



the **CENTRE for**
LABOUR MARKET RESEARCH

ARE THE 'HIDDEN UNEMPLOYED' UNEMPLOYED?

by

Luke Elliott and A. M. Dockery
School of Economics and Finance
Curtin University of Technology
Mike.Dockery@cbs.curtin.edu.au

Note: This paper uses confidentialised unit record files from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Project was initiated and is funded by the Commonwealth Department of Family and Community Services (FaCS) and is managed by the Melbourne Institute of Applied Economic and Social Research (MIAESR). The findings and views reported in this paper, however, are those of the authors and should not be attributed to either FaCS or the MIAESR.

CLMR DISCUSSION PAPER SERIES 06/2

the Centre for Labour Market Research, Curtin Business School, Curtin University of Technology, GPO Box
U1987 Perth WA 6845 Australia
Tel: 61 8 9266 1744 Fax: 61 8 9266 1743 email: patricia.madden@cbs.curtin.edu.au
<http://www.clmr.cbs.curtin.edu.au>

The Centre wishes to acknowledge the support of The Western Australian Department of Education and
Training

Abstract

This paper compares mutually exclusive labour market states to determine whether discouraged jobseekers are more akin to the unemployed or others not in labour force. Data from four waves of the longitudinal Household, Income and Labour Dynamics in Australia survey are used to determine similarities in the behavioural characteristics and transition dynamics of the labour force states, with a focus on comparing discouraged jobseekers with the other non-employed states. Evidence from a range of indicators, including measures of financial circumstances, subjective wellbeing and reservation wages, rejects the notion that discouraged jobseekers represent a group of 'hardcore unemployed' who are, on average, experiencing greater hardship from their state of joblessness than the conventionally defined unemployed. Analysis of transitions between labour force states also reveals that discouraged jobseekers are behaviourally similar to others classified as not in the labour force rather than the unemployed. Consequently, the results support the present official definitions of participation and unemployment.

1. Introduction

The official definition of unemployment in Australia is often criticised for being an underestimate of the 'true' extent of unemployment as it excludes discouraged jobseekers and ignores underemployment. Unemployment is measured by the Australian Bureau of Statistics (ABS) through its monthly Labour Force Survey and in line with International Labour Organisation (ILO) conventions. Non-employed persons who want to work but have given up hope of finding a job (discouraged jobseekers¹), are excluded from the definition of unemployment if they do not meet the criteria of having actively looked for work during the survey reference period, while working as little as one hour during the survey week is sufficient for a jobseeker to be classified as employed rather than unemployed. Of these sources of underestimation of unemployment it is the discouraged jobseekers that attract most attention in social policy debate since not only their number is hidden from the political spotlight but so too, it is argued, is the plight of a group whose circumstances have been the most severely affected by unemployment.

The aim of this paper is to provide an empirical investigation into whether discouraged jobseekers are more similar to unemployed persons or to other persons not participating in the labour force (others-NILF); or whether they are distinct from both groups. Four waves of data from the longitudinal Household, Income and Labour Dynamics in Australia (HILDA) survey are used to compare measures of wellbeing, financial stress and labour market attachment between discouraged jobseekers and other mutually exclusive labour force states, and to test behavioural differences in terms of transitions to employment. If the discouraged jobseekers are behaviourally similar to the others-NILF state, they should remain out of the official unemployment statistics. If discouraged jobseekers report behavioural distinctness, there may be reason to report them as an entirely independent labour force state.

¹ They are also often labelled 'discouraged workers'. In this paper the term discouraged jobseeker is used, though neither is fully apt since the individuals in question are neither working nor actively seeking work.

As is widely understood, the unemployed represent an underutilisation of labour resources to the economy. Although much information is already known of the unemployed, far less is provided for Australia's discouraged jobseekers. This labour group are still willing and able to work and therefore represent further potential to maximise the economy's output and increase the material wealth of Australians. By providing comparisons of the labour force states, this study has the additional potential of supplying policymakers with information on the behaviour of discouraged jobseekers to better aid the direction of labour and welfare programs. The current Australian labour shortage emphasises the importance of this labour market group as it represents an untapped pool of labour where policymakers can encourage job search and training.

This paper is comprised of six sections. A review of the relevant literature is found in Section 2. Section 3 provides a brief background on the HILDA survey and the sample used in the analysis. Section 4 provides descriptive and statistical comparisons between labour market states with regard to individuals' perceived financial circumstances; employment prospects and reservation wages; and subjective measures of wellbeing. Annual labour force transition probabilities observed from the available four waves of HILDA are presented in Section 5 and logit models of the likelihood of entering employment from the non-employment states are estimated to provide formal tests of the distinctness of the unemployed, discouraged workers and others-NILF. Section 6 concludes.

2. Background

The Measurement of Unemployment

The Labour Force Survey defines the unemployed as those persons who were not employed in the survey reference week, have been actively seeking employment within the last four weeks, and are able to start work immediately. Excluded from this definition are discouraged jobseekers, defined as those persons who wanted to work and were available to start work within the next four weeks but whose main reason for not actively looking for work was that they believed no jobs were available to them (ABS 2004a).

According to the neo-classical paradigm of market equilibrium, the labour market should clear at a particular wage. Consequently, unemployment should not exist. Any individual who is not willing to supply their labour at the market clearing level is thought to be voluntarily unemployed because, at this level, leisure is valued more highly than income. There are many reasons why an economy may not actually enjoy zero unemployment. The 'real world' economy contains labour market imperfections involving restrictions to mobility, knowledge and institutional limitations. In addition, the single homogeneous labour market with a single equilibrium wage is a theoretical simplification. The reality is that there are numerous labour markets, each with different market clearing wages that are dependent upon the marginal productivity of the worker. Incorrect measurement of unemployment is another reason for the positive unemployment rate. Those individuals who are not willing to work at the market clearing wage but still report that they are willing and able to work, and

are actively seeking work, are measured as unemployed rather than being considered voluntarily out of the labour force as neo-classical theory would suggest.

Whilst a true representation of unemployment is unattainable, the relevance of the standard measure has been under attack. A recent Australian paper by Watson (2000) argues that indices of both quantity and quality would provide a better indication of labour market health.² Denniss (2003) goes further, arguing that labour market statistics in general have become outdated, as they were designed at a time when the economy was in full employment and chiefly restricted to the male breadwinner. In most cases, the critique of the unemployment rate is based on two major areas – underemployment and hidden unemployment (Stricker and Sheehan 1981). Underemployment refers to those persons working at least one hour per week but preferring to work longer hours; whereas hidden unemployment refers to those people who are not in the labour force but claim to want a job. Australian research by Stricker and Sheehan (1981) identify the common groups of hidden unemployment as older workers, females, migrants and teenagers. However, as Buss and Redburn (1988) note, many of these who report to ‘wanting a job’ may not be serious or are under circumstances that do not allow them to be employed. Discouraged jobseekers are a subset of the hidden unemployed who are willing and able to work but have given up searching because they believe that no jobs are available or because they lack the necessary skills to get a job (Buss and Redburn 1988).

While there may well be a case for including discouraged jobseekers in official unemployment figures, there are reasons why most developed countries have not used this broader measure. An obvious drawback is that international comparisons of unemployment would be tarnished if there were no universal measurement of unemployment. A more notable reason is that the concept of discouragement is subjective.³ In order to measure the individuals’ reasons for lack of job search, self-reported surveys are required. According to Flaim (1973), this may lead to a biased measurement as individuals may perhaps admit socially acceptable reasons for not seeking work, such as ill health (not classified as a discouraged jobseeker), or a languishing economy (classified as a discouraged jobseeker), rather than admit to their personal inadequacies.

The Discouraged Jobseeker Effect

The majority of academic interest in discouraged jobseekers has focused on the perceived ‘discouraged worker effect’. The defining characteristic of a discouraged jobseeker is the lack of job search because of the belief that no work is available for them. The decision to join the labour force by actively seeking work will therefore be dependent on the business cycle’s level of economic activity. From the pioneering studies of Woytinsky (1940) and Humphrey (1940), there has been debate on whether the participation rate increases or decreases in periods of recession. Woytinsky (1940) first established the ‘additional worker theory’ arguing that, due to the higher unemployment probability of the breadwinner; other

² ‘Quantity’ is represented by the number of hours employed whilst ‘quality’ refers to skills, security and safety in employment.

³ See Finegan (1978); Flaim (1973); Gastwirth (1973); Mincer (1973) for further reading on the subjective nature of discouragement.

family members will enter the labour force to supplement family income and thereby increase labour force participation within the economy. Humphrey's (1940) opposing theory, later formalised by Long (1958), argued that the participation rate would decrease in periods of recession due to the decreased likelihood of finding employment. This was aptly labelled the 'discouraged worker effect' as people who believed that there were no jobs available to them became discouraged from entering the labour force.

