employed individuals.

2. The mean for individuals in jobless households is statistically smaller than other jobless individuals at the 10 per cent level.

Similar to the case for life satisfaction, it may be that observable characteristics of jobless households, such as a relatively higher incidence of illness and disability, make them more likely to experience lower levels of well-being. To control for this we again employ a regression estimation procedure similar to that used to determine life satisfaction. That is, we estimate a set of regressions looking at the determinants of each of the eight concepts of health. We control for the same sets of factors as for life satisfaction, which includes separating out the jobless in jobless households with other jobless members of society to see if being in a jobless household exacerbates any negative effects of being out of work on well-being. The results of the estimation are presented in Appendix Tables A4a to A4h.

The results are generally in line with what was found for life satisfaction. With regards to psychological well-being (vitality, social functioning, role-emotional and mental health), apart from a minority of cases, the jobless group as a whole generally have the lowest levels of emotional and mental well-being. It is, however, again apparent that for the most part, being in a

jobless household does not significantly exacerbate this relationship. That is, individuals in jobless households do not tend to display lower levels of well-being than other jobless individuals in a similar jobless state. So, for instance, an unemployed person in a jobless household does not suffer more than an unemployed person living with employed persons. The one exception to this is again females in jobless households involved in home duties, or in the 'other jobless' group. This group of women (largely with out of work husbands or performing as carers for sick/disabled family members) do generally have lower levels of well-being than other women at home with employed members of the family.

With regards to the more physical aspects of well-being (physical functioning, role-physical, bodily pain and general health), again individuals in jobless households tend not to suffer any more than other jobless individuals in similar jobless circumstances. Here, not surprisingly, the retired and the 'other jobless' groups tend to have the lowest levels of well-being with the other jobless groups generally exhibiting similar levels of well-being to the employed. The retired and the sick (in 'other jobless') women in jobless households had lower levels of general health than the other retired or sick women. Interestingly, the male unemployed in jobless households actually showed higher levels of general health than the unemployed in other households.

Again note that the direction of causality cannot be determined by these results. It is entirely plausible that lower levels of physical and mental wellbeing contribute to a greater risk of joblessness, rather than the reverse. Disentangling causality is very difficult, but at a minimum is an issue which is best addressed with panel data.

Financial well-being

The final issue examined in this paper concerns the financial aspects of joblessness. In particular, the analysis to follow will briefly examine the level of income of jobless households and the ways in which this contributes to financial stress. Particular, attention is paid to differences between households where members are active job seekers and those where they are not.

We begin by first reporting data on after-tax disposable income. The construction of this variable was complicated. As set out in Headey (2003), income from a number of government benefit payments (e.g., Family Tax Benefits and Child Care Benefits) had to be imputed on the basis of other information collected in the survey. More importantly, the tax burden for each household had to be derived. Further, because of the relatively large number of cases where the necessary information required to construct total household income is incomplete (29 per cent of all households), values for all missing cases have been imputed using a nearest neighbour regression procedure (see Watson and Wooden 2003). Finally, we divided household disposable income by

the square root of the household size, thus producing a measure of household income per 'equivalised' person.

As would be expected, jobless households have much lower incomes than other households. The median equivalised annual disposable income for a jobless household was just $10388, which is just 43 per cent that of a mixed-work household and only 34 per cent of an all-work household.

Table 12 provides details about the distribution of income of members of jobless households relative to median income for the entire population of working-age adults. Well over half of all members of jobless households have equivalised incomes that are less than half the population median, a threshold frequently used to define where the incidence of poverty falls. By comparison only 6.8 per cent of employed persons live in (relative) poverty. Perhaps of greater interest, the rate of relative poverty among unemployed persons is not much higher than among employed persons, provided that unemployed person lives in a household where someone else has a job. The clear message that emerges from this table is that joblessness is a major risk factor for living in poverty. Further, it is not individual joblessness that matters most but household joblessness.

As a measure of financial stress, current income is far from ideal. Alternative measures, however, are provided by responses to questions asked in the SCQ which attempted to identify whether households had experienced specific financially stressful experiences (such as not being able to pay bills on time) as a result of a shortage of money during the preceding year.[12] Responses to these questions, cross-classified by both individual labour force status and household employment status, are presented in Table 13. Again as expected, individuals in jobless households are more likely to report experiencing financial difficulties. However, we now see that the employment status of the individual appears to matter a lot. Unemployed persons in jobless households are far more likely to experience difficulties than other persons in jobless households. Nevertheless, it remains true that household joblessness appears to be a major risk factor for experiencing financial difficulties. With the exception of mortgage and rent payments, the unemployed in jobless households are more likely than the unemployed in other households to report financial difficulties. Similarly, among persons without employment and not seeking employment, the incidence of stressful financial events, while far less common than for job seekers, are generally more widespread among those living in jobless households.

[12] The time frame was actually the period since January 2001, meaning that in most cases the reference period was less than one year.

Table 12: Distribution of Disposable Equivalised Household Income by Individual and Household Employment Status (%): Working-age Adults (excluding full-time students)

Labour force status by household employment status	*<50% of median*	*50-75% of median*	*75-100% of median*	*>median*	*(% of population)*
Unemployed in jobless household	56.2	18.2	11.9	11.7	(2.3)
Unemployed in other household	9.4	19.9	24.5	46.1	(2.7)
Not in labour force in jobless household	62.6	19.5	9.4	8.6	(10.2)
Not in labour force in other household	11.4	21.2	22.5	44.9	(11.5)
Employed	6.8	11.3	16.7	65.3	(73.3)

Table 13: Incidence of Stressful Financial Events because of a Shortage of Money by Individual and Household Employment Status (%): Working-age Adults (excluding full-time students)

	Jobless households		*Other households*		
	Unemployed	*Not in LF*	*Unemployed*	*Not in LF*	*Employed*
Could not pay utilities bills on time	47.1	29.0	30.7	22.8	18.7
Could not pay mortgage / rent on time	21.7	12.4	18.8	10.5	9.2
Pawned or sold something	29.1	14.0	15.9	7.1	5.4
Went without meals	29.2	10.3	11.4	4.1	3.6
Unable to heat home	17.5	9.7	8.6	3.1	2.5
Asked for financial help from friends / family	43.9	24.8	35.8	18.5	15.9
Asked for help from welfare / community group	29.7	13.8	13.0	6.2	3.5

7. Concluding comments

Few would challenge the claim that at the start of the 21st century, paid work in Australia, as in all other Western nations, is fundamental in defining social inclusion and exclusion. Indeed, some have gone so far as to argue that paid work is now 'the core value and mode of integration in modern societies' (Beck 2000: 11). It thus follows that maintaining links with the labour market are more important today than ever before. Unemployment, of course, has long been high on political agendas, but until recently, much of the debate has conceptualised unemployment from the perspective of individuals. While the potential impact of unemployment on families and communities has long been recognised, researchers and policy-makers have, until quite recently, generally not conceived of employment status as a household- or family-level concept. This all changed with the release of the Report of the Reference Group on Welfare Reform (2000), which recommended that reductions in the incidence of jobless households should be one of the three major goals of Australia's social support system.

But what do we actually know about jobless households? This paper made use of recent survey data in an attempt to improve our knowledge of the jobless household problem. Specifically, it set out to quantify the extent of household joblessness, identify key risk factors associated with it, and ascertain the extent to which joblessness is associated with lower levels of wellbeing and financial stress.

The analysis found that household joblessness is pervasive, and in 2001 was characteristic of almost 17 per cent of all Australian households. Moreover, almost 13 per cent of all adults and almost 15 per cent of all children lived in these jobless households. Comparisons with earlier ABS data suggest that the upward trend in household joblessness observed in the 1980s and early 1990s may have reversed in the latter half of the 1990s. Unfortunately, the confidence we attach to this very positive conclusion is relatively low given the differences between the HILDA data set used here and the ABS data sources. Also, this trend was not true of the jobless household rate for households with children, which remains high.

The evidence presented showed that the large majority of jobless households had been in that state for a relatively long time (over one year) and that around half of the observed members of jobless households were either actively seeking work or would prefer to be in work even though they were not engaged in active job search.

