LOW PAID EMPLOYMENT IN AUSTRALIA

By

Yvonne Dunlop

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Centre for Strategic Economic Studies
Victoria University

…he who began a good work in you will carry
it on to completion until the day of Christ Jesus.
Philippians 1: 6

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Abstract

This thesis explores the labour market situation of low paid and unemployed adults in Australia during the mid-90s. The aim is to document evidence of the experiences of these individuals, with a view to understanding whether, in the Australian labour market, some workers may be trapped in a cycle of low pay and no pay. In short, have some workers become part of a secondary labour market in jobs where they have limited opportunities for sustained employment and earnings progression?

This empirical investigation is undertaken within a dynamic framework. It unfolds evidence about the experiences of the low paid and the unemployed in the Australian labour market with both descriptive and econometric techniques and using data from a longitudinal survey, The Survey of Employment and Unemployment Patterns. The major themes examined include the dimensions and characteristics of low paid employment, earnings mobility and patterns of labour market transition of the low paid and the unemployed, job durations and the role of casual and part-time work on future employment prospects for the unemployed. Finally, this study takes a policy perspective and undertakes a detailed evaluation of how a specific government initiative may assist individuals who have become entrenched and reliant on income support in the Australian labour market.

The main findings of this thesis indicate a diversity of experiences of low paid workers and the unemployed in the Australian labour market. For many, low paid work is a temporary experience. However, the cumulative evidence of this thesis also substantiates a significant negative relationship between previous unemployment, low pay and the labour market transition patterns of workers in the Australian labour market. The conclusion is that some workers are trapped in a cycle of intermittent work, involuntary job separations and unemployment.

Information gathered about what may contribute to this labour market situation suggests an important role for the increasing incidence of casual and part-time work in the Australian labour market. While it is found that these jobs provide valuable work opportunities for the unemployed particularly in low paid work, the evidence suggests that over time, they may not be associated with a pathway to more secure permanent jobs.

The broad implication of the findings of this thesis is that some individuals are trapped in a repeating cycle of low pay and no pay. Once entrenched, the extent to which this cycle can be broken by government intervention may be limited according to the policy evaluation undertaken in this thesis. Therefore, understanding more about this cycle and the labour market experiences of the low paid and the unemployed over the longer term should remain an important concern for policy in this country.

Table of Contents

Chapter 5 The Dynamics of Low Pay

Chapter 6 Patterns of Turnover in Post-Unemployment Jobs

Chapter 7 Future Employment, Casual and Part-Time Jobs and the Unemployed

Chapter 8 Helping the Very Long-Term Unemployed: The Impact of Targeted Assistance Measures

List of Tables

List of Figures

Chapter 1

Introduction and Overview

1.1 Introduction

Fundamental global economic change over the past twenty years has impacted deeply on the structure and operation of labour markets worldwide. In the Australian labour market, Borland (1998) has documented a widening in the earnings distribution affecting both males and females, and across and within education groups. Australia has also had persistently high levels of unemployment, with the unemployment rate remaining over 8 per cent throughout the period to 1998 and only reducing slightly since then. It has also been the case that the ways in which individuals are working has changed markedly over the past two decades. Simpson, Dawkins and Madden (1997) note that there has been a large increase in casual employment, which has occurred across all sectors of the Australian labour market, while Burgess (1997b) has reported that part-time employment for both men and women has increased markedly. Dawkins (1996) has pointed out that there is now a wider dispersion in the number of hours worked by persons in the labour market, with many working longer hours and more working fewer hours than the traditional standard working week. Coupled with these changes have been reductions in union memberships, and shifts towards negotiated work contracts between employers and

workers, encouraged by Government with an aim to improve productivity and continue the trend towards increased flexibility in the labour market.

Such dramatic change, which has continued through periods of both recession and strong economic growth, has inevitably brought with it new experiences, both good and bad, for employers and employees alike. Employers have had to find new ways to meet the challenges of globalisation and technical change. The increasing labour market flexibility embodied in these changes has been regarded as a necessary part of the process to maintain efficiency in an increasingly competitive environment. For employees, however, with the ever widening gap in earnings and persistently high unemployment, there is concern that change may have only served to increase inequality within the labour market, leaving some with new and better employment opportunities, but with others being left behind and missing out on the benefits of growth and change.

Those for which this concern is greatest are workers at the bottom of the earnings and income distributions – the low paid and the unemployed. In terms of labour market theory, the fear is that these workers may be forming part of a secondary or peripheral labour market sector, a position from which it may be difficult to escape. In this scenario, the experiences of workers are driven as much by the needs and demands of employers as they are by the preferences of the workers themselves (Weller and Webber 2001; Burgess and Campbell 1998a). Workers have jobs that are regarded as 'dead end', where they are at high risk of unemployment and only have limited opportunities for training, promotion and earnings growth (Rubery 1978). In short, the implication is that they may be caught in a self reinforcing cycle of low pay and no pay, with only limited avenues to climb the economic ladder and improve their labour market situation over time. This in turn may lead to long-term disadvantage impacting not only on their economic well being but also affecting the whole of their lives.

This thesis undertakes, within a dynamic context, an empirical investigation into the experiences of the low paid and the unemployed in the Australian labour market during the mid-90s. A central aim is to discover the extent to which the low paid and the

unemployed in the Australian labour market could be forming a secondary or peripheral workforce, entrenched in a cycle of low pay and no pay from which it is difficult to escape. Such a cycle might have several different dimensions – a tendency for the unemployed to remain unemployed or to fall back into unemployment after a period of employment, a tendency for the low paid to be unable to obtain higher paid employment, and a tendency for a repeating cycle of low paid work and unemployment.

This investigation unfolds the evidence about the experiences of the low paid and the unemployed in the Australian labour market in the following way:

First, the incidence and characteristics of low paid employment in the Australian labour market during the period 1995 to 1997 are examined. This examination includes a dynamic analysis of the year to year patterns of labour market transition and earnings mobility for low paid workers. A specific focus, which provides important evidence for the possible existence of a cycle of low pay and no pay, is a comparison of the transition patterns of persons with recent unemployment experience with those of all workers.

Second, given the finding of the initial analysis about the importance of a recent spell of unemployment in the dynamics of low paid workers, attention is concentrated on a sample of persons who initially became unemployed during the year ending September 1995. Patterns of job turnover and job stability for persons in this sample are investigated in various ways, to understand more about the intermittent nature of work for some individuals in the labour market. A particular focus is to examine the role of casual and part-time employment in the future labour market employment prospects for these initially unemployed workers.

Third, this study takes a policy perspective to investigate how government intervention in the form of an intensive interview may be able to assist persons in a position of cumulative labour market disadvantage. This is undertaken through a detailed evaluation of one particular recent initiative of the Australian Government.

The main focus group for the analyses of this thesis is adults, aged 20 to 59 who were not in full-time study. Although low pay and unemployment is high among those aged under 20, these are individuals who are most likely to be still making career choices which may have a significant bearing on their future labour market outcomes.

1.2 Contribution of the study

This thesis is intended as a contribution to filling an important gap in our understanding of the experiences of workers in the Australian labour market. To date, data limitations in Australia have precluded investigations of the dynamics of labour market experience by adult workers.[1] This thesis uses a three year longitudinal study, the Survey of Employment and Unemployment Patterns (SEUP), conducted by the Australian Bureau of Statistics (ABS) during the mid-90s, to undertake such an analysis.

In the Australian context, information about the experiences of workers over time is particularly relevant for the policy debate. For example, a major goal of wage determination policy in Australia is the protection of low paid workers through the setting of a minimum wage. The Australian Industrial Relations Commission in its consideration of safety net adjustments to the minimum wage is expressly interested in taking into account the needs of low paid workers (Plowman 1995; Australian Industrial Relations Commission 1999). Also, a great deal of debate has been concerned with finding solutions to Australia's unemployment problem. Understanding the flows of the unemployed in and out of the labour market and their experiences in employment over time is an important issue in the current debate. Coupled with these issues is the new policy direction towards welfare reform in Australia, which is aimed at encouraging welfare recipients into the paid workforce through part-time and casual work. Assessment of the viability of this new direction will be assisted by a better understanding of the experiences of the low paid and the unemployed in the Australian labour market.

[1] The Australian Youth Survey has been used in the past to examine issues of labour market transitions. The focus group of this survey however are young persons aged up to the age of 25. Until SEUP, there was no longitudinal study that covered the entire Australian labour market.

In short, the importance of the issues addressed in this research presented in this thesis has been summarised by Debelle (1998) who stated,

"An important issue in this debate is whether the employment generated by the lower wage outcomes is the first point in a career path that leads to higher wages later in the working life, or whether those gaining employment predominately remain locked into low-wage employment. The evidence on this is fairly scant." page 6

With respect to the international literature, the empirical work undertaken in this thesis will contribute in a number of ways. First, an understanding of the nature of low paid employment and unemployment in Australia will contribute to cross country comparisons of workers. International work in this area focuses specifically on the experience of low pay across different institutional settings and environment. Second, as recognised in the international literature, an important feature of low paid employment is the experience of joblessness. The available Australian data set will specifically allow an investigation of the labour market outcomes of low paid workers who have experienced joblessness, and a comparison of their experiences with the general population of low paid workers. This work will contribute to the international literature concerned with understanding the impact of joblessness on the subsequent labour market activity of low paid workers. Third, as data are available on both individual and employer related characteristics, the work undertaken in this thesis will add to a greater understanding of the relative importance of these factors on the experience of low pay and no pay.

1.3 Study Outline and Main Themes

This thesis consists of eight chapters. In Chapter 2, the background to the current research into low paid employment is presented. First, a discussion of the two contrasting views of the operation of the labour market, the traditional neoclassical theory and the segmented labour market theory, is presented. The main focus is to highlight the implications of each of the theories for workers in the labour market. Second, the empirical international

research into the extent to which workers may be trapped in a cycle of low pay and no pay is canvassed and summarised.

Chapter 3 presents details about SEUP, the main data source used for this thesis. It also provides important details about how low pay is defined and measured for the purposes of this study. Other methodological aspects are also discussed.

Chapters 4 and 5 commence the empirical investigation by examining workers in low pay. Using SEUP, Chapter 4 presents a static analysis of the dimensions of low paid employment in Australia during the period 1995 to 1997. Specifically, the aim is to examine the incidence and characteristics of low paid employment. An econometric probit analysis is undertaken to identify the relationship between various individual and job related characteristics and the probability of being low paid.

This chapter discovers the following about low paid employees in Australia:

- About one million workers, representing 19 per cent of all Australian wage and salary earners, were low paid during the period 1995 to 1997.

- Consistent with results from other countries, low paid work is associated with particular demographic groups. Specifically, women, persons who lived in rural areas, individuals who had never been married and those with poor English skills had a greater propensity to be in low paid work.

- The potential to be low paid was significantly lowered for those who had improved their job skills through training, for workers who had a tertiary education and as tenure in the current job increased.

- A significant positive relationship was found between previous joblessness and low pay. Workers who had greater amounts of time without work since leaving full-time education were more likely to be found in low paid positions, when in employment.

- Various job characteristics were also predominant in low paid employment. In particular, public sector employment and workplace size were negatively related to low pay.

- A significant relationship was also found between job type and low paid employment, with low paid workers being far more likely to be working under a casual employment contract.

Chapter 5 examines year to year labour market transitions and earnings mobility patterns of the low paid in the Australian labour market over the period 1995 to 1997. A specific aim was to investigate and compare the labour market experiences of those who had taken up low paid employment for the population of wage and salary earners as a whole with the experiences of a particular sub-group. This sub-group, the jobseekers, comprised predominately those who had recently experienced a period of time without work.

Two empirical approaches were adopted. First, a transitions probability analysis investigated the patterns of labour market and earnings transition. Second, an econometric approach – a nested logit model – was used to identify whether employment and earnings outcomes over a period of one year for those who took up low paid employment differed for particular groups of individuals or specific job related characteristics.

The major findings of this chapter are:

- There is a diversity of labour market outcomes for low paid wage and salary earners in the Australian labour market. While many low paid workers do move on to higher paid jobs quickly, it is also the case that low paid workers are the most likely of all wage and salary earners to experience joblessness within a year.

- Low paid workers in Australia can broadly be divided into two groups. In the first group, comprising about half the total number of all low paid workers, are many for

which low paid employment is likely to be a temporary experience because they move to higher paid work. These low paid workers experience upward earnings mobility. Younger adults, males and persons who live in urban areas make up a greater proportion of this group. Individuals who find work in larger workplaces are also more likely to achieve better employment outcomes.

- There is a second group of workers, however, who were found to be more likely to remain low paid or exit employment within a short period of time. Workers more likely to be in the second group overall are women, those who find employment in a very small workplaces, older workers and those living in rural communities.

- Within this second group are workers (especially those with a prior period of unemployment – the jobseekers) who appear to be in a cycle of low pay and no pay in the Australian labour market. In terms of persistence in low paid employment, the probability of moving out of low pay onto higher paying jobs is significantly less for low paid jobseekers than the population of low paid workers. Also, low paid jobseekers have double the chance of low paid workers in the population to exit to joblessness and are four times more likely than higher paid adult wage and salary earners in the population to move out of employment. This evidence suggests that workers with greater amounts of joblessness in the past were those most likely to experience joblessness again.

- Individuals who had been previously jobless and were most at risk of low pay persistence included older persons (aged over 30), those living in rural areas, those with poor English skills and those in part-time employment.

- The results also indicated an important association between job related factors and poor transition patterns, either in terms of the persistence of unemployment or the inability to move beyond low paid work. Persons who had found casual jobs and those working in small workplaces were most at risk. These findings are indicative that not

only supply related factors but also demand related factors may influence the labour market transition patterns of the low paid.

Given the inter-relationship between low paid work and unemployment in Chapter 5, Chapter 6 examines labour market transition patterns from a different angle. Drawing a sample of persons who initially became unemployed during 1994 to 1995, it explores patterns of job duration and labour market transition in their first job after unemployment. This investigation opens up in more detail the transition path investigated in the previous chapter in an attempt to understand more about why some workers may be caught up in a cycle of low pay and no pay.

The approach taken is firstly descriptive, followed by an econometric analysis which models job duration. Within a competing risks framework, the association between both individual and job related factors and their labour market status transition patterns are also empirically investigated and discussed.

There are a number of important findings from this chapter which provide evidence about the nature of the cycle of low pay and no pay for individuals in the Australian labour market.

- Post-unemployment jobs are significantly different to the jobs held by all Australian workers. Many unemployed adults are in a precarious labour market situation being caught up in a cycle of short-term work, involuntary job separations and more unemployment. This finding provides additional evidence of a cycle of low pay and no pay for a substantial number of individuals in the Australian labour market.

- Confirming the results of Chapter 5, this pattern or cycle of insecure employment is most pronounced among those who take up the lowest paid jobs.

- There is an important role for casual employment, both full-time and part-time in providing employment opportunities for the unemployed. The incidence of casual

work taken up by the unemployed is extremely high. Evidence from the econometric investigation highlighted the particularly short-term nature of casual jobs and also the diversity of transition patterns with many ending in anther spell of unemployment. Casual full-time jobs were found to be of shortest duration suggesting that these may be temporary jobs used to cover periods of high product demand.

- The high rate of underemployment, the dissatification with work conditions and the inability to obtain work in their preferred occupations may indicate that job opportunities for the unemployed are limited. Together with the high incidence of casual and part-time employment, the implication is that many unemployed have been forced to accept jobs in non-standard employment in an attempt to remain in the labour market and to gain work experience. This suggests that the role played by employers in providing jobs for the unemployed is important.

- The econometric investigation showed that those most likely to be caught up in a cycle of low pay and no pay were the youngest adult workers. In particular, those aged between 20 to 29 years were at greatest risk of leaving employment and of returning to another spell of unemployment. Women were found to have more diverse transition patterns being more likely than men to leave to a spell out of the labour market.

- An important finding from the duration analysis was that there was a positive association between worker occupational preferences and job duration. These findings are suggestive of the fact that matching the unemployed with jobs that suit their skills and abilities may be important in improving employment stability among the unemployed.

- There is a significant positive relationship between previous unemployment experience and the cycle of low pay and no pay. This suggests a situation of cumulative disadvantage for workers in the Australian labour market, a position from which it may be difficult to escape.

- Consistent with the findings of Chapter 5, workplace size was found to positively related to job tenure. Post-unemployment jobs in larger workplaces were less likely to end in another unemployment spell. This perhaps reflects differences in hiring and management strategies and types of jobs available in smaller and larger firms.

Overall, this chapter supports and builds on the findings of Chapter 5 that there is a self-reinforcing cycle of low pay and unemployment for many individuals in the Australian labour market. The major finding of Chapter 6 is that a substantial number of the unemployed appear to be in a precarious labour market position, caught up in a cycle of intermittent employment, involuntary job separation and further unemployment. Those taking up the lowest paid positions appear to be in the most precarious labour market position. Alternative work arrangements, casual full-time and part-time jobs have an important role in understanding these transition patterns. These jobs appear to be particularly short-term and more generally associated with the return to unemployment.

Chapter 7 seeks to explore the effects of this cycle of low pay and no pay by examining subsequent employment outcomes for the unemployed. What implications does the high incidence of intermittent casual and part-time work have on the future employment prospects for the unemployed? There are two opposing views. The increased availability of jobs will provide them with valuable work experience and a pathway to better employment opportunities in particular, more secure permanent work in the future. On the other hand, the precarious nature of casual jobs will entrench future employment insecurity, instead finding themselves trapped in spells of intermittent work and joblessness, reinforcing the cycle of low pay and no pay. The extent to which either of these views holds sway in the Australian labour market situation of the 90s is the aim of this chapter.

Using an econometric approach, the analysis examines the relationship between the initial work experiences of the unemployed in various job types, permanent and casual, full-time and part-time, during their first year and their subsequent labour market position after two years. Two outcome measures are included - whether they were employed after two years

and, if employed, whether they were in a permanent job. The aim was specifically to compare outcomes for individuals who took up different types of work during the first year and also to compare their outcomes with those who had no initial employment experience.

The main results of this chapter are:

- Time spent in any type of work during the first year increased the likelihood that an individual would be employed after two years. Those who had no employment experience at all during their first year were the least likely to be employed after two years.

- A comparison of future employment prospects by different types of initial work experience revealed some significant differences. Individuals who spent time in casual part-time jobs during the first year were less likely to be employed after two years. Although their future employment prospects were weaker their outcomes were still better than those who had no initial work experience and closer to those of others who had spent time in work during their first year.

- Having an intervening unemployment spell during the first year for casual full-time and part-time workers was associated with a significant reduction in the probability of being employed after two years. This suggests that short-term spells of employment and unemployment may negatively influence future employment outcomes for the unemployed.

- Individuals who started out in a low paid job did not appear to fare worse compared to higher paid workers in terms of their future employment prospects.

- Conditioning on those who were in employment after two years, permanent employment experience in the past was a significant factor determining the likelihood of subsequent permanent work. The unemployed who took on permanent work were

far more likely than any others to be employed in a permanent job after two years. Having any casual employment early on did not increase the likelihood of future permanent work compared to those who had no employment experience at all.

Despite there being some limitations to the analysis, these results have important implications for the debate about the two views of the role of casual employment.

All forms of employment, permanent and casual, full-time and part-time can provide valuable work experience opportunities for the unemployed and this is associated with a higher likelihood of being employed in the future.

However, the evidence from the analysis of this chapter also supports the negative view. Differences in the future employment prospects for the unemployed relating to their different initial experiences of work are apparent. Casual part-time jobs, and casual jobs of short duration which are associated with recurrent unemployment do significantly reduce the chances of future employment for the unemployed.

Most importantly, both casual part-time and full-time work is not found to be associated with a transition to permanent work for the unemployed. This result lends support to the view that experience in casual jobs, particularly part-time jobs which are available to the unemployed, may not provide a pathway to more secure permanent employment.

These findings implicate the need for an analysis over a longer time period to determine the long-run extent of these trends. If they persist, then this raises a concern that the unemployed may be found in a situation of cumulative disadvantage in the labour market. Such a situation would have important policy implications and may generate social and economic problems likely to influence the Australian economic environment.

Chapter 8 has a direct policy focus, looking in detail at the outcomes of one policy initiative in Australia to address the position of the long-term unemployed. It assesses the impact of targeted assistance measures to improve the labour market situation for persons

who had been unemployed and in receipt of income support for over five years. Specifically, this chapter reports the results of a randomised experiment. Using evaluation techniques, including experimental methods and the non-experimental method of propensity score matching, it examines whether an intensive interview process could increase their economic and social participation, as measured by their hours of work, job search, study or training and voluntary work. Also, information collected in the survey provided evidence of the personal situation in terms of barriers to employment faced by the long-term unemployed.

- The main finding of the evaluation was that a modest increase in economic participation levels could be attributed to the intensive interview process. Specifically, the amount of study and training and the proportion of individuals undertaking study and training both increased. These results were generally not surprising given the minimal size of the intervention. The extent to which the increase in hours of study and training may translate into a broader range of outcomes, particularly an increase in employment is a longer-term question beyond the scope of this chapter.

- The evidence indicates that this long term unemployed group face significant and multiple barriers to employment including psychological problems, health issues, difficult family circumstances and demand related barriers that are likely to hinder their ability to find work. The idiosyncratic nature of these barriers, together with the interviewer perceptions about their lack of basic skills, highlights that assistance for these individuals may need to be substantial, highly specialised and occur over a long period of time. Further, their barriers to employment are likely to overshadow any options open to them to participate in the labour market and would need to be tackled as a first step in assisting individuals back into employment.

- Overall, this study draws attention to the position of disadvantage for the long-term unemployed in the Australian labour market. In particular, the results suggest that moving individuals away from the position of reliance on welfare support is a difficult

process. This highlights an important policy consideration. Improving the labour market situation of individuals before they become reliant on income support must be a priority for government in the labour market environment for the new decade ahead.

1.4 Conclusions

This study has undertaken an empirical investigation into the labour market situation of the low paid and the unemployed in the Australian labour market during the mid-90s.
The aim has been to document evidence of the experiences of these individuals, with a view to understanding whether, in the Australian labour market, some workers may be trapped in a cycle of low pay and no pay. In short, have some workers become part of a secondary labour market in jobs where they have limited opportunities for sustained employment and earnings progression? The danger of this situation is that it is likely to lead to cumulative labour market disadvantage, not only affecting their economic well being but spilling over to every aspect of their lives.

The major finding of this investigation is that there is a diversity of experiences for low paid workers in the Australian labour market. For many, low paid work is a temporary phenomenon, an opportunity to gain valuable work experience and move on to better paying jobs within a relatively short period of time. However, the cumulative evidence from the analyses of this thesis has also substantiated a significant negative relationship between previous unemployment experience and labour market outcomes. These findings lead to the conclusion that others experience a different labour market situation, remaining in low pay or cycling between spells of employment and unemployment over time.

This thesis has gathered some important information about the factors that may contribute to the labour market situation of the low paid and the unemployed and their experiences over time.

- Evidence about the dimensions and characteristics of low paid employment and the significant proportions who leave low pay for higher paying jobs draw attention to an important role for the accumulation of human capital in the Australian labour market.

Workers who had received training and those with higher skills were less likely to be low paid, while younger workers and males were more likely to leave low pay for higher paying jobs over time.

- On the other hand, persons at greater risk of the persistence of low pay and a cycle of low pay and no pay include women, those with poor English skills and persons living in rural or low socioeconomic areas. Also, persons employed in small workplaces appear to be particularly at risk of poor labour market outcomes.

- Employment instability coupled with the increasing trend towards casual and part-time employment in the Australian labour market has played an important role in understanding the poor labour market experiences of some low paid and the unemployed adults. Although casual and part-time jobs have provided valuable job opportunities, particularly in low paid work, evidence indicates that many of these jobs are relatively short-term leaving individuals caught up in a cycle of intermittent work, involuntary job separations and unemployment. Over time, experience in these jobs are not found to be associated with a pathway to more secure permanent employment.

- The high rate of underemployment, dissatisfaction with work conditions and the high level of involuntary job separations lead to the conclusion that job opportunities for some in the Australian labour market may be limited. This, together with the increasing incidence of casual and part-time employment suggests that the actions of employers may play an important role in understanding the experiences of low paid workers and the unemployed in the Australian labour market.

Overall, the implication of these findings is that in the Australian labour market some may be trapped in a repeating cycle of low pay and no pay. Once entrenched, the extent to which such a cycle can be broken by government intervention may be limited, according to the policy evaluation undertaken in this thesis. The evidence pointed to multiple and idiosyncratic barriers to work for persons who have been reliant on income support for a long period of time. Intervention for these people in the form of intensive interviews and a

participation plan did little to improve their labour market situation over time. The implication is that assistance would need to be highly specialised and occur over a long period of time. This finding suggests that an important policy focus is to assist individuals before their labour market situation leads them to heavy reliance on income support, a position from which it becomes difficult to escape.

Returning to the main aim of the thesis - has the labour market become segmented where some workers are trapped in a cycle of low pay and no pay in the Australian labour market? The evidence accumulated in this thesis lends some support for both labour market theories. The upwards movement of workers in the labour market through low paid employment highlights the role of traditional human capital theories. The accumulation of time and experience in the labour market enables them to reap the rewards with higher pay and better jobs. However, the poorer labour market outcomes of those who experience low pay and unemployment are indicative that this situation may carry with it a degree of cumulative risk and a negative effect on future employment prospects. Overall, workers may be scarred from their experiences in low paid jobs and unemployment implicating that to some degree, labour market segmentation may exist in the Australian labour market. Workers in this situation should be of great concern for policy in this country.

Chapter 2

Low Paid Employment - Theory and Evidence

2.1 The Economics of Low Pay

Labour market theories are concerned with its organisation and operation, the decisions and outcomes for participants and the mechanisms by which participants interact. The processes of wage determination, job allocation and reasons for unequal returns to work between individuals are some of the important aspects which the theories consider (Tamm 1997). In this section, two major theories which reflect disparate views about these processes and their impact on low paid employment – the neoclassical labour market theory and the theory of segmented labour markets - are discussed. They each suggest that different mechanisms are important in the determination of pay and the allocation of jobs. The implications relating to outcomes and rewards for low paid workers from these theories are diverse and can lead to differing prescriptions for policy relating to the low paid.

2.1.1 Neoclassical labour market theory

The basic building blocks for the neoclassical view of the labour market are the concepts of perfect competition, full information and rational employers and employees. Within this

environment, the employer's goal is to maximise profits and in so doing, finds workers who can provide productive labour for lowest cost. On the other hand, workers seek to maximize their utility or job satisfaction from real wages. Both employers and employees have fairly accurate knowledge about available job opportunities and wages, and there is nothing that hinders job mobility (Loveridge and Mok 1979). Hence, the labour market is in equilibrium where both supply and demand interact to determine both the level of wages and employment. Workers find employment in jobs that best suit their individual skills. By suitably rewarding workers, employers find the most productive workers to maintain efficient production and maximise profits.

The determination of pay describes the ways individuals take up different types of jobs and the different rewards they obtain. Within the neoclassical theory, pay determination is explained predominately through the concept of human capital. Workers invest in formal education and/or in training on-the-job and other specific industry training so long as the expected returns to the investments outweigh the cost. The higher the human capital investment, the greater is a worker's productivity and hence the reward or wage that can be obtained through work (Preston 1997). Differences in wages paid to individuals are because of variations in individual worker characteristics and human capital investments which give rise to differences in productivity levels (Mincer 1974). The theory does not explain how workers are allocated to jobs or differences in the work requirements of employers.

Job characteristics too can influence pay determination and this is recognised in the theory of compensating differentials (McConnell and Brue 1992). This theory postulates that additional pay might be provided to workers of the same productivity level, for example, to compensate for some undesirable characteristic of a job such as the high risk of injury, remote location, poor job security or job status. The important assumption is that the compensating differential is an equilibrating factor explaining sustained disparities in wages between workers with similar productivity levels (McConnell and Brue 1992). The main theme is that workers make tradeoffs between their own preferences and the

characteristics of the job and this helps explain differences in rates of pay to similar workers.

Within the neoclassical framework, other reasons to explain persistent pay discrepancies have also been put forward (Tamm 1997). For example, individual pay differences may result from short-term market imperfections relating to the quality of information the employers and employees have about each other. These however, in the long-run will disappear as more accurate information unfolds and employers reward workers according to their levels of productivity. Alternatively, differences in the level of pay may be caused by discrimination by employers or irrational behaviour by employees. For example, sex, age or racial discrimination by employers have been considered as inherent in the operation of the labour market (Becker 1975). Such discriminations and behaviours are regarded as distortions caused by irrational behaviour which leads to imperfections in the allocation of jobs in the labour market. In the neoclassical view however, these are regarded as exogenous and not generated by the operation of the labour market itself.

In summary, pay determination in the neoclassical view is described predominately by the theory of human capital which suggests that worker heterogeneity, particularly in terms of human capital investments and preferences are the primary cause of wage differences. Other reasons for pay disparities are created by distortions or market imperfections which disappear in the long-run.

The implication for low paid workers in the neoclassical labour market is that they are low paid mainly because of the low level of human capital and productivity they possess.
In terms of earnings dynamics, a person who remains low paid does so because they are unable or unwilling to obtain the necessary skills to move to higher paid work (Leontaridi 1998). A low paid worker can increase his or her wage by investing in human capital and hence productivity by acquiring labour market skills through training, education and work experience. In fact, with on-the-job training, it could be the case that entry level low paid workers investing in human capital may experience large pay increases over time as they have foregone current earnings for higher rewards in the future (Schiller 1977).

2.1.2 Segmented labour markets

Proponents of segmented labour market theories argue that the traditional neoclassical view fails to address major policy issues (Leontaridi 1998). The theory suggests an important role for the demand side in the functioning of the labour market. Actions of employers and employees in response to social and institutional factors inhibit the operation of the labour market, creating segments which give rise to problems of unemployment, income distribution and discrimination (Taubman and Wachter 1986).[1] The segments operate in very different ways and so the basic economic processes of wage determination, job allocation, education and training cannot be captured by one single model of human behaviour (Tamm 1997). As a result, workers are affected in diverse ways especially with respect to their experiences and rewards for work.

As Ryan (1984) suggests, the fundamental theme of segmentation theory is that:

"it results in the failure of the labour market to treat its participants even-handedly, in that it accords significantly different opportunities to otherwise comparable people" (page 4).

While there have been many variants of labour market segmentation, the basic theory assumes that the labour market is divided into two segments between which there is only limited scope for mobility – the primary and secondary sector.[2] Labour usage between the two segments is very different.

Primary sector jobs are regarded as essential to the production process. They are 'good' jobs being well paid, secure positions with opportunity for on-the-job training and advancement so as to reduce labour turnover and enhance the skill base within the

[1] There have been many reasons put forward to explain the reasons and sources for segmentation. Some of these include industrial organisation, product market and technological conditions, managerial control strategies and labour market regulation. See Leontaridi (1998) for a discussion of these.
[2] Leontaridi (1998) and Taubman and Wachter (1986) both have excellent reviews of the segmentation literature.

organisation.[3] In early work relating to this theory much of the discussion centred on the existence of internal labour markets (Tamm 1997). The terms of employment within them are governed by formal administrative rules that ensure positive returns to investment in human capital. An important feature of the internal labour market is job ladders which provide important pathways for improvement of skills, earnings and status within the organisation. Recruitment for primary sector workers is generally undertaken within the ranks of the primary sector workers themselves. Only limited low paid entry levels for individuals exist. These provide ports-of-entry from which workers can gain skills and be promoted to higher ranks in the primary sector.

Jobs in the secondary labour market have characteristics that are exactly the opposite. Requiring few skills, they offer low wages and are generally associated with limited prospects for advancement. Employers are indifferent between secondary labour market workers and recruit freely from the open market. Hence, employment instability and the risk of unemployment for workers are high. Secondary sector workers are offered little in the way of rewards for human capital through promotion or earnings increases. Generally there is no collective voice in a union presence and hence workers have limited bargaining power raising the potential for discrimination and exploitation.

Another important feature of the segmented labour market theory is the existence of a negative feedback effect (Taubman and Wachter 1986). Although workers may have similar characteristics to those in the primary sector at first, their experience in secondary sector jobs will influence their own ability and skill set. Over time they are at risk of becoming 'acclimatised' to that type of work, develop bad work habits and thus become unsuitable for work in a primary sector job (Beck 1998). Thus secondary sector employment can lead to a scarring effect on workers generating a higher chance of future 'bad job' employment.

[3] Some have further divided the primary sector into two tiers – one in which workers enjoy substantial earnings mobility. Workers are generally highly educated and in professional positions. The lower tier workers have stable employment, acquiring skills on the job. See Tamm (1997) for a discussion. The main differences between the primary and secondary sectors however remain the same.

A contemporary variant of segmented labour market literature is the flexible firm hypothesis. Developed by Atkinson (1987), the theory suggests that duality exists within firms or enterprises where the workforce is divided into two groups – a core and a periphery. Core workers have full-time stable jobs that are important to the continual operation of the firm. Periphery workers are used by the firm to cover periods of high product demand. They undertake routine tasks and have skills that are easily found on the open market. A third group of workers are the external workers or self employed subcontractors who undertake specific essential and routine tasks. This duality is mainly the result of deliberate managerial practices acting in response to changes in product markets, technological advances and increased competition. Once again, the hypothesis divides labour into groups of workers with different rewards for work and different opportunities in the labour market.

In summary, the situation for low paid workers in the segmented labour market view is bleak. Basically, the theory suggests that workers are not necessarily low paid because of their poor skills but they can be constrained by the practices of employers and even other workers who have an impact on the functioning of the labour market. This constraint can confine workers to a labour market experience in poor jobs which are characterised by low pay, high instability, a high risk of unemployment, poor working conditions and few opportunities for training.

2.1.3 Comparison of theories

In comparison, the neoclassical and segmentation theories discussed above suggest contrasting predictions for workers in the low paid labour market. The most significant and important distinction involves what happens to low paid workers over time in the labour market. The neoclassical view suggests that personal characteristics determine individual differences in earnings. As low paid workers undertake training and gain work experience, therefore, their pay level should increase being rewarded for their corresponding increase in productivity (Leontaridi 1998). In contrast, a segmented labour market view of the world suggests that low paid workers have a high potential to be

trapped in poor quality jobs associated with a high risk of unemployment, low earnings, limited earnings progression and opportunities for advancement.

Whereas demand and supply combine in the determination of pay and employment in the neoclassical view, it is investment in human capital that is seen as a dominant influence on pay determination. Demand side factors which influence the actions of employers and institutional forces play the dominant role in the operation of a segmented labour market and influence the determination of pay among workers.

Poor job characteristics are compensated for by higher pay in the neoclassical theory whereas 'bad' jobs which have many low quality characteristics including low pay are the norm for workers in the secondary sector of the labour market.

Finally, unemployment in the neoclassical view is voluntary and short-term. Once again, because of the poor job characteristics, the risk of unemployment is high among the secondary sector workers relative to those in primary sector jobs.

The extent to which either of these labour market theories describes the actual experiences of workers is also important for policy (Taubman and Wachter 1986; Leontaridi 1998). As low pay in the neoclassical view is predominately related to the characteristics of the worker, then the emphasis of policy would be with enhancing individuals' skills, experience and employability. Armed with new human capital, low paid workers should be able to improve their market situation (Contini, Filippi and Villosio 1998).

Although the neoclassical view does recognise that some discrimination may exist, segmented labour market theory goes further and places more emphasis on the demand side factors (Taubman and Wachter 1986). Policies targeted at the protection of low paid workers in the workplace and from an institutional setting such as minimum wages would be important in the segmented labour market world. Further, the social consequences of low paid employment such as poverty and social exclusion caused through the persistence

in low paid work are also important policy issues raised by the segmentation literature (Lucifora and Salverda 1998).

2.2 Low Paid Employment – The Evidence

The two contrasting labour market theories and their different predictions about low workers in the labour market highlight the need to undertake empirical studies of workers in low paid employment. Over the most recent decade, there has been a wealth of literature that has investigated this issue. Much of this work has been undertaken in countries of the European Union, especially the United Kingdom (UK) where equity issues relating to low paid workers have been a major policy concern (Sloane and Theodossiou 1994).

Based on the theoretical considerations, empirical work has focused on investigating the experiences of low paid workers in the labour market. Three areas have been of particular interest

- the dimensions and characteristics of low pay – in particular, the prevalence of low pay among particular groups of workers;
- the dynamics of low paid employment - that is, the capacity of workers to escape low pay by moving onto higher paying jobs; and
- labour market transitions – that is, the extent to which low paid workers move in and out of employment.

In the next section, the empirical work that has been undertaken in these three areas in the international literature is canvassed and summarised. A brief discussion about the Australian literature follows in Section 2.3.

2.2.1 International literature

The characteristics of low pay

Investigating the likelihood of low paid employment for various groups of workers using descriptive and econometric methods has been an important starting point for many

empirical studies of low pay. Studies have been undertaken both within specific countries but also across countries. Although the actual numbers of low paid workers have been found to vary both across and within countries, most studies find that there are specific groups of workers for whom the likelihood of low pay is greatest.[4] Younger persons and those with low education are, at any point in time, consistently most likely to be found among the low paid. This finding holds true with what would be expected from the human capital theory where it is those with low levels of experience in the labour market that are most likely to be low paid.

Studies also consistently find that the likelihood of low pay does vary for other groups of individuals. For example, women are more likely to be low paid than men. This reflects in part, the fact that they have less labour market experience and poorer educational qualifications (Fernie and Metcalf 1996; Asplund and Persson 2000) but also their preferences for combining work with domestic duties. Therefore, they may be willing to trade off convenience for pay. In a UK study by Fernie and Metcalf (1996), the link between marital status and low pay was found to differ between men and women. Marriage had a negative impact on the incidence of low pay for men though the same effect was not evident for women. This partly reflected that unmarried men are younger. However, it could also reflect differences in family responsibilities causing married men to work harder, be more ambitious or even that married men are higher quality workers than single men (Koreman and Neumark 1991).

Other groups that have been found to have a higher likelihood of low paid employment include minority racial groups, industry sector groups, and particular occupations. For example, studies undertaken in the UK have indicated that race has a major impact on the incidence of low pay with black men and women being more likely to be found in a low paid job (Fernie and Metcalf 1996). A major study by the Organisation for Economic Cooperation and Development (OECD) (1996) also found that the incidence of low pay was higher among workers in the sales and personal service areas which are growth

[4] This variation has been due to differences in definition and measurement as well as differences in institutional factors across countries.

sectors in many OECD countries. Keese, Puymoyen and Swaim (1998) reported that clerical workers as well as sales workers faced a higher risk of low pay in some OECD countries. Individuals in unskilled labourering occupations were also found to have a higher likelihood of low pay.

Some studies examined whether particular job and workplace characteristics are associated with the likelihood of low pay. Fernie and Metcalf (1996), for example, find that the risk of being low paid is greater for workers who are employed part-time. Stewart and Swaffield (1997) found that for UK workers, employees in larger establishments and union members were less likely to be low paid. Firm size was also found to be negatively related to low pay for Italy by Lucifora (1998). This partly reflects the fact that smaller firms do tend to pay lower earnings but is also likely to reflect other differences between small and larger firms such as the ability of firms to offer training and promotions.

Cross country studies have noted that these findings of the incidence of low paid employment and the characteristics of low paid workers are fairly common across many countries. Although the incidence can vary with institutional factors, the same types of persons are likely to be low paid in many countries. Keese, Puymoyen and Swaim (1998) who compare some 19 OECD countries, report that younger persons, females and low skilled workers are the most likely workers to be employed in low paid jobs. Also, similarities across countries exist in the higher incidence of low pay for those in the wholesale, retail and catering services. Another consistent finding across countries is the higher incidence of low paid employment in smaller firms.

In summary, the studies of the dimensions of low paid employment indicate that the burden of low pay is greater among particular groups of workers and is also more prevalent among certain types of jobs. However, it is recognized that these studies can only provide the snap shot or static analysis of low paid employment. If studies of low paid employment are to be important in formulating policy response then questions of the dynamics of low paid employment need to be addressed. Is there a persistence in low pay?

Do the same workers experience low pay over a period of time or do workers enjoy upwards earnings progression?

The dynamics of low pay

A great deal of research has been undertaken in addressing these questions. Focusing on workers who are continuously employed or those who work in full-time employment, a number of studies have undertaken transition probability analyses and econometric modeling approaches to investigate what factors have been associated with upwards earning mobility among low paid workers. Some studies have focused on the short run while others have undertaken longer run studies for countries for which longitudinal data over a long period have been available.

The general consensus of the results is that even in the short run, there is quite a deal of movement by workers out of low pay. Some consistent results about exactly who out of the group is more likely to experience an upwards earnings movement have also been found. As suggested by the human capital theory, for example, higher levels of education and the receipt of training significantly reduces the probability of remaining low paid over time (Sloane and Theodossiou 1996; Stewart and Swaffield 1999).

Consistently studies have shown that young men rather than older men have a greater chance of leaving low pay for better paid work (Gregory and Elias 1994; Sloane and Theodossiou 1996; Contini, Filippi and Villosio 1998). They are also the ones who are most likely to be gaining work experience and education which enable them over time to move to better paid work. Also, they may be more likely to engage in job shopping finding jobs that better suit their capabilities over time.

These findings suggest that there is a persistence in low pay for particular groups. Women, as well as older workers and the less educated are all more likely to experience longer periods of time in low paid work (Organisation for Economic Cooperation and Development 1997). Research undertaken by the OECD covering the period 1986 to 1991 with information from 5 countries indicated that indeed the situation can become chronic

for some, where the ability to escape diminishes the longer a worker remains low paid. The analysis indicated that there is a small group of low paid workers in any one year who account for the greatest share in low paid employment over a number of years. Their study points to the finding that, for some, low pay can become a chronic condition, a self perpetuating phenomenon where the ability to escape diminishes with time.

Studies that have examined the persistence of low paid work have also found that demand side factors have a part to play in the nature of low paid employment and the experiences of low paid workers in the labour market (Sloane and Theodossiou 1998). Employer-related characteristics, such as those describing the job and the work situation faced by employees, are associated with the incidence and persistence of low pay.