While both countervailing arguments are plausible, Lenten (2000) explains that, by the late 1960s, almost all empirical studies found the discouraged worker effect to dominate the number of added workers in periods of recession. This resulted in the 'discouraged worker effect' to be considered a stylised fact. Following this 'fact', studies further confirmed its existence for many nations across the globe.⁴ The implication of an inverse relationship between the number of discouraged jobseekers and the level of economic activity is that it represents a substantial amount of unused labour in periods of recession. Whilst recessions already contain underutilised labour in the form of the unemployed, it conceals those discouraged jobseekers that have left the labour force. As Clark and Summers (1979) note, this leads to a misleading portrayal of the labour market.

At the micro-economic level, the discouraged jobseeker effect is most readily analysed in the framework of job search theory built around the seminal work of Stigler (1961; 1962). Kingdon and Knight (2005) claim that there are two possible reasons for the individual not participating in job search – the 'taste for unemployment' hypothesis, and the 'discouraged worker hypothesis'. If an individual develops a taste for unemployment, it is argued that they falsely report their willingness to work, or only have a weak aspiration for job search. The standard theory of the decision to participate, discussed by Ehrenberg and Smith (2003) suggests that this group of people do not work due to: the high utility gained from leisure; low prospective income; or income gained from other sources – such as past wealth, unemployment benefits or the wealth of a family member. Conversely, the discouraged worker hypothesis argues that individuals truthfully report their desire for a job but have given up searching due to the perceived benefit-cost ratio for job-search not being worthwhile (Kingdon and Knight 2005).

The empirical literature on the discouraged worker effect implicitly recognises that the benefit-cost ratio of job search will be higher in periods of economic prosperity. As aggregate demand increases, so too does the demand for labour and thus previously discouraged workers will have a greater likelihood of gaining more job offers at higher wages. Of course, the opposite situation will occur in times of recession where the number of discouraged workers will increase due to the low perceived benefit-cost ratio.

The low perceived benefit-cost ratio may occur for other reasons. For instance, the opportunity costs of childcare may influence the employment decisions of parents with dependent children. Van Ham, Mulder and Hooimeijer (2001) argue that spatial restrictions are an important impediment to employment – not only does the cost of job search rise with commuting and migration, but the arrival rate of job offers also decreases. In addition, the

⁴ Examples include: Blundell, Ham and Meghir (1998) for the UK; Finegan (1981) for the US; Kuch and Sharir (1978) for Canada; Lenten (2000) for Australia; and Tachibanaki and Sakurai (1991) for Japan.

authors argue that the low expected job search success rates occur to individuals who have either low levels of human capital, or experience discrimination – whether it is by age, gender or race. Additional instances of discrimination may occur for individuals with long-term health problems and possible difficulties with English. As employment opportunities and reasonable wage levels are diminished, these workers have a higher likelihood of becoming discouraged.

Whilst the determinants of discrimination and the concentration of discouraged jobseekers over the business cycle is beyond the scope of this paper, an examination into which groups are more susceptible to discouragement, and their means of support can be examined.

Labour Force Dynamics

As more longitudinal data sets have become available, a growing literature has developed on the study of labour force dynamics. A common testing procedure in the literature is to determine whether different labour market states are behaviourally distinct, and specifically, whether the unemployed differ from the out of labour-force state in their likelihood of entering employment. With the availability of longitudinal youth data, initial US studies by Clark and Summers (1982) and Flinn and Heckman (1983) focused on the behavioural distinction of youth unemployment. While Clark and Summers (1982) found that unemployment and out of the labour force were not behaviourally distinct states; Flinn and Heckman (1983) found the opposite to be true for white male high school students. Gönül (1992) further utilised longitudinal youth data to identify that, when the data is split by gender, the unemployed and out of labour force states are behaviourally distinct for females but not for males. Each of these studies was limited to youth and, more importantly, only identified three different labour market states – employed, unemployed, and out of the labour force.

A more comprehensive analysis is taken by Jones and Riddell (1999), who utilise population representative Canadian longitudinal data to examine four labour market states – employed, unemployed, marginally attached, and not attached to the labour force. Marginal attachment is synonymous to hidden unemployment and refers to those persons who want to work but are not seeking work. Their study found that the marginally attached are distinct from other labour market states. The rates of transition into employment for the marginally attached remained consistently less than the unemployed but more than the not attached for all periods of time analysed. Thus, according to Jones and Riddell (1999), there is indication that heterogeneity exists within the not attached state. The rather intuitive result is that those individuals who claim to be willing and able to work have a greater likelihood of entering into employment than those who have no such desire.

Byrne and Strobl (2004) adhere to the Jones and Riddell framework in their study of the labour dynamics of Trinidad and Tobago. For such developing countries the ILO introduced a broader definition of unemployment because of the ambiguity between search and non-search behaviour when the labour force is largely self-employed and where conventional

means of seeking work are limited. Byrne and Strobl support the use of this definition by finding that the marginally attached are behaviourally similar to the unemployed.

Gray, Heath and Hunter (2002; 2005) currently provide the only Australian studies of labour market dynamics that explicitly analyse the distinctness of the marginally attached. Using Survey of Employment and Unemployment Patterns (SEUP) data for the period 1994-1997, the authors largely follow the Jones and Riddell (1999) four-state framework to measure transitions into other labour market states. Their analysis of the marginally attached corroborates Jones and Riddell's findings as this group are found to be behaviourally distinct in their transitions into other labour market states.

Gray, Heath and Hunter (2005) also analyse the importance of the time horizon in understanding the behaviour of the marginally attached. The shorter the time horizon, the less distinct are the non-employed labour market states; but as the time duration extends, the probability of transiting into employment between the unemployed and marginally attached diverges, with the unemployed becoming far more likely to enter employment. While the authors express interest in studying the marginally attached subset of discouraged jobseekers, the sample sizes for this group were too small to statistically analyse.

Wellbeing by Labour Force State

Economists typically perceive unemployment as an occurrence that leads to a decrease in utility for the individual. Following the belief that unemployment lowers income, utility will decrease as individuals seek to maximise their utility for the lesser budget constraint. A growing number of studies in the economics literature use self-reported levels of satisfaction, often synonymously referred to as 'happiness' or 'subjective well-being', measured with survey data to directly measure the effect of life-events or circumstances, such as unemployment, on 'utility'. There is much debate on whether these data provide reliable measures. Bertrand and Mullainathan (2001) argue that, despite the importance of what it aims to measure, meaningful answers cannot be provided due to its subjectiveness and proneness to error. Despite the criticisms made by many economists, the number of studies using satisfaction data has flourished in this discipline.⁵

In the satisfaction literature, there has yet to be a study which does *not* find the unemployed group, as a whole, to be significantly less satisfied than otherwise.⁶ As Frey and Stutzer (2002) explain, the lack of satisfaction is generally characterised by exclusion, depression, anxiety and social stigma. Cross-sectional studies have led to accusations of reverse causality. That is, those who report low levels of satisfaction are less likely than satisfied people to *become* employed (Clark and Oswald 1994). The subsequent longitudinal study by Clark (2003), which enables individual tracking over time, reveals that causality flows from unemployment to satisfaction.

⁵ See Ferrer-i-Carbonell and Frijters (2004) and Blanchflower and Oswald (2004) for comprehensive lists of these studies.

⁶ For some recent examples, see Dockery (2003, 2005) for Australia, Winkleman and Winkleman (1998) for Germany; and Blanchflower and Oswald (2004) for Britain and the United States.

The empirical studies mentioned above do not directly observe the reported satisfaction of discouraged jobseekers. A recent paper by Dockery (2004) uses the first wave of HILDA data to separately identify the behavioural characteristics of persons in this labour force state. For the entirety of the life aspects analysed, discouraged jobseekers report a greater level of satisfaction than the unemployed. In some circumstances, such as the satisfaction reported for ‘the home in which you live’, ‘the neighbourhood in which you live’ and ‘the amount of free time you have’, discouraged jobseekers as a whole ranked higher than the employed. With three subsequent waves of HILDA data now available, these behavioural characteristics can be further analysed, leading to an improved understanding of the welfare of discouraged jobseekers in comparison to other labour market states.

3. The Data

HILDA is Australia’s first nationally representative household panel survey.⁷ The panel was established through the ‘Wave 1’ interviews of a randomly selected sample of households commencing from late August 2001, and the sample is designed to be representative of all members of private dwellings.⁸ At the time of writing, data from four waves (2001-2004) are available. The survey consists of three questionnaire instruments – a household questionnaire administered to an adult member of the household and collecting information about the household unit; a person questionnaire administered to each member of the household aged 15 or over, and a self-completion questionnaire which individuals aged 15 and over were to complete by themselves and return. Households and individuals from the initial panel and those who later come into the scope of the survey are re-interviewed each year. A total of 7,682 households were interviewed in Wave 1. From these households there were 13,969 respondents to the person questionnaire. The number of respondents to the person questionnaire in waves 2-4 was 13,041, 12,728 and 12,408, respectively. HILDA contains rich information on personal characteristics, socio-economic background, family circumstances, current activities and lifestyles along with a wealth of attitudinal data.