Household joblessness was found to be most likely for:

- women;
- older age groups;
- the less educated, with those not completing secondary studies particularly at risk;
- sole parents;
- households with relatively large numbers of children;
- immigrants from a non-English-speaking background;
- persons with a moderate to severe disability or long-term health condition;
- those with a long history of unemployment or joblessness in general; and
- members of households living in areas of socio-economic disadvantage.

A strong association between household joblessness and occupational status was also shown with persons at the lower end of the spectrum of occupational status being much more likely to be living in jobless households.

Consistent with previous research, it was also found that lower levels of emotional well-being and increased feelings of dissatisfaction with various aspects of life and community are prevalent among jobless individuals in general, with the unemployed generally the most dissatisfied. Somewhat unexpectedly, however, living with other jobless family members did not appear to significantly exacerbate these feelings. That is, individuals in jobless households do not generally exhibit lower levels of life satisfaction and emotional and physical well-being than other jobless individuals. An exception to this finding is women living in jobless households involved in either home production or who either had an illness or disability or cared for an elderly or disabled relative. These women fairly consistently exhibited lower levels of satisfaction and emotional well-being than women in otherwise similar circumstances but who lived with at least one employed person.

One of the obvious consequences of household joblessness is low income levels. It was found that poverty and financial stress are much more a function of household joblessness than of individual joblessness. About 60 per cent of all working-age adults in jobless households live in households that we can think of as being poor in a relative sense. In contrast, for jobless individuals who live in households where someone else is in employment the comparable proportion is around 10 to 11 per cent.

Overall, the finding that living with other jobless household member does not appear to be associated with further declines in emotional and physical well-being, even though financially this group suffers the most, is a very interesting one. This perhaps suggests that policy should

continue to target joblessness in general, rather than jobless households in particular. That said, it needs to be recognised that there may be longer-run consequences for children who grow up in jobless households. The data used in this report could not be used to directly test this hypothesis, though evidence was uncovered which was suggestive of intergenerational transmission of employment status. Further research on the impact of household joblessness for children is clearly needed, especially given the relatively large numbers of dependent children who currently live in jobless households.

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Appendix Tables

Table A1: Variable Definitions and Sample Summary Statistics

Variable	*Definition*	*Mean*	*S.D.*
Female	Equals 1 if female and 0 if male.	0.507	0.500
Age/10	Age (years) at last birthday, divided by 10.	4.016	1.242
$(Age/10)^2$	The squared transformation of Age/10.	17.670	10.154
Married	Equals 1 if legally married, and 0 if otherwise.	0.583	0.493
De facto	Equals 1 if living with someone in a relationship but not legally married, and 0 if otherwise.	0.118	0.323
Separated	Equals 1 if separated from a marriage and not living with someone in a relationship, and 0 if otherwise.	0.036	0.187
Divorced	Equals 1 if divorced and not living with someone in a relationship, and 0 if otherwise.	0.057	0.232
Widowed	Equals 1 if widowed and not living with someone in a relationship, and 0 if otherwise.	0.013	0.114
Never married	Equals 1 if never legally married and not living with someone in a relationship, and 0 if otherwise.	0.192	0.394
Retired household member	Equals 1 if household includes a member of retired age, and 0 if otherwise.	0.047	0.211
Full-time student (15-64) in household	Equals 1 if household includes any full-time students aged 15 to 64 years, and 0 if otherwise.	0.153	0.360
Presence of children	Equals 1 if any dependent children aged under 15 years present in household, and 0 otherwise.	0.409	0.492
Number of children	Number of dependent children aged under 15 years in household.	0.778	1.096
Number of working age adults	Number of adults not studying full-time aged 15 to 64 years in household.	2.133	0.858
Lone parent	Equals 1 if in a lone parent household, and 0 otherwise. A lone parent family consists of a parent and a child, though the child cannot have a child or partner of their own. Dependent children are defined as all children under the age of 15 years, and all full-time students aged 15 to 24 years resident in the home.	0.092	0.288
Australia-born	Equals 1 if born in Australia, and 0 if otherwise.	0.749	0.434
Born O/S -- English speaking	Equals 1 if born overseas in the UK, Ireland, New Zealand, Canada, the USA or South Africa, and 0 if otherwise.	0.109	0.312
Born O/S – Non-English speaking	Equals 1 if born overseas a country other than the main English-speaking countries, and 0 if otherwise.	0.142	0.349
English speaking immigrant * years in Australia	Born O/S -- English speaking x number of years since came to live in Australia.	2.421	8.487
Non-English speaking immigrant * years in Australia	Born O/S – Non-English speaking x number of years since came to live in Australia.	2.717	8.721
Aboriginal or Torres Strait Islander	Equals 1 if of Aboriginal or Torres Strait Islander origin, and 0 if otherwise.	0.018	0.132
English speaking ability poor	Equals 1 if English ability as self assessed is poor to not being able to speak English at all, and 0 otherwise.	0.022	0.148
Severe illness or disability	Equals 1 if has long-term health condition or disability that prevents work, and 0 if otherwise.	0.004	0.067
Moderate illness or disability	Equals 1 if has long-term health condition or disability that partially limits type or amount of work, and 0 if otherwise.	0.097	0.296

Appendix Table A (cont'd)

Variable	*Definition*	*Mean*	*S.D.*
Minor illness or disability	Equals 1 if has long-term health condition or disability that does not limit type or amount of work, and 0 if otherwise.	0.031	0.175
Postgraduate qual.	Equals 1 if has a post-graduate qualification, and 0 if otherwise.	0.067	0.250
Undergraduate qual.	Equals 1 if has a bachelor degree or undergraduate diploma, and 0 if otherwise.	0.172	0.377
Certificate	Equals 1 if has a certificate level qualification, and 0 if otherwise.	0.076	0.265
Completed Year 12	Equals 1 if completed Year 12 but does not have post-school qualifications, and 0 if otherwise.	0.104	0.305
Completed Year 10/11	Equals 1 if only completed Year 10 or 11, and 0 if otherwise.	0.429	0.495
Secondary school -- < Year 10	Equals 1 if left secondary school without completing Year 10, and 0 if otherwise.	0.132	0.338
Primary school / No formal education	Equals 1 if has no formal education or only attended primary school, and 0 if otherwise.	0.020	0.141
Major city	Equals 1 if lives in a major city, as defined by ARIA, and 0 if otherwise.	0.597	0.490
Inner regional	Equals 1 if lives in inner regional Australia, as defined by ARIA, and 0 if otherwise.	0.270	0.444
Outer regional	Equals 1 if lives in outer regional Australia, as defined by ARIA, and 0 if otherwise.	0.116	0.320
Remote	Equals 1 if lives in a remote part of Australia, as defined by ARIA, and 0 if otherwise.	0.017	0.130
New South Wales	Equals 1 if lives in NSW, and 0 if otherwise.	0.314	0.464
Victoria	Equals 1 if lives in Victoria, and 0 if otherwise.	0.252	0.434
Queensland	Equals 1 if lives in Queensland, and 0 if otherwise.	0.197	0.398
South Australia	Equals 1 if lives in South Australia, and 0 if otherwise.	0.087	0.281
Western Australia	Equals 1 if lives in WA, and 0 if otherwise.	0.100	0.300
Tasmania	Equals 1 if lives in Tasmania, and 0 if otherwise.	0.027	0.163
Northern Territory	Equals 1 if lives in the Northern Territory, and 0 if otherwise.	0.006	0.076
ACT	Equals 1 if lives in the ACT, and 0 if otherwise.	0.017	0.131
Not living with both parents at age 14	Equals 1 if did not live with both 'own' parents at age 14 years, and 0 if otherwise.	0.258	0.438
Father not employed at age 14	Equals 1 if father not employed when respondent aged 14 years, and 0 if otherwise.	0.027	0.163
Father unemployed for > 6 mths	Equals 1 if father unemployed for 6 months when respondent was growing up, and 0 if otherwise.	0.093	0.290
Mother not employed at age 14	Equals 1 if mother not employed when respondent aged 14 years, and 0 if otherwise.	0.435	0.496
Relative socio-economic disadvantage	ABS SEIFA Index of relative socio-economic disadvantage sorted and ranked by decile resulting in a 10-point scale. Relatively disadvantaged areas have low scores. Indicator variables included equaling 1 if in particular decile, and 0 otherwise.	5.704	2.830