A consistent result, found in many studies of earnings mobility is that there is a significant negative relationship between firm size and the persistence of low pay (Stewart and Swaffield 1999; Contini, Filippi and Villosio 1998). Another important result is that low pay is associated with sector of employment and a non-unionised workplace. Contini, Filippi and Villosio (1998) for Italy, Arai, Asplund and Barth (1998) for Nordic countries, and Asplund and Persson (2000) for women in many European countries find that workers in the services sector are less likely to escape low pay. Also, Stewart and Swaffield (1997) and Fernie and Metcalf (1996) find a negative relationship between union membership and the persistence of low pay in the UK.

Other studies have found that employment conditions may have an impact on the length of time being spent in low pay. Gregory and Elias (1994) and Fernie and Metcalf (1996) find, for example, that part-time employment is the most significant factor in the persistence of low pay among men and women in the UK. Further, Buch and Ruhmann (1998) have undertaken a study on the use of atypical employment, such as temporary work and fixed contract employment by employers in Germany. Their study found an increase in atypical employment encouraged by the efforts by employers to reduce labour costs and gain competitive labour market advantage. They conclude that low paid employment of this type in Germany is of special concern leading to poor labour market outcomes.

Labour market transitions and low pay

Due to data limitations many of the earnings mobility studies have based their findings on samples of continuously employed workers. Stewart and Swaffield (1999) suggest that emphasis on this group alone can overstate and misrepresent the experiences of all low paid workers. Their findings for UK low paid workers during 1991-95 suggest that, although there was a great deal of upwards movement out of low pay, low paid workers were also more likely than other workers to exit low pay for joblessness. They report that failure to take account of transitions to joblessness overstates upwards earnings mobility. Also, those coming into employment from unemployment have a greater chance of being low paid. They conclude from this evidence that some individuals in the UK labour market are caught in a cycle of low pay and no pay. In a more recent study, McKnight (2000) investigates trends in earnings mobility for the UK over the longer period 1977 to 1999. Her results confirm those found by Stewart and Swaffield (1999) reporting that workers in the lowest quartile are the most likely to leave the wage distribution and report zero earnings in any one year. She also finds that individuals joining employment from unemployment move into the lowest quartile of the earnings distribution. She draws the conclusion that there is a significant amount of persistence in low pay. While earnings progression has improved, particularly for women during the 90s, she also indicates that this is short term and, over the long-term, low paid men and women are not likely to progress far up the earnings scale.

Other research has been undertaken to determine the impact of unemployment on subsequent earnings and labour market experience for low paid workers. Gregory and Jukes (1997) for example, find that for low paid men in the UK, long spells of unemployment have an adverse effect on subsequent earnings. Their work suggests that policy measures aimed at preventing long-term unemployment among low paid men would reduce the negative effects of low pay. Contini, Filippi and Villosio (1998) also find that unemployment among the low paid in Italy can influence their labour market outcomes. In particular, they conclude that the length of unemployment between jobs has a negative impact on the earnings profile.

Summary

In summary, the international literature has investigated the incidence and persistence of low pay to understand the experiences of low paid workers in the labour market. The findings indicate that there is considerable movement out of low pay to higher paid employment suggesting that it is not always the same group of persons who are low paid over time. This finding is supportive of the human capital theories of wage determination. Results suggest that indeed education and training and those who are younger are more likely to leave low paid employment for better pay over time.

However, the empirical evidence of low paid employment does also indicate a considerable diversity of labour market experience among low paid workers. In particular, trends to unemployment have been found to be most prevalent among low paid workers. These findings suggest that while, for some, low pay appears to be temporary experience, for others, low pay is a more persistent state and in fact, likely to be a cycle of low pay and no pay.

These broad findings have lead to the following conclusion about the experiences of low paid workers in the labour markets of many countries by the OECD (1997):

"low paid employment cannot be simply characterised either as a stepping-stone into a more stable and higher-paid career or as a permanent trap" (page 27).

A similar conclusion was also drawn by Gregory and Elias (1994) for the UK labour market. They report that there is empirical evidence to indicate that there is both a substantial amount of earnings mobility but also a lack of earnings progression among particular groups of low paid workers. The weight of this evidence indicates that the persistence of low pay and the consequences for workers in the labour market are important issues that deserve investigation. The results of such studies can have important implications in the formulation of policy for low paid employment.

2.3 Australian Literature

The study of low paid employment in Australia has been an important and growing area of research. Unlike the international literature, however, data limitations have precluded empirical studies that have been able to investigate the labour market experiences of low paid workers over time.[5] Rather, empirical studies have been limited to a static investigation of low paid employment.

Many cross-section studies have focused particularly on the relationship between poverty, income and low pay (Harding and Richardson 1998; Eardley 1998; Mitchell 1999), and the impact of wage deregulation on low paid employees (Richardson and Harding 1999; Borland and Woodbridge 1999; Gill 1990; Plowman 1995). In related research, Le and Miller (2001b) have reported on the persistence of the wage gap between males and females in the Australian labour market indicating a higher likelihood that women may be low paid. Also, Miller (1989) and Bell et al. (1992) investigate low wage employment and poverty among teenagers and young adults in Australia.

The characteristics of low paid workers reported by Eardley (1998) and Richardson and Harding (1999) suggest similarities between low paid workers in Australia and those in other countries. Their descriptive information indicates that the incidence of low pay is highest among particular groups of workers. Adult women, those with no post secondary education, the young and those who have never been married are disproportionately found among the ranks of the low paid in Australia. Using data for 1998, Mitchell (1999) finds evidence of a new type of low wage earner emerging in the Australian labour market - workers who are in their prime working years and have limited access to promotions, superannuation and other work entitlements. Although her data is not longitudinal, she suggests that limited access to such work benefits is indicative of an increased risk of future labour market disadvantage especially persistence in low pay for workers.

[5] Only two studies have examined this issue: Mitchell (1999) indicates its importance but has no longitudinal data to perform any analysis. Webster (1999) has indirectly provided some information about low paid workers by investigating labour market segmentation of the Australian labour market. Her results suggest that starting out in a lower skilled job can have an adverse affect on one's lifetime labour market prospects.

There has been anecdotal evidence to suggest that some low paid workers are in a disadvantaged labour market position and could be in a cycle of low pay and no pay. A commissioned report undertaken by the National Board of Employment, Education and Training (NBEET) (1992), explored the experiences of disadvantaged jobseekers in obtaining work in the Australian labour market during 1990. The particular focus was to examine whether the employment they secured offered workers avenues to establish career paths and stable employment over time. Although most found employment, they were not jobs that provided any lasting employment opportunities, but rather most found themselves back in job search within a short period of time. The conclusion of the study was that

‘ because of the way many of these jobs are structured, they do not offer a stepping stone to more secure jobs but rather a dead end’ (page 67).

This accumulated evidence is indicative that some workers in the Australian labour market may be caught up in a cycle of low pay and no pay. The SEUP data which provide information about the same people over time will provide valuable evidence to address this issue.

Chapter 3

Data and Measurement Issues

3.1 Introduction

The main data source used to investigate the experiences of low paid and unemployed persons in Australia during the 90s is The Survey of Employment and Unemployment Patterns. A description of these data is provided in Section 3.2. Following this, a discussion of how low pay is defined and measured in the literature is presented in Section 3.3. The definition of low pay used in this thesis is then discussed along with the reasons for its choice. The chapter ends with a further discussion about some issues of measurement pertinent to the analyses undertaken in this thesis.

3.2 The Survey of Employment and Unemployment Patterns

The Survey of Employment and Unemployment Patterns is a longitudinal survey of working aged individuals in Australia. Conducted by the ABS, its data collection covers the period 5 September 1994 to 1 September 1997. During this time, Australia had progressed from the recessionary period of the early 90s and was enjoying strong economic growth.[1] Despite this, levels of unemployment remained unacceptably high throughout the mid-90s with the extent of long-term unemployment being a major policy

[1] Throughout the 90s since 1993, real GDP growth has averaged around 3 per cent per annum and employment has grown by an average of 2.4 per cent per annum.

concern. Within this environment, SEUP was specifically designed with two main aims in mind - to provide valuable information on the labour market dynamics of the unemployed and to assess the impact of Working Nation, a suite of active government labour market policies introduced in 1994 to assist the long-term unemployed.

The survey collected data from the same respondents over a three year period. Three groups or sub-samples were part of the full data collection - the Jobseeker sub-sample, the Population Reference Group (PRG) and the Program Participants' Group (PPG). Individuals for the first two sub-samples were recruited from an area-based probability sample of 69,000 Australian households from all areas of Australia (Le and Miller 1998). Only one person from each household was recruited, this recruitment process taking place between April to July 1995. Although some data were collected at recruitment, most of the information was gathered at three interviews conducted in September to October 1995, 1996 and 1997. More detailed information about each of the sub-samples follows.

3.2.1 The jobseeker group

The jobseeker group, numbering 5,488 persons, comprised the largest sub-sample of SEUP. Representing 875,000 persons in the Australian population at the time of recruitment, they were individuals aged 15 to 59, living in private dwellings in both rural and urban areas of Australia and identified at recruitment as persons most at risk of entering a government labour market program or of becoming eligible to do so in the near future. This included three groups of individuals from the population - the unemployed, the underemployed and the marginally attached. The unemployed comprised 80 per cent of the sub-sample with the underemployed and marginally attached making up the remaining 20 per cent of individuals recruited as jobseekers.

Unemployed persons were defined as those undertaking active job search to look for work. The underemployed included persons who were working part-time but who stated a desire to work more hours. The marginally attached included individuals who wanted a job but had ceased job search due to difficulties in finding employment and others not in the labour market who were prepared to commence work but who believed that there was no

work available for them. Persons who had been stood down from their jobs for a period of less than four weeks, persons aged 15-24 years who were studying full-time and desired a part-time job and individuals not actively seeking work were not included in the sub-sample.

3.2.2 The population reference group

A second smaller sub-sample of individuals was drawn from the areas based probability sample to represent the Australian population. The PRG comprised 2,311 persons aged 15 to 59 residing in private dwellings across all urban and rural areas of Australia.[2] The main reason for inclusion of this sub-sample in SEUP was to provide important comparison or benchmark data so that the labour market experiences of the other two sub-samples could be compared with the population as a whole.

3.2.3 Labour market program participants

The Program Participants' Group (PPG) was included in SEUP to specifically allow evaluations of labour market programs set up under the Working Nation policy package. This sub-sample comprised 1019 persons aged between 15 to 59 and who had commenced a subsidised employment placement or commenced a labour market training program between July 1994 and February 1995. Although part of the SEUP data as originally collected, the PPG sub-sample is not publicly available on the ABS Australian Vice-Chancellors' Committee (AVCC) Confidentialised Unit Record File (CURF) release (Australian Bureau of Statistics 1997b) and is not used in this thesis.

3.2.4 The SEUP data

At each interview, three types of data were collected. The first comprised information about the respondents' current circumstances. This included both demographic and family characteristics such as gender, age, educational qualifications, family structures, place of residence and annual income for the previous financial year from various sources. Questions were also asked about current labour market status, the weekly wage and hours

[2] The sampling design allowed for any one individual to be a part of both the jobseeker and the PRG sub-samples. A total of 227 persons were included in both samples.

of work, if working. At each interview, respondents were also asked details about other family members such as their spouse and/or their parents and other adults in the family. In particular, the information collected included data about their current labour market status such as current earnings if working and reasons not in the labour market. Also collected at the first interview were details concerning the past labour market history of themselves, their spouse and/or their parents.

The second type of data collected at each interview related to information about respondent's experiences in the labour market over the previous year. Respondents were asked to recall information about each spell of work, each period of looking for work and each period of time spent out of the labour market. If any spell of work, looking for work or period of time not in the labour market continued through to the next interview date, then the same questions about the spell were asked again.

For each spell of work, data about the nature of the job such as industry, occupation, employer size, hours of work, usual weekly earnings, permanent or casual status and sector of employment were collected. For the episodes of job search the survey asked questions relating to methods of search, type of work desired, the respondent's reservation wage, perceived difficulties in obtaining work, and job offers received. In this collection job search could be undertaken while still working. If this occurred then information about both the spell of work and the spell of job search was collected independently. The information about each spell of absence from the labour market during the past year included data such as the main activity while not working and reasons for not undertaking job search.

The episode data provided an important source of information about the labour market experiences of individuals over the three year period. Taken together, the information enabled the construction of a complete continuous weekly labour market history for respondents during the period September 1994 to September 1997.[3]

[3] In fact, the calendar could be calculated on a daily basis. Many of the variables of interest however, were collected on a per week basis. Hence, the calendar of information was calculated for each week of the three year period.

The third type of data collected at each interview comprised some specific information considered relevant to the labour market situation and experiences for jobseekers. These included data on any internal or external training programs undertaken during the past year. The information collected included commencement date, hours of training, type of training, and whether that training helped the individual get a promotion or a better job. Similarly, individuals were asked about any job offers they received, when they received that offer, if they had taken it up and why they did not if relevant.

Finally, administrative data was attached to each person's data records. Provided the individual consented, ABS matched in information from the Department of Employment, Education and Training about labour market programs that person had undertaken over the three year period.[4] Also, administrative data from the Department of Social Security provided details about welfare benefits received. Like the PPG sub-sample however, these matched administrative data were not available on the ABS AVCC CURF release (Australian Bureau of Statistics 1997b). These data are not used in this thesis.

3.2.5 Other data issues

Attrition

A major difficulty that plagues all collections of longitudinal data is attrition. A number of strategies were adopted by the ABS to minimize the rate of attrition from SEUP. These included methods to maximise respondent contact from wave to wave (Australian Bureau of Statistics 1995a) such as 'change of detail' cards for respondents to advise of any change of address, a toll-free telephone number for respondents to call and friend's contact numbers.

Despite these attempts, considerable attrition from the SEUP sample did occur. Table 3.1 presents attrition rates for the entire PRG and jobseeker sub-samples and the subset of adult persons aged 20 and over – the group that is the focus of the analyses undertaken in

[4] For the PRG, 39 per cent gave consent. For the jobseeker and PPG sub-samples, the consent rates were 82 per cent and 92 per cent respectively.

this thesis. Over the three year period, attrition rates for the entire samples and the focus group samples were similar. For the PRG, attrition was 14.2 per cent of the original sample by the third wave but reached 22.4 per cent for the jobseeker sub-sample. According to Le and Miller (1998), the attrition rate for the jobseeker sub-sample is comparable to attrition rates from the Australian Longitudinal Survey (Gregory and Karmel 1992) and the Australian Youth Survey (Kryger 1990). The attrition rate from the PRG however, is a little higher than comparable population surveys.

Table 3.1: SEUP Attrition Rates

	September 1995	***September 1996***		***September 1997***	
	No. of Respondents	***No. of Respondents***	***Attrition Rate (%)***	***No. of Respondents***	***Attrition Rate (%)***
Population Reference Group					
Full sample	2311	2120	8.3	1983	14.2
Adults	2122	1950	8.2	1833	13.6
Jobseeker Sub-sample					
Full sample	5488	4779	12.9	4261	22.4
Adults	4724	4141	12.4	3714	21.4

ABS investigated the extent to which the attrition rates for the sub-samples were related to characteristics of the respondents (Australian Bureau of Statistics 1995a). In both sub-samples, attrition was found to be most pronounced for males, young people and persons who lived in rented properties. Perhaps unexpectedly, within the rented property group, private landlords had the highest attrition rates and those living in a state or territory housing authority homes had the lowest rates of attrition.

In order to minimise bias in results due to attrition, the ABS incorporated weights into the SEUP data. The longitudinal weights were assigned to respondents for each year so that representative population estimates could be calculated annually. For the PRG, they were

based on an independently estimated distribution of the Australian population. For the jobseeker sub-sample, the weights were designed to represent the population of jobseekers at the time of recruitment around May 1995. To minimise the attrition bias, the ABS weights are used in the analyses undertaken in this thesis where possible.

Recall bias

Another problem that plagues longitudinal data sets is recall bias. This bias is introduced when individuals have difficulty remembering what happened in the past in the detail required. For SEUP, individuals were asked to recall exact start and stop days of episodes of work, job search and not in the labour market over the past year. Recall bias was minimized in that interviewers reminded individuals of their last reported episode at each interview. Nevertheless it is inevitable that some recall bias is part of SEUP. This was evident in that there was a higher proportion of starts and stops for episodes at the end of each collection period. No account of recall bias is undertaken in the analyses of this thesis.

Terminology

The terminology used in SEUP is different to that used in other ABS data collections. In particular, terms used to describe the unemployed in the ABS Labour Force Surveys (Australian Bureau of Statistics 1995b), although similar, are not directly comparable.

For clarification, in this thesis, the term jobseeker is used to represent the broad group of individuals who were recruited into the jobseeker sub-sample of SEUP. These were persons who desired (more) employment but were not necessarily actively engaged in job search at the time of recruitment to the sample. Reference to the unemployed in this thesis refers to individuals who were engaged in active job search. As such the term is not strictly comparable with the ABS definition of the unemployed which requires that a respondent be both actively looking for work and be available to start work during the survey week (Australian Bureau of Statistics 1995b).

3.3 The Definition of Low Pay

3.3.1 Various approaches to defining low pay

What is meant by 'low pay'? As there is no objective measure, many different definitions and ways of characterizing low pay are used in the international empirical literature. The chosen approach depends greatly on the aim and extent of the undertaken research, the data available and the policy implications relating to the country or countries studied.

Webb, Kemp and Millar (1996) suggest there are two main conceptual frameworks used in studies of low pay. First, low pay can be considered as a labour market issue relating to the remuneration for work done for each individual. Under this framework, the issues that are important relate to fairness and equity in the labour market for the individual. Another way of considering low pay relates to the issue of needs and the ability of a person to remain above some subsistence level of income. This framework is generally used to investigate issues of poverty among individuals and takes into account the household circumstances of those under study.

The analyses undertaken in this thesis relate to the labour market concept of low pay. In the international empirical literature, there are three main approaches used to define low pay. The absolute wage approach defines low pay relative to some arbitrarily chosen rate of pay. The relative wage approach ties the definition of low pay to some arbitrary percentage of the wage distribution and the third approach uses some other related individual characteristics to define the low paid group.

The absolute wage approach defines low paid workers as those who earn below some chosen threshold wage level. In many international studies, the threshold level has often been chosen to reflect some poverty or subsistence level of wages. In Australia, the absolute wage approach has been used in a number of studies including Mitchell (1999), Harding and Richardson (1998) and Richardson and Harding (1999), but has been chosen in consideration of Australia's system of minimum wages to reflect a low wage and not

necessarily to specify some level of subsistence wage. For the UK, Webb, Kemp and Millar (1996) have also used this approach to define low pay.

The relative wage approach defines low pay relative to some chosen threshold level in the earnings distribution. For example, a common definition used in studies is that a worker is low paid if they are earning below the 20^{th} percentile in the earnings distribution. This approach has been used by Gregory and Elias (1994) for UK workers and Contini, Filippi and Villosio (1998) for Italy. It however does not allow for any change in the percentage of persons regarded as low paid over time. Another common relative wage approach which overcomes this problem defines the low paid group relative to the median or mean of the earnings distribution. This has the advantage of moving the low pay threshold over time in line with changes in the distribution of earnings.

Examples of the relative wage approach are particularly common to international comparisons of low pay where the most used threshold is two thirds of the median of the hourly earnings distribution. Studies that have used this approach include Eardley (1998) for Australia and Keese, Puymoyen and Swaim (1998) in an international comparison and Sloane and Theodossiou (1998) for UK workers.

Another approach used in empirical work identifies the low pay group according to some other closely related variable or variables. Some studies investigate the experiences of those who have the lowest education levels or those who are in the lowest skilled occupations. For example, in US studies, low paid workers have been defined as those whose highest education is a high school degree or less (Gladden and Taber 1999). Another example is a study by McKnight (1998) who defines low pay for the United Kingdom as those who work in particular low skilled occupations. A limitation of this definition is the heterogeneous nature of the group under study. Whereas many low paid workers have low education levels, they may also be persons who have acquired other labour market skills (such as on-the-job training) and would not be considered as low paid or of interest in terms of policy.

Regardless of the approach, an important issue that arises in defining low pay relates to the choice of earnings measure. Earnings can be measured by the hour, week or even annually. Weekly and annual earnings are the product of an hourly pay rate and weekly hours worked. Changes in weekly earnings over time therefore may reflect changes in hours worked and/or changes in the hourly pay rate. Most studies therefore define low pay in terms of hourly pay rates. The hourly pay rate reflects the level of remuneration for skill, training, productivity and risks undertaken in a job.

In summary, there have been many different definitions used in the literature to define low pay and each in some sense is arbitrary. While no one definition of low pay can be considered as the correct approach, it is also true that there is substantial correlation between the various measures of low pay.

3.3.2 The definition of low pay

In this thesis, low pay is defined using an absolute wage approach. Adults are defined as being low paid if their gross hourly rate of pay was less than or equal to $10 at September 1994.[5] The level is maintained relative to the earnings distribution for both full-time and part-time wage and salary earners, by indexing the threshold according to the change in the average weekly total earnings for all employees over the survey period (Australian Bureau of Statistics, cat. no. 6302 1994, 1996).[6]

Table 3.2 presents the hourly pay thresholds for September 1995 to September 1997. As the average weekly total earnings rose by 7 per cent during the survey period, the low pay threshold increased to $10.12 at September 1995 and reached $10.76 by September 1997.

For comparative purposes, the defined low pay threshold is also presented in Table 3.2 in equivalent weekly and annual earnings. For an individual working 38 hours per week, the low pay cutoff is equivalent to a weekly pay of around $400 or an annual wage income of

[5] Sensitivity tests using different low pay thresholds - $9.50 and $10.50 - have been conducted. The broad conclusions presented in this thesis also held for the tested low pay thresholds.
[6] Borland and Kennedy (1998) find that changes in the distribution of hourly wages were similar to the changes that occurred in the weekly wage distribution.

between $20000 to $21300. If an individual worked full-time for 38 hours per week, the weekly amount would be approximately 55 per cent of the average weekly ordinary time earnings of full-time adult employees in the labour force. Over the period, the low pay threshold represented about 73 per cent of the median hourly earnings for all full-time and part-time workers in Australia.

Table 3.2: The Defined Low Pay Threshold - 1995 to 1997

	1995	*1996*	*1997*
Gross Hourly Rate	**$10.12**	**$10.47**	**$10.76**
Per cent of median of estimated hourly earnings distribution for all workers	73	72	73
Australian Industrial Relations Commission minimum wage rate ($ per hour) [a]			$9.46
Threshold expressed as weekly earnings (calculated at 38 hours per week)	$384.56	$397.86	$408.88
Average weekly full-time adult earnings [b]	$691.20	$717.20	$746.10
Threshold as per cent of average weekly earnings	56	55	55
Threshold expressed as annual earnings (for a person working full year, full time)	$19997.12	$20688.72	$21261.76

a. Based on the weekly minimum wage of $359.40 divided by 38.
b. Average weekly earnings, states and Australia, ABS Cat no. 6302.0.

The choice of the low pay threshold is based on a number of considerations. First, an important component of Australia's wage determination system is the protection of it's lowest paid workers via the setting of a minimum wage which identifies the lowest rate of pay that any worker can earn for full-time work. From this base, an award wage structure sets wage rates across many different industries and occupations. Hence, the wages of

many low paid workers and the distribution of earnings across all workers are influenced by this structure of relative wages and the level of minimum wage set. The chosen low pay threshold includes workers who are on or just above the minimum wage level set by the Australian Industrial Relations Commission (AIRC) (Australian Industrial Relations Commission 1997), workers who would be most affected by changes to the minimum wage.

Second, consideration in the choice of low pay threshold was given to the level chosen by other researchers who have investigated issues of low pay in Australia. Richardson and Harding (1999) define the low pay threshold of $10 per hour for wage and salary earning adults in 1994/95. Harding and Richardson (1998) uses the same threshold in 1995/96. Mitchell (1999) uses a weekly rate of $400.00, chosen to capture those who were earning at or under $10.00 per hour. As Eardley (1998) is concerned with international comparisons, he uses a relative wage approach defining low paid workers to be those earning under two thirds of the median wage for all wage and salary earners.

Third, consideration was also given to the sample size restrictions. The threshold needed to be a level where there was a reasonable number of observations to allow meaningful analysis.

3.3.3 Pay rates for casual earners

The hourly pay rate was imputed by dividing usual weekly earnings from all wage and salary jobs by usual hours worked in all wage and salary jobs.[7] This made it important to distinguish between workers on permanent and casual work arrangements. In many cases, the rates of pay of workers who work casually are augmented by a loading or premium. This premium should not be regarded as an additional wage but merely a compensation for loss of entitlements such as sick leave and holiday leave provided to permanent employees. With an imputed hourly pay rate measure, however, a worker on casual

[7] For some individuals, earnings data was imputed by the ABS from their responses in previous years or from individuals with similar characteristics. Also, for 1995, hours worked data were derived from the episode information. For a small number, a reasonable match between the information provided at the

employment arrangements could be seen to have a higher hourly pay rate than another who is doing exactly the same job but as a permanent employee. The casual employee, however, must take leave without pay when ill and for holidays whereas the permanent employee can draw on sick leave and annual leave benefits.

For each episode of work, respondents in SEUP were asked if they were entitled to paid annual leave or sick leave. Those who were not entitled to these benefits were identified as casual workers. A premium of 20 per cent was assumed to apply to the pay rates of respondents who were identified as casually employed. The figure of 20 per cent is based on work undertaken by Dawkins and Norris (1990). They estimate that a casual premium of 19.5 per cent represents the amount required to offset casual workers for loss of holiday pay and sick leave entitlements (page 158). Hence, to directly compare hourly pay rates of workers under these different work arrangements, the hourly pay rates of casual workers were deflated to account for the premium.

interview date about current employment arrangements and the daily labour market history could not be obtained. These data were discarded.

Chapter 4

The Australian Low Paid Labour Market

4.1 Introduction

What is the incidence of low paid employment in Australia? What are the characteristics of low paid workers and the nature of low paid employment? Are there differences between the dimensions of low paid employment in Australia and in other countries? This chapter addresses these questions by undertaking a static analysis of low paid employment in Australia during 1994 to 1997. This is important as a first step in the empirical investigation of the experiences of low paid workers and the unemployed in the Australian labour market. Section 4.2 presents details about the incidence of low pay in the Australian labour market during the mid-90s. An econometric probit analysis identifying the relationship between various individual and job related characteristics and the probability of being low paid is reported in Section 4.3 while Section 4.4 presents the conclusions.

4.2 The Incidence of Low Pay, 1995 - 1997

Using the definition of low pay described in Chapter 3 and data from the PRG sub-sample of SEUP, Table 4.1 presents estimates of the percentage of adult wage and salary earners aged between 21 and 59 who were low paid in Australia at September of each year 1995 to 1997.[1] About one million persons or just under one in five of all adult wage and salary workers earned under the defined low pay threshold at each point in time during 1995 to 1997.[2]

Comparative estimates of the incidence of low pay in Australia during 1995 - 1996 have been reported by Eardley (1998) and Harding and Richardson (1998) who both use data from the 1995-96 Income Distribution Survey (Australian Bureau of Statistics 1997c). Eardley estimates the incidence of adult low pay as 10.6 per cent[3] while Harding and Richardson find that 15 per cent[4] of all wage and salary earners were low paid in 1995-96. The incidence of low pay among adult wage and salary earners, calculated using SEUP therefore, is higher than the other reported estimates.

The figures, however, are not directly comparable due to differences in thresholds, reference samples and the treatment of workers between each study. The low incidence rate for adults reported by Eardley is based on a defined low pay threshold of two thirds of the median hourly rate for all wage and salary earners. This threshold is most commonly used for cross country comparisons of low paid workers and is considerably lower than the threshold used in this thesis. Although Harding and Richardson set their low pay threshold at $10.00 per hour for adult wage and salary earners, their estimates differ in part because of the inclusion of young persons under 21 years of age. For these workers, a low pay threshold of $6.00 per hour is used.

[1] Hourly pay rates used in the measurement of low pay were derived from data on weekly earnings and hours worked from all jobs at September 1995, 1996 and 1997. These data were collected at each interview of SEUP.
[2] These estimates are calculated using the weights provided by the ABS.
[3] Using Eardley's low pay threshold and the SEUP PRG sub-sample, the estimate of low pay incidence is 8.6 per cent.
[4] Using Harding and Richardson's low pay threshold and the SEUP PRG sub-sample, the estimate of low pay incidence is 15.1 per cent.

Another important reason for the higher reported estimate of low pay incidence stems from the different treatment of the permanent and casually employed. Once differences between the pecuniary benefits of holiday pay and sick leave are accounted for in the pay rates of casual workers, then more casual workers are likely to fall under the low pay threshold. The significance of this adjustment is highlighted by Dawkins and Norris (1990) who point out that the incidence of casual employment is highest among lower paid, unskilled jobs where training costs are low. It is also the case that casual employment rates are highest among women who, on average, are more likely to be found in the lower deciles of the earnings distribution. Estimates of low pay incidence using the PRG without adjusting casual employee pay rates are around 15 per cent during the survey period, indicating that the adjustment increases the low pay incidence rate by about 3 percentage points.[5]

Table 4.1: The Incidence of Low Pay, 1995 to 1997

	1995	*1996*	*1997*
Estimated number of wage and salary employed adults ('000)[a]	5147	5594	5565
Estimated number of low paid workers ('000)[a]	981	1010	1030
Per cent low paid	19.1	18.1	18.3
Sample size	1127	1124	1054

a. Numbers are calculated using weights provided by the ABS.

[5] A sensitivity analysis of the results of this chapter without adjusting for the permanent/casual distinction was conducted. Although there are significant differences in the reported low pay incidence, this adjustment makes very little difference in the overall results.

4.3 Characteristics of the Low Paid Labour Market

As reported in Chapter 2, many overseas studies have found that the risk of low pay is greater for workers with particular characteristics. Also, job related characteristics have been found to be significantly associated with low pay. In order to characterise low paid employment in Australia, this section reports the results of a regression analysis which estimates the probability of being low paid over the period 1995 to 1997.[6]

4.3.1 Estimating low pay probabilities

In the literature, characteristics associated with the probability of being low paid can be identified within a discrete choice modeling framework (Cappellari 2000; Stewart and Swaffield 1999). The probability of being low paid is regressed against various individual and job related characteristics.

This is formalised as follows. Following a standard Mincerian approach (Mincer 1974), consider that in any given year, the relationship between wages and individual and job related characteristics can be written as:

$$G(w_i) = X'_i\beta + \mu$$

where X_i is the set of individual and job-related characteristics for individual i and $\hat{a}$ is the set of associated coefficients. $\grave{\imath}_i$ is the individual specific error term which is standard normally distributed, N(0,ó^2). G is a monotonic transformation of w_i.[7]

Define a low pay threshold ë and an indicator variable l_i that identifies whether individual i is low paid such that:

$$l_i = 1 \text{ if } w_i <= \ddot{e}$$

and

[6] This approach has been adopted over the more traditional modelling of the earnings function because it allows a sharper focus of the group of policy interest.

[7] In most wage equations $G(w_i)=\ln(w_i)$.

$l_i = 0$ otherwise.

Now the probability that an individual is low paid can be derived as follows:

$$\Pr(l_i=1) = \Pr(w_i <= \ddot{e}) = \Pr(G(w_i) <= G(\ddot{e})).$$

Now, under the assumption that $\grave{\imath}_i$ is distributed as a standard normal distribution it follows that

$$\Pr(G(w_i) <= G(\ddot{e})) = \hat{O}(G(\ddot{e})-X_i'\hat{a}) = \hat{O}(X_i'\ddot{a}),$$

where $\hat{O}$ is the standard normal cumulative density function.

Therefore,

(4.1) $$\Pr(l_i=1) = \hat{O}(X_i'\ddot{a}),$$

where $\ddot{a}$ is a vector of coefficients which is opposite in sign to what would be expected in an earnings equation. Equation 4.1 is estimated as a discrete choice probit regression model.

Using the PRG sub-sample information from the three years collected at each wave of SEUP, the probit regression (Maddala 1987) is implemented to estimate the probability that a wage and salary earner in Australia is low paid.[8] This analysis provides useful initial information to identify workers who may have potential to become trapped in low paid

[8] As the data for individuals are pooled over the three years, specific individual effects may bias the estimates. To account for this a random effects probit regression was also undertaken. This estimation procedure, however, assumes that there is no correlation between the individual specific effects and any of the explanatory variables. Given this strong assumption and the fact that the results were very similar, the pooled probit results are reported here.

jobs. It is not intended, however, to establish causality but to identify factors that are associated with the risk of low pay.[9]

Variables are included in the estimation procedure on the basis of similar studies that have been undertaken overseas and also on measures which have been found to be important in empirical studies of earnings in Australia. They are grouped into four categories - demographic characteristics, personal human capital variables, job related characteristics and variables identifying parental characteristics. Specific definitions of all variables together with means and standard deviations are presented in Appendix A4.1.

Table 4.2 presents coefficient estimates, z-values and estimated marginal effects. The z-values which are analogous to the t-values in linear regression identify whether each included coefficient is significantly different from zero. A value of 1.96 or greater indicates that, with 95 per cent probability, the coefficient is significantly different from zero. The reported marginal effects show the change in the probability of being low paid for a specified change in each variable with all other included variables held at their average level. For included dummy variables, this represents the change in the probability of being low paid as the value of the dummy changes from zero to one. As a measure of the overall power of the regression, the chi square statistic is also reported in Table 4.2. This tests the hypothesis that the inclusion of all variables has better explanatory power than just including a constant term in the regression. The reported value of 673 suggests that the included variables are jointly significant in determining the risk of being low paid.

4.3.2 Demographic characteristics

Personal characteristics included in the estimation of the probability of low pay are gender, age, marital status, the presence of dependent children, geographic residential location, level of English proficiency and disability status. The results indicate that after controlling for all other variables, many of these characteristics are related to the chances that an individual is low paid.

[9] Following other studies which examine the probability of low pay, the analysis implicity assumes that all explanatory variables are exogenous. If this assumption does not hold then estimates would be biased.

The reported results for the male dummy variable indicate that the risk of being low paid is greater for women. Although, as Eardley (1998) notes, the gender gap in low paid employment has decreased since the early 80s in Australia,[10] the estimated marginal effect for the gender dummy, reported in Table 4.2 suggests that, after controlling for other characteristics, women are still about 4 percentage points more likely than men to be low paid. Studies relating personal and job characteristics to the probability of low pay in other countries also report similar findings, Asplund and Persson (2000) indicating for example, that gender does have an independent influence on the risk of being low paid. The estimated gender differential is likely to be affected in part by the fact that women are more likely than men to have broken work patterns which may limit their ability to secure more highly paid jobs. Also, Asplund and Persson note that the higher low pay risk factor for women may be associated with occupational sex segregation where traditional women's occupations are paid less than male dominated occupations. Evidence presented by Jones (1983) and more recently Kidd and Meng (1997) have suggested that this may not be as important in Australia as the occupational segregation has located women more towards the middle of the earnings distribution. The independent influence of gender also mirrors results found in earnings equations which estimate that there is a continuing gender earnings differential in Australia (Rummery 1992).

Age is entered into the probability equation in quadratic form indicating that the risk of low pay may decrease as age increases but at a decreasing rate and, at higher ages, the risk of low pay may again increase.[11] The coefficient estimates for age and age squared are not significant. This suggests that age does not exert an independent influence on the probability of low pay. This result is inconsistent with that reported by Stewart and Swaffield (1997) who find that, for UK workers, age is negatively associated with the risk of low pay. Their study, however, includes workers under the age of 21 who are indeed

[10] His work relates to workers aged 15 and over.
[11] In many earnings models age is used as a proxy for experience. Here, age can be entered into the regression independently because the effect of previous labour market experience on the probability of low pay is measured by a time invariant work history variable.

more likely to be low paid. The exclusion of younger workers in this analysis may contribute to the insignificance of this factor in the reported results.

The effects of family structures are captured by including dummy variables relating to marital status and the presence of dependent children. Married persons and those married but now widowed, divorced or separated are included and compared against the excluded base group, persons who have never married. The coefficient estimates suggest that being married or in a de facto relationship is significantly associated with a reduced risk of low pay. The marginal effect for this group estimates a lower risk of 5 percentage points for these adult workers compared to those who have never been married. Adult workers who have been married but are now separated, divorced or widowed are also less likely to be low paid than their unmarried counterparts. The coefficient estimate however is only significant at the 10 per cent level. Stewart and Swaffield (1997) also report that both married men and women in the UK are less likely to be low paid.

Other personal factors which appear to be significantly related to the risk of low pay are the level of English proficiency and the geographic location of residence. Workers who stated that they could only speak English fairly well or could not speak English at all were at a greater risk of being low paid than those who could speak English well by about 10 percentage points. Similarly, workers living in an urban area of a capital or major city were less likely to be low paid than workers living in rural areas. The estimated marginal effect reported a 6 percentage point drop in the probability of being low paid.

Both of these results are consistent with reported earnings studies for Australia. Preston (1997) has presented a summary of findings which suggest significant wage differentials between workers with different levels of English proficiency. Further, Preston (1997), Gregory and Daly (1992) and Rummery (1992) have all found that there is a significant earnings disadvantage to living in a non-metropolitan area. Estimates of the earnings differentials range from 8 per cent in Preston's study to 30 per cent for Rummery.

4.3.3 Human capital factors

Mincer's (1974) human capital model of earnings determination suggests that investment in education and labour market experience are important factors relating to increased earnings capacity. A number of variables are included to capture these effects on the probability of being low paid – educational attainment, employment history prior to the current job, current job tenure and job skills training undertaken in the past twelve months. As expected, these factors are all significantly related to a worker's probability of being low paid.

The level of education achieved by each respondent is classified into four groups – not completed the highest level of secondary school available and had not obtained a post secondary qualification, completed the highest level of secondary school available with no post secondary qualification, obtained a post secondary school trade or vocational qualification and obtained a tertiary qualification. The latter three are included in the regression with the excluded base group being those with the lowest level of education. The expectation is that educational attainment is negatively associated with the probability of low pay and hence each of the included dummy variables would be negative and greater as the education level of the worker increases.

The reported results follow this expectation and indicate that completing post school qualifications in the form of a university education is a significant deterrent to being found in the low paid group, decreasing the risk of low pay by 10 percentage points. Other educational group variables, completed secondary education to the highest level and completed post school vocational training, although of expected sign, were found not to be significantly associated with a reduced risk of low pay.

Two variables are included in the analysis which capture the effect of the amount of time spent in employment on the probability of being low paid – current employment experience and employment history. Current employment experience in the labour market is measured by current job tenure and is added to the regression in quadratic form. It

would be expected that the longer a worker is in a job, the lower the probability of being low paid.

Employment history is a time invariant measure which attempts to capture the effect of previous employment, or inversely, the amount of previous joblessness on the probability of being low paid.[12] It is defined as the ratio of the actual time spent in employment to the potential time that could have been spent in employment and measured as the number of years spent in paid work since leaving full-time study divided by the total number of years since leaving full-time study (excluding the time spent in the current job). For example, a worker who has an employment history of 0.5 and left full-time study 10 years ago has spent 5 years of his/her time in paid work and 5 years either looking for work or out of the labour market. The measure is bounded by 0 and 1 – a measure of 1 indicating that the worker has been continuously employed since leaving full-time study and a measure of 0 indicating that the worker experienced only joblessness since leaving full-time study up to the current employment experience. According to traditional human capital theory, it would be expected that workers with lower rates of employment history, that is, workers who have had greater amount of time out of employment since leaving full-time study would be more likely to be found among the low paid.

Results indicate this to be so. Both employment history and job tenure are found to be significantly and negatively related to the prevalence of low pay for adult wage and salary earners in Australia. The reported marginal effect for employment history indicates a decrease of 1 percentage point in the probability of being low paid if the amount of employment relative to the total time since leaving full-time education increased by 10 per cent, with all other variables held at their average levels. For example, if a worker who left school 10 years before the start of his current job increased his actual employment time by one year, his probability of being low paid would be one percentage point less. A similar decrease in the probability of being low paid is estimated for current experience as

[12] The measure adopted here assumes a constant effect of previous experience on the likelihood of low pay regardless of the overall number of years of labour market experience. Heckman and Borjas (1980) discuss several alternative measures to identify the effect of an individual's employment history on labour market status, however evidence favouring one measure over another remains elusive.

measured by tenure. An increase of one year in tenure would decrease the likelihood of being low paid by one percentage point.

Gaining labour market skills would be expected to reduce the likelihood of low pay. SEUP asks questions of individuals relating to training courses attended during the previous year to improve job skills both while working and while not working. Respondents were asked about training courses provided by their employers, courses undertaken through external organisations such as educational institutions, training consultants, equipment suppliers, professional or industrial associations, community centres or adult education centres. Excluded was study that was undertaken towards an educational qualification. This information is used to construct a job skills training dummy variable.

The coefficient for the training dummy is negative and significant at the 1 per cent level. This suggests that, as expected, training to improve job skills is associated with a lower probability of low pay, the estimated marginal effect indicating a reduced risk of approximately 3 percentage points. Stewart and Swaffield (1997) also find a similar result for low paid workers in UK. They find that work related training in the past 12 months significantly decreases the risk of low pay for both men and women with the effect being strongest for women.

4.3.4 Job related factors

As suggested by other studies (Gregory and Elias 1994; Sloane and Theodossiou 1994), the third group of variables that are included in the empirical estimation relate to the job held by the worker - industry, occupation, hours of work, employment status, sector of employment and size of workplace. The results presented here for Australia suggest that low pay is a greater risk for those in low skilled occupations, workers in small firms, the casually employed and wage and salary adult workers who are in the private sector.