The person questionnaire includes the series of questions required to classify individuals into the major labour force states of employed, unemployed and not in the labour force (NILF). Those not in the labour force are asked whether they would like a job and, if they reply ‘yes’ or ‘maybe/it depends’, they are further asked the main reason they have not been looking for work in the past four weeks. Those who indicated their main reason for not looking for work was that they were discouraged were classified, for the purposes of this analysis, as discouraged jobseekers.⁹ Thus those not in the labour force are divided into two mutually

⁷ Details on the survey and sampling frame can be found in the HILDA Discussion Paper and HILDA Technical Paper series published jointly by the Melbourne Institute and the Department of Family and Community Services. See <http://www.melbourneinstitute.com/hilda/>.

⁸ Exceptions include: foreign diplomats and foreign armed services members residing in Australia; short-term overseas residents in Australia; and those living in remote areas.

⁹ Specifically, reasons for not seeking work that qualify for discouragement include: being too young/too old; lack necessary training, qualifications or experience; difficulties with language/ethnic background; difficulties with reading/writing; or that there are no jobs available.

exclusive groups: discouraged jobseekers and ‘others-NILF’. Table 1 shows the sample sizes within these four states by wave of the survey. In each year discouraged jobseekers constitute around one percent of the sample of respondents.

Table 1: Labour force state – HILDA Waves 1-4

	Wave 1 (2001)	Wave 2 (2002)	Wave 3 (2003)	Wave 4 (2004)	Waves 1-4 Pooled
Employed	8525	8088	7991	7822	32426
Unemployed	609	516	461	413	1999
Discouraged jobseekers	126	125	102	83	436
Others NILF	4709	4312	4174	4090	17285
Total	13969	13041	12728	12408	52146

4. Comparison of Descriptive Statistics

The wealth of data provided in the HILDA survey enables a holistic examination of the comparisons between each labour force state. In this section comparisons of the self-reported circumstances faced by individuals in the different labour force states are compared using indicators encompassing their financial situation, employment prospects and reservation wages and their level of satisfaction with selected dimensions of their lives. In the interest of parsimony, results are presented here only for data pooled over the four years and attention is drawn to whether results are consistent for individual years.¹⁰ Consequently the one individual may contribute as many as four observations to the calculated means or frequencies.

Financial stress

The HILDA survey provides a variety of indicators that enable comparisons of the financial comfort of persons in each labour market state. The self-completion questionnaire asks whether a series of things occurred during the year due to a shortage of money. The proportion of respondents reporting these incidences of financial stress is shown in Table 2. It is clear that the unemployed are more likely to experience such occurrences than either the employed or others-NILF. On the other hand, discouraged jobseekers demonstrate similarities to the others not in labour force and employed states. Formal chi-square tests show that the higher proportion of unemployed persons reporting these occurrences relative to discouraged jobseekers is highly significant (at the 1 percent level) in each case except being unable to heat the home for which the difference is significant at the 5 per cent level. However, when the discouraged jobseekers are compared to others-NILF there is no significant difference in the proportion reporting each incidence, again with the exception of being unable to heat the home where the higher proportion of discouraged jobseekers reporting this incidence of financial stress is marginally significant (at the 10 percent level).

¹⁰ Relevant tables by wave of the survey are provided in Appendix 1.

Table 2: Indicators of Financial Stress by Labour Force Status, pooled data for HILDA Waves 1-4

Variable	Employed	Unemployed	Discouraged Jobseekers	Others not in Labour Force
Could not pay bills on time	15.9%	33.6%	18.6%	15.9%
Could not pay mortgage/rent on time	7.7%	16.7%	8.6%	6.9%
Pawned or sold something	4.5%	17.0%	6.6%	6.1%
Went without meals	3.2%	14.9%	5.0%	4.5%
Was unable to heat home	2.2%	9.2%	6.1%	4.2%
Asked for financial help from friends or family	14.4%	34.4%	12.3%	13.4%
Asked for help from welfare/community organisations	2.5%	17.0%	6.5%	6.0%

Notes: Number of observations 29367-29471 employed, 1714-1732 unemployed, 372-383 discouraged jobseekers, 15223-15473 others not in labour force.

The differences by labour force state observed for the pooled data are reasonably consistent for individual waves of the data, although with reduced sample sizes the differences are no longer significant in a small number of cases. The higher incidences of financial stress for the unemployed relative to discouraged jobseekers are not significant for being unable to pay the mortgage/rent and being unable to heat the home in Wave 1, being unable to heat the home in Wave 2 and for five of the seven measures in Wave 4. On the other hand, the higher incidence of financial stress of discouraged jobseekers relative to others-NILF is significant for being unable to pay the mortgage/rent and heat the home in Wave 1 and being unable to pay bills on time and going without meals in Wave 4. While it is clear that on these measures discouraged jobseekers experience of financial stress is more similar to that experienced by others-NILF than the unemployed, there is some sign that the discouraged jobseekers and unemployed are more alike in Wave 4. This may be associated with economic trends, notably the very strong output and employment growth of the Australian economy over this period, or a consequence of non-random rates of attrition from the survey.

As a further indicator of individuals' financial circumstances, respondents are asked a question on how difficult it would be to raise \$2000, with the choices of 1 'Could easily raise \$2000', 2 'Could raise \$2000 but it would involve some sacrifices', 3 'Would have to do something drastic to raise \$2000', or 4 'Could not raise \$2000' (see Table 3). As expected, the employed and others-NILF report being most readily able to raise \$2000. Discouraged jobseekers are also clearly far more confident of their ability to raise money than the unemployed. These differences are statistically significant for the pooled data and for each of the individual years.¹¹ The discouraged jobseekers are also significantly less confident than others-NILF of being able to raise money, so on this measure discouraged jobseekers appear financially better off than the unemployed, but are statistically distinct from both the unemployed and others-NILF. Seeing that the \$2000 is a nominal figure, each labour market state reported an easier ability to raise the money in the succeeding waves. As salaries and welfare payments are generally pegged to inflation rates, this result is also to be expected, and the strong growth in the Australian economy over this time may also have had an impact.

¹¹ Given the data in Tables 3 and 4 are frequencies across ordinal scales the relevant test statistic used is the Mantel-Haenszel chi-square statistic.

Table 3: Ability to raise \$2,000, pooled data for HILDA Waves 1-4

Ability	Employed	Unemployed	Discouraged Jobseekers	Others not in Labour Force
Could easily raise \$2,000	55.4%	20.1%	35.9%	50.2%
Could, but would involve some sacrifice	24.8%	20.2%	25.1%	20.2%
Would have to do something drastic	10.7%	19.7%	10.2%	9.2%
Could not raise \$2,000	9.0%	40.0%	28.8%	20.4%
Total	100.0%	100.0%	100.0%	100.0%

Notes: Number of observations 29531 employed, 1742 unemployed, 382 discouraged jobseekers, 15370 others not in labour force.

When asked to rate their family's level of prosperity *given their current needs and financial responsibilities* the employed are clearly most likely to assess their financial situation as being reasonably comfortable or better, followed by others not in the labour force. The main difference in the patterns of response by the unemployed and discouraged jobseekers is the higher proportion of unemployed persons reporting themselves as poor, however taking account of the ordinal nature of the data the difference in the responses are not statistically different for the pooled data. This is because the picture changes across the four waves of the survey with the discouraged jobseekers reporting initially superior levels of prosperity than the unemployed, but lower levels of prosperity by Wave 4 (See Appendix Table A3). The responses of discouraged jobseekers are significantly different to those of the others-NILF group, with the main difference being that a larger proportion of discouraged jobseekers see themselves as just getting by as opposed to being reasonably comfortable when compared to others-NILF. For the individual years, the difference is significant for Waves 3 and 4.

Table 4: Self-assessed prosperity, pooled data for HILDA Waves 1-4

Self Assessed prosperity	Employed	Unemployed	Discouraged Jobseekers	Others not in Labour Force
Prosperous	1.6%	1.7%	1.0%	1.1%
Very comfortable	14.9%	9.5%	8.2%	11.5%
Reasonably comfortable	54.1%	32.8%	36.5%	48.7%
Just getting along	26.9%	43.6%	46.8%	33.1%
Poor	2.1%	10.0%	4.9%	4.4%
Very poor	0.4%	2.5%	2.6%	1.2%
Total	100.0%	100.0%	100.0%	100.0%

Notes: Number of observations 29588 employed, 1748 unemployed, 389 discouraged jobseekers, 15670 others not in labour force.