Table A2a: Multinomial logit estimates of the determinants of household employment status including occupation, males (base category = jobless household)

	Mix-work household		*All-work household*	
	Relative risk ratio	*z-statistic*	*Relative risk ratio*	*z-statistic*
Age/10	3.757	3.300	12.220	6.730
$(Age/10)^2$	0.801	-4.770	0.684	-8.750
Married	2.848	3.820	2.141	3.030
De facto	2.162	2.640	1.450	1.380
Separated	0.722	-0.790	1.212	0.620
Divorced	0.906	-0.290	1.440	1.310
Widowed	0.716	-0.280	1.320	0.450
Retired household member	1.044	0.130	0.987	-0.050
Full-time student (15-64) in household	1.340	1.390	1.717	2.630
Presence of children	1.778	1.950	0.993	-0.020
Number of children	0.784	-2.140	0.653	-3.770
Number of working-age adults	4.916	9.360	1.861	3.860
Lone parent	0.957	-0.160	0.491	-2.820
Born O/S -- English speaking	0.793	-0.550	0.670	-1.000
Born O/S – Non-English speaking	0.584	-1.540	0.294	-3.730
English-speaking immigrant * years in Australia	1.005	0.410	1.011	0.840
Non-English-speaking immigrant * years in Australia	1.003	0.300	1.017	1.630
Aboriginal or Torres Strait Islander	0.666	-0.970	0.394	-2.750
English speaking ability poor	0.676	-0.860	0.507	-1.280
Severe illness or disability	0.148	-2.560	0.050	-3.960
Moderate illness or disability	0.298	-7.790	0.129	-14.570
Minor illness or disability	0.975	-0.080	0.811	-0.730
Postgraduate qual.	2.652	1.690	4.153	2.550
Undergraduate qual.	1.426	0.800	2.179	1.870
Certificate	1.477	0.850	2.170	1.690
Completed Year 12	1.215	0.450	1.703	1.290
Completed Year 10/11	1.350	0.780	1.364	0.810
Secondary school -- < Year 10	0.920	-0.220	0.716	-0.880
Inner regional	0.966	-0.190	1.116	0.670
Outer regional	0.672	-1.570	0.890	-0.500
Remote	1.729	1.050	2.001	1.110

Table A2a (cont'd)

	Mix-work household		*All-work household*	
	Relative risk ratio	*z-statistic*	*Relative risk ratio*	*z-statistic*
New South Wales	0.767	-0.420	0.844	-0.420
Victoria	0.853	-0.250	0.876	-0.320
Queensland	0.761	-0.420	0.712	-0.810
South Australia	0.375	-1.450	0.477	-1.630
Western Australia	0.902	-0.160	0.769	-0.600
Tasmania	0.377	-1.340	0.443	-1.420
Northern Territory	0.601	-0.410	0.805	-0.190
Not living with both parents at age 14	0.833	-1.230	0.733	-2.270
Father not employed at age 14	0.724	-0.970	0.418	-2.780
Father unemployed for > 6 mths	0.781	-1.310	0.706	-1.950
Mother not employed at age 14	1.173	1.250	0.969	-0.270
Index of relative socio-economic disadvantage (deciles)				
Decile 1	0.249	-3.610	0.216	-4.470
Decile 2	0.387	-2.480	0.394	-2.620
Decile 3	0.323	-3.300	0.423	-2.800
Decile 4	0.291	-3.780	0.247	-4.520
Decile 5	0.245	-4.210	0.333	-3.740
Decile 6	0.508	-1.920	0.413	-2.710
Decile 7	0.393	-2.610	0.456	-2.390
Decile 8	0.516	-2.040	0.486	-2.420
Decile 9	0.535	-1.800	0.527	-2.060
Occupation dummies (reference generalist managers)				
Never worked	0.062	-4.110	0.000	-73.760
Specialist managers	0.935	-0.120	0.804	-0.400
Farmers and farm managers	2.842	1.300	7.312	2.490
Science, building, engineering profs	1.779	0.820	1.448	0.530
Business and information profs	0.960	-0.070	0.845	-0.320
Health professionals	0.331	-1.370	0.697	-0.520
Education professionals	0.363	-1.580	0.494	-1.260
Social, arts and miscellaneous profs	1.794	0.960	1.434	0.610
Science, engineering etc assoc profs	1.576	0.640	1.450	0.590
Business and admin associate profs	0.492	-1.230	0.400	-1.670

Table A2a (cont'd)

	Mix-work household		*All-work household*	
	Relative risk ratio	*z-statistic*	*Relative risk ratio*	*z-statistic*
Managing supervisors (sales and service	0.622	-0.880	0.735	-0.600
Health and welfare associate profession	0.761	-0.260	0.350	-1.000
Other associate professionals	0.580	-0.750	0.530	-0.910
Mechanical and fabrication engineering	0.688	-0.690	0.523	-1.280
Automotive tradespersons	0.425	-1.490	0.333	-2.060
Electrical and electronics tradesperson	1.071	0.110	1.286	0.440
Construction tradespersons	0.793	-0.410	0.886	-0.220
Food tradespersons	0.392	-1.410	0.348	-1.750
Skilled agricultural and horticultural	0.814	-0.290	0.724	-0.490
Other tradespersons and related wrkrs	1.043	0.070	0.867	-0.260
Other adv clerical and service workers	1.872	0.660	2.014	0.800
Intermediate clerical workers	0.742	-0.530	0.983	-0.030
Intermediate sales and related workers	2.120	1.060	2.343	1.230
Intermediate service workers	0.490	-1.220	0.525	-1.220
Intermediate plant operators	0.614	-0.910	0.474	-1.410
Intermediate machine operators	1.005	0.010	0.530	-1.010
Road and rail transport drivers	0.624	-0.890	0.538	-1.220
Other intermed production and trans	0.580	-1.010	0.487	-1.440
Elementary clerks	0.394	-1.240	0.622	-0.710
Elementary sales workers	0.395	-1.540	0.434	-1.490
Elementary service workers	2.097	0.930	1.186	0.220
Cleaners	0.860	-0.250	0.711	-0.610
Factory labourers	0.507	-1.240	0.262	-2.490
Other labourers and related workers	0.652	-0.830	0.433	-1.690
Missing occupation	0.187	-2.000	0.234	-1.950
Wald chi-sq =	58783.73			
Prob>chi-sq =	0.000			
Pseudo R^2 =	0.245			
Log likelihood =	-3423.598			
N	5,055			

Table A2b: Multinomial logit estimates of the determinants of household employment status including occupation, females (base category = jobless household)

	Mix-work household		*All-work household*	
	Relative risk ratio	*z-statistic*	*Relative risk ratio*	*z-statistic*
Age/10	2.408	2.360	10.280	7.110
$(Age/10)^2$	0.842	-3.790	0.686	-9.400
Married	2.567	3.200	1.603	1.900
De facto	1.956	2.170	1.210	0.710
Separated	0.886	-0.420	1.714	2.300
Divorced	1.188	0.600	2.989	4.670
Widowed	2.012	1.760	3.330	3.450
Retired household member	0.622	-1.740	0.542	-2.550
Full-time student (15-64) in household	0.919	-0.490	1.134	0.790
Presence of children	1.450	1.660	0.871	-0.670
Number of children	0.779	-2.760	0.602	-5.740
Number of working-age adults	7.880	10.630	3.184	6.420
Lone parent	1.016	0.070	0.406	-4.900
Born O/S -- English speaking	1.085	0.190	0.842	-0.440
Born O/S – Non-English speaking	0.741	-1.060	0.369	-3.640
English-speaking immigrant * years in Australia	0.990	-0.700	1.003	0.250
Non-English-speaking immigrant * years in Australia	1.002	0.260	1.018	1.990
Aboriginal or Torres Strait Islander	0.356	-2.920	0.450	-2.870
English speaking ability poor	0.751	-0.900	0.542	-1.430
Severe illness or disability	0.338	-2.090	0.020	-4.150
Moderate illness or disability	0.733	-2.120	0.217	-10.200
Minor illness or disability	1.494	1.270	1.347	1.020
Postgraduate qual.	2.569	1.860	11.760	4.390
Undergraduate qual.	2.651	2.500	7.516	4.320
Certificate	1.292	0.610	3.834	2.710
Completed Year 12	2.014	1.770	4.918	3.490
Completed Year 10/11	1.780	1.620	3.750	2.990
Secondary school -- < Year 10	1.367	0.880	1.998	1.550
Inner regional	0.854	-1.030	0.939	-0.470
Outer regional	0.637	-2.070	0.871	-0.710
Remote	5.433	2.490	5.237	2.100