Table 4.2: Probit Estimates of the Probability of Low Pay, 1995 to 1997

	Coefficient	*z-Value*	*Marginal Effect*
Personal Characteristics			
Male	-0.175	-2.489	-0.038
Age	-0.039	-1.602	-0.008
Age squared	0.001	1.615	0.000
Never married			
Married or de facto	-0.234	-2.709	-0.052
Separated, divorced or widowed	-0.182	-1.652	-0.036
Urban	-0.265	-4.186	-0.060
Non-English speaking	0.397	2.080	0.103
Dependent children	0.043	0.589	0.009
Disabled	0.025	0.342	0.006
Union member	-0.101	-1.431	-0.021
Human Capital Factors			
Secondary school not completed			
Secondary school completed	-0.114	-1.269	-0.023
Vocational qualifications	-0.124	-1.583	-0.026
Tertiary qualifications	-0.559	-5.607	-0.106
Employment history	-0.428	-3.567	-0.092
Current job tenure	-0.033	-2.643	-0.007
Current job tenure squared	0.001	1.452	0.000
Training	-0.158	-2.485	-0.034
Job Related Characteristics			
Workplace size – 10 or less employees			
Workplace size - 11 to 50 employees	-0.293	-3.885	-0.059
Workplace size - 51 or more employees	-0.413	-5.365	-0.087
Casual employment status	0.651	7.977	0.173
Full-time	-0.052	-0.601	-0.011
Manufacturing			
Trade	-0.026	-0.285	-0.006
Services	-0.086	-1.037	-0.018
Government, education & health	-0.067	-0.620	-0.014
Management, administration and professional workers			
Associated professionals, tradespersons & advanced clerical workers	0.069	0.637	0.015
Intermediate production & clerical workers	0.098	0.937	0.022
Elementary clerical workers & labourers	0.328	2.850	0.079
Private sector	0.320	3.408	0.063
Multiple job holder	0.455	5.258	0.117
Parental Characteristics			
Father - low skilled	0.155	1.749	0.035
Mother - low skilled	0.034	0.460	0.007
Year - 1995			
Year - 1996	-0.140	-1.947	-0.029
Year - 1997	-0.099	-1.367	-0.021
Constant	0.736	1.527	
Chi Square (33)	672.71		
McFadden R square	0.221		
Number of observations	3134		

Dummy variables relating to workplace size are included in the regression for the probability of low pay. They identify those in workplaces employing between 11 and 50 employees and those at locations employing more than 50 employees. The base category excluded from the model for estimation purposes is workplaces employing 10 workers or less. The regression results confirm that, with all other variables being controlled for, as workplace size increases the probability of being low paid decreases significantly. Working in a location with between 10 to 50 employees decreases the risk factor by an estimated 6 percentage points and larger workplaces by 9 percentage points.

These results are consistent with empirical work undertaken by Miller and Mulvey (1996) for Australia. They estimate hourly earnings equations for men and women in 1989-90. Their empirical results support the premise that there is a link between large firms and higher wages and that, after controlling for other influences on wages, the workplace size premium is sizeable in Australia. Empirical work undertaken in other countries which identifies risk factors of low pay also find a significant association between workplace size and low pay. For example, Fernie and Metcalf (1996) in a study of UK workers in 1996, conclude that there is a much greater incidence of low pay among those who work at establishments with less than 25 employees.

The results also indicate that casual employment status is positively associated with the probability of low pay. Indeed, the reported marginal effect of 17 percentage points represents the greatest estimated change in low pay risk. An estimated higher low pay risk among casual employees is consistent with work undertaken by Burgess and Campbell (1998a) and Wooden and Hawke (1998) who indicate that casual jobs are found across all industrial sectors but particularly in lower skilled occupations such as elementary clerical, sales and service workers, jobs which are more likely to be low paid.[13]

Dummy variables are included to represent the occupation of the low paid worker. It is generally held that earnings differentials between occupations reflect skill, productivity and levels of training required for the job (Preston 1997) The Australian Standard Classification of Occupations (ASCO) version 2 (Australian Bureau of Statistics 1997a) classifies occupations by skill level. In this study, this classification is used to divide individuals into four groups based on decreasing levels of skill – management, administration and professional workers; associated professionals, tradespersons and advanced clerical workers; intermediate production and clerical workers; and the lowest skilled group, elementary clerical workers and labourers. Compared to the base group - management, administration and professional workers, the results of Table 4.2 indicate that the likelihood of being low paid is significantly greater for workers in occupations requiring the lowest levels of skill - elementary clerical workers and labourers. The estimated marginal effect suggests that these workers have a higher low risk of about 9 percentage points, with all other variables held constant.

Variation in the risk of low pay is also evident for different sectors of employment. Working in the public sector reduces the chances that a worker is low paid by an estimated 6 percentage points. Once again, this result is also consistent with earnings studies for Australia which find a significant wage premium attached to workers in the public sector. Preston (1997) points out that this is likely because the public sector is more highly unionised and can be viewed as an internal labour market offering more secure employment.

Finally, a dummy was included to identify workers who were multiple job holders at the time of the interview. The included dummy is highly significant suggesting that there is an association between holding more than one job and the probability of being low paid. This may reflect the fact that, for some, a low paid job may not provide sufficient income to meet the family needs and hence income from another job may be used as a supplement. Also, the dummy could be capturing a degree of measurement error as the imputed hourly

[13] The casual employment dummy becomes insignificant in simulation results which undertake the same modeling procedure without adjusting hourly pay rates for casual workers. All other variables do not change

pay measure which was used to define low paid earners could not be used to identify individual pay rates for multiple job holders.

4.3.5 Parental characteristics

There is literature which suggests that endowments such as earnings capacity to some degree can be passed on from previous generations (Hernandez-Iglesias and Riboud 1988). Hence, it may be that the probability that a worker is low paid is associated with the characteristics of their parents with the assumption being that low paid workers are more likely to have parents from low socioeconomic backgrounds or with low skill levels. Variables which allow for such an intergenerational effect have been included in analyses of low paid workers in the UK conducted by Stewart and Swaffield (1997, 1999). They find a statistically significant increase in the probability of being low paid if the worker's parents were in low skilled occupations.

Using an approach similar to Stewart and Swaffield, parental characteristics are incorporated into the regression analysis estimating the probability of being low paid. In the SEUP survey, the respondent is asked about their father's and mother's occupational status when he/she was 15 years old. This information is used as a proxy for parents' skill level and included in the form of two dummy variables. Using the ASCO version 2 classification system, if the father worked as a labourer or an elementary clerical worker (the two lowest skill level classifications) or the father was not employed when the respondent was 15 then the dummy variable took on the value of one. Otherwise it took the value zero. A similar dummy variable was entered for the respondent's mother.

Results of Table 4.2 indicate that there is a positive association between the probability of being low paid and the low skill level of the father, although the coefficient is significant only at the 10 per cent level. After controlling for other factors, a worker whose father was in a low skilled occupation when he/she was aged 15 has a 3.5 percentage point increase in the probability of being low paid. No association is found between the probability of low pay and the skill level of the mother. The results suggesting a significant impact of family

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by any substantial amount.

background on the economic outcomes of their children are broadly consistent with those found by Miller et al. (1994).

4.3.6 Summary of results

In summary, the results of the regression analysis presented in Table 4.2 indicate that low pay is more likely to be prevalent among Australian adult wage and salary earners with particular personal characteristics. Specifically, women, persons who have never been married, workers living in rural areas and those with low levels of English proficiency were estimated to have the highest likelihood of being low paid.

Further, human capital factors were found to be important indicators of low pay. In particular, having a tertiary qualification significantly reduced low pay risk, as did acquiring job skills through training during the most recent twelve month period. Also, the longer a worker was in a job, the less likely it was that he/she was low paid. Similarly, the greater the amount of time spent in employment since leaving full-time education, the lower was a worker's potential for low pay.

Consistent with overseas studies, job related factors were also found to be associated with the probability of low pay. In particular, workplace size and a higher skill level required for the job are negatively associated with the likelihood of low pay. Those casually employed, workers in the private sector and workers who hold multiple jobs were also found to be most prevalent among the low pay group.

4.4 Conclusions

This chapter has investigated within a static framework, the incidence of low paid employment in the Australian labour market and using an econometric approach identified the individual and job related characteristics that are associated with the incidence of low pay in Australia.

During 1995 to 1997, just under one in five or about one million adult wage and salary earners were estimated to work for low pay. As in other developed countries, the risk of low pay was greatest for certain demographic groups. In particular, women, persons who had never been married and individuals living in rural areas were all much more likely to experience low pay. As would be expected those with poor English skills were also disproportionately found in the low paid group. Multiple job holders too were also found to have a grater propensity for low paid employment.

Results also highlighted the significant role of investment in human capital, both in terms of general education but also in terms of jobs skills training in reducing the likelihood of low paid employment among individuals. Most importantly too was the negative association between low pay and current job tenure which highlights that time on the job is also likely to play a significant part in reducing the incidence of low pay. The negative association between previous employment history and low pay was indicative that workers who had previously been out of work, either through unemployment or by spending time out of the labour market, were more likely to be in low paid work.

Job related characteristics were also associated with low paid employment. These too were consistent with studies that had been undertaken overseas. The results suggest that low paid employment was less likely for those in the public sector and larger workplaces also had a significantly lower proportion of low paid employees. As expected, those in low skilled occupations had a greater propensity to be low paid. Finally, a significant relationship was found between casual employment status and low paid employment where those in casual jobs were far more prevalent among the low paid. The results indicated that being casually employed changed the risk of low paid employment by the greatest amount of all individual and job related characteristics included in the analysis.

Appendix A4.1: Summary of Variables for Probit Regression Analysis

Variable Name	*Description*	*Mean*	*Standard Deviation*
Low paid	Proportion under the low pay threshold	0.188	0.391
Male	Dummy variable which takes on the value of 1 if the respondent is male and 0 otherwise.	0.517	0.500
Age	Age of respondent in years	38	9.640
Age squared	Age of respondent in years squared.	1573	757.572
Never married	Dummy variable which takes on the value of 1 if the respondent has never been married, and 0 otherwise.	0.242	0.428
Married or de facto	Dummy variable which takes on the value of 1 if the respondent is married or in a de facto relationship, and 0 otherwise.	0.623	0.485
Separated, divorced or widowed	Dummy variable which takes on the value of 1 if the respondent is separated, divorced or widowed and 0 otherwise.	0.135	0.341
Urban	Dummy variable which takes on the value of 1 if the respondent lives in an urban area of a major city in Australia, and 0 otherwise.	0.674	0.469
Non-English speaking	Dummy variable which takes on the value of 1 if the respondent speaks English fairly well or cannot speak English at all, and 0 otherwise.	0.019	0.136
Dependent children	Dummy variable which takes on the value of 1 if the respondent has dependent children including dependent students, and 0 otherwise.	0.476	0.500

Variable Name	*Description*	*Mean*	*Standard Deviation*
Disabled	Dummy variable which takes on the value of 1 if the respondent has a disability, and 0 otherwise.	0.202	0.402
Union member	Dummy variable which takes on the value of 1 if the respondent is a member of a union, and 0 otherwise.	0.373	0.484
Secondary school not completed	Dummy variable which takes on the value of 1 if the respondent did not complete the highest level of secondary school available, and 0 otherwise.	0.307	0.461
Secondary school completed	Dummy variable which takes on the value of 1 if the respondent completed highest level of secondary school available, and 0 otherwise.	0.141	0.348
Vocational qualifications	Dummy variable which takes on the value of 1 if the respondent obtained post school vocational qualification, and 0 otherwise.	0.251	0.434
Tertiary qualifications	Dummy variable which takes on the value of 1 if the respondent obtained a post school tertiary qualification, and 0 otherwise.	0.301	0.459
Employment history	Ratio of actual years of employment excluding the current job to the number of years since leaving full-time education.	0.783	0.262
Current job tenure	Length of time in years in the current job.	6.52	7.24
Current job tenure squared	Tenure squared.	95.06	193.33

Variable Name	*Description*	*Mean*	*Standard Deviation*
Training	Dummy variable which takes on the value of 1 if the respondent has undertaken job skills training in past 12 months including training from an employer and courses undertaken externally through educational institutions, training consultants, equipment suppliers, professional or industrial associations or adult education centres, and 0 otherwise.	0.493	0.500
Workplace size - 10 or less employees	Dummy variable which takes on the value of 1 if the respondent's workplace has 10 employees or less and 0 otherwise.	0.256	0.436
Workplace size - 11 to 50 employees	Dummy variable which takes on the value of 1 if the respondent's workplace has between 11 & 50 employees, and 0 otherwise.	0.277	0.448
Workplace size - 51 or more employees	Dummy variable which takes on the value of 1 if the respondent's workplace has greater than 50 employees, and 0 otherwise.	0.467	0.499
Casual employment status	Dummy variable which takes on the value of 1 if the respondent does not receive holiday pay or sick leave entitlements, and 0 otherwise.	0.172	0.377
Full-time	Dummy variable which takes on the value of 1 if the respondent works 35 hours per week or more, and 0 otherwise.	0.778	0.416
Manufacturing	Dummy variable which takes on the value of 1 if the respondent works in 1 of the following industries - Agriculture, Manufacturing, Mining, Electricity, Gas and Water, and 0 otherwise.	0.222	0.416

Variable Name	*Description*	*Mean*	*Standard Deviation*
Trade	Dummy variable which takes on the value of 1 if the respondent works in 1 of the following industries - Retail and Wholesale Trade, and 0 otherwise.	0.161	0.367
Services	Dummy variable which takes on the value of 1 if the respondent works in 1 of the following industries - Services includes Accommodation, Finance, Property, Cultural and Personal Services, and 0 otherwise.	0.316	0.465
Government, education and health	Dummy variable which takes on the value of 1 if the respondent works in 1 of the following industries - Government, Education and Health, and 0 otherwise.	0.301	0.459
Management, administration and professional workers	Dummy variable which takes on the value of 1 if the respondent works in 1 of the following occupations - Management , Administration and Professionals, and 0 otherwise.	0.250	0.433
Associated professionals, tradespersons, & advanced clerical workers	Dummy variable which takes on the value of 1 if the respondent works in 1 of the following occupations - Associated Professional, Tradesperson and Advanced Clerical and 0 otherwise.	0.272	0.445
Intermediate production & clerical workers	Dummy variable which takes on the value of 1 if the respondent works in 1 of the following occupations - Intermediate Clerical and Production Workers, and 0 otherwise.	0.297	0.457
Elementary clerical workers & labourers	Dummy variable which takes on the value of 1 if the respondent works in 1 of the following occupations - Elementary Clerical and Labourers and 0 otherwise.	0.180	0.384

Variable Name	*Description*	*Mean*	*Standard Deviation*
Private sector	Dummy variable which takes on the value of 1 if the respondent works in the private sector, and 0 otherwise.	0.727	0.445
Multiple job holder	Dummy variable which takes on the value of 1 if the respondent holds more than 1 job at time of interview, and 0 otherwise.	0.111	0.315
Father - low skilled	Dummy variable which takes on the value of 1 if the respondent's father was a labourer or elementary clerical worker or not working at all when the respondent was aged 15, and 0 otherwise.	0.124	0.330
Mother - low skilled	Dummy variable which takes on the value of 1 if the respondent's mother was a labourer or elementary clerical worker or not working at all when the respondent was aged 15, and 0 otherwise.	0.200	0.400
Year - 1995	Dummy variable which takes on the value of 1 for the year – 1995.	0.340	0.474
Year - 1996	Dummy variable which takes on the value of 1 for the year- 1996.	0.339	0.473
Year - 1997	Dummy variable which takes on the value of 1 for the year- 1997.	0.321	0.467

Chapter 5

The Dynamics of Low Pay

5.1 Introduction

The aim of this chapter is to investigate the labour market transitions and earnings mobility patterns of low paid workers in the Australian labour market during the mid-90s. Whereas Chapter 4 focused on the risk of being low paid at any one point in time, this analysis identifies the extent to which it is the same workers who are low paid over time. An important part of the investigation is to examine the movement of low paid workers in and out of employment. In so doing, this chapter provides evidence about whether there are individuals in the Australian labour market who may be caught up in a cycle of low pay and no pay.

Specifically, a year to year transitions analysis of the labour market status and earnings mobility of low paid workers over the period 1995 to 1997 is presented in Section 5.2. Section 5.3 presents an econometric analysis which identifies factors that are associated with the upwards earnings mobility or joblessness by low paid workers. These investigations are undertaken for two different sub-samples drawn from the SEUP data. The transition patterns for the entire population of low paid workers are examined using the PRG sub-sample and a comparative analysis is undertaken using the jobseeker sub-sample. This provides information about the labour market experiences of persons who

have, in the recent past, been out of work or underemployed and so identifies the extent to which their experiences differ from all low paid workers in the Australian population.

5.2 A Transitions Analysis

A useful method used widely in the literature to investigate the dynamics of low pay is a conditional transitions analysis (Sloane and Theodossiou 1998). A transition probability matrix identifies the extent and path of movement between various labour market states of individuals from one time period to another.

Consider that there are *m* possible labour market states. At time period *t* an individual *i* can be in any one state *j* = 1…..*m*. Let N_{jt} be the number of individuals in state *j* at time period *t*. The estimated probability of an individual moving to labour market state *j* at time *t+1* conditional on him/her being in labour market state *k* at time period *t* is given by:

$$P_{j,k} = \frac{N_{k,t+1}}{N_{j,t}}, \text{ for all } j,k = 1\ldots\text{m.} \tag{5.1}$$

Note that $\sum_{k} P_{j,k} = 1$. Equation 5.1 identifies each cell in the transition probability matrix.

In this analysis, five labour market status categories are identified - adults who were in wage and salary employment in a low paid job, adults in wage and salary employment in a higher paid job, those who found employment but not as a wage and salary earner,[1] the unemployed and those absent from the labour market. The transitions analysis for the period September 1995 to September 1997 is undertaken for two groups. The first group represents adults in the Australian population (not studying full-time) at September 1995. This sample is taken from the PRG sub-sample of SEUP. The second group are drawn from the jobseeker sub-sample. They represent adults who had been unemployed or underemployed during the previous year.

[1]Non wage and salary earners include the self employed, those working in a family business for no pay and those who receive payments in kind. For these individuals, only annual earnings data are available.

The data used to calculate the transitions probabilities are drawn from current labour market status information collected at each SEUP interview date at September 1995, September 1996 and September 1997. The hourly rate of pay data to determine whether the individual is low paid or higher paid is measured by dividing continuous data for weekly earnings by a continuous variable for hours worked on all jobs.[2]

5.2.1 One year transitions

Table 5.1 presents the aggregate transition probability matrix for the one year period September 1995 to September 1996 for all adults not studying full-time.[3] Each row in the table relates to the position of individuals at September 1995 and each column their labour market state one year on. The interpretation of the cells in the table is best described by an example. Reading across the first row, the figure in the column titled 'Low paid' indicates that, of all individuals who were in low paid employment in September 1995, 36 per cent were still low paid one year on. The figure in the next column suggests that 45 per cent of the low paid workers in September 1995 were earning higher wages by September 1996. The column titled 'Non-Wage & Salary Earner' indicates that 6 per cent of the low paid earners in 1995 remained in employment but not as a wage and salary earner. Therefore, as reported in the next column, 87 per cent of workers who were low paid in September 1995 were found in employment one year later. The final column indicates the percentage of low paid workers in 1995 who were jobless in that they were either unemployed or absent from the labour market in September 1996.

Table 5.1 highlights a number of important trends with respect to the transition patterns of low paid workers.

[2] For wave 1, the continuous hours worked data used to calculate low pay were obtained from the episode information of SEUP. Unpublished data were provided by the ABS for waves 2 and 3.
[3] Hourly earnings could not be calculated for some wage and salary earners (approximately 2 per cent in each year). Their transitions are assumed to be random and evenly distributed across the 5 categories.

- *There is a substantial movement of low paid workers up the earnings ladder.*

Of low paid adults in September 1995, 87 per cent were still in employment one year on. Just over half of these had moved above the low pay threshold by the following year. In contrast, only 7 per cent of those earning higher wages in September 1995, and still employed one year on, were in low paid employment at September 1996.

- *Many workers remain in low paid work.*

Just over one third of low paid workers at September 1995 continued in employment but still earned below the low pay threshold after one year.

Table 5.1: One Year Transition Probability Matrix - PRG Sub-sample

			September 1996					
		Distribution Sept 95	*Low Paid*	*Higher Paid*	*Non-Wage & Salary Earner*	*Total in Employment*	*Total Jobless*[a]	*Sample Size*
Sept 1995	Low paid	10.7	36.4	45.1	5.7*	87.2	12.8	209
	Higher paid	46.1	7.1	82.0	4.5	93.6	6.4	833
	Non-wage & salary earner	20.2	3.0*	16.4	74.0	93.4	6.6	322
	Unemployed	5.1	15.0	18.8	7.4*	41.2	58.8	112
	Not in labour market	17.9	5.3	9.6	3.4*	18.3	81.7	345

a. This includes those who are unemployed and those absent from the labour market.
* For this estimate, the relative standard error is greater than 25 per cent.

- *Adults in low paid employment exhibit the highest transition to joblessness.*

Of those in low paid employment in September 1995, 13 per cent were either unemployed or absent from the labour market, that is, jobless after one year. In comparison, the

transition to joblessness for those in higher wage and salary employment and those working but not as a wage and salary earner was 6 and 7 per cent respectively. This indicates that low paid wage and salary earners are twice as likely than other employed persons to exit from employment within one year.

- *Persons unemployed or not in the labour market have a higher than average chance of securing low paid wage and salary employment.*

Almost three out of five unemployed persons and four out of five persons who were not in the labour market at September 1995 remained jobless 12 months later. Although many unemployed did move into higher paid wage and salary employment, still a relatively high percentage (44 per cent), compared to the average rate of transition to low pay for all those in wage and salary employment in September 1995 (15 per cent), secured low paid jobs. Also, 36 per cent of those who moved into wage and salary jobs and were not in the labour market moved into a low paid job.

To summarise, these major trends highlight a diversity in labour market outcomes for individuals in low paid jobs. There is substantial movement of workers out of low pay. Many have moved up the earnings ladder above the low pay threshold. Nevertheless, observed transitions suggest that low paid workers are the most at risk of experiencing a spell of joblessness over time. Those who are in low paid employment have twice the chance of those employed in higher paying wage and salary jobs of moving into joblessness within one year. It is also apparent that adults who are not employed have a higher than average chance of securing a low paid rather than a higher paid job.

Table 5.2 presents the corresponding one year transition probability matrix for the jobseeker sub-sample which represents persons who have experienced joblessness or underemployment approximately 4 months prior to September 1995. A comparison of the transition patterns for the jobseeker and PRG sub-samples reveals the following.

- *Transition patterns of jobseekers are much less stable than the average worker in the population.*

The diagonal elements of the transition matrix indicate the number of workers who remained in the same labour market state from one year to the next. Greater numbers on the diagonals would represent less movement between states. The diagonal elements of Table 5.2 are less than those in Table 5.1 indicating that a greater proportion of jobseekers have changed their labour market position after one year. For example, just 61 per cent of jobseekers who had secured higher paid wage and salary employment in September 1995 were also in higher paid wage and salary employment one year on. This compares with 82 per cent for higher paid adults in the population as represented by the PRG sub-sample in Table 5.1.

Table 5.2: One Year Transition Probability Matrix - Jobseeker Sub-sample

			September 1996					
		Distribution Sept 95	***Low Paid***	***Higher Paid***	***Non-Wage & Salary Earner***	***Total in Employment***	***Total Jobless[a]***	***Sample Size***
Sept 1995	Low paid	13.3	33.7	32.1	5.6	71.4	28.6	469
	Higher paid	13.8	16.7	60.9	6.3	83.9	16.1	470
	Non-wage & salary earner	6.9	11.1	17.7	46.2	75.0	25.0	237
	Unemployed	48.5	16.2	15.8	8.4	40.4	59.6	1685
	Not in labour market	17.5	9.5	9.5	6.6	25.6	74.4	660

a. This includes those who are unemployed and those absent from the labour market.

- *Jobseekers securing low paid employment are less likely than the average low paid worker to move and remain above the low pay threshold in one year.*

45 per cent of jobseekers who obtained low paid jobs by September 1995 and were also working at September 1996 moved above the threshold compared to 52 per cent for the PRG sub-sample representing the average low paid worker (Table 5.1). Jobseekers who secured higher paid jobs however, were twice as likely as the population of adults in higher wage and salary jobs to have returned to low paid work by the next year. The transition rate to low pay from higher paid work was 17 per cent compared to 7 per cent for the population as reported in Table 5.1.

- *All jobseekers securing employment are about three times more likely than the average worker to experience a spell of joblessness.*

The proportion of all jobseekers in employment at September 1995 who moved to a spell of joblessness was 22.8 per cent. This compares with 7.3 per cent for the total population of workers as represented by the PRG in Table 5.1.

- *Jobseekers who secured low paid jobs have the highest transition rate to joblessness.*

The transition rate out of employment for jobseekers who secure low wage and salary jobs is 29 per cent. This is almost twice the 16 per cent transition rate for jobseekers who were in higher wage and salary jobs. This result mirrors that of the population as a whole. Those in low paid work were twice as likely to find themselves out of a job compared to those in higher paid jobs.

Comparing low paid jobseekers with all low paid workers as represented by the PRG, the transition rate to joblessness at 29 per cent is over twice that reported by the general population of low paid workers (13 per cent) in Table 5.1.

- *Jobseekers moving into employment from joblessness have a high chance of moving to a low paid job.*

Table 5.2 indicates that jobseekers without employment at September 1995 who became wage and salary employed one year later had approximately a 50 per cent chance of becoming low paid. This compares with and is consistent with the results of Table 5.1, where 44 per cent of unemployed persons and 36 per cent of those not in the labour market who obtained wage and salary employment moved into low paid jobs.

These findings highlight the relative disadvantaged position of jobseekers who secure low paid work in the Australian labour market. After having secured work, jobseekers display transition rates to joblessness 12 months later that are much higher than the average adult worker in the population. In particular, jobseekers who secure low paid work appear to be in the most disadvantaged position in terms of improving their labour market position over time.

5.2.2 Two year transitions

Two year transition probability matrices using the PRG and jobseeker sub-samples are presented in Tables 5.3 and 5.4 respectively. These tables show in aggregate the transitions of individuals from their labour market and earnings position in September 1995 to their position in September 1997. Underlying the reported estimates are two, sometimes opposing factors which may influence the results. First, a year effect identifies the impact on transitions of the prevailing economic and employment conditions of each particular year of the survey. It would be expected, for example, that worsening economic conditions may have a negative impact on labour market transitions. Second, a duration effect captures a positive but declining impact on employment of the increasing length of time since respondents were identified into the sample.[4]

[4] It would be expected, for example, that although more jobseekers would gain employment as the time since recruitment to the survey increases, the rate of this gain would decrease as the remaining group is disproportionately made up of long term unemployed and discouraged workers.

These offsetting effects are evident in Tables 5.3 and 5.4. In general, the position of workers in the labour market had not improved after the second year perhaps reflecting worsening labour market conditions during 1997.[5] For all workers in the general population, the average chance of losing a job by the end of two years had increased over the one year transition probability. The greatest increase, once again, was seen for those in low paid employment with the transition rate to joblessness increasing from 13 per cent after one year to 20 per cent after two years. For those in higher paid employment the transition rate increased from 6 per cent to 9 per cent.

Table 5.3: Two Year Transition Probability Matrix - PRG Sub-sample

			September 1997					
		Distribution Sept 95	***Low Paid***	***Higher Paid***	***Non-Wage & Salary Earner***	***Total in Employment***	***Total Jobless[a]***	***Sample Size***
Sept 1995	Low paid	10.9	29.8	41.1	9.0	79.9	20.1	198
	Higher paid	46.9	7.0	79.0	5.4	91.4	8.6	783
	Non-wage & salary earner	20.0	4.6*	12.7	76.2	93.5	6.5	291
	Unemployed	4.7	12.4*	29.2	9.4*	51.0	49.0	97
	Not in labour market	17.5	7.2	10.1	4.7*	22.0	78.0	307

a. This includes those who are unemployed and those absent from the labour market.
* For this estimate, the relative standard error is greater than 25 per cent.

Perhaps reflecting the increased length of time since being identified as unemployed, i.e. a stronger duration effect, workers who were unemployed in September 1995 had an improved chance of securing employment after two years than after one year with the probability of being employed increasing from 41 per cent at September 1996 (Table 5.1) to 51 per cent at September 1997. Further, 70 per cent of the unemployed in September

[5] During this year general labour market conditions deteriorated with the total number of wage and salary employees actually falling by 1.4 per cent.

1995 who secured a wage and salary job by September 1997 were in higher paid employment, an increase of about 25 percentage points and those who were not in the labour market in September 1995 but entered it, were more likely to be found in employment 2 years on.

Table 5.4: Two Year Transition Probability Matrix - Jobseeker Sub-sample

			September 1997					
		Distribution Sept 95	***Low Paid***	***Higher Paid***	***Non-Wage & Salary Earner***	***Total in Employment***	***Total Jobless[a]***	***Sample Size***
Sept 1995	Low paid	13.2	25.3	37.0	5.7	68.0	32.0	412
	Higher paid	14.1	14.1	62.2	5.9	82.2	17.8	453
	Non-wage & salary earner	7.2	10.4	23.7	41.5	75.6	24.4	220
	Unemployed	48.0	14.4	19.7	7.9	42.0	58.0	1461
	Not in labour market	17.4	11.2	11.1	6.7	29.0	71.0	580

a. This includes those who are unemployed and those absent from the labour market.

For jobseekers, Table 5.4 shows that transition rates to joblessness as a whole changed little from the one year transitions reflecting the offsetting positive duration and the negative year effects. Also, for those who were not employed in September 1995, there was no improvement with respect to their chances of securing employment after 2 years. Still their probabilities of being in employment were only 42 per cent for those unemployed and 29 per cent for those not in the labour market respectively. The only noticeable improvement in the 2 year transition table for jobseekers can be seen for those in low paid wage and salary jobs in September 1995. Two years on, for those who remained wage and salary employed, 59 per cent are likely to have moved above the low pay threshold compared to 49 per cent after one year.

5.2.3 Summary of transitions analysis

A number of major findings can be drawn from the results presented in this section. First, the analysis highlights the relative instability of mobility patterns of low paid workers in the Australian labour market. Results from the PRG sub-sample indicate that while the majority of low paid adult wage and salary earners in the Australian population are able to improve or at least maintain their earnings with time, about 13 per cent are likely to face periods of joblessness within a year, a transition rate which is double that of higher paid workers.

Second, adult jobseekers who have secured employment display less stable transition and earnings mobility patterns than wage and salary earning adults in the population. Jobseekers in general are less likely to improve their earnings position and also, more likely than adults in the PRG to exit employment for a spell of joblessness. Third, jobseekers who secured a low paid job are the most likely to exit employment with transition rates to joblessness being close to 30 per cent. This rate is almost double that of jobseekers on higher pay rates and of the average low paid worker in the population and four times greater than higher paid adult wage and salary earners in the Australian population.

The implication of these findings is that low paid workers are the most likely adult workers to be moving in and out of employment over time. This conclusion is consistent with results of similar analyses undertaken overseas. For example, Stewart and Swaffield (1997) document similar one year transitions analysis for the UK population using the British Household Panel Survey over the years 1992 to 1995. They summarise their results by indicating that low paid persons are

'more likely to move out of employment and more likely to be low paid when they move back into employment (even relative to other entrants who themselves have a higher probability of being lower paid). There is thus evidence of a cycle of low pay and no pay.'(page 41).

Further, using data from many different countries, the OECD (1997) study of the mobility of low paid workers also highlights that there is a diversity of outcomes for low paid workers emphasising that while many end up in stable, higher paying jobs, the extent of movement out of low paid work to non-employment is also significant.

5.3 Factors Affecting the Transitions of the Low Paid

Conclusions drawn from the transition analysis in Section 5.2 raise questions about the ability of individuals to move above the low pay threshold. Are there certain groups of low paid adults who are more likely to move above the threshold and others who are more likely to move into a spell of joblessness? What are the factors associated with the upwards earnings mobility of low paid adult workers? What is the effect of joblessness on mobility patterns of low paid workers?

5.3.1 Average transition probabilities

Table 5.5 presents average one year transition probabilities for low paid workers in 1995 for the PRG and jobseeker sub-samples by demographic characteristics, human capital measures and job related variables which are likely to influence labour market outcomes of low paid workers. Low paid workers are divided into three transition groups – 'Moved to higher pay', 'Stayed low paid'[6] and 'Moved to joblessness'. Overall, the data presented in this table suggest that there are significant differences in the transition probabilities when disaggregated by these variables.

5.3.2 Demographic characteristics

For the population of low paid adult workers as represented by the PRG sub-sample, transition rates vary considerably by all included demographic characteristics. In particular, the results indicate that men are much more likely to move above the low pay threshold with the difference in the transition rates between men and women being 18 percentage points. Also, the results suggest that younger low paid adults, that is, those

[6] Following Stewart and Swaffield (1999) low paid workers who moved to self employment were categorised as 'Stayed low paid' as it is assumed that the move to self employment does not imply guaranteed success.

aged between 21 and 30 and adult workers who live with a spouse or partner and those who have no dependent children have a greater probability of upwards earnings mobility. In contrast, the presence of dependent children seems to hinder earnings mobility and increase the chance of joblessness.

Reported transition rates disaggregated by location of residence also reveal substantial differences. Workers in urban locations appear to have better prospects for positive earnings mobility having a probability of moving above the low pay threshold of 52 per cent compared with 36 per cent for workers in rural locations. Urban workers however, also appear to have a greater than average chance of exiting employment to joblessness whereas workers in rural locations are more likely to remain in their low paid job from one year to the next. As expected, disabled workers are also less likely to achieve improved labour market outcomes over the year with only 38 per cent moving to higher paid work compared with 48 per cent for those with no disability.

In general, the same broad transition patterns, disaggregated by worker characteristics are also evident for the jobseeker sub-sample. A notable exception is in the gender specific transition patterns. Jobseekers who are male do not have a higher transition rate into higher pay than females. Indeed, men in the jobseeker sub-sample have a greater than average chance of moving to joblessness within the year perhaps suggesting that for men, spells of joblessness may have a larger effect on their subsequent earnings. Also, contrary to the results for the PRG sub-sample, jobseekers who have a usual resident spouse or partner are less likely to achieve upwards earnings mobility than those workers who have never been married or do not have a spouse or partner present. A similar reversal of trends is evident for transition rates disaggregated by whether the worker had dependent children.

5.3.3 Human capital factors

In empirical studies of earnings in Australia, investment in education and training and previous labour market experience are all highly significant factors that determine the labour market outcomes of individuals (Preston 1997) Average transition probabilities of low paid workers differ when disaggregated by these variables and, once again, similar

transition patterns are reported for both the PRG and the jobseeker sub-samples. Low paid adults who have finished at least the highest level of secondary education available to them are contrasted with those who did not complete their education to this level. The results show that better educated low paid workers are on average more likely to move to higher pay and also less likely to move to joblessness. For example, finishing to the highest level of secondary education increases the chance of transition to higher pay by 12 percentage points for low paid adults in the PRG and 10 percentage points for jobseekers.

If, during the one year period prior to the transition year, the worker had undertaken a training course either with an employer or an external course to develop job skills then the results indicate that this was likely to have a positive impact on their transition out of low pay. An unexpected result, however, was that transition rates to joblessness for jobseekers who had improved job skills through training were higher than average, perhaps reflecting that these workers were willing to forego earnings in a low paid job in order to find a job which is better suited to their newly acquired skills.

Average measures of employment history for workers in the three transition categories are also reported in Table 5.5. Studies of the effect of unemployment on future earnings reveal that the most recent spells of unemployment have the greatest effect on subsequent earnings (Gregory and Jukes 1997). Employment history, therefore, is divided into 2 variables – the first, prior employment history, measures the number of years in paid work up to one year prior to the transition year as a percentage of the total time since leaving full-time education. The second variable, recent employment history, reports the same percentage for the year immediately before the transition year. Results show that workers achieving better outcomes are, on average, those with higher recent employment history levels. For example, in the PRG sub-sample, low paid adults who moved onto higher paid work had spent, on average, 90 per cent of the previous year in paid work whereas those who moved out of employment had only spent 56 per cent of the previous year in paid work. The identical comparison for jobseekers, most of whom had experienced a spell of joblessness in the previous twelve month period, is 49 per cent and 36 per cent

respectively.[7] A similar, though less dramatic comparison can also be made for prior employment history suggesting that low paid adults with the greatest amount of previous work experience relative to their potential are the most likely to improve their earnings position over time. Conversely, low paid adults who, on average, have higher levels of joblessness in their employment history are the most likely to exit employment by the end of the transition year.

5.3.4 Job related characteristics

Table 5.5 also presents average transition rates disaggregated by various job related characteristics. Reported results for both samples indicate considerable variability in transition outcomes for low paid workers. Most notably, workers in full-time employment and those in permanent jobs in both the PRG and jobseeker sub-samples are estimated to have a greater chance of upwards earnings mobility than workers who are part-time employed or in casual employment. Conversely, casual workers have a higher than average chance to exit employment after one year.

Also, in both sub-samples, a large difference between the average transition probabilities for workers in small and larger workplaces is observed. Workers employed in a workplace with more than 10 employees are far more likely than those in a small workplace (that is 10 employees or less) to move onto higher pay over the year. For example, in the PRG sub-sample, the likelihood of a low paid worker in a larger workplace moving to higher pay is 56 per cent compared to 40 per cent for those employed in a small workplace. For jobseekers, low paid workers in larger workplaces are also observed to be less likely to exit employment.

Union membership and work in the public sector also appear to be positively associated with the transition to higher pay. For jobseekers, public sector workers, however, are more likely to move to joblessness. Being a multiple wage earner significantly decreases the

[7] It has been argued by Miller and Volker (1987) that this link between employment history and the incidence of unemployment is strongest in Australia compared to other countries because of Australia's more centralised wage fixation system which reduces the impact of employment history on wages, conditional on securing employment.

chance of upwards earnings mobility but also increases the probability of remaining in employment.

Table 5.5: Disaggregated Transition Probabilities - 1995 to 1996

	PRG			*Jobseekers*		
	Moved to higher pay	***Stayed low paid***	***Moved to joblessness***	***Moved to higher pay***	***Stayed low paid***	***Moved to joblessness***
Average transition probability	45.4	41.8	12.8	32.4	39.1	28.5
Demographic Characteristics						
Gender						
Men	55.9	37.4	*6.7	31.6	37.2	31.2
Women	37.5	45.1	*17.4	33.3	41.1	25.6
Age						
21-30 years	47.9	37.9	*14.2	40.0	31.7	28.3
Over 30 years	43.9	44.1	12.0	25.1	46.1	28.7
Marital Status						
Usual resident spouse / partner	47.4	40.1	12.6	28.8	44.7	26.4
Other	41.9	44.9	*13.2	34.9	35.0	30.0
Dependants						
Do no have dependent children	53.7	37.1	*9.2	33.9	36.5	29.6
Have dependent children	36.4	46.9	16.7	30.5	42.4	27.1
Location of Residence						
Urban	51.9	32.5	15.7	40.6	36.1	23.3
Rural	35.9	55.6	*8.6	22.8	42.6	34.7
Disabled						
Have no disability	47.7	41.3	11.0	32.8	38.5	28.7
Have a disability	38.0	43.3	*18.6	31.3	40.9	27.8
English Proficiency Level						
Proficient in English	46.0	42.0	12.3	33.6	38.4	28.1
Not proficient in English	0.0	*6.9	*93.1	*14.2	49.8	36.0
Human Capital						
Education						
Did not finish highest level of secondary school available	39.3	41.4	19.3	27.1	40.8	32.1
Finished highest level of secondary school available	51.3	42.2	*6.5	36.9	37.6	25.5
Training						
Trained during previous year	50.8	33.6	*15.6	36.8	31.2	32.0
Did not train during previous year	42.2	46.7	11.1	30.5	42.4	27.0
Employment History						
Average prior employment history	81.1	72.6	63.0	66.5	66.2	57.8
Average recent employment history	89.5	90.2	55.5	49.1	48.7	35.9

Table 5.5 (ctd): Disaggregated Transition Probabilities - 1995 to 1996

	PRG			*Jobseekers*		
	Moved to higher pay	***Stayed Low paid***	***Moved to joblessness***	***Moved to higher pay***	***Stayed low paid***	***Moved to joblessness***
Average Transition Probability	45.4	41.8	12.8	32.4	39.1	28.5
Job Characteristics						
Work Hours						
Full-time	52.4	37.9	*9.7	38.7	30.3	31.1
Part-time	34.5	47.9	17.6	24.9	49.6	25.5
Job Status						
Permanent	48.9	42.9	*8.3	38.5	37.7	23.7
Casual	40.1	40.1	19.8	29.0	39.8	31.2
Sector						
Private	44.1	43.8	12.1	30.6	43.4	26.0
Public	54.9	*27.6	*17.5	42.6	14.4	43.1
Workplace Size						
10 employees or less	40.2	48.0	11.8	26.8	42.8	30.4
Greater than 10 employees	56.3	28.8	*14.8	50.9	26.7	22.4
Union Membership						
Union member	59.4	31.5	*9.1	47.3	22.1	30.6
Not a union member	41.5	44.7	13.8	30.0	41.8	28.2
Occupation [a]						
Higher skilled occupation	41.6	44.3	14.1	33.8	32.2	34.1
Low skilled occupation	50.3	38.6	*11.0	31.0	46.2	22.8
Industry [a]						
Trade Industries	52.1	35.0	*13.0	31.1	55.2	*13.6
Service Industries	35.5	52.2	*12.2	33.4	40.5	26.1
Other	46.9	40.0	*13.1	32.2	32.3	35.5
Multiple Job Holder						
Currently hold more than one job	40.3	52.4	*7.3	17.5	56.6	26.0
Currently hold only one job	46.2	40.2	13.6	33.9	37.3	28.8
Sample size			205			454

a. For a complete definition of variables see Appendix A5.1.

* Sampling variability too high

Low skilled occupation workers are defined as those who are in occupations which are classified, according to the ASCO version 2 classification system, as those which require the lowest amount of formal education and previous experience (Australian Bureau of Statistics 1997a). Occupations comprising this group are intermediate production workers, elementary clerical workers and labourers. The results suggest that, for the PRG sub-sample, higher skilled occupation workers are less likely to move onto higher pay than the low skilled occupation workers. Also, for both the PRG and jobseeker sub-samples, it is the higher skilled occupation workers who are more likely to exit employment. This result may indicate that higher skilled workers are willing to undertake more job search to find a higher paid job which is better suited to their abilities than remain and progress in their low paid job. Alternatively, it may be a reflection that it is the higher skilled occupation workers who are the most likely to be involuntarily retrenched.