It is possible that the interpretation of this indicator may lead to dubious responses. Respondents may confuse needs with wants, while financial responsibilities will almost certainly grow with income. An example is that the affluent are more likely to acquire larger mortgages for more luxurious homes and send their children to private schools, therefore, it may be difficult interpret this indicator as a genuine measure of prosperity. In addition, the limited and descriptive choices of response appear to direct the individual to the 'Reasonably comfortable' category as it is a milder response than the 'Very comfortable' or 'Just getting along' categories it lies between.

Employment Prospects and Reservation Wages

Respondents who are not working but claim they want to work, encompassing all the unemployed and discouraged jobseekers and around one-quarter of the others-NILF, are asked ‘the percentage chance of finding a suitable job in the next 12 months’. For unemployed persons across the four waves of the survey the mean response on their chance of finding a suitable job in the coming years was 64.3 per cent. For discouraged jobseekers, the mean is dramatically lower at 18.2 per cent. Even the others-NILF to whom this question was put recorded a mean of 45.0 per cent. Note that these include the non-employed who indicated that they would like to work but for whom the main reason they had not searched for work was other than not believing they would find a job. These other reasons could include personal reasons (eg. illness or disability, pregnancy, lack of transport), childcare or other family responsibilities. As would be expected, and presumably partly due to the fact that they are not actively seeking work, discouraged jobseekers perceive their chances of finding work to be very low. In each year, standard t-tests show the higher means for the unemployed and the applicable others-NILF to be significant in statistical terms.

The same categories of non-employed individuals are also asked the minimum acceptable wage per hour necessary to accept employment. For the pooled data, discouraged jobseekers report the highest minimum wage (\$15.39) followed by others not in labour force (\$14.81) and the unemployed at (\$13.36). This is a particularly surprising result – one might have expected that those who have given hope of finding a job would be more willing to accept a low wage offer than the conventionally defined unemployed. The mean ‘reservation wage’ is higher for discouraged jobseekers than for the unemployed in all years, and the differences are statistically significant in all but Wave 4. However, the differences in the mean reservation wages of the discouraged jobseekers and those other persons NILF who indicated a desire to work are not statistically significant.

Life Satisfaction

The HILDA survey includes a series of questions concerning the self-reported satisfaction of individuals for various life domains. From these, five dimensions of wellbeing commonly thought to have an association with unemployment are investigated: satisfaction with your employment opportunities, financial situation, health, the amount of free time you have, and the rating of satisfaction with life overall. As presented in Table 5, discouraged jobseekers are highly dissatisfied with their employment opportunities. Compared to the unemployed they are also significantly less satisfied with their health, but more satisfied than the unemployed with respect to their financial situations, the amount of free time they have and with their lives overall.¹² Relative to others-NILF they are less satisfied with their employment opportunities, financial situations and life overall, but more satisfied with their health and availability of free time. The differences in satisfaction with employment opportunities and financial circumstances relative to the unemployed and others-NILF persist in all four waves. In terms of overall life satisfaction, the unemployed are significantly less

¹² Using the Mantel-Haenszel chi-square statistic.

satisfied than discouraged jobseekers in each year except Wave 4, and this year is the only year in which overall satisfaction for discouraged jobseekers is significantly lower than for others-NILF.

Table 5: Mean ratings of satisfaction by Labour Force Status (Means with scale 0=totally dissatisfied, 10=totally satisfied), pooled data for HILDA Waves 1-4

Variable	Employed	Unemployed	Discouraged Jobseekers	Others not in Labour Force
Your employment opportunities	7.37	4.63	2.97	5.09
Your financial situation	6.39	4.00	5.10	6.25
Your health	7.69	7.46	7.26	6.81
The amount of free time you have	6.05	7.30	7.99	7.67
How satisfied are you with your life	7.91	7.40	7.85	8.05

Notes: Number of observations 32426 employed, 1999 unemployed, 436 discouraged jobseekers, 17285 others not in labour force.

5. Labour Force Transitions

A more pragmatic indication of the distinctness of the non-employment states can be gained by investigating differences in transitions over time. The four labour states – employed (E), unemployed (U), discouraged jobseekers (D), and others not in labour force (N) – in the initial period, lead to sixteen possible outcomes for the subsequent period. A two-period Markov model of the transition probabilities can be depicted by the 4x4 transition matrix below.¹³

$$P = \begin{pmatrix} p_{EE} & p_{EU} & p_{ED} & p_{EN} \\ p_{UE} & p_{UU} & p_{UD} & p_{UN} \\ p_{DE} & p_{DU} & p_{DD} & p_{DN} \\ p_{NE} & p_{NU} & p_{ND} & p_{NN} \end{pmatrix} \quad (1)$$

This four-state model can be reduced to a three-state model if the probability of discouraged jobseekers is behaviourally identical to the others not in labour force:

$$\begin{aligned} p_{DE} &= p_{NE} \\ p_{DU} &= p_{NU} \end{aligned} \quad (2)$$

Or if discouraged jobseekers are behaviourally identical to the unemployed:

$$p_{DE} = p_{UE}$$

¹³ Much of this analysis is owing to the work of Jones and Riddell (1999). However, whilst their core interest was on the behavioural distinctness of the marginally attached category, this paper focuses on discouraged jobseekers.

$$pDN = pUN \quad (3)$$

On the other hand, if both sets of equations are rejected then one could infer that the discouraged jobseeker category is behaviourally distinct and should perhaps be separately reported in labour force statistics. With four waves of HILDA data available, transitions can be calculated on an annual, two-year and three-year basis, though note that between each observation point the individual may have experienced a number of transitions between labour force states.¹⁴ The analysis here concentrates on one-year transitions only, and the sample restricted to persons aged 15-63 in the initial year, to avoid the impact of compulsory retirement. Table 6a shows the pooled one-year transition probabilities observed for the first four waves of HILDA, and Table 6b the probabilities calculated as the proportion of transitions from the initial state (rather than as a proportion of all transitions).¹⁵

Table 6: Labour force transitions from Year t to Year t+1; HILDA Waves 1 to 4
(a) As a percentage of all transitions

Initial labour force status	Labour force status in following year				Total
	Employed	Unemployed	Discouraged Jobseekers	Other NILF	
Employed	67.4	1.3	0.1	4.0	72.7
Unemployed	2.1	1.2	0.1	1.0	4.4
Discouraged jobseeker	0.1	0.1	0.1	0.4	0.7
Other NILF	4.2	1.2	0.3	16.5	22.2
Total	73.8	3.7	0.6	21.9	100.0

(b) As a percentage of persons in initial state (row percentages)

Initial labour force status	Labour force status in following year				Total
	Employed	Unemployed	Discouraged jobseekers	Other NILF	
Employed	92.7	1.7	0.1	5.5	100.0
Unemployed	47.6	27.4	1.9	23.1	100.0
Discouraged jobseeker	15.3	9.0	17.5	58.2	100.0
Other NILF	18.8	5.4	1.5	74.3	100.0

Notes: Total number of transitions =28,776.

The data suggest quite a high degree of stability over these years. Sixty-seven percent of 15-63 year olds were initially employed and then also employed when surveyed one year later; while a further 16.5 percent remained out of the labour force. Allowing also for transitions between employment and the others-NILF category, less than 10 percent of all transitions involve one or both of the unemployed or discouraged jobseeker states. Table 6b illustrates that relative to discouraged jobseekers, the unemployed are more likely to be in employment or unemployment one year on, while discouraged jobseekers are far more likely to again be discouraged jobseekers or become others-NILF one year on. Chi-square tests easily reject the hypothesis of equivalence of the pattern of transitions of the unemployed and discouraged

¹⁴ See Clark and Summers (1979) for a discussion and empirical examination into the high turnover rate of unemployed individuals.

¹⁵ Table 6a is repeated for individual years (Wave 1 to Wave2; Wave 2 to Wave 3 and Wave 3 to Wave 4) in Appendix Table A5.

jobseekers for the pooled data and for each individual year. The equivalence of discouraged jobseekers and others-NILF is similarly rejected. By this test, being a discouraged jobseeker is a distinct state from both the unemployed and others-NILF.