Table A2b (cont'd)

	Mix-work household		*All-work household*	
	Relative risk ratio	*z-statistic*	*Relative risk ratio*	*z-statistic*
New South Wales	0.978	-0.040	0.910	-0.250
Victoria	0.972	-0.060	0.880	-0.330
Queensland	0.850	-0.320	0.659	-1.070
South Australia	0.750	-0.540	0.801	-0.520
Western Australia	1.251	0.430	0.987	-0.030
Tasmania	0.658	-0.650	0.839	-0.340
Northern Territory	3.111	0.900	2.811	0.910
Not living with both parents at age 14	0.846	-1.230	0.746	-2.380
Father not employed at age 14	1.552	1.460	1.326	0.910
Father unemployed for > 6 mths	0.938	-0.370	0.737	-1.910
Mother not employed at age 14	0.876	-1.120	0.723	-3.120
Index of relative socio-economic disadvantage (deciles)				
Decile 1	0.365	-3.190	0.296	-4.210
Decile 2	0.477	-2.520	0.453	-2.940
Decile 3	0.509	-2.360	0.548	-2.190
Decile 4	0.430	-3.070	0.316	-4.620
Decile 5	0.350	-3.500	0.432	-3.260
Decile 6	0.552	-1.960	0.445	-2.900
Decile 7	0.799	-0.790	0.871	-0.520
Decile 8	0.634	-1.680	0.553	-2.480
Decile 9	0.565	-1.960	0.583	-2.210
Occupation dummies (reference generalist managers)				
Never worked	0.113	-2.270	0.004	-5.360
Specialist managers	0.434	-0.810	0.232	-1.500
Farmers and farm managers	0.379	-0.800	2.517	0.880
Science, building, engineering profs	0.227	-1.100	0.223	-1.220
Business and information profs	0.283	-1.250	0.164	-1.880
Health professionals	0.429	-0.880	0.269	-1.390
Education professionals	0.350	-1.050	0.226	-1.540
Social, arts and miscellaneous profs	0.717	-0.340	0.389	-0.970
Science, engineering etc assoc profs	0.602	-0.440	0.256	-1.220
Business and admin associate profs	0.420	-0.880	0.311	-1.230

Table A2b (cont'd)

	Mix-work household		*All-work household*	
	Relative risk ratio	*z-statistic*	*Relative risk ratio*	*z-statistic*
Managing supervisors (sales and service)	0.356	-1.040	0.198	-1.710
Health and welfare associate profession	1.175	0.130	0.475	-0.640
Other associate professionals	0.407	-0.670	0.434	-0.640
Mechanical and fabrication engineering	0.242	-1.200	0.032	-2.010
Food tradespersons	0.248	-1.340	0.088	-2.420
Skilled agricultural and horticultural	0.238	-1.230	0.139	-1.790
Other tradespersons and related workers	0.313	-1.160	0.142	-2.040
Secretaries and personal assistants	0.448	-0.840	0.149	-2.040
Other adv clerical and service workers	0.346	-1.070	0.343	-1.100
Intermediate clerical workers	0.412	-0.940	0.174	-1.910
Intermediate sales and related workers	0.668	-0.370	0.248	-1.290
Intermediate service workers	0.368	-1.060	0.156	-2.020
Intermediate plant operators	0.148	-1.360	0.201	-1.350
Intermediate machine operators	0.303	-1.230	0.058	-2.930
Road and rail transport drivers	0.246	-1.090	0.200	-1.380
Other intermed production and trans	0.519	-0.660	0.169	-1.790
Elementary clerks	0.566	-0.560	0.177	-1.760
Elementary sales workers	0.365	-1.060	0.134	-2.180
Elementary service workers	0.527	-0.650	0.159	-1.890
Cleaners	0.316	-1.220	0.137	-2.140
Factory labourers	0.343	-1.120	0.072	-2.790
Other labourers and related workers	0.442	-0.850	0.096	-2.490
Wald chi-sq =	2566.73			
Prob>chi-sq =	0.000			
Pseudo R^2 =	0.281			
Log likelihood =	-3705.237			
n	5486			

Table A3: Multinomial logit estimates of the determinants of household employment status, female parents

	Lone parents				*Coupled parents*			
	Mix-work household		*All-work household*		*Mix-work household*		*All-work household*	
	Relative risk ratio	*z-statistic*	*Relative risk ratio*	*z-statistic*	*Relative risk ratio*	*z-statistic*	*Relative risk ratio*	*z-statistic*
Age/10	0.729	-0.17	3.835	1.18	6.835	1.92	41.824	3.63
$(Age/10)^2$	0.978	-0.08	0.862	-0.94	0.786	-1.77	0.651	-3.13
Retired household member	12.073	1.77	0.000	nc	0.197	-2.18	0.117	-2.77
Full-time student in household	0.719	-0.80	0.719	-0.80	0.385	-3.08	0.521	-2.17
Number of children	1.484	0.78	0.525	-3.73	0.714	-2.40	0.627	-3.17
Number of adults	436.1	5.63	1.667	1.35	3.664	2.79	2.372	1.83
Born O/S -- English speaking	0.434	-0.47	0.894	-0.08	3.642	1.45	3.080	1.27
Born O/S – Non-English spg	0.164	-1.28	0.195	-2.01	0.762	-0.54	0.324	-2.08
ESB migrant * years in Aust	1.078	1.24	0.996	-0.08	0.971	-0.92	0.973	-0.87
NESB migrant * years in Aust	1.114	1.90	1.011	0.31	1.017	0.51	1.056	1.59
Aboriginal / Torres Strait Is	0.005	-3.09	0.331	-1.81	2.334	0.98	1.686	0.58
English speaking ability poor	1.926	0.52	1.034	0.02	0.467	-1.49	0.167	-3.09
Severe illness or disability	0.000	nc	0.000	nc	0.160	-0.68	0.105	-0.65
Moderate illness or disability	0.547	-0.54	0.264	-3.05	1.097	0.20	0.426	-1.89
Minor illness or disability	4.509	0.95	1.495	0.44	0.571	-1.10	0.545	-1.30
Postgraduate qual.	25.746	2.18	38.607	3.94	0.966	-0.06	5.481	2.74
Undergraduate qual.	3.449	0.83	13.050	4.24	2.038	1.59	7.147	4.17
Certificate	1.733	0.58	4.878	2.47	0.900	-0.24	2.321	1.76
Completed Year 12	3.882	1.29	5.120	2.47	1.230	0.52	2.458	2.19
Completed Year 10/11	0.804	-0.29	3.777	3.13	1.471	1.16	2.694	2.76
Inner regional	0.766	-0.27	0.926	-0.21	1.129	0.36	1.388	1.01
Outer regional	0.255	-1.16	1.103	0.23	0.766	-0.64	1.251	0.56
Remote	207.0	2.35	1.813	0.38	3.467	0.87	4.915	1.18
Not livg w both parents at 14	0.639	-0.62	0.737	-1.07	0.819	-0.73	0.690	-1.32
Father not employed at age 14	0.624	-0.36	1.274	0.31	1.416	0.66	1.578	0.86
Father unempl for > 6 mths	2.457	1.21	0.607	-1.39	0.783	-0.79	0.656	-1.35
Mother not employed at 14	0.446	-1.05	0.614	-1.64	0.485	-2.67	0.363	-3.76
Pseudo R^2 =	0.403				0.126			
Log likelihood =	-243.82				-1370.93			
n	422				1884			

Note: Tough not reported, the estimated specifications also included controls for State and for SEIFA decile.