Labour market outcomes also vary by industry groups with low paid adult workers in the Retail and Wholesale Trade industry sectors having the most diverse patterns of transition. For example in the PRG, workers in this sector have a greater than average transition to higher pay. Jobseekers in this industry sector are reported to be far less likely than Jobseekers in other industry sectors to exit employment but stay low paid.

5.4 Empirical Estimation of Transitions

In an attempt to identify the relative importance of factors which may be associated with the labour market outcomes of low paid workers, transition rates are estimated within a discrete choice econometric modeling framework in this section. As has been noted by Stewart and Swaffield (1999), modeling transition rates for low paid workers is not straightforward. They suggest that it is important to take into account the fact that the chances of a worker remaining low paid may be associated with whether that worker was low paid in previous time periods. This state dependence could result, for example, from a situation where a worker's human capital depreciates from being low paid and this in turn causes him to be less able to move out of low pay in the following time period. It could also be the case however, that observed transition rates merely indicate heterogeneity, the

fact that individuals with specific characteristics are more likely to be low paid. Isolating out these two effects is a difficult econometric procedure that requires making strong assumptions and is beyond the scope of this chapter.[8]

In identifying the factors that may influence the labour market outcomes of low paid workers, the approach first assumes that the transition of low paid workers follows a markov process where the probability of being in a labour market or earnings position at time *t* is dependent only on identifiable factors at time *t-1* (Taha 1976). Low paid workers in a given year, *t-1* can be found in one of three states by the following year, *t*. These states are - employed and above the low pay threshold, employed but under the low pay threshold or self employed, and no longer employed, that is unemployed or not in the labour market. It is assumed that workers first face the probability of remaining in employment by the following year and then, if employed, the chance of moving above the low pay threshold.

Empirically this framework is estimated using nested discrete choice logistic regression in two stages.[9] First, the probability that a low paid worker remains employed at time *t*, $\Pr(E_t|LP_{t-1})$ is estimated.

(5.2) $$\Pr(E_t \mid LP_{t-1}) = \frac{e^{X_{t-1}'b}}{1+e^{X_{t-1}'b}}$$

where X_{t-1} is a vector of explanatory variables at time *t-1* and $\hat{a}$ is the corresponding vector of coefficients.

[8] Stewart and Swaffield (1999) have attempted to estimate the impact of state dependence for earnings mobility of low paid workers in the UK. In their estimation procedure, they assume that the socioeconomic characteristics of the parents will affect the probability of being low paid but will not affect the earnings path for an individual over time. With this maintained assumption, they distinguish between state dependence and heterogeneity. They find that state dependence is present and significant. However, the identifying assumption is somewhat arbitrary and it is not clear how robust or general their conclusions are.

[9] Full information maximum likelihood techniques could be used to estimate both stages together. This would result in a more efficient model estimates. This was not undertaken in this study however due to limitations in the statistical software used.

For those employed at time *t*, the probability of moving above the low paid threshold, $\Pr(HP_t|LP_{t-1})$ is estimated,

$$\Pr(HP_t \mid LP_{t-1}) = \frac{e^{X_{t-1}'d}}{1+e^{X_{t-1}'d}} \tag{5.3}$$

where *ä* is the corresponding vector of coefficients.

5.4.1 Empirical model results

As the nested logit model results themselves are not straightforward to interpret, Tables 5.6 and 5.7 present the estimated marginal effects calculated from the two stages of the estimation procedure[10] for the one year transition from September 1995 to September 1996 using the PRG[11] and the jobseeker sub-samples respectively. The marginal effects show the change in the estimated probability for each transition category – 'Moved to higher pay', 'Stayed low paid' and 'Moved to joblessness' - for a person with a specific set of characteristics. These are the average prior employment history and recent employment history and characteristics denoted by the included dummy variables at their zero position. For example, in Table 5.6, the estimated marginal effect of moving into higher pay if the low paid adult is young, that is, aged between 21 and 30 is 0.141. This means that, with other characteristics held constant, the chances of moving to higher pay for a young low paid adult worker is greater than an older worker by 14 percentage points.

The corresponding coefficient estimates and *z* values for both stages of the estimation procedure for the PRG and jobseeker sub-samples are presented in Tables A5.1 and A5.2 in Appendix A5.2

[10] The probability of moving to higher pay is calculated from the two stage estimation procedure by multiplying the probability of being higher paid conditional on employment in the next year with the probability of being employed in the next year. A similar calculation generates the probability of remaining low paid.

[11] For the PRG, the variable 'English proficiency' could not be included because it was very highly correlated with other included variables.

5.4.2 PRG results

For the PRG, results from the first stage indicate that only one variable, recent employment history is estimated to be significantly associated with the probability of employment in the next year. As reported by the marginal effect in Table 5.7, if a low paid worker was able to work for about 5 more weeks in the previous 12 month period, which represents a 10 per cent increase in his/her recent employment history, then this would decrease his transition rate to joblessness by about 3 percentage points. This result suggests that low paid workers who are the most likely to exit employment are those with the least amount of employment in the year prior to the transition year.

The importance of recent employment history and the lack of significance of other variables in determining employment outcomes for Australian workers have also been discussed by Le and Miller (1999b). Using SEUP data, they present an analysis estimating the risk of unemployment among wage and salary earners in the Australian labour market. A variable measuring past labour market experience, the amount of time spent looking for work in the previous period, was found to be a dominant factor in determining the probability of unemployment for Australian workers. Importantly, in their empirical estimation, they find that when variables to capture labour market history are included then many of the demographic variables become insignificant. They suggest that this result highlights the importance of the cumulative or 'scarring' effect of unemployment for workers in the Australian labour market. Also, it may be that these variables are capturing unobservable individual factors, for example, attitudes to work that also may be associated with the history of labour market outcomes for persons in Australia.

In the second stage of the estimation procedure, demographic variables which are estimated to be significantly associated with upwards earnings mobility of low paid workers are gender, age and location of residence. The estimated marginal effects suggest that the probability of being in a higher paid job is greater by 23 percentage points for men and for an adult aged 30 or under, by 14 percentage points. Results reported by other researchers who have undertaken similar studies for workers in the UK confirm the importance of demographic characteristics on labour market outcomes for low paid

workers. For example Gregory and Elias (1994), Sloane and Theodossiou (1996) and Stewart and Swaffield (1997) all find that men are more upwardly mobile than women and being young aids earnings mobility. Further, in Australian studies of age earnings profiles, it is suggested that earnings generally rise with age and rise fastest at younger ages and earnings profiles are generally higher for men than women (Chapman and Mulvey 1986). This implies that young adults are still gaining labour market experience and improving job skills which in turn helps them to improve labour market outcomes over time and move onto higher paid work.

Those in urban labour markets are estimated to have an improved chance of moving out of low pay above the threshold by 18 percentage points suggesting that urban labour markets are able to offer workers more opportunities for employment and advancement. This result too is consistent with reported studies of earnings in Australia (Gregory and Daly 1992; Rummery 1992; Preston 1997). Although the measures of location are different in all three earnings studies, results indicate that there is a significant earnings disadvantage to living in a non metropolitan area. Estimates of the earnings differential range from 8.3 per cent in Preston's study to 30 per cent for Rummery.

The estimates of the model also indicate that small workplaces do not provide the environment that aids workers in earnings mobility. Here, it is predicted that, with other variables held constant, the chance of moving above the low pay threshold if employment is in a workplace with 10 employees or less decreases by 11 percentage points. Workers in small workplaces are also estimated to be more likely to remain low paid perhaps reflecting the premise that small firms do not have the same ability as do larger firms to provide earnings ladders and promotion opportunities to staff. This result is again consistent with results from studies of low paid workers in the UK where firm size is found to be positively associated with a higher probability of escaping low pay (Stewart and Swaffield 1997; Sloane and Theodossiou 1998).

Table 5.6: Estimated Marginal Effects from Nested Logit Results[a] - PRG Sub-sample

	Moved to Higher Pay	*Stayed Low Pay*	*Moved to Joblessness*
Prior employment history	0.006	-0.011	0.005
Recent employment history [b]	0.002	0.030	-0.032
Male [c]	0.234	-0.167	-0.067
Young [c]	0.141	-0.156	0.015
Resident spouse/partner	0.086	-0.105	0.019
No dependants	0.033	0.005	-0.038
Urban resident [c]	0.181	-0.239	0.058
Disabled	-0.109	-0.037	0.145
Not finished high school	-0.027	-0.039	0.066
Trained during previous year	0.100	-0.150	0.051
Full-time	0.101	-0.111	0.010
Private sector	-0.075	0.144	-0.069
Union member	0.045	-0.015	-0.030
Low skilled occupation	0.000	-0.033	0.033
Trade industries	-0.002	0.017	-0.015
Service industries	-0.015	-0.019	0.034
Casual	0.082	-0.067	-0.015
Small workplace [c]	-0.111	0.112	-0.001
Multiple job holder	-0.031	0.093	-0.062

a. Coefficient estimates are reported in Appendix A5.2, Table A5.1

b. Coefficient in the probability of employment equation is significant to the 5 per cent level.

c. Coefficient in the probability of higher pay given employment equation is significant to at least the 10 per cent level.

5.4.3 Jobseeker results

Consistent with the estimation results using the PRG sub-sample, results for the jobseeker sub-sample from the first stage highlight the dominant influence of employment history on future employment opportunities for jobseekers who secure low paid jobs. Here, both the prior employment history and recent employment history variables are found to be positively associated with the likelihood of employment. For example, coefficient

estimates for recent employment history suggest that 5 weeks more work in the previous 12 month period would decrease the probability of exiting employment for a Jobseeker by 2 percentage points. A similar decrease of 1.5 percentage points is estimated to occur if a jobseeker's amount of employment prior to the most recent 12 month period was increased by 10 per cent. Further, the importance of this factor for jobseekers is highlighted by a comparison to the results for the PRG sub-sample. If jobseekers were given the average experience levels of low paid workers in the population as represented by the PRG sub-sample, holding all other things constant,[12] they would increase their chances of moving above the low pay threshold by about 25 per cent and decrease their transition to joblessness by 37 per cent.

Unlike the PRG estimates, results suggest that job related variables are significantly associated with the probability of employment for jobseekers. Specifically, low paid adult jobseekers in wholesale and retail trade and, to a lesser extent, private sector low paid workers and those in low skilled occupations[13] are estimated to be more likely to be employed after one year. Jobseekers who obtained casual low paid jobs and those in small workplaces are however more likely to be jobless after one year.

The probability of employment for a jobseeker who has secured casual low paid employment at the beginning of the transition period is estimated to be about 11 percentage points less than permanently employed workers. Related Australian research has also reported on the difficulty faced by jobseekers in casual employment to improve their labour market position over time. A commissioned report undertaken by the National Board of Employment, Education and Training (National Board of Employment Education and Training 1992) explored the experiences of disadvantaged jobseekers in obtaining work in the Australian labour market during 1990. Using anecdotal evidence and data from the Australian Longitudinal Survey, a particular focus was to examine whether the casual employment they secured, offered workers avenues to establish career paths over time. Although most were happy to take up casual jobs in the future, these did not help to

[12] This is calculated with a similar model for both the PRG and jobseeker sub-samples , excluding English proficiency, disabled and multiple wage earners.

move them into more permanent positions in the labour market. In fact it was concluded that

'because of the way many of these jobs are structured, they do not offer a stepping stone to more secure jobs but rather a dead end' (page 67).

Table 5.7: Estimated Marginal Effects from Nested Logit Results[a] - Jobseeker sub-sample

	Moved to higher pay	*Stayed Low Pay*	*Moved to Joblessness*
Prior employment history [b c]	0.026	-0.011	-0.015
Recent employment history [b]	0.012	0.009	-0.021
Male	-0.075	0.053	0.022
Young [c]	0.184	-0.149	-0.035
Resident spouse/partner	0.054	0.002	-0.056
No dependants	0.037	-0.061	0.024
Urban resident [c]	0.218	-0.166	-0.052
Not proficient in English[c]	-0.183	0.150	0.033
Disabled	-0.087	0.056	0.030
Not finished high school	-0.059	0.011	0.048
Trained during previous year	-0.030	-0.022	0.052
Full-time [c]	0.184	-0.181	-0.002
Private sector [b c]	-0.162	0.247	-0.085
Union member	0.083	-0.136	0.053
Low skilled occupation[b]	-0.007	0.095	-0.088
Trade industries [b]	0.015	0.101	-0.116
Service industries	0.081	-0.026	-0.055
Casual [b]	-0.015	-0.093	0.108
Small workplace [b c]	-0.133	0.019	0.115
Multiple job holder	-0.081	0.080	0.001

a. Coefficient estimates are reported in Appendix A5.2, Table A5.2

b. Coefficient in the probability of employment equation is significant to at least the 10 per cent level.

c. Coefficient in the probability of higher pay given employment equation is significant to at least the 10 per cent level.

[13] These two factors are significant at the 10 per cent level.

Burgess and Campbell (1998a) have also examined this issue for casual workers in Australia during 1996. Using data from SEUP on casual employment they conclude that casual employment is a bridge to more permanent work for some and a trap for others. Under such work arrangements it becomes difficult to escape from a cycle of insecure work with low earnings and periods of unemployment or discouragement from the workforce altogether.

Relative to jobs in industries other than service and trade, jobs in the retail and wholesale trade industries provide jobseekers with opportunity to remain employed perhaps indicating increased opportunities for employment in this sector but with no significant impact on moving above the low pay threshold.[14] With respect to trade workers, Pocock (1995) has discussed the impact of award decisions by the Industrial Relations Commission on casual and part-time workers in the retail trade sector. She argues that changes to penalty rates and classification systems which occurred in the early nineties have hindered the career prospects for workers in retail trade.

Perhaps an unexpected result is the positive association between low skilled occupation workers and the probability of employment. Although the coefficient is only significant at the 10 per cent level the results suggest that jobseekers who find employment in the low skilled occupations are more likely to remain employed by the end of the transition year. As discussed earlier, this result may indicate that low paid adult jobseekers who are in the higher skilled occupations may be more likely to exit employment to seek a better paid job or that it is these jobs which are the most likely to be retrenched.

In the second stage results for the jobseeker sub-sample, it is estimated that both individual and job related characteristics impact on the probability that a low paid worker will move to higher pay. For example, as in the PRG results, young workers and urban residents have a greater propensity of upwards earnings mobility with the change in their probability of

[14] The coefficient in the second stage results is not significantly different from zero.

moving to higher pay being 18 percentage points and 22 percentage points respectively, changes similar in magnitude to those estimated for the population of low paid workers. The result for young jobseekers is consistent with studies that have examined the effects of unemployment on future earnings in Australia. Gray (1999), using the Australian Longitudinal Survey, found that previous unemployment experience did not significantly affect the subsequent hourly earnings of young persons in Australia but did have an impact of the number of hours worked by young workers. Also, Borland, Gregg, Knight and Wadsworth (1999) have studied the impact of unemployment on displaced workers in Australia. Their finding too confirms that effects are negligible for younger workers.

For jobseekers, being able to speak English well appears to be a significant advantage to upwards earnings mobility increasing the chances of moving above the low pay threshold by 18 percentage points. Studies of earnings determination for Australia have pointed out that significant differences in earnings are apparent for workers with different levels of English proficiency (Preston 1997).

It is interesting to note, however, that whereas the average low paid male in the population as represented by the PRG sub-sample was found to be more likely to move above the threshold than females, male jobseekers lose that advantage with respect to earnings mobility. In the jobseeker sub-sample results, the coefficient for male is not significant. The implication here is that the effect of previous unemployment, sometimes called the "scarring effect" may be greatest for men. Employers may regard men who have had a spell of joblessness differently from women. Whereas a period of not working for women is less unusual and expected by employers due to family commitments, the same is not true for men.

Job related characteristics such as hours of work, workplace size and sector of employment are also estimated to be significantly associated with the probability of moving above the low paid threshold for jobseekers. Full-time work increases the predicted probability of moving onto higher pay by 18 percentage points. Consistent with the results from the PRG sub-sample, earnings mobility is negatively associated with

workplace size, although the variable is only significant at the 10 per cent level. Working in a small workplace of 10 employees or less appears to hinder upwards earnings mobility with the estimated probability falling by 13 percentage points.

With respect to sector of employment, it is estimated that the probability of moving to higher pay for private sector workers compared to workers in the public sector is lower by 16 percentage points. These results, coupled with the stage one results highlight significant differences between public and private sector employment among the low paid jobseekers. Although private sector work may offer more opportunities to the low paid to be in employment one year later, the chances of earnings mobility in the public sector is greater.

5.4.4 Comparison and summary of results

A number of important observations can be drawn from a comparison of the empirical results for both the PRG and the jobseeker sub-samples. First, particular groups of low paid adults appear to have better prospects for improved labour market outcomes. Specifically, based on the PRG sub-sample results, low paid adults in the population who are aged 30 or under, men and those residing in urban locations are estimated to be the groups of workers with the best chance of upwards earnings mobility within a one year period. These results are consistent with studies undertaken for low paid workers in other countries.

Similar outcomes of earnings mobility by age and location of residence are also evident for Jobseekers, most of whom have previously experienced joblessness. It is estimated however that male Jobseekers are not able to improve their labour market outcomes over time implying that the scarring effect of unemployment may be greater for males than females.

Second, a dominating feature of the estimation results is the importance of employment history on the future employment opportunities for low paid workers. In particular, workers with greater amounts of joblessness in the previous 12 months are estimated to be the most likely to experience joblessness again. This result holds for both samples but is

strongest for jobseekers. The implication of this result is that, for low paid workers there is a potential multiplying negative effect of previous spells of joblessness. Workers who experience joblessness are more likely to move into low paid work and then more likely to experience joblessness again, raising the potential for some workers to be caught in a trap of low pay and no pay.

Third, for jobseekers who secure low paid jobs it seems that characteristics of the jobs themselves such as firm size, sector of employment and employment arrangements could hinder earnings mobility. Job related factors are associated not only with the worker but also with the employer. Hence, demand side influences as well as the characteristics of the individuals may play a part in the prospects for jobseekers who are now trying to re-establish themselves in the Australian labour market.

This observation has also been made in an earnings mobility study of low paid workers in the UK by Sloane and Theodossiou (1998) In a similar analysis to that undertaken in this chapter they conclude that 'perhaps demand-side influences play an important role relative to supply-side factors' (page 113) in the earnings mobility patterns of low paid workers. In the Australian context, Wooden and Hawke (1998) have similarly argued, with respect to casual workers in the Australian labour market, that

'employment outcomes for casual workers are, therefore, likely to be largely determined by decisions made by employers - that is, the demand side of the market' (page 91).

5.5 Conclusions

This chapter has used the data from the PRG and jobseeker sub-samples of SEUP to examine the earnings mobility and transition patterns of adult low paid wage and salary earners in Australia. A special feature has been to compare the labour market experiences of the general population of low paid workers with low paid jobseekers, the majority of whom had experienced joblessness within the recent 12 month period. An empirical modeling approach for the transition period, September 1995 to September 1996 was

undertaken in order to determine what factors may be associated with earnings mobility and the labour market transition patterns of low paid workers.

Observed labour market transition and earnings patterns using the PRG sub-sample representing the population of adults in Australia, indicates that there is a diversity of labour market outcomes for low paid adult wage and salary earners in the Australian labour market. While many low paid workers do move on to higher paid jobs, adult low paid workers are also the most likely to experience joblessness within the year. Indeed, transition rates to joblessness for low paid adults are reported to be double those of higher paid adults in the population.

Results using the jobseeker sub-sample, many of whom have had previous experience of joblessness suggest that for these workers, low paid employment is less likely to be the path to higher paying jobs. Comparison of aggregate transition rates for jobseekers and the population of low paid workers as represented by the PRG sub-sample suggest that low paid jobseekers display the least stable patterns of transition and earnings mobility of all workers. In particular, the probability of moving out of low pay onto higher paying jobs is less for low paid jobseekers than low paid workers from the PRG sub-sample. Also, low paid jobseekers have double the chance of low paid workers in the population to exit to joblessness and are four times more likely than higher paid adult wage and salary earners in the population to move out of employment.

The implication of these results is that in the Australian labour market low paid adult workers can be broadly divided into two groups. In the first group, comprising about half of the total number of low paid employees, are adult workers for which low-paid employment can be regarded as temporary. These persons achieve sustained upwards earnings mobility within a short period of time. Estimation results suggest that persons most likely to be in this group are younger workers, males who have not recently been unemployed, those living in urban areas and those who find jobs in larger workplaces.

For the second group of workers, on the other hand, low pay is more likely to be persistent. Results suggested that a high proportion of adults either remained low paid over the two year period of transition or experienced spells of joblessness. Workers more likely to be in the second group overall are women, those who find employment in a very small workplaces, older workers and those living in rural communities.

The most important finding was that joblessness had a significant negative impact on the labour market transitions of low paid workers in the Australian labour market. It was the low paid workers who had experienced the most amount of joblessness in the recent past who were the most likely to be out of a job within a year. For these workers there was considerable inertia in their transition patterns, evidence which suggests that in the Australian labour market, some workers may be caught in a trap cycling between low pay and no pay.

For jobseekers, those at risk of poor labour market transition patterns include part-time workers older workers, those in rural areas, those less proficient in English and workers in the private sector. Results also indicated that the return to joblessness was associated with job related factors. In particular, those who had found casual employment and those in small workplaces had a higher risk of poorer labour market outcomes. As has been suggested by others, it may be the case that for jobseekers, many of whom have experienced joblessness in the previous year, demand side influences have an impact on their subsequent labour market transition patterns making it less likely that they can escape low pay for better paying jobs.

Appendix A5.1: Definition of Variables for Nested Logit Analysis

Variable	*Description*
Prior employment history	Percentage of the amount of time spent in employment since leaving full-time study up to 1 year prior to the transition period.
Recent employment history	Percentage of the amount of time spent in employment in the year immediately prior to the transition period.
Male	A dummy variable which takes the value of 1 if the respondent is a male and 0 otherwise.
Young	A dummy variable which takes the value of 1 if the respondent is aged between 21 and 30 inclusive and 0 otherwise.
Resident/spouse partner	A dummy variable which takes the value of 1 if there is a spouse or partner who usually resides with the respondent and 0 otherwise.
No dependants	A dummy variable which takes the value of 1 if the respondent has no dependent children and 0 otherwise.
Urban resident	A dummy variable which takes the value of 1 if the respondent resides in an urban area of a major city in Australia and 0 otherwise.
Not proficient in English	A dummy variable which takes on the value of 1 if the respondent indicates he/she does not speak English at all or only speaks English fairly well and 0 otherwise.
Disabled	A dummy variable which takes the value of 1 if the respondent has stated that he/she has a disability and 0 otherwise.
Not finished high school	A dummy variable which takes the value of 1 if the respondent has not completed the highest level of secondary school available and 0 otherwise.
Trained during previous year	A dummy variable which takes the value of 1 if the respondent undertook a training course to improve job skills either through an employer or through an external organisation including educational institutions, training consultants, equipment suppliers, professional or industrial associations or adult education centres either while working or not working during the year prior to the transition period and 0 otherwise.

Variable	*Description*
Full-time	A dummy which takes on the value of 1 if, at the beginning of the transition period, the respondent worked 35 hours per week or more and 0 otherwise.
Private sector	A dummy which takes on the value of 1 if the respondent's job at the start of the transition year is in the private sector and 0 otherwise.
Union member	A dummy which takes the value of 1 if the respondent is a member of a trade union and 0 otherwise.
Low skilled occupation	A dummy which takes the value of 1 if, at the beginning of the transition period, the respondent worked in the following occupation classifications - Intermediate Production workers, Elementary Clerical Workers and Labourers according to ASCO version 2 and 0 otherwise.
Trade industries	A dummy which takes on the value of 1 if, at the beginning of the transition period, the respondent's job was in the Wholesale or Retail Trade industry and 0 otherwise.
Service industries	A dummy which takes on the value of 1 if, at the beginning of the transition period, the respondent's job was in the Accommodation, Cafes and Restaurants, Transport and Storage, Communication Services, Finance and Insurance, Property and Business Services, Cultural and Recreational Services or Personal and Other Services industry and 0 otherwise.
Casual	A dummy which takes on the value of 1 if, at the beginning of the transition period, the respondent did not receive holiday pay or sick leave entitlements and 0 otherwise.
Small workplace	A dummy which takes on the value of 1 if, at the beginning of the transition period, the respondent's job was in a workplace employing 10 workers or less and 0 otherwise.
Multiple job holder	A dummy which takes on the value of 1 if the respondent held more than 1 job at the beginning of the transition year and 0 otherwise.

Appendix A5.2: Results of Nested Logit Models

Table A5.1: Nested Logit Results - PRG Sub-sample

	Probability of Employment		*Probability of Higher Pay given Employment*	
	Coefficient	***z-value***	***Coefficient***	***z-value***
Prior employment history	-0.360	-0.354	0.416	0.522
Recent employment history	2.750	3.377	-0.418	-0.476
Male	0.673	1.118	1.002	2.268
Young	-0.110	-0.208	0.758	1.848
Resident spouse/partner	-0.143	-0.272	0.495	1.213
No dependants	0.336	0.656	0.121	0.298
Urban resident	-0.397	-0.812	1.062	2.875
Disabled	-0.866	-1.693	-0.545	-1.185
Not finished high school	-0.447	-0.912	-0.055	-0.153
Trained during previous year	-0.354	-0.746	0.631	1.676
Full-time	-0.075	-0.130	0.552	1.164
Private sector	0.698	0.884	-0.587	-0.937
Union member	0.259	0.416	0.199	0.446
Low skilled occupation	-0.283	-0.547	0.051	0.133
Trade industries	0.126	0.197	-0.037	-0.077
Service industries	-0.244	-0.419	-0.035	-0.079
Casual	0.125	0.218	0.411	0.877
Small workplace	0.011	0.020	-0.794	-1.883
Multiple job holder	0.610	0.824	-0.280	-0.580
Constant	1.737	1.384	-0.942	-0.954
Chi square (19)	31.15		39.04	
Pseudo R-square	0.183		0.161	
Sample size:	205			

Table A5.2: Nested Logit Results - Jobseeker Sub-sample

	Probability of Employment		*Probability of Higher Pay given employment*	
	Coefficient	***z-value***	***Coefficient***	***z-value***
Prior employment history	0.830	1.786	1.044	1.845
Recent employment history	1.235	3.073	0.174	0.384
Male	-0.118	-0.486	-0.379	-1.298
Young	0.208	0.831	0.860	2.842
Resident spouse/partner	0.341	1.294	0.151	0.478
No dependants	-0.127	-0.503	0.256	0.859
Urban resident	0.315	1.350	0.986	3.505
Not proficient in English	-0.177	-0.374	-1.148	-1.907
Disabled	-0.162	-0.642	-0.436	-1.384
Not finished high school	-0.252	-1.090	-0.230	-0.835
Trained during previous year	-0.270	-1.104	-0.051	-0.162
Full-time	0.013	0.047	0.975	2.953
Private sector	0.555	1.757	-1.148	-2.539
Union member	-0.278	-0.869	0.594	1.461
Low skilled occupation	0.441	1.812	-0.259	-0.886
Trade industries	0.826	2.381	-0.156	-0.425
Service industries	0.338	1.277	0.287	0.885
Casual	-0.532	-1.967	0.186	0.570
Small workplace	-0.561	-1.960	-0.584	-1.809
Multiple job holder	-0.007	-0.017	-0.458	-1.009
Constant	1.005	1.338	-1.488	-1.557
Chi square (20)	57.200		68.900	
Pseudo R-square	0.101		0.161	
Sample size:	454			

Chapter 6

Patterns of Turnover in Post-Unemployment Jobs

6.1 Introduction

A major finding of the year to year analysis of transitions undertaken in Chapter 5 was that, compared to individuals from the population as a whole, persons who had been recently unemployed, had relatively less stable labour market transition patterns both in terms of earnings progression and labour market status. In particular, those who moved into low paid work had the worst outcomes, being found to be less likely to obtain higher paid jobs and at greatest risk of exiting employment within a short period of time. The broad conclusion was that some individuals in the Australian labour market may be caught up in cycle of low pay and no pay.

The aim of this chapter is to explore in more depth the nature of the cycle of low pay and no pay by examining for individuals who became unemployed during the first wave of SEUP, the type of jobs they obtain, their patterns of job turnover, job duration and labour market transition in post-unemployment jobs. Specifically, the following questions are addressed. What are the characteristics of the jobs that are taken up? How long do individuals stay in these jobs and why do they end? Where do workers go after the jobs

end? In what way do the characteristics of the lowest paid jobs differ from those of higher paid jobs?

Job turnover is an important dynamic in all labour markets. It is not only a means to reallocate labour from less productive to more productive areas of the economy but also reflects movements of individual workers between existing jobs. Being a complex process, dependant both on the decisions of employers and workers, the reasons why jobs end and the ensuing consequences for workers are very diverse. Unstable job attachments particularly if they involve job loss, can have many adverse effects (Lane 2000; Johnson and Layard 1986; McCormick 1988). They can be associated with skills atrophy, poor wages and wages growth, and lack of labour market opportunities such as training and promotion. Also, workers who continually move in and out of jobs may become stigmatized, branded by employers as low productivity workers. Although not all job turnover can be regarded as bad,[1] a great deal of empirical evidence has associated time on the job with earnings growth, promotions, and non-pecuniary benefits for the worker (Topel 1991). Also, empirical evidence suggests there is an important negative correlation between time on the job and the probability of a job separation (Farber 1998).

Given the complex nature of job turnover in the labour market, the investigation in this chapter aims to shed some light on what may be contributing to the relatively poor labour market outcomes of workers who have experienced unemployment. This chapter undertakes two types of analyses. Firstly, a descriptive investigation of the post-unemployment wage and salary jobs of individuals explores information about job duration, why jobs end and their labour market transitions after job termination. Secondly, the determinants of job tenure are investigated in an econometric duration analysis in an attempt to understand what factors, both individual and job related, may contribute to employment stability and to the labour market transition patterns of workers who have experienced unemployment in the Australian labour market.

[1] Topel and Ward (1992) find that voluntary job separations accounted for about one third of the wage growth for young males in the US during the first 10 years of their careers.

This chapter is organised as follows. Section 6.2 describes how the sample was drawn and some initial characteristics of the individuals in the sample. Section 6.3 investigates outcomes of the unemployed in their first job after unemployment, and describes the nature of the jobs obtained. Section 6.4 presents an econometric analysis of job tenure investigating why jobs end and what particular factors are associated with employment stability and their labour market transition patterns. A discussion of results, their implications and the conclusions are drawn in Section 6.5.

6.2 Data Description

A sample of individuals who commenced looking for work during the first wave of SEUP - from 4 September 1994 to 3 September 1995 - and were not working at the same time was drawn from the jobseeker and PRG sub-samples.[2] Persons aged under 20 and individuals who were full-time students at any time through the entire data period to September 1997 were excluded. Individuals who left the survey before the end of the three year period were also dropped. The drawn sample included 1429 persons.

For each individual, information about his/her labour market experience over the three year period to September 1997 was obtained from the episode data of SEUP. These included details about every spell of work, time out of the labour market and spell of job search. Data on work episodes included job characteristics such as weekly pay, hours of work, casual/permanent status, occupation, industry and firm size. Information on whether the job was in the individual's preferred occupation, on desired hours of work and on reasons for leaving a job were also available for each work episode. Details about employer provided training were matched to the labour market experience data for each person, using specific training records collected in SEUP. These records included information about when training was provided, the amount of training and whether individuals were helped in terms of promotions or new jobs by the training. Individual demographic characteristics, including information about labour market history since leaving full-time education, were also available for each person.

Patterns of job turnover are investigated in this chapter by examining information about post-unemployment jobs.[3] Individuals initially unemployed during the first wave of SEUP were traced through time until they found their first job.[4] They were then categorised into four job groups. Three of these were those who secured low paid wage and salary work, those who found a higher paid wage and salary job and those who exited unemployment for non-wage and salary work as employers, own account workers or workers in a family business.[5] The fourth group comprised those who found no employment at all over the period to September 1997.

Of the 1429 persons in the sample, 84 per cent or 1202 individuals had found a job by September 1997. The remaining 227 comprised the fourth group who did not find work at all over the period. Reflecting the results of Chapter 5, a high percentage (41 per cent or 493) of individuals who found employment had their first spell of work in a low paid job. Just under half (46 per cent or 558) went straight into higher paid employment with the remaining 13 per cent or 151 entering non-wage and salary employment.

Appendix A6.1 presents the demographic characteristics of the individuals in the sample. These data show that, as expected, the total sample of initially unemployed persons comprised a disproportionate number of younger adults who had not completed the highest level of secondary education. Similar proportions of males and females were in the sample and about one third had never been married. The breakdown of characteristics by job group also was consistent with what would be expected. Those who found no employment at all over the data period were more likely to be persons aged over 50 and individuals with the lowest educational qualifications. Persons born overseas from non-English speaking backgrounds were also less likely to find employment. Consistent with

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[2] Only 103 individuals who were in the PRG and not in the jobseeker sub-sample were included.
[3] Taking only the first job avoids the potential bias from having multiple spells for some individuals. These may have particular characteristics which make them more likely to have unstable work patterns.
[4] If more than one job was taken up simultaneously, then the job with the most hours was regarded as the main job and the one included in the sample.
[5] Whether the wage and salary employment was low paid was calculated by dividing the reported weekly wages and weekly hours worked on the job. Weekly wage data were collected in the episode data in bands of $40 per week. The midpoint of each category was used as the estimate of the weekly wage.

the results of Chapter 4, the low paid were more likely to be young, never married and persons with low educational qualifications. The higher paid group were generally those with higher education levels, were middle aged and less likely to be living in a low socioeconomic area of residence.

Table 6.1: Duration to First Job of the Initially Unemployed

			Per cent who found employment within				
First Job	***Sample Size***	***Average Duration***	***3 Months***	***6 Months***	***9 Months***	***12 Months***	***18 Months***
Low paid wage & salary employment	493	35.4	30.8	50.3	66.1	76.7	88.0
Higher paid wage & salary employment	558	32.8	32.6	55.2	70.4	79.0	90.1
Non wage and salary employment [a]	151	28.1					
Did not find job	227	-					
Total sample	1429						

a. Includes persons who are employers, own account workers and contributing family workers.

For individuals who found employment, Table 6.1 reports the length of time taken to find their first job. For those who entered wage and salary employment, the distribution of this duration is also presented. These data show that over three quarters of the individuals who found employment did so within the first year. The average duration of unemployment for those who found low paid and higher paid work was similar at about 8 months while the median duration was around 6 months.[6] Over time, the rate at which individuals found employment declined suggesting that the likelihood of leaving decreases with the duration

[6] Substantial differences in calendar start times may affect the comparisons of employment spells due to differences in the prevailing economic conditions. The calendar time distribution of job starts for the low paid and higher paid job spells over the data window were compared and found to be similar.

of unemployment. This negative duration dependence is a result common to many empirical studies of unemployment duration[7] (Pederson and Westergard-Nielson 1993).

6.3 Patterns of Job Turnover – A Descriptive Analysis

6.3.1 Job separations

In this section the following questions are addressed. For how long do individuals remain in their first job after unemployment?[8] Why do they leave and where do they go? What are the characteristics of the jobs they secure?

Table 6.2 presents the average duration and the empirical Kaplan-Meier survival estimates of the post-unemployment low paid and higher paid wage and salary jobs. The complete survival functions are also presented graphically in Figure 6.1. A Kaplan-Meier survival function is estimated from the raw data using both completed employment spells and those still continuing at the end of the data window, that is, censored spells. It estimates the percentage of jobs continuing as at each period of time. For example, in Table 6.2, 45 per cent of all higher paid jobs were estimated to be ongoing after one year. For low paid spells, the corresponding figure was 24 per cent.

There are two striking features of these data. Many re-entry jobs taken up by the unemployed ended quickly and those who took up low paid employment were particularly at risk of having a very short job spell. After just 18 months, the estimated percentage of low paid jobs still continuing was only 21 per cent, with the corresponding estimate for higher paid spells at 36 per cent.

For comparison purposes, the distribution of the duration of the current job for all Australian workers employed at February 1996 (Australian Bureau of Statistics 1996a) is

[7] Negative duration dependence can be the result of unobserved worker heterogeneity in that those who stay longer have characteristics that are associated with longer unemployment. It can also be due to a pure negative dependence where the probability of leaving unemployment is affected by the length of time on unemployment.

[8] Note that a job separation means a change of employer. Job changes such as promotions within a firm cannot be analysed using the SEUP data.

presented in Table 6.2. While not strictly comparable, these figures highlight the characteristically short duration of jobs obtained by persons after unemployment. At February 1996, 64.3 per cent of all Australian workers had been in their current job for over two years whereas for the unemployed, only one third had remained in their jobs for more than 18 months. At three months, the comparison is even more striking. Whereas 91.1 per cent of all Australian workers were still in their jobs after three months, the corresponding figure for the initially unemployed who found low paid work was 52.4 per cent and 69.1 per cent for those in higher paid jobs.

Table 6.2: Duration of Post-Unemployment Jobs

	Found a Low Paid Job	***Found a Higher Paid Job***	***All Australian Workers*** [a]
Average duration (weeks)	32.0	49.2	
Per cent surviving			
To 4 weeks	74.4	82.8	
To 8 weeks	63.4	77.0	
To 3 months	52.4	69.1	91.1
To 6 months	36.9	57.1	85.5
To 1 year	24.1	45.0	76.6
To 1 year 6 months	21.1	36.0	
To 2 years			64.3

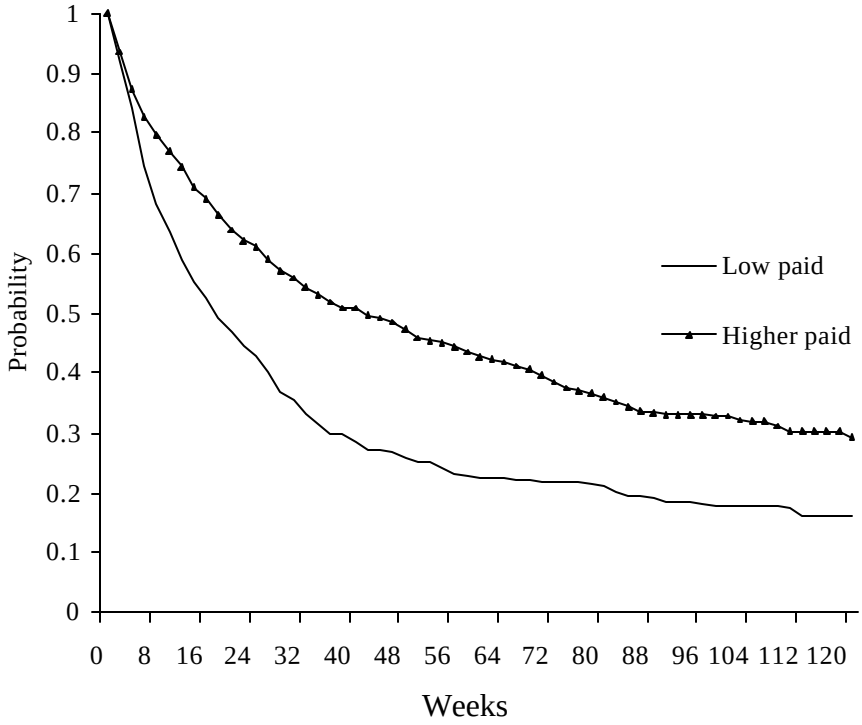
a. Figures as at February 1996 (Australian Bureau of Statistics 1996a).

A comparison of the survival functions in Figure 6.1 highlights the fact that, compared to higher paid post-unemployment jobs, the low paid jobs were of shorter duration. One quarter had ended within four weeks and by three months only just over one half were still ongoing. Corresponding figures for the higher paid jobs were almost one fifth and two

thirds. The log rank test, which tests the equality of the two survival functions, indicated that they were indeed significantly different.[9]

Despite the result that many jobs ended quickly, Figure 6.1 also indicates that as time progressed, the chances that an employment spell would continue improved. Evident in the declining slope of the survival functions over time, this pattern of positive duration dependence is consistent with many empirical studies of job tenure. Farber (1998) notes that although many jobs end quickly, at the same time the probability that jobs end declines significantly with job tenure.

Figure 6.1: Survival Functions -Low Paid and Higher Paid Post-Unemployment Jobs



[9] Application of this test showed that the null hypothesis of equality was rejected at the 1 per cent level. The chi square statistic with 1 degree of freedom was 45.56.

Why do jobs end? Table 6.3 shows the distribution and average duration of jobs by the reason for job separation. For each completed episode of work, SEUP respondents were asked about the main reason they had left their job with an employer. These were divided into four categories – "Retrenched", "Temporary", "Dissatisfied" and "Other". The first two categories are considered as involuntary job separations, being initiated by the employer. The former included those who indicated that they were retrenched, made redundant, dismissed, or that the employer went out of business.[10] Individuals were included in the "Temporary" category if they responded that they left their job because it was temporary or seasonal. The remaining two categories were considered as voluntary job separations being initiated by the worker. "Unsatisfactory" included separations that occurred because the individual was dissatisfied with the job in terms of its work arrangements, pay or hours. All other reasons were grouped into the fourth category termed "Other". These included holiday jobs, own ill health or injury, child care reasons and other reasons such as returned to studies, married, looked after others and moved location.[11] Table 6.3 also reports the percentage of censored spells, still continuing at the end of the data window at September 1997. A final category "Not Known" comprised a negligible number of spells where the information was not provided. Also included in Table 6.3 for comparison is the percentage of job separations by reason for all Australian workers who had ceased a job during the year ending February 1998 (Australian Bureau of Statistics 1998b).

A great deal of empirical research has investigated the outcomes of workers who lose their jobs involuntarily. These results suggest that job loss is generally associated with earnings declines and higher future job instability (Farber 1996). A striking feature of Table 6.3 is that a high proportion of unemployed workers lost their jobs involuntarily. Over the data period, 56 per cent of all low paid workers who had left their jobs had an involuntarily job separation - 25 per cent due to retrenchment and 32 per cent because the employment was temporary or seasonal. For the higher paid group, although less individuals than the lower

[10] The individual responses categorised as "Retrenched" cannot be separated. This was only one category in the SEUP questionnaire.
[11] The majority of responses in this category were from the "Other reasons" response category. This group could not be disaggregated further.

paid group had left their jobs, involuntary job separations accounted for the greatest percentage of job endings. The temporary nature of the employment was the reason for job separation for 35 per cent, while retrenchment accounted for 27 per cent of higher paid jobs that had ended. In contrast, just 38 per cent of Australian workers who had lost their jobs during the year ending at February 1998 had done so either through retrenchment or temporary work.