Of greatest interest with respect to the distinctiveness of discouraged jobseekers from the unemployed is in their probability of finding work, and thus achieving the transition into employment. Differential probabilities of finding employment between the unemployed and discouraged jobseekers may result from both the individuals' initial labour market status and any differences in the individual characteristics, such as human capital endowments. In order to condition on individual characteristics, the standard multivariate logit model is estimated in which the dependent variable is the log of the odds of the unemployed person or discouraged jobseeker being in employment when surveyed the following year:

$$\ln \frac{E_{i,t+1}}{1 - E_{i,t+1}} = \alpha + \delta D_{i,t} + \beta X_{i,t} + \varepsilon_i \quad (4)$$

Where E is the probability of being observed in employment in the following period (t+1), D denotes initial labour market state and X a vector of conditional variables observed in the initial period (t). In order to compare the conditional transition probabilities into employment of the discouraged jobseekers and the unemployed the sample is restricted to individuals in those states in Wave 1, 2 or 3 and three different models are estimated (see Table 7). The first is a base model excluding initial labour market state (model 7.1); a dummy variable, $D_{i,t}$, indicating whether or not the person is a discouraged jobseeker, as opposed to unemployed, is then added (model 7.2); and finally interaction terms between $D_{i,t}$ and the elements of $X_{i,t}$ are included to test for differential impacts of covariates for the unemployed and discouraged jobseekers (model 7.3). The models are estimated over the pooled data covering transitions from wave 1 to 2, wave 2 to 3 and wave 3 to 4.¹⁶

In model 7.2, the significance and sign of the coefficient on the discouraged jobseeker dummy is a direct test of whether or not discouraged jobseekers have a lower probability of moving into employment. A likelihood ratio test of whether the explanatory power of the unrestricted model 7.3, which distinguishes discouraged jobseekers from the unemployed through the dummy variable and interaction terms, is superior to the restricted model 7.1 is conducted. If the additional variables improve the explanatory power of the model, then this would support the hypothesis of distinctness of discouraged jobseekers and the unemployed. The same estimation strategy is repeated testing the distinctness of discouraged jobseekers and others-NILF (Table 8).

The variables included amongst $X_{i,t}$ are selected for their foundations in job search theory, in addition to their empirical success in other studies. They include gender, age, marital status, children, health status, English-language proficiency, educational qualifications and prior

¹⁶ As logistic regression uses maximum likelihood estimation, it is based on the assumption of asymptotic normality. Thus, large samples are needed to derive reliable estimates (Garson n.d.).

duration of non-employment.¹⁷ For the base model each variable has the anticipated sign. The estimated coefficients on gender and marital status are not significant. Having higher level qualifications and a shorter duration of non-employment increase the likelihood that a person will be in employment the following year. The probability of moving into employment increases with age but at a diminishing rate as indicated by the negative coefficient on the squared term. Persons with a long-term health condition, dependent children under the age of 5, whose first language is not English and who rate themselves as not speaking English well and who have not worked for several years or who have never previously been employed have lower likelihoods of moving into employment. All variables listed are binary with the exception of age, measured in years, and its square.

¹⁷ Noteworthy studies include Jones & Riddell (1999), Byrne & Strobl (2001), and Ziguras & Stricker (2004). It is probable that there are many factors that influence employment transitions, however, generality and conciseness is necessary for the limited sample size.

Table 7: One-year transition to employment probabilities – unemployed and discouraged jobseekers, logistic regression estimates

Parameter	Model 7.1			Model 7.2			Model 7.3		
	Coefficient		P> χ^2	Coefficient		P> χ^2	Coefficient		P> χ^2
Intercept	-1.719	***	0.00	-1.555	***	0.00	-1.463	***	0.00
Male	0.073		0.50	0.046		0.67	0.008		0.94
Age (years)	0.061	**	0.02	0.052	**	0.05	0.045		0.11
Age squared	-0.001	***	0.00	-0.001	**	0.01	-0.001	**	0.05
Married/defacto	0.027		0.83	0.044		0.73	0.043		0.75
Has dep child<5	-0.232		0.20	-0.227		0.21	-0.179		0.34
L-term health condition	-0.487	***	0.00	-0.487	***	0.00	-0.529	***	0.00
English difficulties	-0.884	**	0.02	-0.852	**	0.03	-0.673	*	0.09
Highest qualifications:									
Did not finish Yr 12	—			—			—		
Yr 12 or Certif I or II	0.119		0.40	0.124		0.39	0.170		0.25
Certif III or IV/Diploma	0.274	*	0.06	0.261	*	0.07	0.307	**	0.04
Degree or higher	0.721	***	0.00	0.702	***	0.00	0.762	***	0.00
Time since last worked:									
Has never worked	—			—			—		
Up to 1 year	0.888	***	0.00	0.852	***	0.00	0.819	***	0.00
1 to up to 2 years	0.207		0.35	0.193		0.38	0.201		0.38
2 to up to 5 years	-0.068		0.77	-0.088		0.70	-0.127		0.59
5 years or more	-0.629	**	0.02	-0.514	*	0.06	-0.646	**	0.04
Disc. jobseeker (D)				-0.646	***	0.00	-1.005		0.57
Male*D							1.077	*	0.06
Age*D							0.016		0.88
Agesq*D							-0.001		0.57
Married*D							0.127		0.83
Dep child*D							-1.059		0.30
Health cond*D							0.267		0.61
English diff*D							-12.371		0.98
Low quals*D							-0.248		0.71
Medium quals*D							-1.044		0.16
High quals*D							-0.710		0.46
Time since last worked									
Up to 1yr*D							1.003		0.25
1-2 yrs*D							0.144		0.90
2-5 yrs*D							0.867		0.41
5 yrs+ *D							1.718	*	0.09
Observations	1801			1801			1801		
Degrees of Freedom	14			15			29		
Model fit statistics									
Likelihood Ratio	211	***	0.00	219	***	0.00	236	***	0.00
Score	193	***	0.00	197	***	0.00	209	***	0.00
Wald	171	***	0.00	172	***	0.00	168	***	0.00
% concordant	69.2			69.5			69.9		
Likelihood ratio test (v. model 7.1)									

χ^2 /DoF		8.6/1 ***	0.00	25.0/15 **	0.05
---------------	--	-----------	------	------------	------

Notes: ***, ** and * represent significance at the 1%, 5% and 10% levels respectively.

Moving to model 7.2, the discouraged jobseeker dummy variable is highly significant in statistical terms and the estimated coefficient of -0.646 indicates that discouraged jobseekers are less likely to be employed (as opposed to not being employed) in the next period than are the unemployed who are actively seeking work. The difference in employment probabilities is quite large. With all other variables evaluated at their means, the predicted likelihood of an unemployed person making the transition to employment after 1 year is 58 per cent, compared to 34 percent for a discouraged jobseeker. In this sense there is behavioural distinction between the unemployed and discouraged jobseeker states. Likelihood ratio tests corroborate this distinction. Only two of the discouraged jobseeker interaction terms added in model 7.3 are individually (weakly) significant. The coefficients imply that both being male and not having worked for five years or more have additional positive effects on the probability of moving into employment for discouraged jobseekers as opposed to unemployed persons. The differential results for the ‘long term non-employed’ suggest those in the discouraged jobseeker state do not experience the same scarring effect of prior time out of work that is observed for the unemployed. There is also a statistically significant improvement in the overall estimation of both models 7.2 and 7.3 relative to model 7.1 based on the deviation of the log-likelihoods of the unrestricted and restricted logistic regressions, at the 1 per cent and 5 per cent levels respectively, after allowing for the added degrees of freedom.

The results of the conditional transition probabilities for the pooled others-NILF/discouraged jobseekers state entering employment are presented in Table 8. The results for the estimated coefficients in the base model are similar to those reported for Table 7 and are not further discussed except to note that the coefficients for male, being married or de-facto and having a dependent child aged under 5 are now statistically significant. When the discouraged jobseeker dummy variable is added, the coefficient reveals no significant effect of this parameter. As a result, no statistical distinction can be made between the discouraged jobseekers and others not in labour force in terms of their likelihood of being in employment in a year’s time. There is no evidence of differential effects of the individual covariates between the discouraged jobseekers and others-NILF, other than signs of a lower ‘persistence’ effect of prior duration of non-employment for discouraged jobseekers relative to others-NILF (see model 8.3 - a pattern similar to that observed in model 7.3). In contrast to the results when the discouraged jobseekers and the unemployed are pooled, the likelihood ratio tests now find that distinguishing discouraged jobseekers from others-NILF does not significantly improve the explanatory power of the models. The results are consistent with the hypothesis of behavioural similarity between discouraged jobseekers and others not in the labour force.

Equivalent models to test for the distinctiveness of the unemployed and discouraged jobseekers with respect to their likelihood of transitioning to the others-NILF state were estimated. The results (not reported) confirm, even more strongly, the distinctness of the unemployed and discouraged jobseekers, with the latter significantly more likely to enter the others-NILF labour force state.