Table A4a: Determinants of well-being – Physical functioning

	Males		*Females*	
	coefficients	*t-statistc*	*Coefficients*	*t-statistic*
Constant	83.120	10.440	83.030	12.190
Age/10	-0.363	-0.110	0.941	0.360
$(Age/10)^2$	-0.100	-0.260	-0.412	-1.260
Married	6.385	3.960	3.640	2.470
De facto	3.902	2.080	0.323	0.190
Separated	3.598	1.250	-0.422	-0.180
Divorced	0.513	0.190	-3.060	-1.530
Widowed	8.843	1.240	-0.897	-0.270
Presence of children	0.232	0.120	0.500	0.310
Number of children	-0.446	-0.570	-0.767	-1.100
Number of working-age adults	-1.563	-1.770	-2.162	-3.130
Lone parent	-2.274	-0.840	2.622	1.370
Born O/S -- English speaking	-4.474	-1.470	-6.935	-2.450
Born O/S – Non-English speaking	-16.500	-5.400	-14.260	-5.770
English speaking immigrant * years in Australia	0.137	1.400	0.181	1.930
Non-English speaking immigrant * years in Australia	0.196	1.940	0.246	2.990
Aboriginal or Torres Strait Islander	-7.643	-1.650	-8.222	-2.700
English speaking ability poor	-9.319	-1.760	-18.860	-4.360
Severe illness or disability	-21.380	-2.720	-37.540	-5.900
Moderate illness or disability	-20.070	-12.330	-22.620	-15.940
Minor illness or disability	-3.470	-1.560	-6.190	-2.540
Postgraduate qual.	17.630	4.040	18.900	4.920
Undergraduate qual.	16.170	3.850	16.680	4.480
Certificate	13.080	2.890	13.600	3.520
Completed Year 12	15.160	3.360	15.050	3.910
Completed Year 10/11	12.450	3.000	14.320	4.120
Secondary school -- < Year 10	6.567	1.600	10.420	2.930
Inner regional	4.412	3.920	2.774	2.800
Outer regional	0.777	0.500	-0.715	-0.540
Remote	-0.873	-0.170	2.388	0.820
New South Wales	-13.060	-7.280	-8.634	-3.400
Victoria	-7.491	-4.900	-7.427	-2.970
Queensland	-12.630	-7.360	-8.284	-3.270

Table A4a (cont'd)

	Males		*Females*	
	coefficients	*t-statistc*	*coefficients*	*t-statistic*
South Australia	-8.311	-4.470	-4.733	-1.750
Western Australia	-4.957	-2.850	-3.929	-1.520
Tasmania	-8.687	-3.240	-6.041	-1.990
Northern Territory	-8.750	-3.200	-6.006	-1.390
Not living with both parents at age 14	2.180	1.730	-3.739	-3.370
Father not employed at age 14	4.366	1.350	-3.122	-1.420
Father unemployed for > 6 mths	-1.656	-1.000	-0.446	-0.340
Mother not employed at age 14	-1.536	-1.610	-0.185	-0.230
Unemployed – in jobless household	-0.833	-0.290	-6.927	-1.820
Unemployed – other	-4.376	-1.270	-2.032	-0.550
Employed – part time	-0.139	-0.100	1.313	1.300
Retired – in jobless household	-11.390	-4.620	-5.166	-2.270
Retired – other	-8.568	-2.580	-0.178	-0.070
Home duties – in jobless household	-2.039	-0.370	-6.966	-3.500
Home duties – other	-8.794	-1.620	-1.254	-0.920
Other jobless– in jobless household	-18.060	-5.710	-11.270	-3.230
Other jobless	-3.281	-0.810	-0.625	-0.150
Gross yearly household income/10000	0.264	2.250	0.287	2.480
Missing income	-5.814	-4.140	-3.798	-3.020
F- stat =	22.5		25.7	
Prob > F =	0.00		0.00	
R-squared =	0.1648		0.1772	
RMSE =	31.095		28.395	
n	5,055		5,486	

Note: Strictly speaking the R^2 term is invalid with robust estimation of standard errors but nevertheless still provides a general guide to overall explanatory power.

Table A4b: Determinants of well-being – Role-physical

	Males		*Females*	
	coefficients	*t-statistc*	*coefficients*	*t-statistic*
Constant	99.850	10.620	84.090	9.570
Age/10	-8.718	-2.390	-5.110	-1.550
$(Age/10)^2$	0.959	2.220	0.455	1.120
Married	8.621	4.470	3.087	1.610
De facto	2.005	0.880	1.151	0.550
Separated	5.917	1.760	-1.360	-0.420
Divorced	2.180	0.700	-4.100	-1.570
Widowed	12.330	1.410	1.361	0.340
Presence of children	1.470	0.650	1.854	0.930
Number of children	-0.927	-0.950	0.162	0.190
Number of working-age adults	-1.296	-1.380	-1.140	-1.510
Lone parent	-0.064	-0.020	-0.120	-0.050
Born O/S -- English speaking	-1.011	-0.310	-3.310	-1.020
Born O/S – Non-English speaking	-11.600	-3.400	-6.180	-2.100
English speaking immigrant * years in Australia	0.049	0.420	0.099	0.880
Non-English speaking immigrant * years in Australia	0.074	0.620	-0.010	-0.110
Aboriginal or Torres Strait Islander	-3.732	-0.680	-6.360	-1.750
English speaking ability poor	-1.160	-0.180	-20.300	-4.200
Severe illness or disability	-41.000	-5.330	-61.400	-9.690
Moderate illness or disability	-37.740	-16.860	-39.900	-18.440
Minor illness or disability	-9.112	-3.260	-12.500	-3.750
Postgraduate qual.	12.410	2.470	16.120	3.100
Undergraduate qual.	12.080	2.510	14.740	2.890
Certificate	8.725	1.670	14.350	2.770
Completed Year 12	10.590	2.130	17.310	3.320
Completed Year 10/11	7.951	1.710	17.020	3.510
Secondary school -- < Year 10	3.068	0.660	14.830	3.050
Inner regional	2.911	2.240	2.919	2.410
Outer regional	-1.641	-0.880	1.293	0.790
Remote	-3.211	-0.640	4.759	1.680
New South Wales	-10.330	-2.860	-4.090	-1.120
Victoria	-7.170	-2.030	-3.190	-0.870
Queensland	-10.180	-2.760	-4.540	-1.220

Table A4b (cont'd)

	Males		*Females*	
	coefficients	*t-statistc*	*coefficients*	*t-statistic*
South Australia	-7.790	-2.030	-1.410	-0.370
Western Australia	-3.677	-0.990	-2.450	-0.640
Tasmania	-3.230	-0.750	-2.130	-0.440
Northern Territory	-4.336	-0.780	2.250	0.420
Not living with both parents at age 14	0.837	0.550	-4.830	-3.370
Father not employed at age 14	6.217	1.750	-0.160	-0.050
Father unemployed for > 6 mths	-2.670	-1.350	-0.790	-0.470
Mother not employed at age 14	-1.445	-1.270	0.237	0.240
Unemployed – in jobless household	-5.333	-1.650	-9.980	-1.920
Unemployed – other	-9.222	-2.480	-8.960	-2.080
Employed – part time	-2.031	-1.160	-0.180	-0.150
Retired – in jobless household	-20.580	-6.160	-7.810	-2.470
Retired – other	-9.277	-2.070	-7.600	-1.760
Home duties – in jobless household	-2.690	-0.390	-9.740	-3.480
Home duties – other	-4.085	-0.600	-6.570	-3.880
Other jobless– in jobless household	-19.070	-5.250	-19.700	-4.620
Other jobless	-8.531	-1.790	-8.120	-1.440
Gross yearly household income/10000	0.174	1.300	0.234	1.630
Missing income	-6.520	-4.270	-4.790	-3.240
F- stat =	24.85		26.27	
Prob > F =	0.00		0.00	
R-squared =	0.198		0.186	
RMSE =	36.44		36.33	
n	5,055		5,486	

Note: Strictly speaking the R^2 term is invalid with robust estimation of standard errors but nevertheless still provides a general guide to overall explanatory power.