Table 6.3: Job Tenure by Reason for Job Separation

	Left Involuntarily		*Left Voluntarily*				
	Retrenched	***Temporary Employment***	***Dissatisfied***	***Other***	***Not Known***	***Jobs still continuing***	***Total***
Low Paid							
Per cent	19.9	25.2	18.3	15.6	1.2	19.9	100.0
Per cent of separations	24.8	31.5	22.8	19.5	1.4	-	100.0
Average duration (weeks)	21.2	11.1	20.2	28.3			
Higher Paid							
Per cent	17.6	22.8	11.8	11.7	1.4	34.8	100.0
Per cent of separations	27.0	34.9	18.1	17.9	2.1	-	100.0
Average duration (weeks)	29.1	15.6	31.9	43.2			
All workers 1998 [a]							
Per cent of separations	24.4	13.3	11.1	51.2			100.0

a. Source: Data as at February 1998 (Australian Bureau of Statistics 1998b)

Not only were involuntary job separations high but they were also associated with the lowest average durations. Jobs that ended because of their temporary nature were the shortest, at around 3 to 4 months. This was true for both the low paid and higher paid jobs. Jobs that ended because of retrenchment were likely to last only a little longer, on average, 5 months.

Voluntary job separations were low for those who had found a job after unemployment compared to the percentage of all Australian workers who had left their jobs for voluntary

reasons. In 1998, the voluntary job separation rate for workers in the Australian labour market was 62 per cent. For the initially unemployed, around 40 per cent of job separations were voluntary. While not strictly comparable, the figures do indicate there are significant differences in the reasons for job separations for workers after unemployment compared to all workers in the Australian labour market.

One of the most disturbing features of Table 6.3 can be found in the reasons why workers left their jobs voluntarily. Among those low paid, 23 per cent ended voluntarily because they reported being dissatisfied with work hours, conditions or pay. All other reasons accounted for only 20 per cent of job separations. Similar patterns were evident for the higher paid workers, with 18 per cent leaving their jobs because they were dissatisfied. These figures are extremely high compared to figures found for all workers at February 1998 where 11.1 per cent of workers who left their jobs during the past year did so because of unsatisfactory work conditions.

Table 6.4 provides information to address the question about where the initially unemployed go after they leave a job. Job separations are categorised in this table by the next labour market state – employed in another job with a new employer, unemployed or out of the labour market. This information shows that a high proportion of persons who initially became unemployed in the year to September 1995 found a job but then returned to the pool of the unemployed after that job ended. The return to unemployment accounted for 51 per cent of all those who found low paid employment and 34 per cent for all persons in higher paid jobs. These jobs which ended in a spell of unemployment were also those with the shortest duration. In both cases, the average duration of jobs which ended in another unemployment spell was around 3 to 4 months which was half as long as those that ended in another job or those that ended in time out of the labour market.

Table 6.5 combines the information from both the previous two tables to report the percentage of individuals who left, by reason for job separation and by next labour market status. As an example, in the first row of the table relating to low paid employment, 8.3

per cent of individuals who were retrenched went to another job, 86.6 per cent returned to unemployment and 5.2 per cent left the labour market.

Table 6.4: Job Tenure by Next Labour Market State

	Left to Another Job	*Left to Unemployment*	*Left Labour Market*	*Not Known*	*Job Still Continuing*	
Low Paid						
Per cent	15.2	51.3	13.2	0.4	19.9	100.0
Average duration (weeks)	27.3	13.9	27.2			
Higher Paid						
Per cent	16.9	33.5	14.2	0.7	34.8	100.0
Average duration (weeks)	37.6	18.5	31.8			

These data indicate a significant positive relationship between involuntary job separations state. and the return to unemployment. The most likely destination for persons who left their jobs due to retrenchment or its temporary nature was unemployment. A massive 87 per cent of individuals in low paid jobs who left because of retrenchment moved back into unemployment. Temporary job endings also sent 78 per cent back into job search. The corresponding figures for those who took up higher paid employment were significantly high as well at 66 per cent and 64 per cent respectively.

In contrast, voluntary job separations were less likely to end in another spell of unemployment. A third of the low paid and 45 per cent of the higher paid who were dissatisfied with their first spell moved to another job. Nevertheless, many also returned to unemployment, accounting for 51 per cent and 37 per cent of the low paid and higher paid groups respectively. Many who left for other reasons left the labour market altogether, indicating a diversity of reasons for job separations included in this "Other" category.[12]

[12] Although not reported here, a differentiation by gender reveals that a larger proportion of females are leaving these spells for time out of the labour market.

Table 6.5: Reason for Job Separation by Next Labour Market State

	Left to Another Job	*Left to Unemployment*	*Left Labour Market*	*Sample Size*
Low Paid				
Retrenched	8.3	86.6	5.2	98
Temporary	12.9	78.2	8.9	124
Dissatisfied	32.6	50.6	16.9	90
Other	28.6	27.3	44.2	77
Higher Paid				
Retrenched	15.6	65.6	18.8	98
Temporary	23.0	64.3	12.7	127
Dissatisfied	44.6	37.0	18.5	66
Other	28.1	23.5	48.4	65

Summary

Tables 6.2 to 6.5 paint a picture of the job turnover patterns of individuals in post-unemployment jobs. A significant proportion of jobs taken up by individuals after unemployment are uncharacteristically short-term. A high percentage end at the initiation of the employer, either through redundancy or because of their temporary or seasonal nature. There is a significant positive relationship between the return to unemployment, involuntary job separations and the short-term nature of the jobs. These trends are particularly pronounced for the lowest paid jobs. In short, these transition patterns substantiate the conclusions drawn in Chapter 5 that suggested the existence of a cycle of low pay and no pay for some individuals in the Australian labour market.

6.3.2 Job characteristics

Table 6.6 presents information about the characteristics of post-unemployment jobs. Also presented are comparative data about the jobs held by all workers in the Australian labour market during 1996 and 1997.[13]

Breakdowns are firstly provided by industry, occupation, and workplace size. With respect to the distribution of low paid spells, these data are consistent with the evidence on the risk of low pay reported in Chapter 4. Low paid post-unemployment spells are to be found predominately in low skilled occupations such as labourers or elementary clerical jobs. They are disproportionately located in the wholesale and retail trades and in the agriculture, mining, electricity and construction sectors and are less likely to be jobs in the public administration sector. Also, there is a negative association between the distribution of low paid employment and workplace size. Whereas just over one third of all Australians employed at November 1996 were in a small workplace, 44 per cent of low paid post-unemployment jobs were located in a small workplace employing 10 employees or less.

Higher paid post-unemployment jobs, on the other hand, were spread more evenly across different occupations and industry sectors and thus their industry and occupational distributions were more similar to those for all Australian employees. Nevertheless, the higher paid post-unemployment jobs were still disproportionately found in the low skilled occupations. The distribution across workplace size was also similar to the distribution for all Australian employees.

Information about employment status and hours of work are also reported in Table 6.6. Given the dramatic shifts in job types in the Australian labour market over the recent decades, particularly the rise in casual and part-time employment (Borland, Gregory and Sheehan 2001), jobs have been categorised into four job types – permanent full-time, permanent part-time, casual full-time and casual part-time employment.

[13] This information has been drawn together from a number of sources.

These data are striking. First, a significantly high proportion of post-unemployment jobs involve casual employment. In fact, casual employment, both full-time and part-time, accounted for over three quarters of all low paid employment spells and 56 per cent of all higher paid jobs. Comparative figures for all Australian workers at February 1996 draw attention to the disproportionately high incidence of casual employment in post-unemployment jobs. Just 26 per cent of all workers in Australia at February 1996 were reported as being in casual employment, a figure only one third of the incidence of casual employment in post-unemployment jobs.

Second, comparisons with the distribution by job type for all workers in the Australian labour market show that post-unemployment jobs were more likely to be part-time. Part-time employment accounted for 28 per cent of all workers in February 1996 whereas the percentage in the post-unemployment jobs was almost 50 per cent.

Third, post-unemployment jobs were far less likely to be permanent full-time jobs. Whereas around 65 per cent of all Australian employees were in permanent full-time work in 1997, just one third and one fifth of the higher paid and low paid jobs secured by individuals after unemployment were permanent full-time jobs. Also, despite the fact that about half of all low paid jobs taken up by the unemployed were full-time, just one third of them were in fact, permanent jobs. In contrast, around two thirds of the full-time higher paid positions were permanent jobs. This highlights the casual nature of all low paid post-unemployment jobs, including full-time jobs.

Fourth, consistent with the discussion by Burgess (1997b) about part-time employment in Australia, most part-time post-unemployment spells, both the higher paid and low paid, were casual jobs. The unemployed took up very few permanent part-time positions.

For individuals who took up part-time work after unemployment, questions were asked about their desired hours of employment. Answers to this question provided information about the extent of underemployment or involuntary part-time work obtained by unemployed individuals. According to Burgess (1997b), underemployment in part-time

jobs rose dramatically in Australia following the recession of the early 90s. He reports that by 1992, about 18 percent of all part-time workers desired to work more hours, a rise of 10 percentage points since 1990. Figures reported in Table 6.6 show that by February 1996, about 26 per cent of all part-time employees in Australia wanted to work more hours.

Reported figures in Table 6.6 indicate that underemployment is high for persons who re-enter work from unemployment. Of individuals who took up low paid and higher paid jobs after unemployment, 51 per cent and 59 per cent respectively wanted to work more hours, the majority wanting to work full-time. These percentages represent a proportion twice as high as that for all part-time workers in the Australian labour market. Although the growth in part-time jobs has increased employment opportunities for many, the evidence here indicates that many unemployed appear to be constrained in their opportunities for work, wanting full-time employment but taking up part-time work, perhaps in the hope that more opportunities may become available in the future.

Also reported in Table 6.6 is information about the reasons why individuals were working part-time in their post-unemployment jobs. Responses were grouped into three main categories. 'Personal and family' included reasons such as health, study and child caring. 'Work related' reasons included responses by individuals that there was not enough work available or where the individual reported they were working part-time because this was the requirement of the job. 'Own choice' identifies the third category where individuals indicated that they worked part-time because it was their own choice to do so. In both low paid and higher paid post-unemployment job spells, 80 per cent of individuals worked part-time for work related reasons. For all Australian workers, the Australian Centre for Industrial Relations Research and Training (1999) reported similar findings indicating that 61 per cent of part-time employees in 1997 were doing so for work-related reasons.

Table 6.6: The Characteristics of Post-Unemployment Jobs

Job Characteristics	*Low Paid Jobs* (per cent)	*Higher Paid Jobs* (per cent)	*All Australian Workers* (per cent)
Sample size (number)	493	558	
Occupation [a]			
Managers and professionals	7.5	22.2	33.9
Tradespersons	8.7	11.3	12.2
Clerical (advanced and intermediate)	23.6	26.7	22.6
Intermediate production	14.4	11.5	9.3
Elementary clerical	14.8	11.7	11.3
Labourers	30.9	16.7	10.6
Industry [a]			
Agriculture, mining, electricity, construction	14.4	10.0	9.5
Manufacturing	15.2	16.1	15.2
Wholesale and retail trade	20.3	16.5	21.1
Accommodation, personal services	18.7	12.9	11.1
Transport, finance, business	14.6	21.7	21.7
Public administration	17.0	22.8	24.0
Workplace Size [b]			
1-10 employees	43.8	36.6	36.4
11 to 100 employees	33.3	27.1	22.4
Over 100 employees	22.9	36.4	41.3
Employment Status and Hours of Work [a]			
Casual full-time	32.9	18.8	7.7
Casual part-time	43.4	38.2	18.0
Permanent full-time	19.5	34.8	64.8
Permanent part-time	4.3	8.2	9.5
Desired Hours of Work (for part-time workers) [c d]			
Wants more part-time hours	13.9	17.1	26.8
Wants to work full-time	37.2	42.3	
Happy with hours of work	48.9	40.6	73.2
Reasons Working Part-Time [b d]			
Personal and family	10.5	9.4	
Work related	80.6	79.7	
Own choice	8.9	10.9	
Training			
Received internal training	17.4	28.5	
Hours of training received	54.8	300.3	
Did training help get promotion?	1.8	4.8	
Occupational Preferences [d]			
Job in preferred occupation	46.9	55.8	
Job not in preferred occupation	34.3	26.3	
No occupational preference	18.8	17.8	

a. For all Australian workers, the figures are at August 1997 (Australian Bureau of Statistics 1997d).
b. For all Australian workers, the figures are at November 1996 (Australian Bureau of Statistics 1997e).
c. For all Australian workers, the figures are at February 1996 (Australian Bureau of Statistics 1996a)
d. For a small number of individuals in post-unemployment jobs, these data were not collected. The reported distribution allocated these data according to the relative proportions of each of the observed groups.

They suggest that this type of response is an indicator that part-time employment in Australia is mainly driven by the decisions of employers rather than being a supply side phenomenon where workers desire to work part-time hours. They contend that there is a growing dissatisfaction with work hours and choice among the part-timers in Australia and conclude that people work part-time because that is what is offered not because it is what they want. The findings in Table 6.6 suggest that this is particularly true for workers in post-unemployment jobs.

Labour market training, in particular on-the-job training is associated with improved employment outcomes (Mincer 1974). Training or the accumulation of firm specific human capital, increases the value of the worker to the firm through productivity increases. Hence, the more on-the-job training the worker receives the higher the level of firm specific capital accumulation and the slower the job turnover.

In Table 6.6, information is reported about the provision of internal training in post-unemployment jobs. This relates to employer provided in-house training including video courses, structured training courses, on-the-job training, lectures, demonstrations and seminars. The data show that just less than 20 per cent of individuals in low paid spells and almost 30 per cent in higher paid spells received any internal training from their employers. Also reported is the average number of hours of training received over the life of the job for those who received training. Low paid workers received less than 2 working weeks of training with higher paid workers about 8 weeks on average. Interestingly, only a very small percentage indicated that this training helped to obtain a promotion or to get a better (higher paid) job. This may indicate that the training received in these jobs is likely to be more general training and less likely to be specific.

A final breakdown in Table 6.6 relates to worker preferences. In SEUP, respondents were asked whether the job they obtained was in their preferred occupation. Approximately one half of all post-unemployment jobs were in the individual's preferred occupation. While 20 per cent had no occupational preference, the remaining one third took up jobs in another occupation other than one they preferred.

6.3.3 Summary of findings

In summary, the data in Table 6.6 indicate strongly that post-unemployment jobs are significantly different to the jobs held by all Australian workers. The work is far more likely to be casual or part-time. For the lowest paid even the full-time work is more likely to be of a casual nature. Underemployment among part-time workers is disproportionately high with many preferring work in a full-time job. The majority of individuals work part-time for job-related reasons. Very few individuals receive on-the-job training and there is a substantial number who do not find jobs in their preferred occupation.

These job characteristics lead to the important conclusion that, compared to the jobs of all Australian workers, post-unemployment jobs can predominately be described as precarious employment. According to Rodgers (1989), included in the various dimensions of precariousness are job insecurity, lack of control over the workplace, low pay and lack of bargaining power. The evidence about jobs presented above identifies the first three features as characteristics of post-unemployment jobs in the Australian labour market. As suggested by Australian Centre for Industrial Relations Research and Training (1999), precarious employment has the potential to place workers in a particularly disadvantaged position, not only in the labour market but also in other areas, limiting family planning, opportunities for home loans, and household budgeting decisions.

The nature of post-unemployment jobs also raise the concern that the job opportunities available to unemployed persons appear to be driven as much by the decisions of employers as they are by the preferences of the workers themselves. The high rate of job loss, underemployment, dissatisfaction with hours and conditions of work and the inability to find work in their preferred occupation are all indicative of limited job options. The implication is that many unemployed may have been forced to accept jobs in casual and part-time employment simply to gain work experience and remain in the labour market. This is particularly of concern given that since the early 90s recession, Australia has had strong economic growth. In periods of excess supply, employers may be adopting a more

selective approach in choosing staff, leaving only the poorest quality jobs to the unemployed.

This finding has had support from anecdotal evidence about the experiences of disadvantaged jobseekers in the Australian labour market during the early nineties (National Board of Employment Education and Training 1992). Their discussions found that persons were prepared to take up any job on offer to maintain their link with the world of work. Regardless of this, the opportunities available to them did not seem to improve.

In summary, the descriptive evidence presented in this section confirms the findings of Chapter 5 of a cycle of low pay and no pay among individuals in the Australian labour market. This cycle appears to be, to a significant extent, driven by the decisions of employers, suggesting that demand side influences as much as supply side factors are important in understanding the labour market situation for many unemployed. Features of this cycle include a high rate of casual employment, part-time employment and low pay.

6.4 Job Tenure: An Econometric Investigation

In this section, the duration and patterns of transitions of post-unemployment jobs are investigated using an econometric duration analysis. The approach adopted uses an independent competing risks framework which differentiates between exits into three labour market states. The aim is to identify how individual and job related factors are associated not only with job tenure but also with the observed transition patterns out of post-unemployment jobs.

6.4.1 Estimation framework

Job tenure is related to the complex process of job change which is an important dynamic in all labour markets. The length of time jobs last can be driven by the decisions of both workers and employers and hence are related to quits as well as job terminations. There is a basic decision faced by workers and employers about the employment relationship and this provides the general framework for considering the process of job tenure and job

change. For the worker, this depends on the wage relative to alternative opportunities in the labour market. A worker decides to leave a job or quit if the expected gains or utility from doing so is greater than the expected gain or utility by remaining. At the same time, employers may initiate a job termination or layoff if the value to the firm in terms of expected profits from terminating that job less any costs of taking that action is greater than the profit from maintaining the job. In a reduced form framework, job tenure is the observed outcome of these two decisions, that is, the probability that a worker will decide to quit and the probability that employers initiate layoffs.

Following the literature, job tenure is empirically modeled by specifying the employment hazard (Boheim and Taylor 2000), defined as the probability of leaving a spell of employment at time t given that the employment spell lasted to time t. The independent competing risks specification differentiates between three exit states – exit to another job, exit to unemployment and exit to a spell out of the labour market.

The estimation approach used is a non-parametric flexible baseline proportional hazard model (Lancaster 1990).[14]

Assume that for individual i, the hazard rate or the conditional probability of leaving the spell of employment at time t is given by:

$$\lambda_i(t \mid X_i,) = \lambda_0(t)\exp(X_i'\beta)$$

$\lambda_0(t)$ is known as the baseline hazard. The characteristics X_i are a set of individual, firm and local labour market characteristics that vary the level of the baseline hazard across individuals.[15] The vector of coefficients $\hat{\alpha}$ are estimated by the model and determine the extent to which the characteristics X_i influence the probability of job separation.

[14] This approach allows the baseline hazard to change non-monotonically over time as suggested by various theories of job tenure. For example, matching models suggest that the hazard may first increase as workers and employers learn about their employment relationship and then decrease as poor quality matches are terminated. The implication of human capital models is that job separations decrease with time, whereas job search models indicate an increase in the probability that a job will end over time.

[15] Reasons for the inclusion of these variables are discussed in Section 6.4.2.

In the flexible baseline hazard estimation approach, the baseline hazard $\lambda_0(t)$ is assumed to follow an exponential distribution which is allowed to vary over the life of the spells.

Assume the total time axis T is divided into M intervals,

$$c_1, c_2, \ldots\ c_M.$$

Within each interval c_m, that is $c_{m-1} \le t \le c_m$, the baseline hazard is assumed to be of the form given by

$$\lambda_0(t, c_m) = \exp(a_m).$$

where a_m is a constant.

Now let $d_m(t) = 1$ if $c_{m-1} \le t \le c_m$ and 0 otherwise, an indicator which defines the interval of the total period each time period t falls.

Therefore, at any time t the hazard rate or the probability that the employment spell will end is given by:

(6.1) $$\lambda_i(t \mid X_i,) = \exp\left\{\sum_{m=1}^{M} a_m d_m(t)\right\} \exp(X'_i \beta).$$

In equation 6.1, all job separations are assumed to have the same effect on the probability of a job ending no matter how the job ended. An independent competing risks framework allows for factors to have differential effects on different types of job endings. The underlying assumption of independence of different types of job separations allows the overall hazard to be separated into individual cause specific hazards such that:

$$\lambda_i(t) = \sum_{j=1}^{J} \lambda_{ij}(t),$$

where J is the number of different job endings where the cause specific hazard j is given by

$$\lambda_{ij}(t \mid X_i,) = \exp\left\{\sum_{m=1}^{M} a_{mj} d_m(t)\right\} \exp(X_i' \beta_j) . \tag{6.2}$$

The individual cause specific hazards represented by equation 6.2 can be estimated independently using maximum likelihood techniques, including both uncensored and censored employment spells (Narendranathan and Stewart 1991).

Unobserved heterogeneity can also be modeled within the hazard duration framework. This captures time invariant individual specific effects which are unobservable but may influence job tenure (Farber 1994). Such effects may include motivation, effort, ability, and a propensity to take time off on the job (Boheim and Taylor 2000). It is generally included multiplicatively into the hazard function and modeled using a particular parametric distribution. Some have criticised the use of such a term because of its independence of time and the included variables (Narendranathan and Stewart 1993). The estimation of results was undertaken both with and without controlling for unobserved heterogeneity and using a gamma distribution. As the heterogeneity term was insignificant and made no difference to the results, the reported estimates do not include the unobserved heterogeneity term.

6.4.2 Included variables

Many different theories of job turnover suggest that both demand related and supply related factors will influence observed job tenure and patterns of job turnover. On the supply side, differences in job turnover have been related to variations in individuals' circumstances, characteristics and position in the life cycle. For example, job shopping theories (Johnson 1978) predict that younger workers in the labour market may be high mobility workers, engaging in job shopping to discover more about their skills and work attributes and what kind of jobs on offer may be relevant. Gender differences in job turnover patterns are likely to be related to the different opportunity sets available to

females and males (Booth, Francesconi and Garcia-Serrano 1999). For example, domestic responsibilities may increase the transition of women out of the labour market compared to men. It may also drive employers' decisions about training, jobs and promotions which could also affect patterns of job turnover. This also suggests that marital status and family characteristics are likely to be important factors in understanding patterns of job turnover.

Other theories highlight worker heterogeneity. Individuals may have traits that characterise them into workers who are more likely to be job stayers or job movers (Light and McGarry 1998). If the job stayers are also high productivity workers then they may stay longer on jobs, so increasing their chances of pay increases and in turn making them less likely to leave voluntarily. Job movers on the other hand may face a higher risk of job layoffs or may be more likely to quit.

Human capital theories draw attention to the important relationship between training and job turnover. The theory indicates that firm specific training will increase worker productivity and hence his/her value to the employer. In particular, investment in a worker by the firm through on-the-job training would help to cement the employer-employee relationship and result in longer job tenure.

Search and matching theories of job turnover consider the employment relationship in terms of the quality of the job match, and essentially see job turnover patterns in terms of a joint worker and employer decision. In the search model, a job is a search 'good' (Burdett 1978; Javonovic 1979) where the quality of the 'good' is known at the beginning of the relationship and depends both on worker preferences and job characteristics. Workers can search over time and when a better job match is found will leave. Matching models are based on imperfect information in the labour market and consider the job as an 'experience' good. A worker must commence a relationship so that the quality of the match can be revealed. This acts as a sorting mechanism so that over time bad job matches end and good ones remain.

On the demand side, differences in labour usage strategies and production processes of firms which are related to hiring and firing costs, training, the importance of firm specific knowledge and technological advances (Lane 2000) are also likely to play an important role in job turnover patterns. Such factors are likely to be different across industries, firms, and types of jobs. Employment protection regulation may influence the firms' strategies to hire temporary or permanent workers and hence affect observed patterns of job turnover.

Based on these considerations, a number of variables to capture both the supply and demand effects on job turnover patterns are included in the estimated duration model. Most were included as time invariant factors although some variables were able to change over the life of the job. Appendix A6.2 presents the definitions and descriptive statistics for the variables included in the estimated equations.

With respect to individual characteristics - gender, age, marital status, disability status and country of birth were all included in the form of indicator variables. Two family characteristics variables - the number of dependent children, and if partnered, whether the spouse was working - were also included to identify differences in individuals' circumstances that may also have an effect on their job turnover decisions. For example, in Australia unemployment benefit entitlements provided to all unemployed are dependent upon the income and family circumstances of the individual. Thus, information on whether the individual is married, has children, and if married, whether the partner works, may all affect the level of benefit entitlement and hence the value of alternative opportunities open to them in the labour market.

Controls for education and whether or not individuals received on-the-job training captured the influences recognised by the human capital theories of job turnover. Educational qualifications were categorised into four dummy variables - whether the individual had not completed less than the highest level of secondary school available, completed the highest level of secondary education available, completed vocational studies and completed tertiary studies. Completed the highest level of secondary school available was the omitted category. Also included was a variable to capture on-the-job

training. Entered as a time varying covariate, it took the value of 1 when the first training period commenced and remained on for the life of the spell. This was intended to capture the change in the value of that worker to the employer through increased productivity as a result of undertaking on-the-job training.

The extent to which unemployment had occurred previously was also incorporated. This has been found to be negatively associated with job duration and worker turnover patterns (Le and Miller 1999a). It at least in part, captures unobservable characteristics of workers such as ability or motivation that may make them higher turnover workers. Also included is the duration of the initial spell of unemployment. According to Boheim and Taylor (2000) one may expect a negative relationship between the duration of the unemployment spell and the subsequent job due to skills atrophy and the loss of human capital. However, according to job search theories, more intensive job search may lead to better job matches and hence a positive relationship between the previous length of unemployment and current job tenure.

Job characteristics were included to capture demand related influences on job tenure. These comprise information about workplace size and industry. The variable for workplace size captures differences in job opportunities between small and large firms. Large firms, for example may be able to provide individuals with a broader range of opportunities such as promotions or job options that may enhance their stay on the job. Large firms too may have different staffing needs based on their methods of production which may be reflected in the types of jobs and turnover patterns. Another perspective captured by workplace size is the differences in the likelihood that a business survives in the market over time (Le and Miller 1999a). All of these factors would indicate that the probability of a job ends will be negatively associated with firm size.

Industry was categorised into four indicator variables. The categories - resources industries, wholesale and retail trade, and education health and public services – were the three included in the estimated model. The excluded base category was services industries.

Demand conditions were captured in a variable describing the local labour market. The socioeconomic index measures the relative disadvantage of the region of residence for an individual. Factors used in its calculation include income of the area, educational attainment of the area and unemployment (Australian Bureau of Statistics 1991). A higher index number indicates the area of residence has higher income, greater education attainment and less unemployment. Individuals who live in areas with a higher socioeconomic status are likely to have more opportunities available to them.

Also included in the model was a variable to capture worker preferences. Two categories were included - whether the job was in their preferred occupation or was not in their preferred occupation. Those that did not have a preferred occupation were in the base category. Sloane and Leontardi (2001) report that research has indicated that job satisfaction measures are likely to be a strong predictor of individual behaviour. Individuals undertaking work activities that they enjoy are more likely to remain doing that activity and even be more productive hence improving the quality of a job match. The occupational preference variable was included to capture at least in part this effect on job tenure.

Hours of work and employment status were interacted to define four categories of job type - permanent full-time work, permanent part-time work, casual full-time and casual part-time work. The employment was regarded as full-time for those who worked at least 35 hours per week. Job type is likely to have a significant impact on patterns of job duration. Although as indicated by Murtough and Waite (2000b), casual jobs are very diverse and do provide many with ongoing employment, the expectation is that casual employment will be positively associated with the probability that a job will end. This is due to the temporary nature of some casual jobs, differences in firing costs between casual and permanent jobs and differences in employer's labour use strategies and hiring practices. For example, an employer is likely to implement a more selective hiring rule for a permanent job than a temporary placement.

6.4.3 Estimation results

The hazard model equations were estimated using maximum likelihood techniques and using both censored and uncensored spell data. Table 6.7 reports the results of four models. The first is the estimation of job tenure for all types of job separations using equation 6.1. The three remaining equations report the cause specific hazard estimates using the independent competing risks framework described in equation 6.2.[16] These results show the relative effect of factors on the transitions to different labour market states under the assumption of independence.

In the table, the hazard ratios and the z-values estimated from the duration models are presented. The hazard ratio identifies the change in the conditional probability of leaving employment with a one unit change in each variable of interest. A value greater than one refers to an increase in the probability. A value less than one relates to a decrease in the hazard rate of exit. For example, in the estimates shown in the first column, the hazard ratio estimated for the aged 20-29 year dummy variable is 1.296. This indicates that those aged 20 to 29 years were estimated to be 29.6 per cent more likely to leave their job than workers aged 30 to 39 years. Z-values of 1.96 or higher imply that the estimated hazard ratio is significantly different from one at the 5 per cent level of significance. Thus, in this equation, the z-value of 2.55 for those aged 20 to 29 years indicated that this estimated coefficient was significantly different from one at the 5 per cent statistical significance level.

Before examining the estimated coefficients for the individual and job related coefficients, it is interesting to investigate the estimated baseline hazards. These provide an estimate of the probability of exit from the job for the baseline individual who has specific characteristics.[17] First, the baseline hazard estimates indicate a negative duration dependence in that there is a monotonic reduction over time in the probability of a job

[16] Each equation is estimated by treating not only those jobs still continuing as censored but also job separations to the two other states. For example, in the exit to unemployment equation, spells that ended in another job or a spell out of the labour market were censored.

[17] This individual is an Australian male, aged 30 to 39 who does not have a disability. He has never been married, has completed secondary school, and lives in the sample average area of socioeconomic index. He works in a workplace with over 100 employees, in a casual part-time job, in the services industry. He has not received training and has no preferred occupation. He has the sample average level of years of unemployment experience and duration of previous unemployment spell.

ending. During the first four weeks, the estimated weekly job separation hazard was 3.6 per cent. After one year, the likelihood that a job would end had continued to decline and then remained steady at around 1 per cent. These results suggest that the longer an unemployed person can remain in work the less is the chance of leaving a job.

Second, a comparison of the cause specific hazards indicates that by far, the highest proportion of exits for the baseline individual over the first six months was to another spell of unemployment. During the first four weeks, the average weekly probability of exit to another job was estimated to be just 0.7 per cent. The probability of exit to unemployment however was 4 times higher at 2.7 per cent with the corresponding exit to a spell out of the labour market at 0.1 per cent. Further, the probability of a job ending to unemployment decreased considerably over time being just 1 per cent after six months. These results confer with those of the descriptive analysis. Early exits out of post-unemployment jobs were by far exits to unemployment. However, with job duration, the likelihood of exit to unemployment decreases significantly.

Turning now to the individual characteristics, the results in Table 6.7 revealed differences in transition patterns between men and women. Although their estimated job tenure was not significantly different, women had a higher propensity than men to move out of the labour market after their post-unemployment job. The estimated hazard ratio of 2.721 indicates that the probability of exit to a spell out of the labour market was 172 per cent higher for females than for men.

These results indicate the important differences in the transition patterns generally found between men and women in the labour market (Kilpatrick and Felmingham 1996). It mirrors results for all Australian women by Carino-Abbello, Pederson and King (2000) who also report significant trends in transitions from employment to spells out of the labour market for women. As they suggest, it is likely to reflect to a great extent the weaker labour market attachment of women due to differences in the gender roles in the family. It may also indicate that women are more likely than men to be discouraged from the labour market preferring to stop job search than keep looking for work.

Table 6.7: Determinants of Job Tenure by Next Labour Market Status

	All Separations		*Job to Job*		*Job to Unemployment*		*Job to Not in Labour Market*	
	Hazard Ratio	***z-value***	***Hazard Ratio***	***z-value***	***Hazard Ratio***	***z-value***	***Hazard Ratio***	***z-value***
Individual Characteristics								
Female	1.058	0.66	0.826	-1.02	0.870	-1.26	2.721	4.38
Aged 20 -29 years	1.296	2.55	1.245	1.02	1.285	1.84	1.446	1.63
Aged 30-39 years								
Aged 40-49 years	1.134	1.11	1.005	0.02	1.236	1.41	1.000	0.00
Aged 50-59 years	1.244	1.43	0.814	-0.59	1.366	1.59	1.519	1.14
Has disability	1.325	2.85	1.201	0.81	1.079	0.57	2.640	4.82
Marital Status								
Never married								
Married includes de facto	1.036	0.27	0.666	-1.43	1.121	0.67	1.375	0.95
Divorced, separated, widowed	1.201	1.32	1.089	0.29	1.176	0.92	1.477	1.07
Family Characteristics								
Resident partner working	0.736	-2.58	0.747	-1.16	0.619	-3.04	1.008	0.03
Number of dependent children	0.964	-0.88	0.864	-1.57	0.950	-0.93	1.163	1.65
Educational Qualifications								
Not completed secondary	1.097	0.82	1.088	0.36	1.006	0.04	1.546	1.48
Completed secondary								
Completed vocational studies	1.142	1.16	1.019	0.08	1.069	0.45	1.710	1.81
Completed tertiary studies	1.042	0.32	1.108	0.39	0.924	-0.46	1.508	1.29
Location of Residence								
Socioeconomic area index	1.018	1.34	1.009	0.31	1.032	1.78	0.992	-0.26
Country of Birth								
Australia								
Overseas English speaking	1.008	0.07	0.838	-0.75	1.181	1.17	0.723	-1.18
Overseas non-English speaking	0.719	-2.78	0.402	-2.91	0.847	-1.10	0.876	-0.51
Industry								
Resources industries	1.029	0.29	0.824	-0.87	1.256	1.74	0.623	-1.82
Wholesale and retail trade	1.036	0.33	0.933	-0.31	1.195	1.22	0.795	-0.92
Services								
Education, health, public services	1.071	0.61	0.869	-0.58	1.329	1.89	0.787	-0.99
Workplace Size								
10 employees or less	1.261	2.37	1.114	0.52	1.510	3.14	0.886	-0.55
11 to 100 employees	1.137	1.28	1.002	0.01	1.412	2.57	0.623	-1.94
Over 100 employees								
Previous Labour Market Experience								
Years unemployed	1.020	1.18	0.903	-1.89	1.057	2.92	0.986	-0.30
Duration - most recent unemployment	0.995	-3.37	0.989	-2.92	0.996	-2.35	0.996	-1.23

Table 6.7 (ctd): Determinants of Job Tenure by Next Labour Market Status

	All Separations		*Job to Job*		*Job to Unemployment*		*Job to Not in Labour Market*	
	Hazard Ratio	***z-value***	***Hazard Ratio***	***z-value***	***Hazard Ratio***	***z-value***	***Hazard Ratio***	***z-value***
Training								
Employer provided training	0.897	-0.92	0.891	-0.53	0.798	-1.22	0.937	-0.27
Occupational Preference								
Job in preferred occupation	0.714	-3.81	0.756	-1.45	0.660	-3.61	0.821	-0.94
No preferred occupation								
Job not in preferred occupation	0.974	-0.27	1.243	1.03	0.890	-0.91	1.025	0.11
Employment Status and Hours								
Casual full-time	1.511	4.23	1.308	1.20	1.643	4.08	1.363	1.21
Casual part-time								
Permanent full-time	0.425	-7.83	0.395	-4.16	0.427	-5.74	0.436	-3.31
Permanent part-time	0.478	-4.41	0.717	-1.18	0.329	-3.82	0.410	-2.69
Baseline Hazard								
Baseline - to 4 weeks	0.036	-14.87	0.007	-9.76	0.027	-12.59	0.001	-11.42
Baseline - 5 to 13 weeks	0.030	-15.84	0.011	-9.42	0.017	-14.12	0.002	-11.04
Baseline - 14 to 26 weeks	0.021	-17.06	0.009	-9.80	0.012	-14.99	0.001	-11.67
Baseline - 27 to 39 weeks	0.019	-16.98	0.010	-9.40	0.009	-15.11	0.001	-11.45
Baseline - 40 to 52 weeks	0.009	-18.34	0.006	-9.95	0.002	-15.34	0.001	-11.70
Baseline - 53 to 78 weeks	0.010	-18.37	0.008	-9.75	0.003	-15.84	0.001	-12.01
Baseline - over 78 weeks	0.007	-18.43	0.005	-10.03	0.001	-14.02	0.001	-11.93
Log likelihood	-1632.81		-545.78		-1203.35		-480.57	
Number of observations	1051		1051		1051		1051	
Number of failures	760		169		440		144	

Exit probabilities also differed by age. Similar to the results of Kalb (1999), the estimates suggested younger workers were likely to have shorter job durations and these were mainly associated with exits to another spell of unemployment. Specifically, those aged between 20 to 29 were 29 per cent more likely than prime aged workers to leave their job and return to unemployment respectively. The positive effect for younger workers is consistent with theories of job shopping. These persons may be prepared to take on even temporary jobs in order to find out more about the labour market opportunities available to them. Given that they are less likely to have family responsibilities, they may also be more willing to accept time out of work in their search for another job.

Very few of the marital status and family characteristics variables were related to job duration and transition patterns. The exception was for those who had a resident partner who was working. These persons were estimated to have longer durations and also, a lower propensity to leave for another spell of unemployment. As expected, results also indicated that workers who had a disability had shorter job durations overall and a greater propensity to exit out of the labour market than those who had no disability.

Consistent with results found by Kalb (1999), workers with a non-English speaking background had longer job durations in their post-unemployment spell. The breakdown into the cause specific hazards showed that they were also less likely to exit into another job. These results perhaps indicate that these workers were less likely to engage in further job search.

Years of previously looking for work was also included in the duration equations. Even after controlling for observable individual characteristics, this variable was estimated to be statistically significant at the 1 per cent level in the exit to unemployment equation and weakly significant at the 10 per cent level in the job to job transition equation. The results for the exit to unemployment show a strong relationship between pay to no pay cycling in the labour market and previous unemployment history. Each additional year of previous unemployment increased the likelihood of exit to another spell of unemployment by 6 per cent but decreased the chance of exiting to another job by 10 per cent. These results suggest a situation of cumulative disadvantage for individuals in the Australian labour market either because of a scarring effect of unemployment on future employment prospects or because of the unobserved worker characteristics correlated with the employment prospects for workers (Le and Miller 2001).

The estimated hazard ratio for the effect of the duration of the most recent spell of unemployment was found to be consistently negative. Overall, a one week increase in unemployment decreased the hazard rate out of employment by 0.005 per cent. A similar result was also found by Boheim and Taylor (2000) who investigated job tenure in the UK with a particular focus on post-unemployment job spells. They conclude that the

unemployed who search for work longer may be rewarded with a better job match that enhances their job stability. The results here however, may be difficult to interpret because of the small sample sizes as the duration of the job increases.

The estimated hazard ratios on worker preferences suggested a positive effect on job tenure and on transitions into unemployment. Workers who found a job in their preferred occupation were estimated to have longer job durations and a lower likelihood of leaving to another spell of unemployment. The percentage decrease in the probability of exiting employment was 29 per cent, and finding employment in a preferred occupation reduced the likelihood of exit to unemployment by 33 per cent. These findings suggest that obtaining employment in areas that best suits a worker's skills and abilities is likely to improve the quality of the job match, increase job tenure and improve outcomes. This result too was suggested by Le and Miller (1999a) who investigated job tenure for the unemployed in Australia using SEUP. A major implication of their results was that the unemployed should be placed in jobs where their rewards best reflected their skills and knowledge of the labour market.

With regard to demand related variables, differences in job duration and transition patterns were estimated for workplace size and industry. Workers whose job was in a large workplace with more than 100 employees were estimated to have longer job spells. Workplace size appears to also reduce significantly a worker's chances of exit into unemployment. Compared to those who found a job in a workplace with over 100 employees, individuals in a workplace of 10 employees or less and those in a workplace with 10 to 100 employees were 49 per cent and 39 per cent more likely respectively to leave for unemployment. Significant positive relationships between workplace size and employment stability have been found by others (Winter-Ebmer 2001; Le and Miller 1999a). There are a number of reasons for this effect. It may reflect differences in patterns of production, hiring strategies and monitoring resources between larger and smaller workplaces. For example, management of larger workplaces may hire high productivity workers who are able to work independently and be more likely to stay with the job. Also, jobs in larger workplaces may be less tied to the volatility of product demand but be

required in the everyday production processes of the firm. This may provide workers in larger workplaces with a wider range of opportunities open to them in terms of work activities providing them with a broader range of experience and therefore longer job durations with the firm.

With respect to industry, no differences in job duration were found. However patterns of transition revealed some weak evidence to suggest that workers in services industries were less likely than those in the education, health and public services sector and those in the resources industries to leave for another spell of unemployment. This may reflect the greater number of job opportunities available to workers in these areas.

Interestingly, neither the education dummy variables nor the employer provided training was found to be associated with longer employment durations or exits to the different labour market states. This may suggest that the training provided in post-unemployment jobs is not likely to be firm specific training but training of a more general nature. According to Mincer (1974), it is firm specific training that is likely to influence job durations. More general training is not likely to be associated with longer job durations.

The dummy variables included to capture job type were estimated to have a substantial impact on the job durations and transition patterns in post unemployment jobs. Compared to casual part-time jobs, permanent jobs, both full-time and part-time, were associated with much longer durations. For example, permanent full-time jobs were estimated to be 57 per cent less likely to end than a casual part-time job. Permanent part-time jobs were estimated to be 52 per cent longer. A breakdown of results into the cause specific hazards showed that shorter job durations were estimated for exits into all states for the casually employed.

These results highlight two important factors. First, casual jobs taken up by the unemployed tend to be short-term stays in employment for many unemployed individuals. Second, there is a greater diversity of transition patterns for workers in casual employment. While there is a high probability of exit to unemployment, some casual

workers also exit to another job but also have a greater chance of exit to a spell out of the labour market.