Table 8: One-year transition to employment probabilities – discouraged jobseekers and others-NILF, logistic regression estimates

Parameter	Model 8.1			Model 8.2			Model 8.3		
	Coefficient		P> χ^2	Coefficient		P> χ^2	Coefficient		P> χ^2
Intercept	-1.992 ***		0.00	-1.993 ***		0.00	-2.002 ***		0.00
Male	0.219 ***		0.01	0.219 ***		0.01	0.209 ***		0.01
Age (years)	0.052 ***		0.00	0.052 ***		0.00	0.053 ***		0.00
Age squared	-0.001 ***		0.00	-0.001 ***		0.00	-0.001 ***		0.00
Married/defacto	0.249 ***		0.01	0.249 ***		0.01	0.251 ***		0.01
Has dep child<5	-0.394 ***		0.00	-0.392 ***		0.00	-0.389 ***		0.00
L-term health condition	-0.415 ***		0.00	-0.413 ***		0.00	-0.421 ***		0.00
English difficulties	-1.367 ***		0.00	-1.374 ***		0.00	-1.301 ***		0.00
Highest qualifications:									
Did not finish Yr 12	—			—			—		
Yr 12 or Certif I or II	0.006		0.95	0.007		0.94	0.014		0.89
Certif III or IV/Diploma	0.123		0.20	0.124		0.20	0.137		0.16
Degree or higher	0.609 ***		0.00	0.610 ***		0.00	0.624 ***		0.00
Time since last worked:									
Has never worked	—			—			—		
Up to 1 year	1.012 ***		0.00	1.013 ***		0.00	0.995 ***		0.00
1 to up to 2 years	0.236 *		0.10	0.236 *		0.10	0.230		0.11
2 to up to 5 years	-0.052		0.70	-0.051		0.71	-0.074		0.59
5 years or more	-0.596 ***		0.00	-0.597 ***		0.00	-0.643 ***		0.00
Disc. jobseeker (D)				0.173		0.43	-0.465		0.79
Male*D							0.876		0.13
Age*D							0.008		0.94
Agesq*D							0.000		0.80
Married*D							-0.082		0.89
Dep child*D							-0.850		0.40
Health cond*D							0.158		0.76
English diff*D							-10.303		0.96
Low quals*D							-0.091		0.89
Medium quals*D							-0.874		0.24
High quals*D							-0.572		0.55
Time since last worked									
Up to 1yr*D							0.827		0.33
1-2 yrs*D							0.114		0.92
2-5 yrs*D							0.813		0.43
5 yrs+ *D							1.714 *		0.07
Observations	7896			7896			7896		
Degrees of Freedom	14			15			29		
Model fit statistics									
Likelihood Ratio	953 ***		0.00	954 ***		0.00	964 ***		0.00
Score	922 ***		0.00	922 ***		0.00	930 ***		0.00
Wald	740 ***		0.00	740 ***		0.00	743 ***		0.00
% concordant	76.2			76.2			76.4		
Likelihood ratio test (v. model 8.1)									
χ^2 /DoF				0.6/1		0.43	11.2/15		0.74

Notes: ***,** and * represent significance at the 1%, 5% and 10% levels respectively.

6. Conclusions

While the number of studies into labour force transitions has risen with the growing availability of panel data, the focus of these studies has generally been on distinctness tests of the unemployed and the marginally attached, rather than the smaller subset of discouraged jobseekers. The recent availability of multiple waves of the HILDA survey enables an explicit analysis of this discouraged jobseeker state. In addition to the analyses of labour force transitions, the HILDA data enables comparisons of the unemployed with discouraged jobseekers on a range of self-reported indicators of their standard of living, wellbeing and job search behaviour.

The issue is important in part because of debate as to whether or not the inclusion of discouraged workers in the official measure of unemployment would result in an unemployment rate that was a superior measure of the state of the labour market. More significant still is the argument that discouraged jobseekers represent the very hard-core of the unemployed — a group who experience exceptional hardship from their state of joblessness; and that their exclusion from official unemployment statistics leads to inadequate attention to their needs by policy-makers. It must be acknowledged that averages can conceal a wide diversity of individual situations. However, the results presented here clearly reject the notion of discouraged jobseekers being worse off, on average, than the conventionally measured unemployed. On measures of financial stress, discouraged jobseekers are quite similar to other persons not participating in the labour force, and fare significantly better than the average unemployed person. On other measures of financial circumstances discouraged jobseekers lie somewhere between the unemployed and others-NILF. In terms of self-assessed life satisfaction, a commonly used measure of wellbeing, the discouraged jobseekers also appear better off than the unemployed, though less happy than other non-participants.

The results are less consistent with the picture of the discouraged jobseeker as someone who has fallen through the safety net, than with the neoclassical view of the utility-maximising jobseeker whose situation in non-employment does not necessitate them continuing to search for work when there is a very low expected likelihood of success. Perhaps most telling is the finding that discouraged jobseekers, on average, have a significantly higher reservation wage than the unemployed. Clearly this is inconsistent with discouraged jobseekers being more desperate for work or income. The exploration of labour force dynamics further supports the distinction made between discouraged jobseekers and the unemployed. Discouraged jobseekers follow transitions similar to the others not in the labour force state and statistically distinct from the unemployed. This is true for both transitions into employment and into the others-NILF state. Moreover, evidence is found that a main source of the differential transitions to employment is that prior time out of work does not have the same detrimental scarring effect on discouraged jobseekers as it does on the unemployed. This further undermines the notion of discouraged jobseekers being the ‘hardcore’ of the unemployed.

There are several shortcomings to this analysis. Firstly, there is no theoretical definition for the ‘behavioural comparisons’. In this paper it is applied to labour force transitions and a

variety of financial and social indicators available in the HILDA survey, but there is no reason to suggest that these are the only indicators, or even the most important. Secondly, focusing attention to such a small proportion of the population limits the reliability and detail to which the results can be studied. A more dynamic investigation into labour force transitions may perhaps also be preferable to the two-period approach used here. In particular, it is unclear as to why the characteristics of the unemployed and discouraged jobseekers seem to converge over the life of the panel on several of the measures investigated. Overwhelmingly, however, the findings reject the inclusion of discouraged jobseekers in the definition of unemployment and favour the current International Labour Organisation conventions for measuring unemployment and the unemployment rate.

Appendix A – Supplementary tables by wave of the HILDA survey

Table A1: Indicators of financial stress by labour force state

Variable	Employed	Unemployed	Discouraged Jobseekers	Others not in Labour Force
Wave 1				
Could not pay bills on time	18.3%	37.3%	19.5%	18.5%
Could not pay mortgage/rent on time	8.9%	16.5%	14.8%	8.2%
Pawned or sold something	5.4%	20.1%	8.5%	7.2%
Went without meals	3.7%	17.1%	3.4%	5.0%
Was unable to heat home	2.6%	10.7%	8.5%	5.0%
Asked for financial help from friends or family	16.2%	37.9%	14.4%	15.2%
Asked for help from welfare/community organisations	3.4%	22.4%	6.7%	6.8%
Wave 2				
Could not pay bills on time	15.8%	35.7%	14.4%	16.0%
Could not pay mortgage/rent on time	7.5%	20.0%	7.0%	7.0%
Pawned or sold something	4.3%	17.7%	3.8%	5.9%
Went without meals	3.1%	16.7%	4.8%	4.0%
Was unable to heat home	2.3%	8.6%	4.9%	4.3%
Asked for financial help from friends or family	13.4%	35.7%	7.7%	12.2%
Asked for help from welfare/community organisations	2.3%	14.4%	3.8%	5.8%
Wave 3				
Could not pay bills on time	14.8%	31.7%	18.0%	14.8%
Could not pay mortgage/rent on time	7.2%	15.3%	4.5%	6.4%
Pawned or sold something	4.3%	15.9%	5.6%	6.1%
Went without meals	3.1%	11.8%	3.4%	4.8%
Was unable to heat home	1.9%	7.1%	1.1%	4.0%
Asked for financial help from friends or family	14.3%	32.9%	11.1%	13.2%
Asked for help from welfare/community organisations	2.1%	15.9%	7.7%	5.9%
Wave 4				
Could not pay bills on time	14.5%	27.5%	24.3%	13.7%

Could not pay mortgage/rent on time	6.9%	14.7%	5.8%	6.0%
Pawned or sold something	4.0%	12.7%	8.7%	5.3%
Went without meals	3.0%	12.7%	10.1%	4.2%
Was unable to heat home	1.8%	10.2%	10.0%	3.6%
Asked for financial help from friends or family	13.6%	28.9%	17.1%	12.8%
Asked for help from welfare/community organisations	1.9%	13.1%	8.7%	5.3%

Notes: Number of observations, Wave 1: 7886-7918 employed, 534-544 unemployed, 115-119 discouraged jobseekers, 4179-4244 others not in labour force; Wave 2: 7115-7133 employed, 429-434 unemployed, 100-104 discouraged jobseekers, 3751-3802 others-NILF; Wave 3: 7296-7325 employed, 395-401 unemployed, 88-91 discouraged jobseekers, 3706-3750 others-NILF; Wave 4: 7064-7097 employed, 352-358 unemployed, 69-70 discouraged jobseekers, 3587-3653 others-NILF.