Table A4c: Determinants of well-being – Bodily pain

	Males		*Females*	
	coefficients	*t-statistc*	*coefficients*	*t-statistic*
Constant	83.930	10.420	81.280	12.650
Age/10	-3.744	-1.200	-4.120	-1.640
$(Age/10)^2$	0.463	1.260	0.339	1.090
Married	5.046	3.120	1.812	1.210
De facto	2.489	1.280	-0.690	-0.390
Separated	3.586	1.350	-4.040	-1.710
Divorced	-0.350	-0.140	-5.520	-2.760
Widowed	15.840	2.710	-1.170	-0.400
Presence of children	-0.203	-0.110	0.410	0.240
Number of children	-0.377	-0.500	0.093	0.120
Number of working-age adults	-1.322	-1.700	-2.070	-3.420
Lone parent	-1.609	-0.640	3.595	2.000
Born O/S -- English speaking	-3.326	-1.170	-6.180	-2.190
Born O/S – Non-English speaking	-9.899	-3.500	-6.460	-2.800
English speaking immigrant * years in Australia	0.082	0.860	0.218	2.300
Non-English speaking immigrant * years in Australia	0.090	0.940	0.056	0.720
Aboriginal or Torres Strait Islander	0.281	0.070	-3.610	-1.200
English speaking ability poor	-4.894	-0.960	-20.200	-4.490
Severe illness or disability	-29.390	-4.350	-48.700	-8.030
Moderate illness or disability	-26.360	-15.430	-27.200	-20.280
Minor illness or disability	-7.313	-3.520	-8.220	-3.420
Postgraduate qual.	10.160	2.450	15.200	4.060
Undergraduate qual.	11.000	2.720	13.430	3.730
Certificate	7.352	1.710	10.100	2.730
Completed Year 12	7.744	1.840	11.740	3.120
Completed Year 10/11	6.564	1.720	12.150	3.580
Secondary school -- < Year 10	3.318	0.870	10.690	3.140
Inner regional	0.518	0.490	2.321	2.270
Outer regional	-1.403	-0.920	-0.790	-0.530
Remote	-1.304	-0.340	5.034	2.870
New South Wales	-9.757	-3.070	-4.780	-2.000
Victoria	-5.753	-1.880	-4.680	-1.940
Queensland	-10.470	-3.300	-6.540	-2.700

Table A4c (cont'd)

	Males		*Females*	
	coefficients	*t-statistc*	*coefficients*	*t-statistic*
South Australia	-7.813	-2.380	-3.500	-1.380
Western Australia	-3.536	-1.090	-4.180	-1.680
Tasmania	-1.621	-0.460	-2.830	-0.910
Northern Territory	-6.627	-1.650	-10.500	-2.190
Not living with both parents at age 14	0.352	0.290	-4.760	-4.400
Father not employed at age 14	2.412	0.790	-2.290	-0.930
Father unemployed for > 6 mths	-3.611	-2.240	0.226	0.170
Mother not employed at age 14	-0.991	-1.030	0.689	0.860
Unemployed – in jobless household	-2.111	-0.850	-4.260	-1.190
Unemployed – other	-4.885	-1.540	-5.270	-1.400
Employed – part time	0.513	0.370	0.819	0.830
Retired – in jobless household	-8.939	-3.420	-4.490	-2.070
Retired – other	-9.727	-2.740	0.544	0.190
Home duties – in jobless household	-4.914	-0.840	-4.580	-2.250
Home duties – other	-9.408	-1.780	-0.980	-0.700
Other jobless– in jobless household	-13.520	-4.580	-10.200	-2.870
Other jobless	-5.979	-1.560	0.781	0.180
Gross yearly household income/10000	0.145	1.180	0.229	1.840
Missing income	-5.123	-3.920	-3.060	-2.510
F- stat =	21.39		23.97	
Prob > F =	0.00		0.00	
R-squared =	0.150		0.158	
RMSE =	30.341		28.894	
n	5,055		5,486	

Note: Strictly speaking the R^2 term is invalid with robust estimation of standard errors but nevertheless still provides a general guide to overall explanatory power.

Table A4d: Determinants of well-being – General health

	Males		*Females*	
	coefficients	*t-statistc*	*coefficients*	*t-statistic*
Constant	82.480	11.850	66.390	11.190
Age/10	-7.650	-2.710	-0.215	-0.090
$(Age/10)^2$	0.853	2.530	-0.037	-0.130
Married	6.587	4.410	4.209	3.020
De facto	4.692	2.630	1.254	0.800
Separated	5.407	2.110	0.306	0.130
Divorced	4.342	1.820	-1.327	-0.680
Widowed	10.040	1.400	4.041	1.230
Presence of children	0.706	0.400	0.602	0.410
Number of children	-0.467	-0.640	-0.371	-0.580
Number of working-age adults	-1.806	-2.390	-1.324	-2.250
Lone parent	-2.318	-1.000	1.963	1.210
Born O/S -- English speaking	-2.143	-0.750	-4.273	-1.620
Born O/S – Non-English speaking	-7.776	-2.890	-6.434	-3.220
English speaking immigrant * years in Australia	0.066	0.690	0.192	2.240
Non-English speaking immigrant * years in Australia	0.112	1.250	0.013	0.180
Aboriginal or Torres Strait Islander	0.359	0.090	-7.030	-2.660
English speaking ability poor	-9.452	-2.110	-19.630	-4.850
Severe illness or disability	-30.440	-6.060	-37.530	-6.270
Moderate illness or disability	-20.480	-14.130	-23.180	-18.770
Minor illness or disability	-6.624	-3.680	-11.230	-5.070
Postgraduate qual.	9.048	2.340	14.020	3.890
Undergraduate qual.	9.695	2.700	11.140	3.300
Certificate	6.338	1.670	9.306	2.660
Completed Year 12	8.526	2.290	11.770	3.380
Completed Year 10/11	7.696	2.230	9.650	3.000
Secondary school -- < Year 10	1.900	0.550	6.253	1.960
Inner regional	3.471	3.580	2.448	2.430
Outer regional	0.117	0.080	-0.016	-0.010
Remote	-1.648	-0.470	2.587	1.020
New South Wales	-9.457	-3.790	-6.297	-3.240
Victoria	-5.508	-2.300	-5.711	-2.970
Queensland	-8.567	-3.450	-6.546	-3.290

Table A4d (cont'd)

	Males		*Females*	
	coefficients	*t-statistc*	*coefficients*	*t-statistic*
South Australia	-5.299	-2.030	-3.233	-1.490
Western Australia	-2.009	-0.790	-2.343	-1.200
Tasmania	-3.021	-1.010	-1.245	-0.500
Northern Territory	-4.422	-1.390	-3.260	-0.820
Not living with both parents at age 14	-0.173	-0.150	-3.019	-3.010
Father not employed at age 14	0.205	0.070	-1.890	-0.810
Father unemployed for > 6 mths	-1.210	-0.860	-1.163	-0.940
Mother not employed at age 14	-0.707	-0.820	0.581	0.780
Unemployed – in jobless household	1.322	0.560	-4.755	-1.380
Unemployed – other	-7.357	-2.640	-4.520	-1.350
Employed – part time	0.656	0.500	1.175	1.230
Retired – in jobless household	-13.610	-5.740	-5.072	-2.370
Retired – other	-11.630	-3.530	1.138	0.410
Home duties – in jobless household	-2.966	-0.580	-4.679	-2.580
Home duties – other	-6.926	-1.450	-1.348	-1.080
Other jobless– in jobless household	-11.700	-4.160	-9.733	-2.850
Other jobless	-6.606	-2.010	-2.126	-0.570
Gross yearly household income/10000	0.237	2.230	0.296	2.600
Missing income	-4.208	-3.500	-3.423	-2.910
F- stat =	22.37		22.77	
Prob > F =	0.00		0.00	
R-squared =	0.154		0.159	
RMSE =	27.663		26.746	
n	5,055		5,486	

Note: Strictly speaking the R^2 term is invalid with robust estimation of standard errors but nevertheless still provides a general guide to overall explanatory power.