The results highlight the significance of job type in understanding transition patterns of the unemployed. As suggested in the descriptive analysis, a significantly high proportion of the unemployed take up work in casual and part-time jobs. Although Murtough and Waite (2000a) indicate that many casual jobs in the Australian labour market do provide ongoing employment for workers, the results reported here suggest that this is not likely to be the case for the unemployed. Rather, casual jobs appear to only provide short-term stays in the labour market for the unemployed placing them in a cycle of low pay and no pay.

Another important finding from the results was that, compared to those in casual part-time jobs, those in casual full-time work were estimated to have shorter job durations and a higher likelihood of leaving to unemployment. The likelihood of leaving a job was greater by 51 per cent for casual full-time jobs than casual part-time jobs. Likewise, the probability of leaving a job to a spell of unemployment was 64 per cent higher for casual full-time jobs compared to casual part-time jobs. One hypothesis for these estimated significant differences relates to differential labour use strategies of full-time and part-time casual jobs. According to Junor (1998), part-time employment offers employees the ability to be more flexible in terms of staffing levels, variations in shift times and reduced overtime. These features are associated with the ongoing production processes of the firm. Casual full-time employment undertaken by the unemployed, however, may more likely be purely temporary work providing employers a buffer stock of employment for periods of high product demand.

The same duration equations were re-estimated including an additional variable identifying whether the employment spell was a low paid job. The results for the additional variable are presented in Table 6.8. All other coefficient estimates remained similar to those reported in Table 6.7.[18] The results indicated that even after controlling for all other factors, there still remained an additional effect for the low paid on job durations.

[18] A full set of estimates is provided in Appendix A6.3.

The coefficient estimate suggested that low paid jobs were 36 per cent more likely to end than higher paid jobs. The cause specific hazard estimate to unemployment was positive and significant indicating that low paid workers, even after controlling for observable differences, were more likely than higher paid workers to exit their job into another unemployment spell.

Table 6.8: Determinants of Job Tenure including Low Pay

Estimates for Low Pay Dummy Variable	*Hazard Ratio*	*z-value*
All separations	1.359	3.93
Job to job	1.173	0.95
Job to unemployment	1.595	4.53
Job to inactivity	1.008	0.04

These results indicate that low paid jobs may include work that is least essential to the everyday production processes of firms, being more temporary work or more highly related to the variations in product demand. This suggestion also has been made by Australian Centre for Industrial Relations Research and Training (1999) who propose that increasingly, the problem in the low paid labour market is that the kinds of jobs on offer do not provide long-term employment opportunities for workers. Another possible explanation is that persons in these jobs may have unobserved characteristics such as poor attitudes to work or ability that decrease their chances of remaining in a job.[19]

6.5 Conclusions

This chapter has investigated post-unemployment jobs for workers in the Australian labour market during the-mid 90s, with a particular focus on understanding more about the patterns of job duration and labour market transition. The main findings from the

[19] Given the insignificance of the unobserved heterogeneity term in the estimated model, this explanation is likely to be of less importance.

descriptive analysis and the econometric investigation about the employment trends of adult unemployed workers in the Australian labour market are as follows.

Post-unemployment jobs are significantly different to the jobs held by all Australian workers. Many unemployed adults are in a precarious labour market situation. As reported by Rodgers (1989) precariousness is associated with a high risk of job loss, lack of control over working conditions, the pace of work and wages, lack of protection in employment and low pay. The findings of this chapter suggest that each of these features is evident in post-unemployment jobs. Many are caught up in a cycle of short-term work, involuntary job separations and more unemployment. These results provide additional evidence of a cycle of low pay and no pay for a substantial number of individuals in the Australian labour market.

Substantiating the results of Chapter 5, the lowest paid appear to be in the most precarious situation of all. Low paid jobs are particularly short-term and have a greater chance of ending at the initiation of the employer.

The significant role of casual employment, both full-time and part-time in providing employment opportunities for the unemployed, is another important finding of this chapter. The incidence of casual work taken up by the unemployed is extremely high. Evidence from the econometric investigation highlighted the particularly short-term nature of casual jobs and also the diversity of transition patterns experienced by the unemployed who take up casual work with many ending in another spell of unemployment. Casual full-time jobs were found to be of shortest duration suggesting that these may be temporary jobs used to cover periods of high product demand.

The high rate of underemployment, the dissatisfaction with work conditions and the inability to obtain work in their preferred occupations may indicate that job opportunities for the unemployed are limited. Together with the high incidence of casual and part-time employment, the implication is that many unemployed have been forced to accept jobs in non-standard employment in an attempt to remain in the labour market and to gain work

experience. This suggests that the role played by employers in providing jobs for the unemployed is important.

The econometric investigation showed that those most likely to be caught up in a cycle of low pay and no pay were the youngest adult workers. In particular, those aged between 20 to 29 years were at greatest risk of leaving employment and of returning to another spell of unemployment. Women were found to have more diverse transition patterns being more likely than men to leave to a spell out of the labour market.

An important finding from the duration analysis was that there was a positive association between worker occupational preferences and job duration. These findings are suggestive of the fact that matching the unemployed with jobs that suit their skills and abilities may be important in improving employment stability among the unemployed.

There is a significant positive relationship between previous unemployment experience and the cycle of low pay and no pay. This perhaps suggests a situation of cumulative disadvantage for workers in the Australian labour market. Once in a cycle of low pay and no pay, it may be difficult to escape.

Consistent with the findings of Chapter 5, workplace size was found to positively related to job tenure. Post-unemployment jobs in larger workplaces were less likely to end in another unemployment spell. This perhaps reflects differences in hiring and management strategies and types of jobs available in smaller and larger firms.

Appendix A6.1: Characteristics of the Sample

	Found low paid employment	*Found higher paid employment*	*Non-wage & salary employment*	*No employment*	*All individuals*
Female	52.7	49.6	41.1	69.0	52.9
Age					
20 to 29 years	46.5	36.0	24.5	26.6	37.0
30 to 39 years	29.2	30.3	33.1	26.1	29.5
40 to 49 years	16.2	23.3	15.3	13.6	20.6
50 to 59 years	8.1	10.4	12.6	29.6	12.9
Marital Status					
Never married	39.0	30.7	25.2	20.8	32.0
Married (including defacto)	46.7	55.9	62.9	66.8	54.9
Divorced, separated, widowed	14.4	13.4	11.9	12.4	13.2
Family Characteristics					
Resident spouse working	30.6	31.1	42.4	38.5	34.2
Education					
Not completed highest secondary school	41.0	28.8	36.4	54.8	38.5
Completed highest secondary school	18.3	16.7	11.3	17.3	16.8
Vocational studies	28.8	26.7	33.8	18.6	26.4
Tertiary education	12.0	27.8	18.5	9.3	18.3
Country of Birth					
Australian born	74.0	70.8	72.2	64.6	71.1
Born overseas - English speaking	11.0	15.8	13.9	11.1	13.2
Born overseas - non-English speaking	15.0	13.4	13.9	24.3	15.8
Has disability	18.1	12.2	21.9	29.7	19.2
Socioeconomic area of residence					
Third decile or less	41.2	34.6	31.8	42.9	38.5
Fourth to seventh decile	35.3	38.9	39.7	34.5	36.3
Eighth decile or over	23.5	26.5	28.5	22.6	25.3
Sample size	493	558	151	227	1429

Appendix A6.2: Summary of Variables used in the Duration Analysis

Variable Name	*Description*	*Mean*	*Standard Deviation*
Individual Characteristics			
Female	Dummy variable which takes on the value of 1 if the respondent is female and 0 otherwise.	0.51	0.50
Aged 20-29 years	Dummy variable which takes on the value of 1 if the respondent is aged 20 to 29 years and 0 otherwise.	0.41	0.49
Aged 30-39 years	Dummy variable which takes on the value of 1 if the respondent is aged 30 to 39 years and 0 otherwise.	0.30	0.46
Aged 40-49 years	Dummy variable which takes on the value of 1 if the respondent is aged 40 to 49 years and 0 otherwise.	0.20	0.40
Aged 50-59 years	Dummy variable which takes on the value of 1 if the respondent is aged 50 to 59 years and 0 otherwise.	0.09	0.29
Has disability	Dummy variable which takes on the value of 1 if the respondent has a disability that hinders the hours or type of work that can be undertaken and 0 otherwise.	0.15	0.36
Marital Status			
Never married	Dummy variable which takes on the value of 1 if the respondent has never been married, and 0 otherwise.	0.35	0.48
Married or de facto	Dummy variable which takes on the value of 1 if the respondent is married or in a de facto relationship, and 0 otherwise.	0.52	0.50
Divorced, separated or widowed	Dummy variable which takes on the value of 1 if the respondent is divorced, separated or widowed and 0 otherwise.	0.14	0.35
Family Characteristics			
Resident partner working	Dummy variable which takes on the value of 1 if the respondent has a resident partner who works part-time of full-time and 0 otherwise.	0.34	0.47
Number of dependent children	Number of dependent children	0.91	1.08

Variable Name	*Description*	*Mean*	*Standard Deviation*
Educational Qualifications			
Not completed secondary	Dummy variable which takes on the value of 1 if the respondent did not complete the highest level of secondary school available, and 0 otherwise.	0.35	0.48
Completed secondary	Dummy variable which takes on the value of 1 if the respondent completed highest level of secondary school available, and 0 otherwise.	0.17	0.38
Completed vocational studies	Dummy variable which takes on the value of 1 if the respondent completed post school vocational studies, and 0 otherwise.	0.28	0.45
Completed tertiary studies	Dummy variable which takes on the value of 1 if the respondent completed post school tertiary studies, and 0 otherwise.	0.13	0.40
Location of Residence			
Socioeconomic area index	Index value of the socioeconomic level of the area of residence, measured as a deviation from the mean for everyone in the sample.	0.00	2.88
Country of Birth			
Australia	Dummy variable which takes on the value of 1 if the respondent was born in Australia and 0 otherwise	0.72	0.45
Overseas English speaking	Dummy variable which takes on the value of 1 if the respondent was born in an overseas English speaking country and 0 otherwise	0.14	0.34
Overseas non-English speaking	Dummy variable which takes on the value of 1 if the respondent was born in an overseas non-English speaking country and 0 otherwise	0.14	0.35
Industry			
Resources industry	Dummy variable which takes on the value of 1 if the respondent works in any of the following industries - agriculture, forestry and fishing, manufacturing, mining, electricity, gas and water and construction, and 0 otherwise.	0.28	0.45
Wholesale and retail trade	Dummy variable which takes on the value of 1 if the respondent's job was in the wholesale and retail trade industries and 0 otherwise	0.18	0.39

Variable Name	*Description*	*Mean*	*Standard Deviation*
Services	Dummy variable which takes on the value of 1 if the respondent's job was in any of the following industries - accommodation, cafes and restaurants, transport and storage, communication services, finance and insurance, property and business services, cultural and recreational services, personal and other services, and 0 otherwise.	0.34	0.47
Education, health, public services	Dummy variable which takes on the value of 1 if the respondent's job was in any of the following industries – government administration and defence, education and health and community services, and 0 otherwise.	0.20	0.40
Workplace Size			
10 employees or less	Dummy variable which takes on the value of 1 if the respondent's workplace has 10 employees or less and 0 otherwise.	0.40	0.49
11 to 100 employees	Dummy variable which takes on the value of 1 if the respondent's workplace has between 11 and 100 employees, and 0 otherwise.	0.30	0.46
Over 100 employees	Dummy variable which takes on the value of 1 if the respondent's workplace has greater than 100 employees, and 0 otherwise.	0.30	0.46
Previous Labour Market Experience			
Years unemployed	The number of years prior to the previous spell of unemployment the respondent was unemployed since leaving full-time education, measured as a deviation from the mean.	0.00	2.24
Duration –most recent unemployment	The duration in weeks of the previous spell of unemployment, measured as a deviation from the mean.	0.00	31.24
Training			
Employer provided training	A time varying dummy variable which takes on the value of 1 after the first training takes place and remains 1 for the remainder of the time on the job and 0 otherwise	23.3[a]	42.3

a This is the percentage of individuals who received training

Variable Name	*Description*	*Mean*	*Standard Deviation*
Occupational Preferences			
Job in preferred occupation	A dummy variable which takes on the value of 1 if the job was in the respondent's preferred occupation and 0 otherwise.	0.44	0.50
No preferred occupation	A dummy variable which takes on the value of 1 if the respondent had no preferred occupation or data was not collected and 0 otherwise.	0.31	0.36
Job not in preferred occupation	A dummy variable which takes on the value of 1 if the job was not in the respondent's preferred occupation and 0 otherwise.	0.25	0.44
Employment Status and hours			
Casual full-time	A dummy variable which takes on the value of 1 if the job was casual full-time and 0 otherwise.	0.25	0.44
Casual part-time	A dummy variable which takes on the value of 1 if the job was casual part-time and 0 otherwise.	0.41	0.49
Permanent full-time	A dummy variable which takes on the value of 1 if the job was permanent full-time and 0 otherwise.	0.28	0.45
Permanent part-time	A dummy variable which takes on the value of 1 if the job was permanent part-time and 0 otherwise.	0.28	0.24
Baseline Hazard			
Baseline - to 4 weeks	A dummy which takes on the value of 1 during the time period up to 4 weeks and 0 otherwise		
Baseline- 5 to 13 weeks	A dummy which takes on the value of 1 during the time period was between 5 to 13 weeks and 0 otherwise		
Baseline - 14 to 26 weeks	A dummy which takes on the value of 1 during the time period was between 14 to 26 weeks and 0 otherwise		
Baseline - 27 to 39 weeks	A dummy which takes on the value of 1 during the time period was between 27 to 39 weeks and 0 otherwise		
Baseline - 40 to 52 weeks	A dummy which takes on the value of 1 during the time period was between 40 to 52 weeks and 0 otherwise		

Variable Name	*Description*	*Mean*	*Standard Deviation*
Baseline - 53 to 78 weeks	A dummy which takes on the value of 1 during the time period was between 53 to 78 weeks and 0 otherwise		
Baseline - over 78 weeks	A dummy which takes on the value of 1 during the time period was over 78 weeks and 0 otherwise		

Appendix A6.3: Determinants of Job Tenure by Next Labour Market Status and including Low Pay

	All separations		*Job to Job*		*Job to Unemployment*		*Job to Not in Labour Market*	
	Hazard Ratio	***z-value***	***Hazard Ratio***	***z-value***	***Hazard Ratio***	***z-value***	***Hazard Ratio***	***z-value***
Individual Characteristics								
Female	1.023	0.26	0.813	-1.10	0.826	-1.73	2.718	4.36
Aged 20 -29 years	1.277	2.40	1.233	0.98	1.249	1.63	1.445	1.63
Aged 30-39 years								
Aged 40-49 years	1.171	1.39	1.018	0.07	1.291	1.69	1.001	0.00
Aged 50-59 years	1.262	1.52	0.819	-0.57	1.374	1.61	1.520	1.14
Has disability	1.301	2.65	1.189	0.77	1.041	0.30	2.640	4.81
Marital Status								
Never married								
Married includes de facto	1.043	0.32	0.669	-1.41	1.124	0.68	1.375	0.95
Divorced, separated, widowed	1.231	1.50	1.111	0.36	1.222	1.13	1.478	1.07
Family Characteristics								
Resident partner working	0.732	-2.63	0.745	-1.17	0.607	-3.14	1.008	0.03
Number of dependent children	0.958	-1.01	0.859	-1.62	0.940	-1.11	1.164	1.65
Educational Qualifications								
Not completed secondary	1.075	0.64	1.072	0.30	0.986	-0.10	1.545	1.48
Completed secondary								
Completed vocational studies	1.125	1.03	1.006	0.02	1.056	0.37	1.709	1.81
Completed tertiary studies	1.093	0.69	1.125	0.45	1.007	0.04	1.510	1.29
Location of Residence								
Socioeconomic area index	1.018	1.35	1.008	0.29	1.032	1.77	0.992	-0.25
Country of Birth								
Australia								
Overseas English speaking	1.023	0.21	0.845	-0.72	1.220	1.39	0.723	-1.18
Overseas non-English speaking	0.702	-2.97	0.394	-2.96	0.834	-1.20	0.875	-0.51
Industry								
Resources industries	1.020	0.19	0.820	-0.89	1.239	1.64	0.623	-1.82
Wholesale and retail trade	1.020	0.19	0.930	-0.33	1.160	1.01	0.795	-0.92
Services								
Education, health, public services	1.078	0.67	0.875	-0.55	1.328	1.89	0.788	-0.98
Workplace Size								
10 employees or less	1.213	1.96	1.089	0.41	1.429	2.71	0.885	-0.55
11 to 100 employees	1.080	0.76	0.973	-0.13	1.311	2.01	0.622	-1.93
Over 100 employees								
Previous Labour Market Experience								
Years unemployed	1.021	1.25	0.904	-1.85	1.056	2.88	0.986	-0.30

Appendix A6.3 (ctd): Determinants of Job Tenure by Next Labour Market Status and including Low Pay

	All separations		*Job to Job*		*Job to Unemployment*		*Job to Not in Labour Market*	
	Hazard Ratio	***z-value***	***Hazard Ratio***	***z-value***	***Hazard Ratio***	***z-value***	***Hazard Ratio***	***z-value***
Duration - most recent unemployment	0.995	-3.68	0.989	-2.99	0.995	-2.71	0.996	-1.23
Training								
Employer provided training	0.890	-0.98	0.889	-0.54	0.782	-1.33	0.937	-0.27
Occupational Preference								
Job in preferred occupation	0.719	-3.73	0.757	-1.44	0.665	-3.54	0.821	-0.94
No preferred occupation								
Job not in preferred occupation	0.960	-0.42	1.228	0.96	0.869	-1.10	1.025	0.10
Employment Status and Hours								
Casual full-time	1.484	4.05	1.311	1.21	1.589	3.81	1.362	1.21
Casual part-time								
Permanent part-time	0.440	-7.50	0.405	-4.03	0.446	-5.45	0.437	-3.27
Permanent full-time	0.486	-4.30	0.725	-1.15	0.335	-3.75	0.411	-2.68
Pay Level								
Low paid	1.359	3.93	1.173	0.95	1.595	4.53	1.008	0.04
Baseline Hazard								
Baseline - to 4 weeks	0.032	-15.19	0.006	-9.80	0.022	-13.00	0.001	-11.35
Baseline - 5 to 13 weeks	0.027	-16.13	0.011	-9.46	0.014	-14.47	0.002	-10.98
Baseline - 14 to 26 weeks	0.019	-17.30	0.009	-9.84	0.010	-15.26	0.001	-11.61
Baseline - 27 to 39 weeks	0.017	-17.20	0.010	-9.45	0.008	-15.35	0.001	-11.39
Baseline - 40 to 52 weeks	0.008	-18.53	0.006	-9.99	0.002	-15.54	0.001	-11.65
Baseline - 53 to 78 weeks	0.010	-18.56	0.007	-9.79	0.003	-16.02	0.001	-11.96
Baseline - over 78 weeks	0.006	-18.62	0.005	-10.07	0.001	-14.20	0.001	-11.87
Log likelihood	-1625.05		-545.33		-1192.94		-480.57	
Number of observations	1051		1051		1051		1051	
Number of failures	760		169		440		144	

Chapter 7

Future Employment, Casual and Part-Time Jobs and the Unemployed

7.1 Introduction

The high incidence of casual and part-time jobs taken up by the unemployed has been an indicator of significant change that has occurred in the Australian labour market over the past two decades. An increasing diversity in the ways in which individuals are working has been evident across all industries, but particularly for those in low skilled occupations (Borland, Gregory and Sheehan 2001). Now more than ever before, workers are being employed under casual and part-time arrangements. In fact, during the 90s, the growth in casual and part-time jobs has far outweighed the employment growth of full-time permanent work.

These dramatic trends have raised some important issues about the implications for the long-term social and economic well-being of workers in the Australian labour market. Of particular concern is the high take-up of casual and part-time employment by the unemployed and the implications of this on their future employment prospects. Chapter 6 investigated the characteristics of the post-unemployment jobs for persons who were initially unemployed during the first wave of SEUP. The findings indicated that many jobs

were casual or part-time, of short duration and were often terminated at the initiation of the employer. Also, a significant number of individuals went back into another spell of unemployment at the end of their job.

What implication does this pattern of employment, the high incidence of intermittent casual and part-time jobs often ending in a spell of unemployment, have on the future employment prospects for the unemployed? In the literature, there are differing views. On the one hand, it has been argued that the prevalence of casual and part-time work has generated important opportunities for the unemployed to find work, maintain their labour market attachment and gain valuable work experience (Siebert 1997). The underlying assumption is that over time individuals who take up these jobs will improve their labour market position, finding more secure employment and achieving earnings growth.

On the other hand, a contrasting view is that the precarious nature of casual and part-time jobs has generated a degree of dualism in the Australian labour market. Casual and part-time jobs are like those of a secondary labour market where individuals have limited opportunities for earnings progression and any future sustainable employment (Australian Centre for Industrial Relations Research and Training 1999; Burgess and de-Ruyter 2000). In this situation, casual and part-time jobs for the unemployed simply become a form of hidden unemployment or a shelter from unemployment for workers who find it difficult to get standard permanent work (Burgess and de Ruyter 2000). Over the longer term, these jobs offer limited hope for the unemployed to find more secure or sustained employment. Rather, individuals are more likely to find themselves trapped in a cycle of intermittent jobs and joblessness.

This chapter addresses the validity of these opposing views for adult workers in the Australian labour market. Using the sample of individuals initially unemployed during the first wave of SEUP, the relationship between their work experiences during the first year after becoming unemployed and their subsequent labour market employment outcomes after two years is investigated. Two outcomes measures are examined - whether they are employed after two years, and, if employed, whether they are in permanent work. The aim

of this investigation is to assess whether differences in future employment outcomes are related to the different types of initial work experiences of the unemployed. Specific comparisons are drawn between casual and permanent work and full-time and part-time work, and no work at all.

Although the time period of the analysis is short, and there are some limitations to the adopted approach[1], the analysis draws attention to an important issue which, some have argued, has not been adequately considered in the Australian policy debate (Burgess and Campbell 1998b). Both supply side and demand side factors may need to be addressed in an appropriate policy response for the unemployed.[2] Focussing only on improving worker employability through, for example, training schemes may fail if attention is not also focused on issues such as employer labour use strategies and the protection of worker entitlements. As has been noted by Burgess and Campbell (1998b), there is evidence that in the Australian labour market, employers' labour usage practices are becoming more opportunistic, reactive to product demand and aimed at labour cost reduction regardless of the loss of benefits and entitlements of workers.

Another motivation stems from the recent policy directions of government with respect to welfare reform. New initiatives are encouraging active participation by welfare recipients rather than passive welfare support. These initiatives obligate welfare recipients to take up casual and part-time work in schemes such as Work for the Dole to improve their job skills and gain valuable labour market experience (Burgess and de-Ruyter 2000). The underlying premise is that this experience will provide them with the best chance to leave welfare support and reintegrate into the world of work. Understanding the extent to which individuals can make this transition is an important issue. Obligating more welfare recipients to become a part of a cycle of low pay and no pay has potential to exacerbate an already difficult and perhaps growing problem for Australia.

[1] These are discussed fully in Section 7.3.1.
[2] A discussion of the theory of labour market segmentation which identifies an important role for demand side factors can be found in Chapter 2.

This chapter is structured as follows. Section 7.2 presents a background into the growth of casual work in the Australian labour market. Different aspects of the debate into the implications of these trends for the unemployed are discussed followed by a summary of empirical evidence in Australia. Section 7.3 describes the analytical strategy, the data and empirical outcomes for the sample of unemployed persons. The results are presented and discussed in Section 7.4 with some important conclusions drawn and discussed in Section 7.5.

7.2 Background

7.2.1 The growth in casual and part-time employment

The increasing diversity in the nature of work and the types of jobs on offer has been one of the most significant features of change in the Australian labour market during the past two decades. In the 1970s, the majority of individuals expected to be employed under the standard employment contract – the full-time permanent job. Increasingly over the past two decades, alternative working arrangements, specifically, casual and part-time jobs have taken more of the share of total employment. In the mid-1980s, around 16 per cent of total employment was part-time. In just ten years, this had risen to around 25 per cent of the total number of persons employed. Similar increases in the percentage of casual workers also occurred over the same time period. As reported by Wooden and Hawke (1998), the incidence of casual employment grew from 16 per cent in 1984 to 26 per cent by 1996.

The increasing trends in the diversity of employment can be clearly seen in Table 7.1. In this table, taken from Borland, Gregory and Sheehan (2001), employment growth over the most recent decade, the 1990s, has been disaggregated into four job types – permanent full-time and permanent part-time employment, casual full-time and casual part-time employment. These figures highlight two major features - the extent of the increase in casual and part-time jobs and the corresponding stagnation of the growth in permanent full-time employment.

During the 1990s, the total number of persons employed grew by 1.1 million persons, a growth rate of 17.2 per cent. The breakdown by job type shows that the number of permanent full-time jobs actually declined over the period, whereas employment in each of the three other job types increased substantially. An astounding 73 per cent of the overall growth could be attributed to the increase in casual jobs. Much of this was associated with an increase in casual part-time work which provided 44 per cent to the total employment growth. Permanent part-time jobs also increased dramatically over the period contributing another 32 per cent to the change in the numbers employed.

Table 7.1: Employment by Job Type – 1990 to 2000

Job Type	*Employment*		*Change in Employment, 1990-2000*		
	1990 ('000)	*2000* ('000)	*Number* ('000)	*Per cent*	*Share*
Permanent	5293.8	5598.4	304.6	5.8	27.0
Casual	1271.8	2097.3	825.5	64.9	73.0
Permanent full-time	4855.0	4803.9	-51.1	-1.1	-4.6
Casual full-time	314.3	647.3	333.0	105.9	29.5
Permanent part-time	438.8	794.5	355.7	81.1	31.5
Casual part-time	957.5	1450.0	492.5	51.4	43.6
Total	6565.6	7695.6	1130.1	17.2	100.0

Source: Table 1.4 Borland, Gregory and Sheehan (2001) - numbers have been adjusted on advice from the authors.

Borland, Gregory and Sheehan (2001) break down these changes further by occupation type. They find that it has been in the low skilled occupations where these changes in job types have been most pronounced. Table 7.2 shows these figures for the 1990s. Despite the overall decline in the number of permanent full-time jobs during the 1990s, there was a substantial increase in permanent full-time jobs among the higher skilled occupations – managers and professionals. In contrast, employees in other occupations experienced huge declines in permanent full-time work and substantial increases in other job types. For

tradespersons and advanced sales and service workers, permanent full-time work declined by 238,000 jobs over the 1990s. The 'Other Employees' category includes low skilled occupations such as labourers, elementary clerical workers and production workers. Like the tradespersons, employment in this category too changed dramatically with similar large declines in the number of permanent full-time jobs. For workers in low skilled occupations, a great deal of the growth in employment was in casual part-time jobs which contributed 74 per cent to the overall employment growth in those occupations.

Table 7.2 Change in Employment by Occupation and Job Type - 1990 to 2000

'000

	Permanent full-time	*Casual full-time*	*Permanent part-time*	*Casual part-time*	*Total*
Managers and professionals	387.0	135.4	115.2	19.5	657.1
Tradespersons and advanced sales and service workers	-238.2	59.3	25.3	26.8	-126.8
Other employees	-200.0	138.4	215.1	446.4	599.9
Total employees	-51.2	333.1	355.6	492.7	1130.2

Source: Table 1.6 Borland, Gregory and Sheehan (2001).

The increasing incidence of alternative working arrangements in Australia can be directly linked to the movement towards labour market flexibility. Both supply side and demand side factors as well as institutional forces have encouraged the deregulation of the labour market. From the supply side, casual and part-time work has increased in response to the desire of workers to be able to combine other responsibilities and interests with labour market involvement. For example, many married women are keen to combine household and family duties with part-time, often casual work. Students, as well, have benefited being able to take up work but also undertake their studies. From this perspective, the increase in casual and part-time work has been seen as a positive and important trend, associated with an improvement in individuals' social and economic wellbeing.

Changes in the demand side of the market, however, have also contributed to the increasing diversity of job types in the Australian labour market. Many product demand markets have changed dramatically due to the pressures of globalisation and technological change. This has generated a necessary response by firms to find ways to reduce costs and compete more efficiently in often increasingly volatile and uncertain markets (Brosnan and Underhill 1998; Korpi and Levin 2001). Casual and part-time jobs have provided opportunity for employers to do this.

Along with demand and supply factors, government policy has also encouraged a shift towards labour market flexibility by the deregulation of employment contracts. This too has influenced the continuing trends towards the diversity in job types, particularly during the 90s. Enterprise bargaining agreements have broadened the types of jobs and conditions and entitlements of work across the entire labour market.

7.2.2 Implications for the unemployed

What are the implications of the increasing incidence of casual and part-time work for the employment prospects for the unemployed? This question has attracted a great deal of attention by policy makers and research workers not only in Australia but also in other countries where there has been an increasing trend towards alternative working arrangements. There are generally two opposing and compelling views.

A positive view

On a positive note, the prevalence of casual and part-time jobs has created for the unemployed opportunity to work, gain valuable on-the-job experience and a means to help them maintain their attachment to the labour market (Siebert 1997; Buch and Ruhmann 1998). This has been associated with positive benefits for the unemployed improving their general well-being and employability and hence their future employment prospects. On-the-job experience will help them re-establish a position in the labour market and enable them to gain more secure permanent work in the future (Korpi and Levin 2001).

A negative view

A more negative viewpoint, however, has also been put forward. The increasing incidence of casual and part-time work has led to a deterioration in employment conditions and entitlements for workers shifting the balance of power directly to employers (Burgess and de-Ruyter 2000). The precarious nature of jobs makes them 'dead ends' associated with limited opportunities for earnings advancement or any sustainable future employment for workers (Brosnan and Underhill 1998). Under this scenario, the unemployed would not be able to improve their economic position, instead being trapped in a cycle of intermittent work and joblessness. These patterns of employment will impact most heavily on those at the lowest end of the labour market, in particular, the low skilled workers taking up the lowest paid jobs.

Theoretical support

In support of the positive view are a number of theories about job search and labour market mobility which predict positive outcomes for the unemployed. Theories based on imperfect information, for example, suggest that job searchers may have only limited knowledge about the labour market, in particular, with respect to their tastes and abilities in certain jobs and hence their potential rewards (Johnson 1978). On-the-job experience in casual and part-time jobs would provide a valuable opportunity to increase their knowledge of available work and in particular, what kind of employment they may be best suited to. This may improve their future job opportunities as they gravitate to jobs that best suit their desires and abilities.

Other theories predict that casual and part-time work will increase the attractiveness of workers to the employer. Screening or signalling theories posit that potential employers have imperfect information about individuals' productivity levels and thus mainly use observable characteristics such as work history to screen potential employees. Taking on casual work may act as a sorting mechanism where employers are more likely to hire job searchers who have recent work experience believing they have higher productivity levels than those who remained unemployed. Thus, workers who take on casual employment

may be higher in the job queue by sending positive signals to employers about his/her willingness to work, skills and productivity (Korpi and Levin 2001).

Human capital theories also suggest that employers would be prepared to hire casual and part-time workers over those with no employment experience. Associated with unemployment is a loss of occupation specific skills which are likely to deteriorate the longer an individual is out of work. Any kind of work experience therefore, is a means to reduce skills atrophy and therefore, the negative effects of unemployment.

Social network theories would also predict positive outcomes for the unemployed who secure part-time and casual work. By working, individuals have greater opportunity to expand social networks which can provide them with important labour market information about future job openings and personal references for vacancies (Korpi and Levin 2001). These mechanisms are likely to enhance future job prospects.

The discouraging view of the increasing incidence of casual and part-time work however, places less weight on these theories. Some may only work for certain types of individuals. For example, information theories may assist younger workers but be less likely to assist older workers. Theories which predict an increased attractiveness of the unemployed may only have an impact in periods of tight labour supply where employers look to the unemployed to fill additional vacancies.

The foundations for the negative view can be found in segmented labour market theories. Casual and part-time jobs may be forming part of a secondary labour market. As described in Chapter 2, workers in the secondary labour market find themselves in jobs characterised by low pay, high instability and risk of unemployment and poor working conditions. Over time, experience in the secondary sector is reinforced in the individual leading to a scarring effect, generating a higher chance of future secondary sector employment. Also, work in the secondary sector may send negative signals to potential employers, indicating a reluctance to take on long-term relationships to employers and thus promote a detrimental effect on future employment outcomes.

Comparison of views

The major distinction between these two contrasting views relates to their implications for the future employment prospects for the unemployed. The positive view suggests that over time, the take up of casual and part-time work is likely to be associated with less subsequent unemployment and an improved labour market situation including more secure employment. From the negative viewpoint, the take up of casual jobs is only likely to lead individuals to more intermittent casual work and very limited movement to more sustained permanent work. Under this scenario, over the longer term, the unemployed are unlikely to be better off and there may in fact, be a deterioration in their economic and social wellbeing (Burgess and Campbell 1998b).

7.2.3 Empirical evidence

Answers to the debate about the implications of casual and part-time work for the employment prospects of the unemployed is a matter for empirical research. In the Australian context, there have been a few studies that have investigated this issue although a lack of longitudinal data has limited the research. Murtough and Waite (2000b) suggest that the debate about precariousness and future employment prospects has been hampered by the diversity of jobs classified as casual employment. Using data from the ABS Forms of Employment Survey (Australian Bureau of Statistics 2000), they report that a substantial number of casual jobs are very similar to permanent jobs and they do in fact, provide secure and ongoing employment for workers.

While this has some validity, there are two important points regarding the unemployed and casual employment. First, the evidence of Chapter 6 indicated that the jobs taken up by the unemployed were significantly different to the jobs of all Australian workers. In particular, what set these jobs apart was not only their casual nature but their particularly short durations and the fact that many ended at the initiation of employers and resulted in another spell of unemployment. Second, although a minority of casual jobs may provide long-term work, in times of economic downturn, it is those that are new into their positions such as the unemployed that are likely to bear the greatest risk of job loss. These

features draw attention to the importance of investigating the implications of casual employment for the unemployed.

Anecdotal evidence about the work experiences of the unemployed has been collated by the National Board of Employment Education and Training (1992). During the early 90s, disadvantaged groups of jobseekers were asked about their experiences of work and their perceptions about their future employment prospects. The conclusion indicated that re-establishment into the Australian workforce was generally a difficult process. Although many did take up casual jobs, their preference was for permanent work. Most reported that their casual work experience did not facilitate a move to more secure work. Overall, the conclusion of the study for the future employment prospects of the unemployed was not optimistic suggesting that

'because of the structure of many of these jobs, they did not offer a stepping stone to more secure jobs but rather a dead-end." (National Board of Employment Education and Training 1992 page 36)

Burgess and de-Ruyter (2000) address the question – is casual employment a medium towards more secure permanent employment arrangements for the unemployed? They present the available empirical evidence from SEUP descriptively to draw the conclusion that there appears to be an element of dualism in the Australian labour market. Flows into permanent work are most likely accounted for by those already in permanent jobs or by those in full-time education. Individuals who take up casual employment however, are more likely to remain in casual employment over time. Their finding is that for the unemployed casual employment is a trap from which it may be difficult to escape.

More positive results were obtained by Chalmers and Kalb (2000) who undertook a formal analysis investigating the transition from casual to permanent employment for the unemployed. Using an econometric duration modelling approach with the SEUP data, they examined whether taking up a casual job shortened the time to permanent work for a sample of unemployed persons. Their results suggest evidence of a positive duration

dependence for a minority of individuals in the transition from casual to permanent work. Their results suggest that casual employment may provide a pathway to more secure permanent work for some individuals in that it may enhance the human capital of individuals to help them in the transition process or the social networks that increase the probability of future permanent work. Individuals most likely to benefit from casual employment were found to be men with working partners and women who had previous experience of casual work. Men with good prospects were less likely to benefit from taking up casual work. However, they conclude that overall the small numbers of persons with these characteristics still left many unemployed in a situation where casual employment did not help them to move into permanent work.

Gaston and Timcke (1999) investigate the transition from casual to permanent work over a one year and five year period for young persons aged 15 to 24 years in the Australian labour market during the early 90s. Using data from the Australian Youth Survey their conclusions are positive, suggesting that casual employment may be more of a 'stepping stone' than a 'dead end'. The findings from a regression analysis indicate that the main factors contributing to a movement into full-time permanent work for young persons were experience in full-time casual employment in the past and on-the-job training. Men were also more likely than women to make the transition to permanent work.

In summary, the Australian empirical research presents mixed evidence about the extent to which casual employment is associated with better future employment prospects for the unemployed. The implication is that both views may hold some truth leading to the conclusion that casual employment may be a pathway to more secure employment for some, but a trap for others. From the evidence, those for whom it is more likely to be a pathway include young persons, individuals with previous full-time work experience, men with working partners and those in full-time education. Overall, however, the evidence suggests that many unemployed are not likely to make the transition to more permanent or sustained work.

7.3 Future Employment Prospects and the Unemployed

7.3.1 Methodology

In this section, the methodology adopted to investigate the relationship between the initial work experiences of the unemployed and their future employment prospects is presented. The approach, which is similar to that described by Korpi and Levin (2001) is presented graphically in Figure 7.1.

A sample of persons who became unemployed during September 1994 to September 1995 was drawn from the SEUP data. During their first year, called the observation period, many individuals spent at least some time in a job. Their work experience during this period was categorised into five job types – the amount of time spent in permanent full-time work, permanent part-time work, casual full-time work and casual part-time work and other employment. Other employment includes self-employment and working in a family business.

These experiences of work were then related to their labour market situation two years after they initially became unemployed. Two measures of their subsequent labour market situation were included in the analysis – whether or not they were employed and, if employed, whether they were in permanent work.

An example from Figure 7.1 helps to explain the approach. Individual *i* became unemployed at time t_{i0}. During his first year - the observation period, between t_{i0} and t_{i1} - he found some employment. This employment experience was summarised into time spent in each of the five job types. This initial work experience is then related to his position in the labour market after two years, at time t_{i2}. As explained by Korpi and Levin (2001), the gap between the observation period and the estimation of outcomes minimises the number

of spells that commenced in the observation period and were still continuing at the time the outcomes were considered.[3]

Employment status after two years was estimated using a discrete choice logit model. Let E_{it} represent employment status for individual i at time t. Therefore, E_{i2} is an indicator variable reflecting whether individual i is employed after two years. The logit model to be estimated can be written as:

$$\Pr(E_{i2} = 1 \mid E_{i0} = 0) = e^{X_i'\delta + Z_i'\beta} / (1 + e^{X_i'\delta + Z_i'\beta}), \tag{7.1}$$

where X_i represents a vector of variables that determine the probability of being employed and Z_i represents a vector of variables identifying an individual's experiences in each of the five job types during the initial observation period. δ and β are the corresponding coefficients to be estimated by the regression.

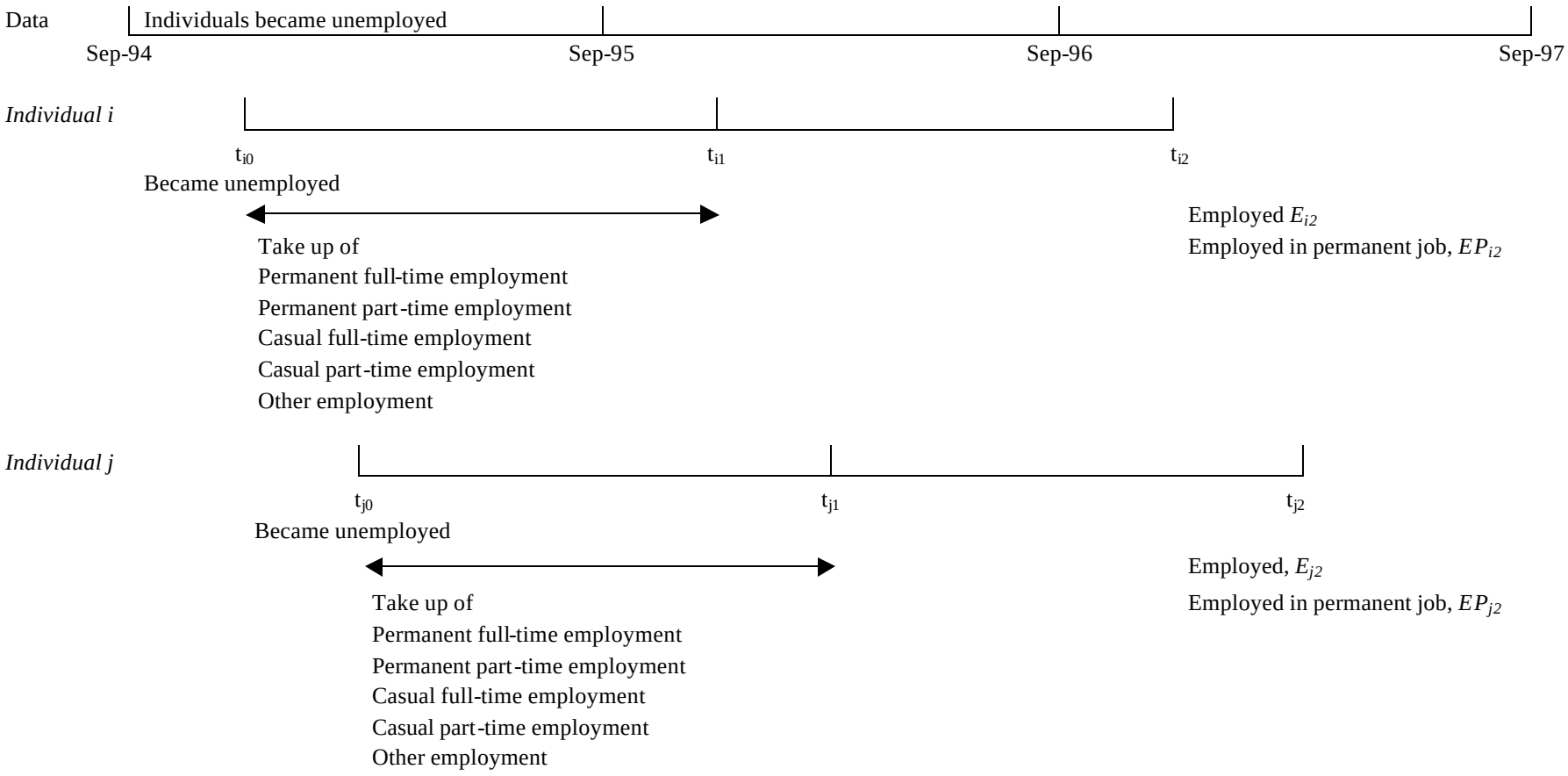
A similar specification is assumed for the conditional probability of permanent employment, namely;

$$\Pr(PE_{i2} = 1 \mid E_{i2} = 1 \,\&\, E_{i0} = 0) = e^{X_i'\alpha + Z_i'\gamma} / (1 + e^{X_i'\alpha + Z_i'\gamma}), \tag{7.2}$$

where PE_{i2} represents employment in a permanent job after two years. α and ϕ are the coefficients to be estimated. Using the results, differences in employment outcomes relating to the different types of initial work experiences of the unemployed are compared. In particular, comparisons are drawn between casual and permanent work and full-time and part-time work, and no work at all.