Table A2: Ability to raise \$2,000 by labour force state

Variable	Employed	Unemployed	Discouraged Jobseekers	Others not in Labour Force
Wave 1				
Could easily raise \$2,000	47.0%	13.8%	30.5%	42.0%
Could, but with some sacrifice	29.0%	22.4%	27.1%	24.2%
Would have to do something drastic	13.0%	18.0%	11.9%	10.7%
Could not raise \$2,000	11.0%	45.9%	30.5%	23.2%
Total	100.0%	100.0%	100.0%	100.0%
Observations	7925	545	118	4261
Wave 2				
Could easily raise \$2,000	56.2%	21.6%	38.0%	51.2%
Could, but with some sacrifice	24.3%	18.6%	22.0%	19.3%
Would have to do something drastic	10.7%	23.5%	11.0%	9.3%
Could not raise \$2,000	8.8%	36.3%	29.0%	20.2%
Total	100.0%	100.0%	100.0%	100.0%
Observations	7131	430	100	3722
Wave 3				
Could easily raise \$2,000	58.5%	23.2%	39.1%	53.3%
Could, but with some sacrifice	23.2%	18.5%	30.4%	18.8%
Would have to do something drastic	9.9%	20.0%	6.5%	8.4%
Could not raise \$2,000	8.3%	38.3%	23.9%	19.5%
Total	100.0%	100.0%	100.0%	100.0%
Observations	7328	405	92	3721
Wave 4				
Could easily raise \$2,000	60.9%	24.3%	37.5%	55.5%
Could, but with some sacrifice	22.4%	20.7%	19.4%	18.0%
Would have to do something drastic	9.0%	17.7%	11.1%	8.2%
Could not raise \$2,000	7.7%	37.3%	31.9%	18.2%
Total	100.0%	100.0%	100.0%	100.0%
Observations	7147	362	72	3666

Table A3: Self-assessed prosperity by labour force state

Variable	Employed	Unemployed	Discouraged Jobseekers	Others not in Labour Force
Wave 1				
Prosperous	1.8%	2.0%	1.7%	1.4%
Very comfortable	13.9%	9.8%	10.9%	10.2%
Reasonably comfortable	54.1%	31.8%	40.3%	48.1%
Just getting along	27.7%	42.1%	41.2%	34.2%
Poor	2.3%	12.0%	4.2%	4.8%
Very poor	0.3%	2.4%	1.7%	1.2%
Total	100.0%	100.0%	100.0%	100.0%
Observations	7950	551	119	4333
Wave 2				
Prosperous	1.3%	1.2%	0.9%	0.9%
Very comfortable	14.1%	9.0%	11.3%	10.9%
Reasonably comfortable	53.4%	31.3%	39.6%	48.7%
Just getting along	28.7%	45.9%	42.5%	33.8%
Poor	2.2%	10.4%	2.8%	4.5%
Very poor	0.3%	2.3%	2.8%	1.1%
Total	100.0%	100.0%	100.0%	100.0%
Observations	7146	434	106	3835
Wave 3				
Prosperous	1.9%	1.2%	1.1%	1.1%
Very comfortable	16.8%	10.4%	4.3%	12.9%
Reasonably comfortable	53.7%	31.3%	36.6%	49.4%
Just getting along	25.1%	47.8%	52.7%	31.6%
Poor	2.1%	6.7%	5.4%	3.8%
Very poor	0.4%	2.5%	0.0%	1.2%
Total	100.0%	100.0%	100.0%	100.0%
Observations	7346	402	93	3787
Wave 4				
Prosperous	1.6%	2.2%	0.0%	1.1%
Very comfortable	14.8%	8.6%	4.2%	12.4%
Reasonably comfortable	55.4%	37.7%	25.4%	48.6%
Just getting along	26.0%	38.5%	54.9%	32.5%
Poor	1.7%	10.2%	8.5%	4.3%
Very poor	0.4%	2.8%	7.0%	1.2%
Total	100.0%	100.0%	100.0%	100.0%
Observations	7146	361	71	3715

Table A4: Mean ratings of satisfaction by labour force state (scale of 0=totally dissatisfied, 10=totally satisfied)

Variable	Employed	Unemployed	Discouraged Jobseekers	Others not in Labour Force
Wave 1				
Your employment opportunities	7.27	4.24	3.00	5.16
Your financial situation	6.30	3.76	4.95	6.11
Your health	7.72	7.51	7.45	6.80
The amount of free time you have	6.03	7.13	8.06	7.73
How satisfied are you with your life	7.94	7.34	7.93	8.09
Wave 2				
Your employment opportunities	7.30	4.54	2.67	4.94
Your financial situation	6.22	3.87	5.19	6.09
Your health	7.68	7.46	7.17	6.75
The amount of free time you have	5.99	7.31	7.94	7.64
How satisfied are you with your life	7.86	7.36	7.90	8.00
Wave 3				
Your employment opportunities	7.45	4.89	3.11	5.08
Your financial situation	6.52	4.18	5.38	6.42
Your health	7.73	7.49	7.36	6.89
The amount of free time you have	6.06	7.58	7.92	7.56
How satisfied are you with your life	7.95	7.45	7.89	8.07
Wave 4				
Your employment opportunities	7.49	5.04	3.13	5.17
Your financial situation	6.53	4.30	4.83	6.41
Your health	7.62	7.37	6.96	6.82
The amount of free time you have	6.11	7.24	8.04	7.73
How satisfied are you with your life	7.91	7.48	7.58	8.06

Notes: Number of observations, Wave 1: 8525 employed, 609 unemployed, 126 discouraged jobseekers, 4709 others-NILF; Wave 2: 8088 employed, 516 unemployed, 125 discouraged jobseekers, 4312 others-NILF; Wave 3: 7991 employed, 461 unemployed, 102 discouraged jobseekers, 4174 others-NILF; Wave 4: 7822 employed, 413 unemployed, 83 discouraged jobseekers, 4090 others-NILF.

Table A5: Labour force transitions, as a percentage of all transitions**(a) Wave 1 to Wave 2**

Labour force status in Wave 1	Labour force status in Wave 2 (%)				Total
	Employed	Unemployed	Discouraged jobseekers	Other NILF	
Employed	66.1	1.4	0.1	3.9	71.6
Unemployed	2.1	1.4	0.1	1.2	4.8
Discouraged jobseeker	0.1	0.1	0.1	0.4	0.7
Other NILF	4.2	1.3	0.4	16.9	22.9
Total	72.6	4.3	0.7	22.5	100.0

Notes: Total number of transitions = 9954

(a) Wave 2 to Wave 3

Labour force status in Wave 2	Labour force status in Wave 3 (%)				Total
	Employed	Unemployed	Discouraged jobseekers	Other NILF	
Employed	67.7	1.3	0.1	4.0	73.0
Unemployed	2.1	1.1	0.1	1.0	4.4
Discouraged jobseeker	0.1	0.1	0.1	0.4	0.6
Other NILF	4.0	1.1	0.3	16.6	22.0
Total	73.9	3.5	0.6	21.9	100.0

Notes: Total number of transitions = 9495

(a) Wave 3 to Wave 4

Labour force status in Wave 3	Labour force status in Wave 4 (%)				Total
	Employed	Unemployed	Discouraged jobseekers	Other NILF	
Employed	68.4	1.1	0.1	4.1	73.6
Unemployed	2.0	1.1	0.1	0.9	3.9
Discouraged jobseeker	0.1	0.1	0.1	0.4	0.6
Other NILF	4.4	1.1	0.3	16.0	21.8
Total	74.8	3.3	0.6	21.3	100.0

Notes: Total number of transitions = 9327

Appendix B – Conditioned Variable Information

Table B1: Variable means for logit models

	Unemployed	Discouraged Jobseekers	Others- NILF
Dependent Variables			
In employment one year later	0.38	0.13	0.16
Others-NILF one year later	0.19	0.49	0.62
Independent variables			
Male	0.55	0.33	0.31
Age (years)	31.2	47.1	40.2
Age squared	1151	2431	1860
Married/defacto	0.38	0.64	0.59
Has dependent child aged 5 yrs or less	0.11	0.07	0.20
Has long-term health condition	0.23	0.31	0.37
Has English difficulties	0.03	0.09	0.04
Highest qualifications:			
Yr 12 or Certif I or II	0.18	0.19	0.15
Certif III or IV/Diploma	0.20	0.20	0.19
Degree or higher	0.10	0.08	0.09
Time since last worked:			
Up to 1 year	0.52	0.16	0.22
1 to up to 2 years	0.12	0.08	0.09
2 to up to 5 years	0.13	0.15	0.18
5 years or more	0.08	0.49	0.35
Sample	1576	225	7671