Table A4e: Determinants of well-being – Vitality

	Males		*Females*	
	coefficients	*t-statistic*	*coefficients*	*t-statistic*
Constant	66.130	10.550	59.320	10.590
Age/10	-6.426	-2.650	-3.659	-1.730
$(Age/10)^2$	0.981	3.380	0.593	2.280
Married	4.296	3.220	1.902	1.480
De facto	2.071	1.260	-0.001	0.000
Separated	-1.123	-0.470	0.075	0.040
Divorced	1.653	0.770	-2.441	-1.390
Widowed	12.080	2.290	0.984	0.370
Presence of children	-0.126	-0.080	-1.327	-0.990
Number of children	-0.371	-0.590	-0.775	-1.300
Number of working-age adults	-1.192	-1.790	-1.133	-2.110
Lone parent	-2.460	-1.210	0.156	0.100
Born O/S -- English speaking	-4.295	-1.830	-3.632	-1.530
Born O/S – Non-English speaking	-2.905	-1.160	1.199	0.670
English speaking immigrant * years in Australia	0.123	1.520	0.158	2.100
Non-English speaking immigrant * years in Australia	-0.042	-0.500	-0.111	-1.730
Aboriginal or Torres Strait Islander	2.834	0.800	-1.243	-0.480
English speaking ability poor	-7.383	-1.630	-15.480	-3.8600
Severe illness or disability	-20.010	-4.160	-31.690	-6.520
Moderate illness or disability	-16.110	-11.720	-15.840	-13.880
Minor illness or disability	-4.915	-2.840	-7.086	-3.830
Postgraduate qual.	11.760	3.070	9.917	2.980
Undergraduate qual.	12.250	3.390	8.211	2.630
Certificate	11.240	2.950	7.524	2.360
Completed Year 12	12.580	3.330	8.825	2.710
Completed Year 10/11	11.820	3.380	8.581	2.910
Secondary school -- < Year 10	8.402	2.400	6.611	2.310
Inner regional	3.014	3.370	2.294	2.840
Outer regional	0.696	0.540	0.774	0.650
Remote	0.088	0.020	6.472	2.920
New South Wales	-9.842	-4.370	-5.018	-3.020
Victoria	-7.063	-3.270	-4.099	-2.470
Queensland	-11.390	-4.990	-5.450	-3.240

Table A4e (cont'd)

	Males		*Females*	
	coefficients	*t-statistc*	*coefficients*	*t-statistic*
South Australia	-7.602	-3.300	-3.279	-1.700
Western Australia	-5.908	-2.500	-1.708	-0.970
Tasmania	-5.292	-1.780	-0.168	-0.060
Northern Territory	-10.830	-3.880	-9.323	-4.860
Not living with both parents at age 14	-0.551	-0.530	-2.399	-2.640
Father not employed at age 14	1.094	0.370	0.132	0.060
Father unemployed for > 6 mths	-0.138	-0.100	-1.357	-1.250
Mother not employed at age 14	-1.059	-1.350	0.181	0.270
Unemployed – in jobless household	2.435	1.170	-3.311	-1.120
Unemployed – other	-2.343	-0.970	-0.994	-0.310
Employed – part time	1.147	0.910	2.435	2.780
Retired – in jobless household	-5.848	-2.740	-0.218	-0.120
Retired – other	-6.703	-2.110	5.180	2.260
Home duties – in jobless household	-5.507	-1.170	-0.594	-0.340
Home duties – other	-2.707	-0.590	0.322	0.280
Other jobless– in jobless household	-6.996	-2.790	-6.521	-2.240
Other jobless	-3.218	-1.040	-2.110	-0.600
Gross yearly household income/10000	0.204	2.060	0.191	1.780
Missing income	-3.930	-3.580	-3.538	-3.560
F- stat =	11.81		15.54	
Prob > F =	0.00		0.00	
R-squared =	0.099		0.096	
RMSE =	25.435		24.061	
n	5,055		5,486	

Note: Strictly speaking the R^2 term is invalid with robust estimation of standard errors but nevertheless still provides a general guide to overall explanatory power.

Table A4f: Determinants of well-being – Social functioning

	Males		*Females*	
	coefficients	*t-statistic*	*coefficients*	*t-statistic*
Constant	91.590	11.610	79.610	12.140
Age/10	-8.285	-2.610	-4.813	-1.870
$(Age/10)^2$	1.166	3.120	0.699	2.200
Married	10.110	6.300	6.318	4.170
De facto	6.112	3.110	2.067	1.230
Separated	-0.398	-0.140	-1.685	-0.680
Divorced	-0.799	-0.300	-2.424	-1.150
Widowed	10.820	1.800	1.175	0.370
Presence of children	-2.175	-1.100	-2.289	-1.420
Number of children	0.342	0.430	0.352	0.510
Number of working-age adults	-0.740	-0.920	-1.328	-2.020
Lone parent	-0.213	-0.090	0.861	0.490
Born O/S -- English speaking	-3.928	-1.360	-8.166	-2.710
Born O/S – Non-English speaking	-14.290	-5.170	-9.913	-4.320
English speaking immigrant * years in Australia	0.152	1.590	0.265	2.770
Non-English speaking immigrant * years in Australia	0.166	1.760	0.099	1.210
Aboriginal or Torres Strait Islander	1.221	0.310	-7.047	-2.400
English speaking ability poor	-5.239	-0.990	-22.580	-5.130
Severe illness or disability	-28.360	-4.390	-50.440	-9.800
Moderate illness or disability	-20.830	-11.870	-23.140	-16.140
Minor illness or disability	-5.799	-2.750	-7.898	-3.130
Postgraduate qual.	12.200	2.900	14.450	3.660
Undergraduate qual.	12.840	3.220	11.500	3.040
Certificate	10.090	2.350	9.580	2.490
Completed Year 12	10.110	2.400	11.840	3.030
Completed Year 10/11	9.238	2.390	11.500	3.220
Secondary school -- < Year 10	6.644	1.710	9.657	2.720
Inner regional	3.654	3.370	3.393	3.450
Outer regional	1.181	0.740	0.832	0.590
Remote	1.096	0.260	2.948	1.090
New South Wales	-11.890	-4.430	-5.368	-2.420
Victoria	-7.171	-2.830	-2.902	-1.330
Queensland	-12.160	-4.480	-5.207	-2.320

Table A4f (cont'd)

	Males		*Females*	
	coefficients	*t-statistc*	*coefficients*	*t-statistic*
South Australia	-8.873	-3.250	-1.043	-0.410
Western Australia	-5.771	-2.140	-0.418	-0.180
Tasmania	-6.161	-1.960	-1.419	-0.560
Northern Territory	-9.475	-2.080	-8.430	-3.090
Not living with both parents at age 14	-0.410	-0.330	-3.670	-3.210
Father not employed at age 14	2.229	0.710	-0.439	-0.190
Father unemployed for > 6 mths	-3.412	-2.040	-0.624	-0.490
Mother not employed at age 14	-1.880	-2.020	0.553	0.690
Unemployed – in jobless household	-3.282	-1.240	-6.187	-1.510
Unemployed – other	-9.131	-3.050	-6.211	-1.620
Employed – part time	-1.557	-1.080	2.302	2.290
Retired – in jobless household	-11.110	-4.360	-1.677	-0.810
Retired – other	-9.518	-2.660	1.384	0.480
Home duties – in jobless household	-15.910	-2.680	-4.772	-2.420
Home duties – other	-7.545	-1.370	-1.063	-0.790
Other jobless– in jobless household	-15.600	-5.230	-12.090	-3.290
Other jobless	-6.879	-1.850	-4.957	-1.120
Gross yearly household income/10000	0.122	1.000	0.266	2.150
Missing income	-6.135	-4.630	-3.751	-2.960
F- stat =	17.66		21.24	
Prob > F =	0.00		0.00	
R-squared =	0.152		0.156	
RMSE =	30.367		28.768	
n	5,055		5,486	

Note: Strictly speaking the R^2 term is invalid with robust estimation of standard errors but nevertheless still provides a general guide to overall explanatory power.