[3] In the sample, 16.2 per cent of individuals were still in the same spell of employment. The regressions were re-estimated excluding these individuals. The results obtained do not change the conclusions reached in this chapter.

Figure 7.1: Analytical Strategy



A limitation

An important limitation of the adopted approach relates to selection bias arising from unobserved heterogeneity.[4] Individuals who take up different kinds of work may have differences in their unobserved characteristics like attitudes, motivation and ability that are also related to their propensity to be employed in the future. Adding to this type of selection bias could be the actions of employers with respect to hiring practices. Employers may choose different types of persons to fill different kinds of jobs. Not accounting for these correlations will cause biased results. This is controlled for, at least in part, by including previous unemployment history as a variable in the *X* vector, a variable that has been found in many studies to be correlated with unobserved effects (Pederson and Westergard-Nielson 1993; Lane, Mikelson, Sharkey and Wissoker 2001). Nevertheless, some biases will remain in the results obtained with the implication being that the effect of job type cannot be fully differentiated from unobserved factors relating to the individuals.

Included variables

Factors that have been found in other studies to influence employment outcomes for the unemployed were included in the equation identifying the vector of *X* variables. Pederson and Westergard-Nielson (1993) provide a useful summary of results from panel studies that have investigated the probability of obtaining employment for the unemployed. Using either duration analysis or discrete choice modelling techniques, these studies have indicated that individual characteristics, past history and demand factors all have an impact on outcomes for the unemployed.[5]

[4] Another approach that could have been adopted in investigating the impact of work experience on future employment prospects is a non-parametric method of matching. An example of this approach, which is used widely in the evaluation literature is in Chapter 8 of this thesis. Although this approach would not be able to address the problem of unobserved heterogeneity, it would have the advantage of ensuring that individuals with similar observed characteristics are compared to determine the overall effect of work experience on future employment prospects.

[5] Other factors that have been considered are types of welfare benefits available to undertake job search, the impact of participating in labour marker programs.

Individual characteristics such as age, gender, family status, education and health have all been found to be important factors influencing future employment. In many studies, age has been found to have a negative influence on escaping from unemployment suggesting that older age persons take a longer time to find employment. Age and age squared were included in the equation to capture the influence of these life cycle effects on employment outcomes. It captures as well, the influence of post educational employment history which is generally highly correlated with age.

An indicator dummy for whether the individual is female was also included. Studies have indicated that women, because of their weaker attachment to the labour market and differences in search behaviour have been found to have a lower probability than men of leaving unemployment. Hence, it may be expected that women have, in general, a lower probability of finding employment and also lower earnings potential.

Three marital status indicator variables were also included. The effect on re-employment probabilities of being married has been found to differ between men and women in some studies. Whereas married men have a higher chance of escape from unemployment, for married women, the opposite has been found. This result is likely caused by the fact that some married women have spouses in the labour market providing them with a variety of labour market options. To capture this possible effect in the model predicting employment status, an interaction indicator variable was included for whether individuals were married and female. Also, a dummy variable was included for whether the sample respondents had a spouse who was working. To capture family status, the number of dependent children was also entered as an explanatory variable together with a health indicator, which identified whether the individual had a disability that may affect their general level of employability.

Dummy variables reflecting educational qualifications represented the effect of investment in general human capital in the estimated equations. In many studies, the level of education has been found to be positively related to future employment status and future earnings. The base dummy variable which was excluded from the model identified

individuals who had completed the highest level of secondary education. The three other education dummies were – whether the individual did not complete the highest level of secondary school available, whether the individual completed vocational studies after secondary school and whether the individual completed graduate studies.

Future employment status has also been found to be associated with previous unemployment history (Le and Miller 2001; Lane, Mikelson, Sharkey and Wissoker 2001). The implication is that there is a strong history dependence so that individuals with previous unemployment histories are less likely to leave unemployment for employment. This has been closely linked to unobserved heterogeneity effects. Thus, individuals may have unobserved attributes that make them generally less employable than others thus affecting their future outcomes. Such unobserved characteristics may include attitudes to work, personal and presentation skills. In order to capture these effects, a variable was included to measure the years the individual spent looking for work since leaving full-time education and prior to becoming unemployed during the first wave of SEUP.

Demand related factors have also been an important part of the studies of re-employment probabilities for the unemployed. Generally, the types of variables included to capture the state of the local labour market are the local unemployment rate or the unemployment vacancy ratios. These factors have been found to be important indicators for transitions out of unemployment. Demand side factors in the model were measured by including an index of the socioeconomic status of the local labour market in which the individual resides. Factors used in its calculation include income of the area, educational attainment of the area and local unemployment (Australian Bureau of Statistics 1991). The index ranged from 1 to 10. A higher index number indicated that the area of residence had better economic conditions.

The Z variables represent the augmented variables depicting previous employment experience by job type. They were included in the employment status equations captured as the proportion of time spent during the first year in permanent full-time work, permanent part-time employment, casual full-time employment and casual part-time work

and other employment, which includes self employment and unpaid work in a family business.

Models estimated

Using the methodology described in this section, three specifications, which allows for differences in the way that employment history could impact of current labour market outcomes were estimated. The first included the variables as described above. The other two incorporated terms to identify individuals who may be particularly at risk of poor employment outcomes due to their initial employment experiences. The second specification included interaction terms to identify the individuals who had more than one spell of unemployment during their first year. This specification was included to test whether workers who cycle between short-term jobs and unemployment are estimated to have poorer employment outcomes. The third specification includes an interaction term to identify whether individuals who obtained work in the first year started out in a low paid job. As suggested earlier, these jobs may be positions of least importance in the workplace, perhaps being more related to volatile product demand hence placing workers in a more vulnerable labour market position and at risk of poorer employment prospects in the future.

7.3.2 Data description

The sample of unemployed persons used in the analysis is the same as the sample drawn in Chapter 6. Persons aged 20 and over who commenced a looking for work spell during the first wave of SEUP - 4 September 1994 to 3 September 1995 - and remained in the SEUP sample for the full three year period were included. Individuals who were full-time students at any time through the period were excluded. The sample comprised 1429 persons.

Table 7.3 presents information about the take up of jobs by the unemployed during the observation period, the first year after initially becoming unemployed. During this time, two thirds of the unemployed had some employment experience. Consistent with the results of the previous chapter, a higher proportion of the unemployed took up casual

employment with 28 per cent of the sample having a casual part-time job and 19 per cent experiencing some casual full-time work during the first year. Almost one quarter of the sample found some permanent full-time work during the first year but only 6 per cent had experience of permanent part-time work.

The average number of weeks spent in different types of work is also reported in Table 7.3. These show that those who took up permanent jobs spent a slightly longer period of time during their year in employment. On average, those who found permanent work spent just over 5 months in work. The average time spent in casual employment during the first year was shorter at around 4 months. These figures reflect the results of Chapter 6 which highlighted the intermittent nature of casual jobs for the unemployed.

Table 7.3: Employment Experiences of the Unemployed

	Type of employment found during observation period					
	Permanent Full-time	***Permanent Part-time***	***Casual Full-time***	***Casual Part-time***	***Other***	***No Employment***
Number[a]	344	84	267	388	127	483
Per cent of total sample	24.07	5.88	18.68	27.15	8.89	33.80
For those who found employment during observation period						
Average weeks in employment	24	21	15	18	20	
Per cent who had an intervening spell of unemployment	43.9	45.2	71.2	62.9		
Per cent who started in a low paid job	34.3	33.3	54.3	49.5		
Subsequent employment status after 2 years						
Per cent employed	86.1	86.9	73.0	67.5	78.0	51.2
Per cent of those employed in a permanent job	84.8	77.8	52.5	44.7	60.5[b]	0.7

a. The sample size is 1429. Note that individuals can experience more than one job type during the observation period. Hence, the groups are not mutually exclusive.
b. Most individuals who took up other employment during the first year were not wage and salary earners after 2 years.

Of those who took up casual employment, around two thirds experienced another spell of unemployment during the observation period – the first year after becoming unemployed. In contrast, only just over 40 per cent of permanent workers had another unemployment spell. Similarly, around half of all those who took up casual work started in a low paid job with only one third of those who had permanent work experience during their first year starting out in low pay.

The percentage of those employed and if employed, the percentage of individuals who were in permanent work by initial employment experiences are also presented in Table 7.3. Of those who had permanent work during the first year after becoming unemployed, 86 per cent were in employment after two years. The corresponding figure for those who had casual employment was 73 per cent for full-time work experience and 68 per cent for those who experienced casual part-time work. Those who had no employment at all over the first year were the least likely to be employed after two years with only half of them in a job.

Results are even more marked for whether individuals were in permanent work. Those who had a permanent job in the first year were by far the most likely to be in permanent work after another year. Less than half who experienced casual part-time employment had found permanent work. Interestingly, the data show that a lower percentage of those who had casual jobs in the first year were in permanent work after two years compared to those who had no jobs at all during the first year.

7.4 Estimation Results

7.4.1 The probability of employment

Logit estimation results for the probability of employment using equation 7.1 for the three different specifications are presented in Table 7.4.[6] The estimates are presented as log

[6] Appendix A7.1 reports the descriptive information about the variables included in the estimated equations.

odds ratios. These identify the percentage change in the probability of being employed for a one unit change in the variable of interest. A value of 1 indicates no change in the probability. Values greater (less) than 1 indicate a positive (negative) change in the probability of employment. For example, in the first column, the log odds ratio for female is 0.629. This indicates that females were 37 per cent (1.000 - 0.629) less likely than men to be employed after two years. The reported z-value shows the level of significance of the estimate. A number greater than 1.96 suggests that the estimated result for that variable is significant at the 5 per cent level of significance. For females, the z-value of -2.37 indicates that females were significantly less likely to be employed after two years.

Before examining the variables of particular interest, it is useful to examine the effect of the included control variables on the probability of employment after two years. Consistent with other studies, the estimates indicated that females were less likely to be employed after two years than males. The estimated 37 per cent drop in the probability of employment compared to men is likely to reflect women's higher propensity to exit the labour market and reduce their search intensity. This in turn influences future employment outcomes. Pederson and Westergard-Nielson (1993) suggest that discriminating behaviour by employers may also be a factor contributing to the poorer outcomes for women.

Age was also found to be significantly related to the probability of subsequent employment. Included as a non-linear effect, both the age and age squared variables were significant at the one per cent level. The estimated effect of age increased the likelihood of employment until respondents were 36. Older persons were less likely to be subsequently employed reflecting the fact that, in general, older persons have increased difficulty in obtaining work in the labour market after unemployment. As suggested by Pederson and Westergard-Nielson (1993), this could be due to discrimination by employers' belief that older persons lack ability to learn new skills. Older persons too, may be more willing to leave the labour market for early retirement than to remain in job search.

Individual characteristics found to be significantly related to the likelihood of future employment were country of birth and disability status. Compared to the Australian born,

persons from English speaking countries were reported to have a higher probability of being employed. This effect was statistically significant at the 10 per cent level. Not surprisingly, those with an employment limiting disability were estimated to have a significantly lower chance of being employed after two years. Their chances of being unemployed were 42 per cent lower than those without a disability.

Other variables included to control for family circumstances were not estimated to significantly influence outcomes for the unemployed. Unlike other studies, education was not significantly related to the probability of future employment. There was a positive relationship however, between the socioeconomic area in which individuals lived and employment prospects. This suggests that those who live in areas with lower unemployment and higher incomes are more likely to be employed in the future, perhaps reflecting the greater number of employment opportunities in these areas.

Consistent with the results of other studies, previous unemployment experience was estimated to be negatively related to future employment status. A one year increase in the number of years of looking for work since leaving full-time education was associated with a 10 per cent reduction in the probability of employment. This result captures at least in part, unobserved individual characteristics which influence a person's future employment probability as well as the effect of previous unemployment itself.

In summary, the estimated effects on the future probability of employment for the variables included in the model are consistent with results from other studies. Overall, future employment prospects differ between men and women, are related to age and disability status. Persons with higher previous unemployment experience are less likely to be employed in the future. Also, those who live in areas with less unemployment and higher earnings levels are also more likely to be employed after two years.

Table 7.4: Logit Results – The Probability of Employment

	Specification 1		*Specification 2*		*Specification 3*	
	Odds ratio	***z value***	***Odds ratio***	***z value***	***Odds ratio***	***z value***
Age	1.227	4.12	1.220	4.01	1.227	4.12
Age squared	0.997	-4.41	0.997	-4.30	0.997	-4.41
Female	0.629	-2.37	0.631	-2.35	0.633	-2.35
Marital Status						
Single						
Married	0.787	-1.00	0.784	-1.01	0.772	-1.08
Divorced, separated, widowed	0.998	-0.01	1.011	0.05	1.010	0.04
Family Circumstances						
Female and married	0.642	-1.58	0.652	-1.52	0.646	-1.56
Resident partner working	1.208	0.92	1.173	0.78	1.207	0.92
Number of dependants	1.014	0.20	1.020	0.28	1.016	0.23
Educational Qualifications						
Not completed secondary	0.901	-0.56	0.910	-0.51	0.889	-0.63
Completed secondary						
Completed vocational studies	0.931	-0.36	0.946	-0.28	0.929	-0.37
Completed graduate studies	1.061	0.27	1.084	0.36	1.028	0.12
Previous labour market experience						
Years looking for work	0.897	-3.75	0.897	-3.75	0.897	-3.74
Birthplace Characteristics						
Australian born						
Born in English speaking country	1.447	1.82	1.449	1.82	1.430	1.76
Born in Non-English speaking country	1.028	0.15	1.000	0.00	1.042	0.23
Area of Residence						
Socioeconomic area of residence	1.062	2.66	1.066	2.81	1.061	2.63
Health Status						
Has a disability	0.576	-3.40	0.571	-3.44	0.581	-3.34
Activity Type						
Time in permanent ft work %	1.038	8.81	1.041	7.33	1.040	7.55
Time in permanent pt work %	1.041	4.87	1.039	3.76	1.049	3.84
Time in casual ft work %	1.033	5.94	1.055	4.02	1.041	4.52
Time in casual pt work %	1.022	6.67	1.027	6.09	1.022	4.97
Time in other employment %	1.041	5.69	1.042	5.71	1.041	5.67
Time in permanent ft & unemployed %			0.992	-1.08		
Time in permanent pt & unemployed %			1.004	0.22		
Time in casual ft & unemployed %			0.973	-1.94		
Time in casual pt & unemployed %			0.988	-2.02		
Time in permanent ft & low paid %					0.993	-0.92
Time in permanent pt & low paid %					0.983	-1.03
Time in casual ft & low paid %					0.987	-1.21
Time in casual pt & low paid %					1.000	-0.01
Sample size	1429		1429		1429	
Log likelihood	-753.544		-747.954		-751.726	
Pseudo R squared	0.218		0.223		0.220	

The variables of interest in the probability of employment equations are those which characterise previous employment experience, the percentage of time spent in each type of employment. The interest is in identifying whether there is a difference in their estimated impact on the future employment prospects of the initially unemployed.[7] To assist in interpreting these results and to provide an indication of the size of the effects, the estimates from specification 1 have been used to predict the future employment probabilities for an individual with particular characteristics. These probabilities are represented graphically in Figure 7.2.[8] The four lines show the estimated employment probabilities for a particular individual by the amount of employment in each type of work undertaken during the first year.[9] The predicted probability of employment after two years if the individual had no work experience at all during the first year is given by the probability at the intersection with the vertical axis.

Figure 7.2 shows that if the chosen individual had no employment experience at all in the first year, his probability of future employment would be 0.55. With one month of permanent full-time employment during the first year, his predicted probability of being employed after two years was estimated to increase to 0.63. This had risen to 0.94 if he had eight months of permanent full-time work during the first year. Corresponding predicted probabilities are reported in the figure for each of the four job types – permanent full-time and part-time work, casual full-time and part-time employment.

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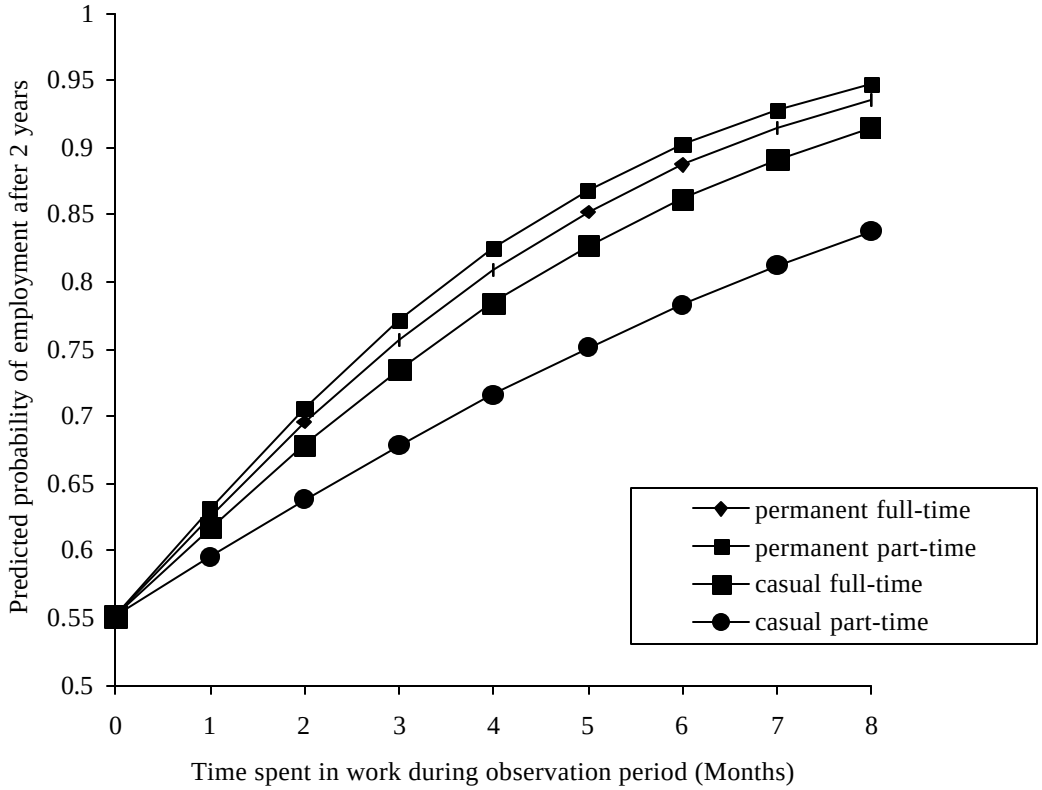
[7] A problem that may arise in the comparisons is that there may not be a range of individuals who take up the different types of jobs. This is referred to in the evaluation literature as the problem of common support. For example, if all males had permanent work experience and all females had casual work experience then the different impact of permanent and casual employment would relate to differences between males and females. In Appendix A7.1, Table A7.1 the descriptive statistics of the sample by activity type to determine the extent to which the level of common support is validated is presented. This shows that there is a range of different individuals across the job types.

[8] The predicted probability for the time spent in other employment was not included in Figure 7.2. Results suggested that time spent in other employment was also associated with an increase in the probability of future employment. As this variable is not the focus of the study, the results are not discussed further.

[9] The particular individual is an Australian born married male, who undertook the highest level of secondary education, was aged 35, the average for the sample and had no children. He had no disability that would affect his work and lived in a socioeconomic area with an index level of 5, once again the average for the sample. His spouse was not in the labour market. He had also spent some time (1.89 years) in looking for work in the past.

Figure 7.2: Predicted Probability of Employment after Two Years by Initial Work Experience



The first significant feature of the results from Table 7.4 and reflected in Figure 7.2 is that all five included initial employment variables were significant and positive. This implies that time spent in any type of work during the first year was associated with a higher probability of future employment compared to those who had no experience of work at all during the first year. In other words, those who remained unemployed over the first twelve month period were clearly those least likely to be employed after two years. In Figure 7.2, the probability of employment after two years for those who had spent no time in employment during the first year was 0.55. Time spent in any job during the first year was associated with an increase in that probability for all jobs.

This result is consistent with duration studies which report that longer durations of unemployment are associated with lower exit probabilities and hence, a lower chance a future employment (Pederson and Westergard-Nielson 1993). Other Australian studies have also suggested that labour market outcomes are largely determined by previous unemployment experience. Le and Miller (2001), for example, indicate that this could reflect a scarring effect of unemployment or that individuals with particular unobserved characteristics were the most likely to have longer spells of unemployment and also found it more difficult to obtain work.

The second feature of the results is found by examining the differences in the estimated effects on the probability of employment by the type of initial work experience. These results show that, compared to time spent in permanent full-time employment, time spent in a casual part-time job during the first year was associated with a lower likelihood of future employment. For example, if the chosen individual spent three months in permanent full-time work, then his predicted probability of employment after two years is 0.72. The corresponding predicted probability of employment for three months spent in casual part-time work during the first year is 0.63, a reduction of 13 per cent or 9 percentage points.

Wald tests were carried out to identify whether the differences in estimated effects, based on the coefficients in the probability of employment equation were significantly different in a statistical sense (Stata Corporation 1997). Table 7.5 presents the probability values for these tests. A p-value of 0.05 or less implies that the difference between the coefficients is statistically significant at the 5 per cent level.

The reported p-values in Table 7.5 show significant differences in the estimated coefficient for time spent in casual part-time employment and all other job types. Estimated differences in the impact on the probability of employment were not significantly different for permanent full-time, part-time and casual full-time work. The estimated effect on the probability of future employment for the take up of casual part-time employment however, was found to be statistically significantly different to the estimated effect for permanent full-time work at the one per cent level. The coefficients

for the initial take up of casual part-time and casual full-time work were significantly different at the 7 per cent level.

Table 7.5: Wald Test Results - Difference in Estimated Coefficients

	p-value		
	Permanent part-time	***Casual full-time***	***Casual part-time***
Permanent full-time	0.730	0.485	0.002
Permanent part-time		0.428	0.029
Casual full-time			0.074

It is possible that this result is related to differences in the labour market transition patterns of men and women, particularly since women do make up a greater proportion of those in part-time casual employment. A finding from Chapter 6, was that women were more likely to exit the labour market after a spell of employment, a transition which may influence their future employment prospects. An interaction term was included to identify separately the time spent in full-time and part-time casual employment for women. This interaction term was not statistically significant suggesting that this may not be the explanation for the results obtained.

To summarise thus far, the implication of the finding of the results for specification 1 suggest that the future employment outcomes of the unemployed are associated with the different initial work experiences of individuals. Persons who take up any kind of work during the first year are more likely to be employed after two years than those who have no work experience. However, experience in casual part-time work is associated with a significant reduction in the likelihood of future employment though their outcomes are still more favourable than those who remained without work during the initial observation period.

In specification 2 of Table 7.4, interaction terms identifying whether an individual had an intervening spell of unemployment during the observation period are included. The coefficients for the two interaction terms for casual full-time and casual part-time work were negative and statistically significant at the 5 per cent level. This reduced the log odds ratio for those who had an intervening unemployment spell from 5.5 per cent to 2.8 per cent for time spent in full-time casual work and from 2.7 per cent to 1.2 per cent for time spent in part-time casual employment. This result indicates that intermittent full-time and part-time casual work did significantly reduce the probability of future employment compared to those who did not have an intervening spell of unemployment during the first year. However, compared to those who had no employment experience at all, time spent in any type of work during the first year, regardless of whether the work was intermittent, was still associated with a higher probability of being employed after two years.

Specification 3 included interaction terms indicating whether individuals started in a low paid job during the first year. These interaction terms were not significant, the implication being that starting out in a low paid job did not significantly reduce the likelihood of being employed in the future.

In summary, the results of the probability of employment equation show that, compared to non-employment, time spent in any type of work is associated with a higher likelihood of future employment for the unemployed. However, differences in initial work experience do appear to be significantly related to future employment outcomes. In particular, time spent in casual part-time work significantly lowered the likelihood of future employment, although they were still estimated to have a higher likelihood of future employment than those who had no initial work experience. Having an intervening unemployment spell in the first year for casual workers was also found to be associated with a significant reduction in the probability of being employed after two years, suggesting that short-term spells of employment and unemployment are associated with poorer future employment outcomes for the unemployed. Finally, starting out in a low paid job was not found to influence the likelihood of future employment.

7.4.2 The probability of permanent work

Table 7.6 reports logit estimates for the conditional probability of being in permanent employment after two years described in equation 7.2. Three specifications, similar to those in Table 7.4, were estimated and reported in the table. With respect to the individual and demand related control variables included in the model, results show that only two were significantly related to the conditional probability of permanent work. Those who had completed tertiary studies were found to be 69 per cent more likely to be permanently employed than those who had only completed the highest level of secondary education. The estimated coefficient was significant at the 10 per cent level. This is similar to the result found by Wooden and Hawke (1998) who examined the effect of individual characteristics on casual employment. They found that those who had undertaken a post-graduate degree were less likely to be a casual employee.

The only other significant variable, once again significant at the 10 per cent level, was the dummy indicating whether the individual had a disability. As expected, this decreased the probability of permanent employment by 35 per cent. Overall, the results suggest that differences in individual characteristics contributed only a small amount to understanding differences in employment status among individuals, a conclusion which was also drawn by Wooden and Hawke (1998) who estimated the likelihood of casual employment among Australian workers.

With respect to the impact of the work experience variables, the probability of being in permanent work after two years conditional on being employed is significantly and positively associated with having undertaken permanent work during the observation period. The probability of permanent employment increased by 3.2 per cent with a one per cent increase in the proportion of time spent in permanent full-time work during the first year. In contrast, those who had undertaken casual employment during the first twelve month period and were working after two years were significantly less likely to be in a permanent job than those who had no employment experience in the first year but were also working after two years. The coefficient estimates indicated that the probability of permanent employment decreased by 1 per cent for a one per cent increase in time spent in

casual employment. This result, which was similar for both full-time and part-time casual workers indicates that those who had no initial employment at all and those who had experience of casual employment had about the same chance of being employed and in permanent work after two years.

The significance of these results is represented graphically in Figure 7.3. This shows the predicted unconditional probability of being in a permanent job after two years by type of employment experienced during the initial observation period. These probabilities are estimated for the particular individual from the predicted probabilities of the equation for being employed after two years and the conditional probability of being in permanent employment after two years given employment as follows:[10]

$$\hat{P}(PE_{i2}) = \hat{P}(E_{i2}) * \hat{P}(PE_{i2} \mid E_{i2}),$$

where $\hat{P}$ represents the predicted probability after two years for the unemployed individual, PE_{i2} represents permanent employment after two years for individual i and E_{i2} represents employment after two years.[11]

The differences in the predicted probabilities of permanent employment after two years for the initial activity types are striking. In Figure 7.3, large differences in the probability of permanent work are estimated for the different initial work experiences of the unemployed. There are a number of features worthy of note. First, time spent in permanent work had a significantly positive influence on the probability of being in permanent employment in the future. Three months of full-time or part-time permanent employment during the first year, for example, is associated with a probability of being in permanent employment after two years of 53 per cent. This increases to over 80 per cent if the time spent in permanent work during the first year was 8 months.

[10] This is the same individual that was used for the probabilities in Figure 7.2.

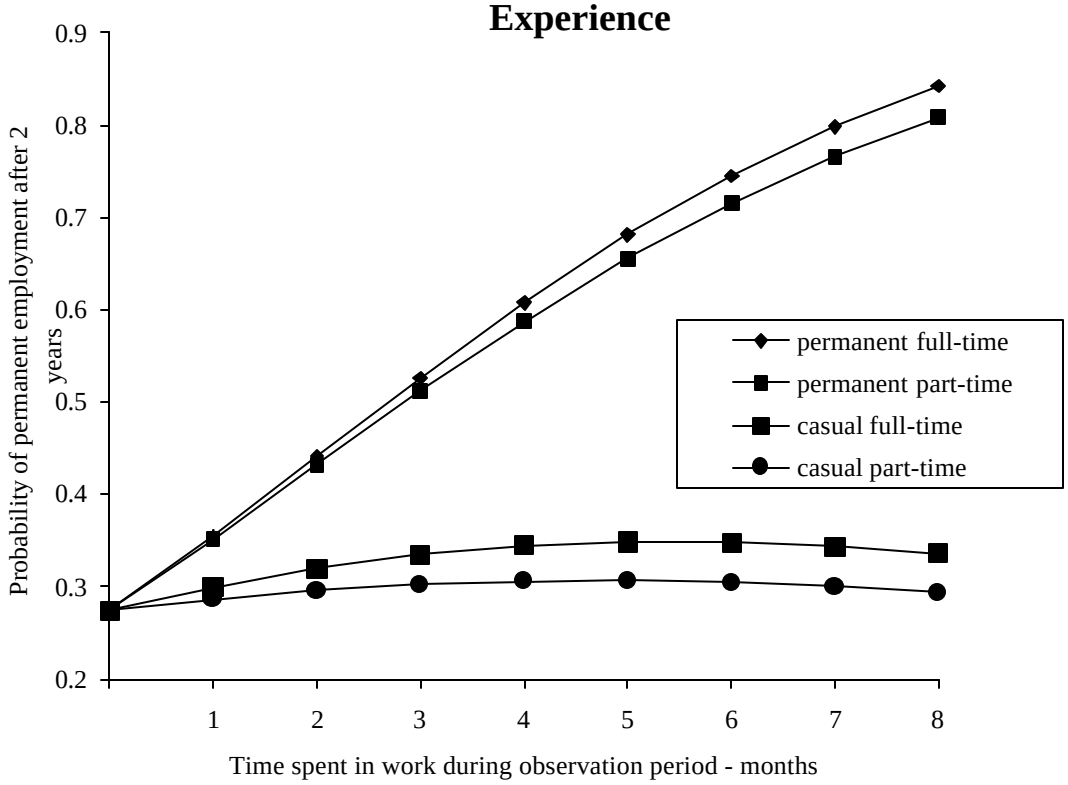
[11] A small number of individuals who were employed after two years but were not in a wage and salary job were dropped from the probability of employment equation. This re-estimated equation, which was very similar to the result in Table 7.4 was used in the calculation of the unconditional probability of permanent employment.

Table 7.6: Logit Results – Probability of Permanent Employment

	Specification 1		*Specification 2*		*Specification 3*	
	Odds ratio	***z value***	***Odds ratio***	***z value***	***Odds ratio***	***z value***
Age	0.989	-0.16	0.986	-0.20	0.988	-0.16
Age squared	1.000	-0.18	1.000	-0.15	1.000	-0.17
Female	0.735	-1.23	0.707	-1.37	0.732	-1.24
Marital Status						
Single						
Married	0.997	-0.01	1.035	0.10	0.975	-0.08
Divorced, separated, widowed	0.916	-0.27	0.927	-0.24	0.897	-0.34
Family Circumstances						
Female and married	0.758	-0.75	0.761	-0.73	0.767	-0.72
Resident partner working	0.815	-0.73	0.776	-0.90	0.819	-0.71
Number of dependants	1.007	0.08	1.017	0.18	1.010	0.10
Educational Qualifications						
Not completed secondary	1.165	0.62	1.186	0.69	1.177	0.66
Completed secondary						
Completed vocational studies	1.411	1.31	1.451	1.40	1.416	1.32
Completed graduate studies	1.691	1.88	1.744	1.98	1.682	1.84
Previous labour market experience						
Years looking for work	0.939	-1.34	0.936	-1.39	0.938	-1.35
Birthplace Characteristics						
Australian born						
Overseas born - English speaking country	1.162	0.60	1.154	0.57	1.168	0.62
Overseas born - Non-English speaking country	1.087	0.34	1.096	0.37	1.084	0.33
Area of Residence						
Socioeconomic area of residence	0.991	-0.30	0.992	-0.25	0.991	-0.30
Has a disability	0.647	-1.73	0.661	-1.64	0.649	-1.72
Activity Type						
Time in permanent FT work %	1.032	6.90	1.035	6.16	1.033	6.13
Time in permanent PT work %	1.025	3.47	1.020	2.50	1.023	2.91
Time in casual FT work %	0.990	-2.14	0.995	-0.88	0.992	-1.31
Time in casual PT work %	0.989	-2.73	0.987	-2.86	0.989	-2.13
Time in other employment %	1.003	0.44	1.003	0.44	1.003	0.44
Time in permanent ft & unemployed %			0.993	-0.94		
Time in permanent pt & unemployed %			1.020	1.31		
Time in casual pt & unemployed %			0.991	-1.16		
Time in casual pt & unemployed %			1.007	1.13		
Time in permanent ft & low paid %					0.997	-0.39
Time in permanent pt & low paid %					1.005	0.35
Time in casual ft & low paid %					0.996	-0.46
Time in casual pt & low paid %					1.000	-0.01
Sample size	751		751		751	
Log likelihood	-423.822		-421.099		-423.560	
Pseudo R squared	0.166		0.172		0.167	

Second, there is the large gap in the predicted probability of subsequent permanent employment between the early experience of permanent and casual work. The likelihood of being in a permanent job after two years for the chosen individual who had three months of casual work during the first year is estimated to be around 30 per cent compared to 50 per cent for three months of time spent in permanent work. Third, the likelihood of future permanent employment for time spent in casual work is similar to the predicted probability for no employment experience during the first year which is 27 per cent.

Figure 7.3: Predicted Probability of Permanent Employment after Two Years by Initial Work Experience



In specification 2 and 3 of Table 7.6, the interaction terms identifying those with recurrent unemployment or those starting out in low paid work were included. Neither of these was significantly related to the conditional probability of permanent work. This suggests that

recurrent unemployment affects the likelihood of employment but not the prospects of permanent work if employed.

The implication of these results is that there is a significant relationship between the initial work experience of the unemployed and the likelihood of future permanent employment. Those who initially take up permanent work are estimated to have a far greater chance to be in permanent employment after two years than those who take up casual employment or those who had no employment experience at all. There is also a clear indication that the take up of casual employment compared to no employment experience at all does not significantly improve the chance of individuals being in a permanent job after two years.

Putting together the results of the analysis, the overall conclusion is that there are significant differences in the future employment prospects of the unemployed which can be related to their different initial experiences of work. In particular, the results clearly indicate that the take up of any kind of work at all enhances the future employment prospects of the unemployed. However, the initial experience of casual part-time work is associated with a lower chance of future employment compared to the initial take up of permanent work or casual full-time employment. Another important result is the impact of recurrent unemployment which significantly reduced the chances of future employment for the casually employed. Finally, the take up of casual jobs, both full-time and part-time, were not found to be associated with a higher likelihood of permanent work after two years when compared with the chances of those who had no initial employment experience at all.

Due to the limitations of the analysis, it may be the case that, to some degree, these results are being driven by the differences in characteristics of the individuals who take up different types of employment. To the extent that this has been controlled for in the included variables, the results provide some important evidence for the debate about the impact of casual and part-time employment on the future labour market prospects of the unemployed. The broad conclusion is that the results provide some evidence for both sides of the debate. First, any type of work experience does provide valuable employment

opportunities for the unemployed and this enhances their future employment prospects. However, results also suggested that the take up of casual part-time jobs and all casual jobs that are short-term and end in another spell of unemployment are less likely to improve the future prospects of the unemployed in the labour market. Most importantly, the view that the take up of casual, and especially casual part-time jobs, offers a stepping towards more secure permanent employment is not supported by the results of this analysis. Rather, the implication is that those who take up casual employment are likely to remain casually employed over the two year period. As the analysis in this chapter could only examine outcomes over a two year period, it is important that future work is undertaken over a longer time period which can investigate whether these observed and estimated effects continue.

7.5 Conclusions

What implication does the high incidence of casual and part-time work in the Australian labour market have for the future employment prospects of the unemployed? Some have argued that the increased availability of jobs will provide them with valuable work experience and a pathway to better employment opportunities in the future. Others however, have suggested that the precarious nature of casual work may be associated with limited opportunities for earnings advancement and for sustainable future employment. In the long-run, individuals may not be able to improve their labour market situation but instead find themselves trapped in a cycle of intermittent work and joblessness. The extent to which either of these views holds sway in the Australian labour market situation of the 90s has been the subject of this chapter.

To address this issue, a regression analysis was carried out to investigate the relationship between the initial first year work experiences of a sample of adult unemployed workers and their subsequent labour market status after two years. Two measures of future employment status were examined - whether the individual was employed after two years, and if employed, whether the individual was in a permanent job. The aim of the analysis was to determine whether there were any differences in outcomes depending on

differences in the initial work experiences of the unemployed. A specific focus was to compare outcomes for individuals who took up different types of work during the first year and also to compare their outcomes with those who had no initial employment experience.

The main findings of the analysis are as follows. The unemployed least likely to be employed after two years included females, younger and older aged persons and those who had a disability. Those who had spent longer periods looking for work since leaving full-time education were also less likely to be employed after two years. Time spent in any type of work during the first year increased the likelihood that an individual would be employed after two years. Those who had no employment experience at all during their first year were the least likely to be employed after two years.

A comparison of future employment prospects by different types of initial work experience also revealed some significant differences. Individuals who spent time in casual part-time jobs during the first year were less likely to be employed after two years, although their outcomes were still better than those who had no initial work experience at all. Intermittent spells of unemployment coupled with casual work did also significantly reduce the likelihood of future employment. However, these workers were still better off in terms of their likelihood of future employment than those who did not work at all during the first year. Starting out in a low paid job compared to a higher paid job did not appear to fare worse in terms of their future employment prospects.

Conditioning on those who were in employment after two years, permanent employment experience in the past was a significant factor determining the likelihood of subsequent permanent work. The unemployed who took on permanent work were far more likely than any others to be employed in a permanent job after two years. In fact, having any casual employment early on did not increase the likelihood of future permanent work compared to those who had no employment experience at all.

Despite the limitations of the analysis, these results have important implications for the original debate about the impact of casual employment of the future employment prospects of the unemployed. In summary, this study suggests that there is some evidence for both views. The take up of any type of work during the first year is significantly associated with improved future employment prospects of the unemployed. To the extent that the individual heterogeneity is accounted for, this suggests that all forms of employment can provide valuable work experience opportunities for the unemployed and this is likely to improve their chances of being employed in the future.

Evidence also exists however, for the negative view. Results suggest that there are differences in the prospects of the future employment and the type of employment which are associated with the initial take up of different types of work. In particular, casual part-time jobs, and jobs of short duration which are associated with recurrent unemployment do significantly reduce the chances of future employment for the unemployed. Further, both casual part-time and full-time work is not found to be associated with a transition to permanent work for the unemployed. This result lends support therefore, to the negative view that experience in casual jobs, particularly part-time jobs which are available to the unemployed, may not provide a pathway to more secure permanent employment.

These findings implicate the need for an analysis over a longer time period to determine the long-run extent of these trends. If they persist, then this raises a concern that the unemployed may be found in a situation of cumulative disadvantage in the labour market. Such a situation would have important policy implications and may generate social and economic problems likely to influence the Australian economic environment.

Appendix A7.1: Variable Description for Logit Analysis

Variable	*Description*
Age	Age of respondent in years
Age squared	Square of age of respondent in years
Female	A dummy variable taking on the value of 1 if the respondent is female and 0 otherwise.
Marital Status	
Single	A dummy variable taking on the value of 1 if the respondent has never been married and 0 otherwise.
Married	A dummy variable taking on the value of 1 if the respondent is married or in a de facto relationship and 0 otherwise.
Divorced, separated, widowed	A dummy variable taking on the value of 1 if the respondent has been divorced, separated or widowed and 0 otherwise.
Family Circumstances	
Resident partner working	A dummy variable taking on the value of 1 if the respondent has a resident partner who is working and 0 otherwise.
Female and married	A dummy variable taking on the value of 1 if the respondent is female and married or in a de facto relationship and 0 otherwise.
Number of dependents	The number of dependants
Educational Qualifications	
Not completed secondary	A dummy variable taking on the value of 1 if the respondent has not completed the highest level of secondary education and 0 otherwise.
Completed secondary	A dummy variable taking on the value of 1 if the respondent has completed the highest level of secondary education and 0 otherwise.
Completed vocational studies	A dummy variable taking on the value of 1 if the respondent has not completed vocational studies and 0 otherwise.
Completed graduate studies	A dummy variable taking on the value of 1 if the respondent has completed tertiary studies and 0 otherwise.
Previous Labour Market Experience	
Years looking for work	Years of looking for work since leaving full-time study.
Birthplace Characteristics	
Australian born	A dummy variable taking on the value of 1 if the respondent is Australian born and 0 otherwise.
Overseas born - English speaking country	A dummy variable taking on the value of 1 if the respondent was born overseas in an English speaking country and 0 otherwise.
Overseas born - Non-English speaking country	A dummy variable taking on the value of 1 if the respondent was born overseas in a non-English speaking country and 0 otherwise.