References

- Australian Bureau of Statistics, (2004a), *Persons not in labour force – September 2003*, Cat. No. 6220.0. Retrieved April 20, 2005, from AusStats database.
- (2004b), *Labour Force – December 2003*, Cat. No. 6202.0. Retrieved April 20, 2005, from AusStats database.
- (2003), *Persons not in labour force – September 2003*, Cat. No. 6220.0. Retrieved April 20, 2005, from AusStats database.
- (2002a), *Labour Force – December 2003*, Cat. No. 6202.0. Retrieved April 20, 2005, from AusStats database.
- (2002b), *Persons not in labour force – September 2003*, Cat. No. 6220.0. Retrieved April 20, 2005, from AusStats database.
- Bertrand, M. and Mullainathan, S. (2001), 'Do people mean what they say? Implications for Subjective Survey Data', *American Economic Review*, 91, 67-72.
- Blanchflower, D.G. and Oswald, A. J. (2004), 'Well-being Over Time in Britain and the USA', *Journal of Public Economics*, 88, 1359-1386.
- Blundell, R. W., Ham, J. and Meghir, C. (1998), 'Unemployment, discouraged jobseekers and female labour supply', *Research in Economics*, 52(2), 103–131.
- Buss, T.F. and Redburn, F.S. (1988), *Hidden Unemployment: Discouraged jobseekers and Public Policy*, Praeger, New York.
- Byrne, D. and Strobl, E. (2001), 'Defining Unemployment in Developing Countries: The Case of Trinidad and Tobago', CREDIT Research Paper, 01.09 May 2001, University of Nottingham, Nottingham.
- (2004), 'Defining Unemployment in Developing Countries: Evidence from Trinidad and Tobago', *Journal of Development Economics*, 73, 465-476.
- Chapman, B., Flatau, P. and Kenyon, P. (2004), 'The Household, Income and Labour Dynamics in Australia (HILDA) Survey Special Issue: Case Studies in Labour Economics,' *The Australian Journal of Labour Economics*, 7(2), 109-124.
- Clark, A.E. (2003), 'Unemployment as a Social Norm: Psychological Evidence from Panel Data', *Journal of Labor Economics*, 21, 323-351.
- Clark, A.E. and Oswald A.J. (1994), 'Unhappiness and Unemployment', *The Economic Journal*, 104(424), 648-659.
- Clark, K. and Summers, L. (1979), 'Labor Market Dynamics and Unemployment: A Reconsideration', *Brookings Paper on Economic Activity*, 1, 13-72.
- (1982), 'The Dynamics of Youth Unemployment', In *The Youth Labor Market Problem: Its Nature, Causes, and Consequences*, (ed) by R. Freeman and D. Wise. University of Chicago Press, Chicago.
- Denniss, R. (2003), 'Flexible Measures for a Flexible Labour Market', *Australian Bulletin of Labour*, 29(2), 113-125.
- Dockery, A.M. (2003), 'Happiness, life satisfaction and the role of work: evidence from two Australian surveys', Working Paper, 03.10 November 2003, Curtin University, Perth.
- (2004), 'Looking Inside the Unemployment Spell', *The Australian Journal of Labour Economics*, 7(2), 175-198.
- (2005), 'The happiness of young Australians: empirical evidence on the role of labour market experience', *The Economic Record*, 81(255), 322-335.

- Ehrenberg, R.G. and Smith, R.S. (2003), *Modern Labor Economics: Theory and Public Policy*, eighth edition, Addison-Wesley, Boston.
- Ferrer-i-Carbonell, A. and Frijters, P. (2004), 'How Important is Methodology for the estimates of the Determinants of Happiness?' *The Economic Journal*, 114, 641-659.
- Finegan, A.T. (1978), *The Measurement, Behaviour, and Classification of Discouraged jobseekers*. Background Paper 12. Washington D.C.: National Commission on Employment and Unemployment Statistics.
- (1981), 'Discouraged Jobseekers and Economic Fluctuations', *Industrial and Labor Relations Review*, 35(1), 88–102.
- Flaim, P.O. (1973), 'Discouraged Jobseekers and Changes in Unemployment', *Monthly Labor Review*, March 1973, 96, 8-16.
- Flinn, C.J. and Heckman, J.J. (1983), 'Are Unemployment and out of the Labour Force Behaviorally Distinct Labour Force States?' *Journal of Labor Economics*, 1(1), 28–42.
- Frey, B.S. and Stutzer, A. (2002), *Happiness and Economics*, Princeton University Press, New Jersey.
- Garson, D.G. (n.d.), *PA 765 Statnotes: An Online Textbook*, Retrieved: September 8, 2005, from <http://www2.chass.ncsu.edu/garson/pa765/logistic.htm>.
- Gastwirth, J.L. (1973), 'Estimating the Number of Hidden Unemployed', *Monthly Labor Review*, March 1973, 96, 17-26.
- Gönül, F. (1992), 'New Evidence on Whether Unemployment and Out of the Labour Force are Distinct States', *Journal of Human Resources*, 27(2), 329–361.
- Gray, M., Heath, A. and Hunter, B. (2002), 'An Exploration of Marginal Attachment to the Australian Labour Market' *Research Discussion Paper 2002-07*, Reserve Bank of Australia.
- 2005, 'The Labour Force Dynamics of the Marginally Attached', *Australian Economic Papers*, 44(1), 1-14.
- Humphrey, D. (1940), 'Alleged Additional Workers in the Measurement of Unemployment', *Journal of Political Economy*, 48, 412–419.
- International Labour Organisation (1983), Resolution concerning statistics of the economically active population, employment, unemployment, and underemployment Thirteenth International Conference of Labour Statisticians, October. International Labour Organisation, Geneva.
- (1990), *Developments in international labour statistics*, (ed) by R. Turvey, Pinter, London.
- Jones, S.R.G. and Riddell, W.C. (1999), 'The Measurement of Unemployment: an Empirical Approach', *Econometrica*, 67(1), 147–162.
- Kingdon, G. and Knight, J. (2005), 'The Measurement of Unemployment when Unemployment is High', *Labour Economics*, Article in Press. Retrieved: May 12, 2005 from Elsevier database.
- Kuch, P. and Sharir, S. (1978), 'Added- and Discouraged worker effects in Canada: 1953-74', *Canadian Journal of Economics*, 11(1), 112-120.
- Layard, R., Nickell, S. and Jackman, R. (1991), *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford University Press, Oxford.
- Lenten, L.J.A. (2000), 'The Profile of Labour Force Discouragement in Australia', *Australian Journal of Labour Economics*, 4(1), 3–17.

- Long, C.D. (1958), *The Labor Force under Changing Income and Employment*, Princeton University Press, Princeton.
- Mincer, J. (1973), 'Discouraged Jobseekers and Changes in Unemployment', *Monthly Labor Review*, March, 96, 27-30.
- Stigler, G.J. (1961), 'The Economics of Information', *Journal of Political Economy*, 69, 213-225.
- (1962), 'Information in the Labor Market', *Journal of Political Economy*, 70, 94-105.
- Stricker, P.P. and Sheehan, P.J. (1981), *Hidden Unemployment: The Australian Experience*, Institute of Applied Economic and Social Research, University of Melbourne, Parkville.
- Tachibanaki, T. and Sakurai, K. (1991), 'Labour Supply and Unemployment in Japan', *European Economic Review*, 35(8), 1575–1587.
- Van Ham, M., Mulder, C. and Hooimeijer, P. (2001), 'Local Underemployment and the Discouraged Worker Effect', *Urban Studies*, 38(10), 1733-1751.
- Watson, I. (2000), 'Beyond the Unemployment Rate: Building a Set Indices to Measure the Health of the Labour Market', *Australian Bulletin of Labour*, 26(3), 175-190.
- Watson, N. (ed) (2005), *HILDA User Manual – Release 3.0*, Melbourne Institute of Applied Economic and Social Research, University of Melbourne, Melbourne.
- Watson, N. and Wooden, M. (2004), 'Sample Attrition in the HILDA Survey', *The Australian Journal of Labour Economics*, 7(2), 293-308.
- Winkelmann, L. and Winkelmann, R. (1998), 'Why are the unemployed so unhappy? Evidence from Panel Data', *Economica*, 65, 1-15.
- Woytinsky, W.S. (1940), 'Additional Workers and the Volume of Unemployment', *Committee on Social Security of the Social Science Research Council*, Washington, Pamphlet Series No 1.
- Ziguras, S. and Stricker, P. (2004), 'Labour Market Transitions in Australia: Employment, Flexibility and Security in a Liberal Welfare Regime'. Paper presented at the TLM.NET Conference 'Quality in Labour Market Transitions: A European Challenge', Amsterdam, 25–26 November.