Table A4g: Determinants of well-being – Role-emotional

	Males		*Females*	
	coefficients	*t-statistc*	*coefficients*	*t-statistic*
Constant	90.100	8.880	71.180	7.750
Age/10	-12.040	-3.190	-6.425	-1.890
$(Age/10)^2$	1.572	3.490	0.913	2.180
Married	10.350	5.120	6.457	3.240
De facto	5.329	2.380	2.467	1.100
Separated	-3.803	-1.040	-1.570	-0.460
Divorced	0.722	0.230	0.162	0.060
Widowed	7.870	0.810	-1.769	-0.400
Presence of children	-0.592	-0.260	0.478	0.230
Number of children	0.417	0.440	-0.367	-0.410
Number of working-age adults	-0.424	-0.460	0.275	0.340
Lone parent	-0.009	0.000	0.581	0.260
Born O/S -- English speaking	-2.708	-0.830	-9.992	-2.530
Born O/S – Non-English speaking	-12.890	-3.820	-7.963	-2.690
English speaking immigrant * years in Australia	0.084	0.730	0.308	2.450
Non-English speaking immigrant * years in Australia	0.128	1.120	0.028	0.260
Aboriginal or Torres Strait Islander	-2.481	-0.480	-10.290	-2.700
English speaking ability poor	0.092	0.010	-20.820	-3.620
Severe illness or disability	-36.630	-4.500	-32.960	-3.430
Moderate illness or disability	-19.260	-8.760	-20.040	-9.460
Minor illness or disability	-8.556	-2.910	-13.120	-3.950
Postgraduate qual.	14.140	2.240	21.340	4.110
Undergraduate qual.	17.110	2.790	19.520	3.960
Certificate	14.520	2.240	18.220	3.450
Completed Year 12	15.720	2.460	19.960	3.970
Completed Year 10/11	14.900	2.470	18.830	4.030
Secondary school -- < Year 10	10.620	1.740	16.560	3.560
Inner regional	4.128	3.240	2.738	2.190
Outer regional	2.720	1.390	2.894	1.530
Remote	0.674	0.150	3.138	0.970
New South Wales	-10.830	-3.670	-4.448	-1.020
Victoria	-6.370	-2.220	-4.302	-0.980
Queensland	-10.070	-3.380	-6.583	-1.480

Table A4g (cont'd)

	Males		*Females*	
	coefficients	*t-statistc*	*coefficients*	*t-statistic*
South Australia	-3.526	-1.140	-1.614	-0.350
Western Australia	-2.873	-0.920	-1.981	-0.440
Tasmania	-1.732	-0.500	5.131	1.050
Northern Territory	-8.626	-1.980	-3.906	-0.690
Not living with both parents at age 14	-0.766	-0.500	-5.194	-3.530
Father not employed at age 14	-0.261	-0.060	0.755	0.250
Father unemployed for > 6 mths	-2.884	-1.570	-3.994	-2.220
Mother not employed at age 14	-0.929	-0.830	0.787	0.750
Unemployed – in jobless household	-5.055	-1.470	-17.550	-3.090
Unemployed – other	-11.560	-3.140	-8.785	-1.930
Employed – part time	-2.646	-1.440	2.515	1.870
Retired – in jobless household	-11.010	-3.120	-4.522	-1.390
Retired – other	-11.270	-2.490	-3.662	-0.850
Home duties – in jobless household	-4.584	-0.560	-6.548	-2.460
Home duties – other	1.235	0.210	-2.098	-1.170
Other jobless– in jobless household	-18.250	-4.440	-18.950	-4.000
Other jobless	-7.258	-1.630	-13.750	-2.660
Gross yearly household income/10000	0.314	2.150	0.372	2.490
Missing income	-4.852	-3.050	-4.381	-2.880
F- stat =	12.52		12.42	
Prob > F =	0.00		0.00	
R-squared =	0.112		0.113	
RMSE =	37.585		37.385	
n	5,055		5,486	

Note: Strictly speaking the R^2 term is invalid with robust estimation of standard errors but nevertheless still provides a general guide to overall explanatory power.

Table A4h: Determinants of well-being – Mental health

	Males		*Females*	
	coefficients	*t-statistc*	*coefficients*	*t-statistic*
Constant	74.260	11.210	64.910	11.040
Age/10	-6.754	-2.700	-3.585	-1.630
$(Age/10)^2$	1.057	3.560	0.627	2.300
Married	7.538	5.460	5.653	4.310
De facto	4.491	2.700	1.794	1.280
Separated	1.201	0.480	-1.084	-0.500
Divorced	1.510	0.680	0.906	0.500
Widowed	11.550	2.090	-0.008	0.000
Presence of children	-0.437	-0.260	-1.513	-1.100
Number of children	-0.249	-0.370	-0.383	-0.640
Number of working-age adults	-1.066	-1.460	-0.818	-1.460
Lone parent	-2.786	-1.290	1.628	1.070
Born O/S -- English speaking	-5.146	-2.050	-5.994	-2.280
Born O/S – Non-English speaking	-7.783	-3.050	-4.262	-2.090
English speaking immigrant * years in Australia	0.158	1.850	0.192	2.410
Non-English speaking immigrant * years in Australia	-0.005	-0.050	-0.043	-0.580
Aboriginal or Torres Strait Islander	-0.026	-0.010	-3.971	-1.620
English speaking ability poor	-10.480	-2.140	-19.220	-4.280
Severe illness or disability	-18.780	-3.610	-23.910	-3.890
Moderate illness or disability	-10.030	-7.070	-9.875	-8.560
Minor illness or disability	-1.923	-1.090	-6.930	-3.300
Postgraduate qual.	11.930	2.840	15.240	4.380
Undergraduate qual.	13.070	3.270	13.880	4.190
Certificate	12.410	2.950	12.100	3.610
Completed Year 12	13.110	3.080	12.720	3.640
Completed Year 10/11	11.560	2.950	11.980	3.790
Secondary school -- < Year 10	7.880	2.010	8.755	2.840
Inner regional	3.338	3.640	2.761	3.440
Outer regional	1.598	1.170	2.163	1.580
Remote	-0.073	-0.020	3.968	1.580
New South Wales	-9.028	-5.580	-5.641	-2.350
Victoria	-5.537	-3.870	-4.789	-2.030
Queensland	-10.23	-6.520	-5.850	-2.470

Table A4h (cont'd)

	Males		*Females*	
	coefficients	*t-statistc*	*coefficients*	*t-statistic*
South Australia	-6.129	-3.680	-2.923	-1.120
Western Australia	-3.999	-2.410	-1.165	-0.490
Tasmania	-3.312	-1.580	-0.145	-0.060
Northern Territory	-5.020	-1.820	-3.525	-1.180
Not living with both parents at age 14	-0.282	-0.260	-2.554	-2.610
Father not employed at age 14	1.485	0.520	-1.795	-0.820
Father unemployed for > 6 mths	-1.590	-1.080	-0.948	-0.830
Mother not employed at age 14	-1.656	-2.010	-0.248	-0.350
Unemployed – in jobless household	-3.329	-1.530	-8.401	-2.670
Unemployed – other	-7.376	-2.810	-8.498	-2.560
Employed – part time	-1.568	-1.230	1.581	1.780
Retired – in jobless household	-5.347	-2.560	-1.111	-0.590
Retired – other	-7.009	-2.170	1.801	0.790
Home duties – in jobless household	-8.253	-1.540	-1.708	-1.020
Home duties – other	-3.548	-0.740	0.293	0.240
Other jobless– in jobless household	-9.084	-3.110	-6.259	-2.000
Other jobless	-4.413	-1.310	-3.850	-1.090
Gross yearly household income/10000	0.178	1.700	0.195	1.870
Missing income	-4.640	-3.870	-4.345	-4.130
F- stat =	11.52		11.07	
Prob > F =	0.00		0.00	
R-squared =	0.106		0.107	
RMSE =	26.319		24.815	
n	5,055		5,486	

Note: Strictly speaking the R^2 term is invalid with robust estimation of standard errors but nevertheless still provides a general guide to overall explanatory power.