Variable	***Description***
Area of Residence	
Socioeconomic area of residence	The socioeconomic index of the place of residence of the respondent.
Has a disability	A dummy variable taking on the value of 1 if the respondent has a disability that hinders employment and 0 otherwise.
Time in permanent full-time work %	Percentage of time spent in permanent full-time work during the first year after becoming unemployed.
Time in permanent part-time work %	Percentage of time spent in permanent part-time work during the first year after becoming unemployed.
Time in casual full-time work %	Percentage of time spent in casual full-time work during the first year after becoming unemployed.
Time in casual part-time work %	Percentage of time spent in casual part-time work during the first year after becoming unemployed.
Time in other employment %	Percentage of time spent in all other forms of work during the first year after becoming unemployed.
Time in permanent full-time & unemployed	Percentage of time spent in permanent full-time work during the first year after becoming unemployed and had a recurrent spell of unemployment.
Time in permanent part-time & unemployed	Percentage of time spent in permanent part-time work during the first year after becoming unemployed and had a recurrent spell of unemployment.
Time in casual full-time & unemployed	Percentage of time spent in casual full-time work during the first year after becoming unemployed and had a recurrent spell of unemployment.
Time in casual part-time & unemployed	Percentage of time spent in casual part-time work during the first year after becoming unemployed and had a recurrent spell of unemployment.
Time in permanent full-time & low paid	Percentage of time spent in permanent full-time work during the first year after becoming unemployed and started in a low paid job.
Time in permanent part-time & low paid	Percentage of time spent in permanent part-time work during the first year after becoming unemployed and started in a low paid job.
Time in casual full-time & low paid	Percentage of time spent in casual full-time work during the first year after becoming unemployed and started in a low paid job.
Time in casual part-time & low paid	Percentage of time spent in casual part-time work during the first year after becoming unemployed and started in a low paid job.

Table A7.1 Summary of Variables in Logit Regression

	Permanent Full-Time	*Permanent Part-Time*	*Casual Full-Time*	*Casual Part-Time*	*Other Employment*
Age	32.3	35.2	33.2	34.9	36.6
(Min-Max)	*(22-57)*	*(22-57)*	*(22-57)*	*(22-57)*	*(22-57)*
Female	41.6	84.5	35.9	63.9	33.1
Marital Status					
Single	42.1	15.4	42	29.6	24.4
Married	47.1	67.9	44.9	55.2	66.1
Divorced, separated, widowed	10.8	16.7	13.1	15.2	9.5
Family Circumstances					
Resident partner working	31.4	56	24.3	37.9	42.5
Female and married	17.2	57.1	14.2	36.1	19.7
Number of dependents	0.71	1.14	0.81	1.02	1.23
(Min-Max)	*(0-3)*	*(0-3)*	*(0-3)*	*(0-3)*	*(0-3)*
Educational Qualifications					
Not completed secondary	25.5	36.9	38.6	37.9	33.9
Completed secondary	16.6	20.2	13.1	17.3	11
Completed vocational studies	29.9	17.9	28.5	25.5	35.4
Completed graduate studies	27	25	19.9	19.3	19.7
Previous Labour Market Experience					
Years looking for work	1.2	1.1	2	1.7	2.1
(Min-Max)	*(0-11)*	*(0-9)*	*(0-21)*	*(0-21)*	*(0-14)*
Birthplace Characteristics					
Australian born	74.7	67.9	73.4	75.3	74.8
Overseas born - English speaking country	11.6	21.4	12	16.5	13.4
Overseas born - Non-English speaking country	13.7	10.7	14.6	8.3	11.8
Area of Residence					
Socioeconomic area of residence	5.3	6.3	4.8	5.2	5.1
(Min-Max)	*(1-10)*	*(1-10)*	*(1-10)*	*(1-10)*	*(1-10)*
Has a disability	8.7	17.9	12.4	20.9	18.9

Chapter 8

Helping the Long-Term Unemployed: The Impact of Targeted Assistance Measures

8.1 Introduction

Evidence gathered and presented in the previous chapters of this thesis suggest that during the mid 90s, some individuals in the Australian labour market were in a position of relative disadvantage cycling between low pay and no pay appearing to have only limited opportunity for earnings growth and better employment. More recent indications of individuals being in relative disadvantage in the Australian labour market have been highlighted by the fact that, despite strong economic growth and an overall reduction in the level of unemployment, long-term unemployment has remained disproportionately high (Warburton, Opoku and Vuong 1999; Le and Miller 1999a). This has been regarded as a major economic and social problem with many individuals remaining reliant on welfare support as their main source of income (Borland and Kennedy 1998; Warburton, Opoku and Vuong 1999; Business Council of Australia 2000). The aim of this chapter is to examine in detail the efficacy of one policy initiative tested by the Australian government to address the position of the long-term unemployed in the Australian labour market.

This initiative was undertaken as part of Australia's social welfare reform (McClure 2000). While Australia has had a long history of welfare support, recent policy directions, set out in the McClure Report (2000), have encouraged active economic and social participation rather than passive income dependence. The underlying premise is that welfare recipients have a social obligation to give back to the community which supports them. Also, if individuals who are likely to be most disadvantaged participate actively in the community and/or in labour market activities such as low paid temporary employment, job search and training then they will be better equipped to avoid the individual costs of unemployment.[1] Although at odds with some of the evidence reported in the previous chapters in this thesis, another underlying assumption is that this type of participation will provide them with a pathway to stable employment and so in the long-run, individuals will be less reliant on welfare as their main source of income.

Implementation of the welfare reform policy rests on a number of key features, one of which is individualised service delivery. This assistance digresses from the 'one size fits all' approach and attempts to encourage active social and economic participation by identifying individuals' needs and immediate constraints and streaming persons into programs that best suits their circumstances. Emphasis is also placed on targeted assistance, designed to tailor outcomes to the current capabilities of each individual.

Under this umbrella, the Department of Family and Community Services (FaCS) conducted pilot surveys in the form of a randomised experiment focusing on disadvantaged welfare recipients of workforce age with low levels of economic participation. Their purpose was to gather detailed information about these groups - their personal situations, perceived barriers to employment, their hopes and aspirations - and to determine whether an intervention

[1] The social and economic costs of unemployment to both the individual and the community as a whole have been well recognized (Dixon 1992; Borland and Kennedy 1998). To the individual, unemployment places a financial strain that can cause poverty, run down valuable work skills, cause health problems and place them at risk of becoming more and more marginalised and excluded from society. At the community level, unemployment is a cost to the whole society in that it represents wasted resources and has been associated with social issues such as drugs, crime, poor health and decreased life satisfaction (Borland and Kennedy 1998).

based on targeted assistance could increase their levels of economic and social participation.

The targeted assistance measures involved a counseling and monitoring approach where individuals underwent intensive interviews with staff from the Government support agency, Centrelink. Also, a participation plan that would encourage them to increase their involvement in the community, in education and training and/or in job search was set up. Three target groups were included in the pilot program - unemployed persons who had been on income support for over five years, persons aged 50 or over without a job and on income support payments and persons in couple families with school aged children where no adult was working and other parents in workless families who had repeated transitions between single and partnered rates of income support.

For these groups there are two main policy concerns. First, it is likely that usual government assistance programs are not necessarily adequate or appropriate to their circumstances and more specialised services may be required. For example, many long-term unemployed generally only have infrequent contact with the main government support agency Centrelink, which is for review of their current levels of support. Only minimal assistance is provided in the form of assisting them to find employment.[2] Second, there is a risk that individuals are becoming entrenched in the income support system and even marginalised or socially excluded from society.[3] Without help, this risk could be passed on to their families, in particular, their children.

This chapter focuses on the unemployed who have been on income support for over 5 years – hence termed the very long-term unemployed (VLTU). The main aim is to investigate whether the targeted assistance measures had the effect of improving their economic and/or

[2] There is one major government program designed to assist the long-term unemployed, Intensive Assistance.
[3] Social exclusion is a term that is widely used but its exact definition is often unclear. The definition understood here is that "social exclusion is a process which relates particularly to a sufficiency of resources available to individuals and households and which leads to deprivation affecting personal relationships, communities and households. It emerges out of the effects which institutions, agencies and individuals have on others"(Lawless 1998).

social participation levels. Additionally, this chapter presents and discusses details about the current activities of the VLTU group and the barriers they face in finding employment.

The pilot surveys were designed as a randomised experiment. This involved choosing at random two groups of VLTU persons – one to participate in the intensive interview process, the intervention and another to act as a control. In ideal circumstances, the simple comparison of outcomes for the two randomly drawn groups estimates the effect of the intervention. The adopted evaluation methodology, however, uses both experimental and non-experimental estimation procedures to fully account for missing information about persons who decided not to take part in the pilot surveys.

The results of this chapter provide useful information for policy. First, details about the current levels of participation and employment barriers for this most disadvantaged unemployed group are useful in gaining a better understanding about these individuals and how best they may be helped. Second, the evaluation results will provide valuable, rigorous evidence not generally given to program managers on whether a specific intervention is helpful in increasing the economic and social participation levels for this group.

The paper is structured as follows. Section 8.2 discusses in detail the FaCS VLTU pilot survey, its implementation and the data collected. Section 8.3 presents information about the current levels of economic and social participation of the VLTU group and their current barriers to employment. Section 8.4 outlines the evaluation strategy and Section 8.5, its implementation. The results are presented and discussed in Section 8.6 while in Section 8.7, the conclusions are drawn.

8.2 The VLTU Pilot Survey

In September 2000, 4740 individuals who had been on income support for at least 5 years and currently unemployed were selected from Centrelink sites around Australia to take part in the pilot survey. The sampling procedure followed a stratified sampling frame where

Centrelink sites were chosen at random and individuals were selected randomly within each site. As the pilot survey was set up as a randomised experiment, the selected individuals were then randomly assigned to an intervention and control group. The intervention group comprised 2740 individuals. The remaining 1800 made up the control group.

8.2.1 The intervention

Persons assigned to the intervention group were sent letters in early September 2000 requesting their attendance at an interview to be held at a Centrelink office. The letter stated emphatically that non-attendance would result in loss of payments and a penalty when reclaiming payments.[4] Copies of the letters sent are presented in Appendix A8.1. Interviews were conducted by trained Centrelink staff by either a Customer Service Officer (CSO) only, with a CSO and an Occupational Psychologist (OP), or with a CSO and an OP and a Disability Support Officer (DSO).

Interviewees answered a questionnaire which collected information about their demographic characteristics as well as information about their current circumstances. Questions were also asked about their perceived barriers to finding employment, available employment assistance options, their plans for the future, and access to and availability of services. Based on the discussions, individuals negotiated and signed a participation plan which outlined steps they could take to increase their level of participation. If thought useful by the interviewers, referrals were made to existing programs and schemes that would help them to fulfill the requirements of the participation plan.[5]

8.2.2 The control group

Those assigned to the control group were sent a letter advising them that they were to be part of a survey to collect information on activities undertaken by FaCS customers. They were informed that this information would be used to help develop and improve services for them. It was stated in the letter that participation in the survey was voluntary and would

[4] Although this was the case, very few persons were breached for lack of attendance.
[5] Three types of referrals were the most common. These were an interview with a psychologist, an interview with a DSO and referral to Intensive Assistance which is an employment assistance program specifically designed to assist the long-term unemployed or those at risk of long-term unemployment.

not affect current income support payments. The core of the questionnaire was exactly the same as that asked of the intervention group.[6] The survey itself was conducted by telephone through a professional survey company.

8.2.3 Follow up surveys

All persons who participated in the initial interviews and data collection (wave 1) were then required to participate in a follow up process. For the intervention group, a second face-to-face interview with a Centrelink interviewer (wave 2) was arranged approximately two months after the initial interview. These took place during November to December 2000. At this second interview, a similar set of questions to the wave 1 interview was asked of the respondents. Plans for the future following the initial participation plan negotiated two months earlier were also discussed at wave 2. After a further four months, participants voluntarily completed a shorter phone survey (wave 3) that collected more information about their circumstances and their activities since the previous interviews. Unlike waves 1 and 2, the final interviews were conducted by a professional survey company.

Similarly, phone interviews were conducted for the control groups at two months after the first interview and again after another four months. Once again, the same core questionnaires were administered to both the intervention and control groups in each of the follow up interviews.

8.2.4 Response rates and attrition

Table 8.1 reports the response rates for the survey. Although attendance at the face-to-face interviews was compulsory for the intervention group, many did not participate. Of the 2940 persons allocated, just 1520 or 51.7 per cent came in for the initial interview at wave 1.

There were two main reasons for non attendance. Either persons contacted Centrelink and received an exemption or they simply did not respond to the letter. The relative size of each

[6] Some additional questions about the interview itself were asked of the intervention group but not the control group. Also, the control group did not develop a participation plan.

of these groups is not known as comprehensive information on why persons did not attend the interviews was not collected. Only limited exemption information on a subset of individuals was available. These data suggest that the most exemptions were provided because persons were already in Intensive Assistance, the major government program providing help to the long-term unemployed. Other reasons for which exemptions were given included illness or injury, changes in residential location, transfers to another income support payment, bereavement, community service orders, full-time education, risk of domestic violence, advanced pregnancy, transport related issues and full-time work.[7]

Table 8.1:VLTU Pilot Survey Response

	Intervention		*Control*	
	Number	***Response Rate (%)***	***Number***	***Response Rate (%)***
Assigned	2940		1800	
Participated at:				
Wave 1[a]	1520	51.7	728	40.4
Wave 2[b]	1221	80.3	560	76.9
Wave 3[b]	409	26.9	429	58.9

a. Response rate is calculated as a proportion of total number assigned.

b. Response rate is calculated as a proportion of number responded at wave 1.

Of the 1520 in the intervention group who attended the first interview, 80 per cent came back for the wave 2 face-to-face interview. At wave 3, however, data were collected from just 409 (27 per cent) of the original 1520 interviewees. The large attrition between waves 2 and 3 was attributable, for the most part, to the voluntary nature of the wave 3 interviews. Although FaCS sent letters to encourage persons to attend many did not. Another contributing factor was the difference in interview method. Without accurate phone contact

[7] Persons who find full-time work will remain as a Centrelink customer until 6 straight fortnights of nil payment before being taken off the system.

details, respondents could not be contacted. Although steps were taken to contact respondents, it proved difficult in many cases.

Initial wave 1 response rates for the control group were lower than the intervention group with 40 per cent or 728 of those allocated taking part in the telephone interview. This lower response was perhaps not unexpected given the voluntary nature of the interview. About 20 per cent of those contacted refused to take part. Some non-response was also due to an inability to contact individuals because the telephone information provided to Centrelink was incorrect. Others could not be contacted after six attempts and so no further attempts were made. Some non-response was also attributable to non-contact by the phone survey company because sufficient target control group numbers had been reached.[8]

As with the intervention group, there was a high level of drop out for the control group, although the attrition between waves 2 and 3 was not significantly different to the attrition between waves 1 and 2. At wave 2, 560 out of the 728 control group individuals were contacted and interviewed and at wave 3, data were obtained from 429 or almost 60 per cent of those who took part in the wave 1 interviews.

8.2.5 The data

At each interview, a rich set of data about individuals' circumstances were gathered. These included information on demographics, family characteristics, human capital variables and current/previous work experience. Other information included details relating to employability such as having a driver's license or having a recognised trade qualification, and individuals' perceptions regarding their employment opportunities and barriers to employment.

Detailed data were also collected at each interview on various measures identifying each respondent's economic and social participation over the previous two month period. Main measures of economic participation included hours of job search, hours of study or training,

[8] About 20 per cent of the group were not contacted because this occurred. A logit regression was estimated to test whether there were systematic differences between this group and the fully assigned sample. The results indicated that the group of individuals not contacted was a random sample of the entire control group.

hours of work and numbers of job interviews. Community involvement measures included, among others, hours of participation in voluntary work and measures of social connectedness such as memberships of social clubs and the number of times respondents dined with friends.

Data from FaCS administrative records and the FaCS Longitudinal Data Survey (LDS) were also matched to all 4740 pilot survey individuals. These data provided two types of information. Basic demographics at the time of random assignment such as gender, age, country of birth, marital status and age of youngest child were available from administrative records. The LDS contained valuable historical information including reported earnings and unearned income while on income support, home ownership, location of residence and participation in or exemption from government assistance programs since January 1995. Other information available related to whether the individual had received an exemption or an administrative and activity breach while on income support since January 1995.

8.3 The VLTU Group

Using the intervention group data collected at wave 1, the characteristics of the VLTU, their current levels of economic and social participation and barriers to employment are examined in this section. According to Warburton, Opoku and Vuong (1999),[9] in November 1998 the VLTU group comprised approximately 73000 individuals or 10 per cent of total persons receiving unemployment assistance. They were predominately male and evenly distributed across all age ranges. The data presented in Table 8.2 which shows the distribution of characteristics for the fully assigned VLTU intervention group, is consistent with these findings. The data in Table 8.2 also indicates that there are equal proportions of never married persons and those who are married or in de facto relationships in the VLTU group. They are predominately Australian born with only a minority owning

[9] Warburton, Opoku and Vuong (1999) define the very long-term unemployed to be those unemployed for 2 years and over. Information about those unemployed for over five years has been derived from data provided in their paper.

or purchasing their own home. Interestingly, almost one quarter had reported some earnings to Centrelink in the 6 month period to June 2000.

Table 8.2: Characteristics of Wave 1 Intervention Group Participants

Variable	*Assigned Sample*	*Wave 1 Participants*
Average age	36.71	38.09
Gender		
Female	25.41	27.89
Marital Status		
Married	22.96	24.93
Separated, widowed, divorced	27.01	26.38
Never married	50.03	48.69
Family Status		
Has dependent children	0.16	0.17
Number of children (for those with children)	2.28	2.39
Age of youngest child (for those with children)	5.96	6.19
Birthplace		
Australian born	84.63	84.41
Overseas born: English speaking background	6.16	6.12
Overseas born: non-English speaking background	9.22	9.47
Indigenous status	2.89	1.78
Home Ownership		
Own home	10.61	11.71
Private renter	51.56	48.88
Government renter	11.73	13.49
Boarder	15.07	15.39
Other arrangements	11.02	10.53
Location		
Moved in last 6 months	15.24	10.86
Income in 6 months to June 2000		
Has reported earnings	23.30	23.88
Has reported unearned income	10.20	12.37
Sample size	2940	1520

The comparative distribution figures for the VLTU who participated in the first wave of the intervention are also presented in Table 8.2. These indicate that the wave 1 participants on average, were not vastly different with respect to most characteristics to the fully assigned VLTU group. One significant difference was evident however in the percentage of

individuals who had moved in the past six month period to June 2000. Those who took part in the pilot survey were not surprisingly less likely to have moved in the past six months. Only 11 per cent of the wave 1 participants had moved compared to 15 per cent for the entire sample. Also of interest is the level of reported earnings and unearned income between the two groups. These proportions were surprisingly similar with about 23 per cent of individuals reporting some earnings over the past six month period and 10 per cent reporting some unearned income. These figures suggest that there is a significant minority of VLTU individuals who undertake some work and combine this employment with income support.

Table 8.3 presents more information about the levels of economic and social participation for the wave 1 participants. The measures of economic participation reported include average weekly hours of work, average weekly hours of job search and average weekly hours of study or training. Average weekly hours of work and job search were derived from questions relating to their activities over the previous two months.[10] The average weekly hours of study or training related to their current activities.[11] A total economic participation measure was calculated as the average weekly hours from all three sources. Social participation was measured as average weekly hours of voluntary work.[12] Also reported are the proportions of individuals undertaking each of the activities.

During September 2000, 84 per cent of VLTU wave 1 participants were undertaking some form of economic participation. Most were engaged in job search but, consistent with the results reported in Table 8.2, 20 per cent had worked in the past two months. Also, 8 per cent of the group were currently undertaking training or study. Participants who had a job or were looking for work spent around one day per week in those activities. Those who

[10] The average weekly hours of work measure was calculated by dividing the total number of hours worked in a two month period by 8 weeks. It is based on the pilot survey question: "How many hours have you worked in the last two months (in all jobs)?" The average hours of looking for work measure was derived from answers to the pilot survey question: "On average, how many hours of per week did you look for work in these (weeks)?"

[11] The average weekly hours of study or training measure was derived from the question: "How many hours per week do you usually spend studying or training?" This includes study or training for both personal development reasons and work related reasons.

were studying spent on average two days per week in that activity. Just over 15 per cent of the wave 1 participants reported undertaking some form of voluntary work with the usual amount of time spent in that activity being 1 day per week.

For comparison, figures of participation rates and average hours of participation for all unemployment benefit recipients as at July 1998 are also presented in the table. The figures, derived from the Department of Family and Community Services (2001), show that in general, the VLTU group were relatively less likely to participate in the reported activities compared to all unemployed individuals on income support. On the whole, however, differences were not large. Whereas 26 per cent of all unemployed individuals had worked, only 20 per cent of the VLTU group did so. The largest difference was for participation in study and training where only 8 per cent of the VLTU were involved compared to 15 per cent for all unemployment benefit recipients. Social participation levels, as measured by hours of voluntary work were slightly higher among the VLTU group than for all unemployed persons.

For those VLTU individuals who were involved in each activity, their average hours per week spent in that activity were similar to the hours of all unemployment benefit recipients. For example, average hours worked per week for the VLTU group were 10.6 compared to 11.8 hours for all Newstart recipients. Those undertaking job search and training in the VLTU spent 8.5 hours and 15.4 hours per week on average compared to 6.4 and 14.3 hours for all unemployed income support recipients respectively.

The pilot questionnaire also asked detailed information about the barriers faced by individuals in their quest for work. Persons were asked if they currently wanted to work. Of those who responded positively, the following question was then asked: "What do you see as the main things stopping you from getting such a job?" Respondents could give more than one response.

[12] The average weekly hours of social participation was calculated by dividing the total number of hours of social participation in a two month period by 8 weeks. It is derived from the pilot survey question "How many

Table 8.3: Economic and Social Participation – Wave 1 Participants

	Wave 1 Participants			*All Unemployment Benefit Recipients*[a]	
	Hours	***Per cent of group undertaking activity***	***Hours for those undertaking activity***	***Per cent of group undertaking activity***	***Hours for those undertaking activity***
Economic Participation					
Average weekly hours of work	2.2	20.3	10.6	26	11.8
Average weekly hours of job search	6.9	81.5	8.5	84	6.4
Average weekly hours of study	1.2	8.0	15.4	15	14.3
Total of all three above	10.3	84.4	12.2	na	na
Social Participation					
Average weekly hours of voluntary work	1.1	15.3	7.3	13	na

a. Source: Department of Family and Community Services (2001).
na: Figures not available.

Column 1 of Table 8.4 presents the responses to this question. A significant feature of the results is the diversity of barriers reported by individuals. Personal barriers such as health and skills were reported along with many external barriers to employment such as age (too old), shortage of jobs and lack of transport. The large category of "Not Specified" or "Not Known" and "Other" however showed the idiosyncratic nature of many of the reported barriers.

In the second column of Table 8.4, barriers to employment as perceived by the interviewers are also presented. After the interview, the following question was asked of the interviewer: "What do you consider to be the three main barriers this person faces to increasing their economic and /or social participation?" These figures show overwhelmingly that the largest employment barrier facing the VLTU according to the interviewer, was a lack of skills, training, experience or confidence. Interviewers reported that over 75 per cent of

hours of voluntary work for such organisations would you have done in the last two months?"

participants faced this difficulty. Other significant barriers reported by the interviewers included health and family related reasons.

Table 8.4: Current Barriers to Work[a]

	Self Reported *(per cent)*	*Interviewer Reported* *(per cent)*
Own health, disability, pregnancy	34.2	44.1
"Not Specified" or "Not Known"	34.8	0.6
No jobs in line of work, with suitable hours, flexible work conditions, no jobs at all	27.2	7.3
Own age/ too old	23.8	8.4
Transport problems	23.3	0.7
Lack skills/training/experience/confidence	11.2	75.1
Personal reasons including studying, welfare payments affected	5.6	28.0
Family reasons	5.9	25.0
All other categories[b]	16.2	6.3

a. Sample size 1076.

b. Includes employer attitudes, lack money/costs, location, criminal record, nothing, other activities, licenses, and frequency of moving.

The individual and interviewer responses paint an interesting picture of the barriers facing the VLTU. The differences in response between the individual and the interviewer with regard to barriers indicate that perceptions about which barriers exist are very different. One implication that could be drawn is that the VLTU face multiple barriers which are interrelated, leading to the diverse and idiosyncratic mix of responses. Also, the overwhelming response by interviewers regarding lack of skills cannot be ignored. Studies undertaken in the US, discussed by Holzer (2000), indicate that even in jobs that require no formal education, employers seek a variety of basic skills such as verbal skills, cognitive and performance skills. Evidence from these studies shows that many long-term welfare recipients lack these basic skills required for even the lowest paid jobs and this precludes many from finding work. The clear implication is that addressing barriers and understanding more about the interrelationship between them is likely to be important in assisting the VLTU to higher levels of economic participation.

8.4 Evaluating the Impact of Targeted Assistance

8.4.1 The evaluation question

Can targeted assistance measures increase the level of economic and/or social participation for the very long-term unemployed? Answering this type of question by estimating an impact parameter has received a great deal of attention in the evaluation literature (Heckman, LaLonde and Smith 1999).

The main difficulty in any evaluation is that it is impossible to observe one person in more than one state at any one time. For a person who underwent the intensive interview, only one outcome can be observed, that is, his/her level of economic and social participation after he/she participated in the intervention. It is impossible to see the counterfactual state: what level of economic or social participation would that person have had if he/she did not participate.[13]

Assume D_i is an indicator representing whether individual i participated in the intervention and Y_{1i} and Y_{0i} represent outcomes for individual i in the presence and absence of the intervention respectively. Also assume X_i is a vector of observable characteristics. The evaluation question seeks to identify an estimate for Ä

(8.1) $$\Delta = E(Y_{1i} \mid D_i = 1, X_i) - E(Y_{0i} \mid D_i = 1, X_i).$$

The first component of equation 8.1 represents the average outcome for those who participated in the intervention. The second component is the unobserved counterfactual, that is, what their average outcome would have been in the absence of the intervention.

[13] The evaluation problem is often considered a problem of missing data (Blundell and Costa-Dias 2000). If what happened to each individual in the absence of the targeted assistance program could be observed, then there would be no evaluation problem. The impact would be directly observed.

8.4.2 The randomised experiment

The randomised experiment has been used extensively in the US to address the evaluation problem (Burtless 1995). The basic approach is to draw two random samples from the population of interest, one to act as a control and the other to participate in an intervention. The random assignment ensures that both groups have similar observed and unobserved characteristics. For persons in the intervention group, what would have happened in the absence of the intervention is estimated by the control group outcomes. A simple comparison of average outcomes provides an intuitively appealing and simple estimate of Ä (Bloom 1984).

Formally, in the randomised experiment, the intervention impact estimate can be written as follows:

$$\hat{\Delta}_{RE} = E(Y_{1i} \mid D_i = 1, R_i = 1, X_i) - E(Y_{0i} \mid D_i = 1, R_i = 0, X_i) \quad (8.2)$$

where D_i is a 0/1 indicator representing the population of interest in the randomised experiment and R_i is a 0/1 indicator representing whether individual *i* was assigned to the control group or the intervention group respectively.[14]

8.4.3 Dealing with dropouts

If all persons who had been assigned to the pilot survey participated in the interview process then equation 8.2 could be used to estimate the impact of the intervention. However, some individuals in the intervention and the control groups did not participate in the interview process while others left after wave 1 and did not take part in all three waves. This complicated the calculation of the intervention impact. The main limitation was that the impact could only be calculated for those who fully participated as complete data on the outcomes of interest, economic and social participation were only available for those who

[14] An underlying assumption is that the randomised experiment exactly mimics what would happen if the intervention was to be put in place for the whole population. Heckman and Smith (1995) note that situations may arise where this is not a valid assumption and randomisation bias may affect the estimate of the intervention impact.

participated in all three waves. In the literature, such an estimator is referred to as the full treatment on the fully treated.

An alternative estimator, the availability of treatment (or the intent to treat) is also informative and an interesting parameter. It provides an estimate of the intervention impact for the entire population and is evaluated as the difference between the average outcomes of everyone assigned to the intervention and control groups regardless of participation status. It is useful in any undertaking of a cost benefit analysis of the intervention. Calculation of this estimator however, requires information on all individuals assigned to the pilot survey. Although an important and useful parameter, it could not be calculated using the available data.[15]

As some individuals assigned to take part in the pilots did not participate, estimation of the full treatment on the fully treated had to take into account the participation decision. Persons who fully participated were not likely to be a random sample of the fully assigned intervention group. If they had characteristics that also influenced outcomes and this was not taken into account, then biased estimates of the intervention impact would result. For example, assume those who participated in all three waves were more likely to be older and older persons had higher levels of social and economic participation. A simple comparison of average wave 3 outcomes would overestimate the intervention impact as it would reflect differences in the participation levels between age groups as well as the effect of the intervention itself.

In a randomised experiment where there are dropouts, an estimate of the full treatment on the fully treated can be calculated by identifying from the control group those who would have decided to participate had they been given the chance to do so (Heckman, Smith, and Taber 1998). A comparison of their outcomes with those who participated in the intervention group provides the intervention impact.

Mathematically, this is written as:

[15] In the future, using data from the LDS it may be possible to calculate an 'intent to treat' intervention impact.

(8.3) $$\hat{\Delta}^{F}_{RE} = E(\mathrm{Y}_{1i} \mid \mathrm{D}_i = 1, \mathrm{R}_i = 1, S_{Ii} = 1, X_i) - E(\mathrm{Y}_{0i} \mid \mathrm{D}_i = 1, \mathrm{R}_i = 0, S_{Ii} = 1, X_i)$$

where S_{Ii} is a 0/1 indicator representing whether individual i participated in all three waves of the intervention I.

In the pilot survey, the first component of equation 8.3 can be estimated by the observable average outcome for those in the intervention group who participated in all three waves. The second component of equation 8.3 however, is not directly observed. Under the experimental design of the survey, solving the evaluation problem rests with identification of the second component in equation 8.3.

8.5 The Evaluation Strategy

In the empirical literature, the identification problem is generally resolved by using outcome data for those who dropped out of the intervention group (Heckman, Smith and Taber 1998; Bloom 1984; Hotz and Sanders 1993). If it can be assumed that the dropouts received no treatment, then the average outcome of those who dropped out can be a suitable proxy for the average outcome of those in the control group who would have dropped out. Subtraction from the total control group average outcome provides an estimate of the second component of equation 8.3. However, Heckman, Smith and Taber (1998) indicate that this estimate breaks down if those who dropped out received partial treatment which may affect their outcomes. If this occurs then non-experimental approaches need to be employed to obtain an intervention impact.

In the case of the FaCS pilot survey, no outcome data were available for those who dropped out and so usual approaches adopted in the literature could not be used. Also, the receipt of a letter indicating participation requirements by long-term unemployed recipients could be viewed as evidence of partial treatment which could influence economic and social participation levels. For example, Black, Smith, Berger and Noel (1999) find that the threat of having to undertake a training program for the US unemployed increased their job finding rates. For Australia, Richardson (2001) investigates the impact of mutual

obligations on the probability of leaving unemployment. She finds some evidence of an impact on the probability in the time period before the mutual obligations program takes effect. The VLTU group in the FaCS randomised experiment are persons who have limited recent contact with Centrelink. Simple contact and the threat of cessation of payments may in itself be enough to change participation behaviour. Hence, the existence of partial treatment could not be rejected.

Given these considerations, two approaches were adopted to obtain an estimate of the intervention impact. In keeping with the randomised experimental design, the first approach was to ascertain whether a simple comparison with the available wave 3 data could provide an unbiased estimate of the intervention impact. If this was not the case, then a second approach using non-experimental estimation techniques to identify the intervention impact could be employed. These two approaches are discussed below.

8.5.1 Randomised experimental estimator

Identification of the second component in equation 8.3 could be solved by using the wave 3 control group data to estimate the average outcome for those who would have dropped out had they been assigned to the intervention group. Only in the following two cases was this considered to be an unbiased estimate of the intervention impact.

Case 1:

> The control and intervention groups were drawn randomly from the VLTU population, and the decision to participate was unrelated to outcomes for both the intervention and control groups.

Case 2:

> The control and intervention groups were drawn randomly from the VLTU population and the decision to participate was non-random but the same

participation process identified individuals in the wave 3 intervention and the control groups.

To ascertain whether either of these cases held, both the random assignment between the control and intervention groups and the corresponding participation decisions were examined.

Randomisation

Following the literature (Ashenfelter 1999), randomisation tests were undertaken to ensure that the fully assigned intervention and control groups were random and independently drawn from the VLTU population. Information drawn from the LDS administrative data which were available for everyone regardless of participation status was used to test for randomisation. Statistical tests of differences in means across the two groups were carried out to determine whether there were differences in characteristics between those assigned to the intervention and control groups. Categorical variables tested included gender, marital status, number and age of children, birth status and location. The entire distributions of the continuous variables - age and reported earnings -were tested for their similarity using a Kolmogorov-Smirnov distribution test (Stata Corporation 1997). If both the intervention and control groups were drawn randomly, then no or very little statistical difference in the means or distributions of each of the demographic characteristics should be evident.

The test results are presented in Table 8.5. Columns 1 and 2 present the average of each variable tested. Results from the significance tests, including the level of significance and the probability value of the test statistic, are presented in the next two columns respectively. Tests reveal statistically significant differences between the intervention and control groups for most variables. Age, gender, marital status, family status factors and whether or not they reported earnings were all significantly different at least at the two per cent level of significance. The implication was that random assignment did not take place between the intervention and control groups.

Discussions with FaCS about the sampling process indicated that important design issues contributed to the lack of random assignment. First, sample selection procedures had failed

to allocate older age VLTU individuals to the control group. Although in Table 8.5, the average ages for the intervention and control groups were similar at 36.7 years and 36.0 years respectively, the Kolmogorov-Smirnov test indicated that the distributions were significantly different. Closer inspection of the data revealed that the age ranges for the two groups differed substantially. Whereas the intervention group ranged from 20 to 64 years, control group individuals were aged between 20 to 50 years inclusive.

As a result of this finding, no evaluation of the intervention impact was attempted for individuals over 50. It could not be ruled out that they were likely to face different circumstances than younger persons such as poorer health or an inability to move residential location and these may affect their levels of social and economic participation. Without comparable persons in the control group, these differences were likely to confound any estimate of the intervention impact. Hence, persons aged over 50 were discarded from the intervention group, a reduction which resulted in a loss of 211 individuals. Randomisation tests were again carried out between a restricted intervention group of those aged 50 and under and the control group. These results are presented in Table 8.6. Significant differences between the intervention and control groups however remained.

Further discussions with FaCS indicated that another sampling design issue interfered with the random assignment. This was related to differences in the data collection process between the control and the intervention groups. For the intervention group, waves 1 and 2 data were collected at the face-to-face interviews whereas for the control group, the data were collected using a phone survey. In order to carry out the phone survey, control group individuals were assigned on the basis that they had provided Centrelink with phone contact details. This same selection process was not applied to the intervention group.

Table 8.5: Randomisation Tests – Assigned Sample

Average of Variable	*Intervention*	*Control*	*Reject equality at level of significance*	*Probability Value*
Average age[a]	36.71	36.01	1 per cent	0.000
Gender				
Female	0.25	0.28	2 per cent	0.020
Marital Status				
Married	0.23	0.27	1 per cent	0.001
Separated, widowed, divorced	0.27	0.23	1 per cent	0.002
Never married	0.50	0.50		0.864
Joint test[b]			1 per cent	0.000
Family Status				
Has dependent children	0.16	0.20	1 per cent	0.000
Number of children	0.36	0.48	1 per cent	0.000
Number of children (for those with children)	2.28	2.38		0.228
Age of youngest child	0.95	1.20	1 per cent	0.004
Age of youngest child (for those with children)	5.96	5.93		0.924
Earnings (in 6 months to June 2000)				
Reported earnings	0.23	0.30	1 per cent	0.000
Average earnings [a]	$43.19	$65.50	1 per cent	0.000
Average earnings [a] (for those with earnings)	$185.37	$215.14	5 per cent	0.045
Country of Birth				
Australian born	0.85	0.86		0.193
Overseas born: English speaking background	0.06	0.05		0.174
Overseas born: non-English speaking background	0.09	0.09		0.607
Indigenous status	0.03	0.02	4 per cent	0.035
Centrelink Area				
Brisbane	0.11	0.12		0.300
Pacific	0.14	0.15		0.669
Hunter	0.18	0.18		0.826
West NSW	0.05	0.05		0.929
South Australia	0.09	0.07		0.093
Tasmania	0.18	0.16		0.131
South East Victoria	0.13	0.16	1 per cent	0.005
West Victoria	0.12	0.11		0.248
Joint test[b]				0.056
Sample size	2940	1800		

a: Kolmogorov-Smirnov distribution test for equality of the entire distribution.
b: Chi square test for joint equality.

Information received from FaCS identifying intervention group individuals who could not have been contacted by phone was used to draw an age and phone restricted intervention group sample. Just 1082 intervention group individuals had provided Centrelink with phone contact details. This amounted to a loss of over 60 per cent of the initial intervention group sample. Table 8.7 presents the same randomisation tests for the age and phone restricted sample. For these two groups, tests revealed no statistically significant differences between the averages of all but one of the tested variables.[16]

In summary, results of the randomization tests indicated that only for a restricted group of the fully assigned VLTU individuals was randomisation achieved. The implication was that the randomised experimental estimator which involved comparing the wave 3 outcomes could only be considered as an unbiased estimate for the restricted sub-group of the VLTU, the age and phone restricted group.

The difficulty was that the age and phone restriction for the intervention group severely reduced sample sizes. Table 8.8 presents the response rate statistics for both the age restricted and the age and phone restricted sample. Once again, significant drop out and attrition occurred during the three waves of the experiment. For the age and phone restricted sample, just 239 persons were interviewed in wave 3. The larger age restricted group comprised 334 persons.

[16] Tests were carried out to ensure that the statistical insignificance in the age and phone restricted sample was not simply due to the smaller sample size. The test statistic was recalculated for the age restricted sample using the standard errors for the age and phone restricted group. This indicated that even with the larger standard errors randomisation was not accomplished.

Table 8.6: Randomisation Tests - Age Restricted Group

Average of Variable	*Intervention*	*Control*	*Reject equality at level of significance*	*Probability value*
Average age[a]	35.23	36.01	5 per cent	0.024
Gender				
Female	0.25	0.28	5 per cent	0.020
Marital Status				
Married	0.22	0.27	1 per cent	0.006
Separated, widowed, divorced	0.27	0.23	1 per cent	0.006
Never married	0.52	0.50		0.188
Joint test[b]			1 per cent	0.000
Family Status				
Has dependent children	0.16	0.20	1 per cent	0.001
Number of children	0.38	0.49	1 per cent	0.002
Number of children (for those with children)	2.33	2.38		0.496
Age of youngest child	0.94	1.20	1 per cent	0.004
Age of youngest child (for those with children)	5.73	5.93		0.519
Earnings in 6 months to June 2000				
Has reported earnings	0.23	0.30	1 per cent	0.000
Average earnings[a]	$42.98	$65.50	1 per cent	0.000
Average earnings[a] (for those with earnings)	$184.12	$215.14	5 per cent	0.024
Country of Birth				
Australian born	0.86	0.86		0.680
Overseas born: English speaking background	0.06	0.05		0.441
Overseas born: non-English speaking background	0.09	0.09		0.913
Indigenous status	0.03	0.02	1 per cent	0.012
Centrelink Area				
Brisbane	0.11	0.12		0.437
Pacific	0.15	0.15		0.843
Hunter	0.18	0.18		0.667
West NSW	0.05	0.05		0.645
South Australia	0.005	0.006		0.109
Tasmania	0.18	0.16		0.234
South East Victoria	0.13	0.16	1 per cent	0.001
West Victoria	0.12	0.11		0.316
Joint Test[b]				0.044
Sample size	2729	1800		

a: Kolmogorov-Smirnov distribution test for equality of the entire distribution.

b: Chi square test for joint equality.

Table 8.7: Randomisation Tests – Age and Phone Restricted Group

Average of Variable	*Intervention*	*Control*	*Reject equality at level of significance*	*Probability value*
Age[a]	35.72	36.01		0.192
Gender				
Female	0.31	0.28		0.223
Marital Status				
Married	0.26	0.27		0.545
Separated, widowed, divorced	0.22	0.23		0.677
Never married	0.51	0.50		0.377
Joint test[b]				0.674
Family Status				
Has dependent children	0.19	0.20		0.318
Number of children	0.43	0.48		0.186
Number of children (for those with children)	2.29	2.38		0.364
Age of youngest child	1.21	1.20		0.926
Age of youngest child (for those with children)	5.47	5.93		0.170
Earnings (in 6 months to June 2000)				
Reported earnings	0.28	0.30		0.095
Average earnings [a]	$62.13	$65.50		0.528
Average earnings [a] (for those with earnings)	$225.60	$215.14		0.741
Country of Birth				
Australian born	0.85	0.86		0.655
Overseas born: English speaking background	0.05	0.05		0.618
Overseas born: non-English speaking background	0.10	0.09		0.365
Indigenous status	0.02	0.02		0.715
Centrelink Area				
Brisbane	0.11	0.12		0.938
Pacific	0.14	0.15		0.507
Hunter	0.17	0.18		0.333
West NSW	0.06	0.05		0.617
South Australia	0.08	0.07		0.499
Tasmania	0.16	0.16		0.746
South East Victoria	0.15	0.16		0.287
West Victoria	0.14	0.11	1 per cent	0.013
Joint test[b]				0.289
Sample size	1082	1800		

a. Kolmogorov-Smirnov distribution test for equality of the entire distribution.
b. Chi square test for joint equality.

Table 8.8: Response Rates - Age Restricted and Age and Phone Restricted Groups

	Age Restricted Intervention		*Age and Phone Restricted Intervention*		*Control*	
	Number	***Response Rate***	***Number***	***Response Rate***	***Number***	***Response Rate***
Number assigned	2729		1082		1800	
Wave 1	1373	50.3	578	53.4	728	40.4
Wave 2	1097	79.9	473	81.8	560	76.9
Wave 3	334	24.3	239	41.3	429	58.9

a. Response rate is calculated as a proportion of total number assigned.
b. Response rate is calculated as a proportion of number responded at wave 1.

Participation

The second important consideration in deciding whether the randomised experimental approach could be used to identify an intervention impact was to understand the participation process. For the age and phone restricted sub-group, this amounts to examining whether the participation decision was a random process or the same non-random participation process could be identified for both the intervention and control groups. This is investigated by addressing two questions. For the intervention and control groups, how do the characteristics of the individuals who participated in all three waves of the experiment compare with those of the fully assigned sample? Does the same process determine participation for both groups?

Factors associated with the likelihood that an individual in either the intervention or control group participated in all three waves were investigated using discrete choice regression methods.

Following Maddala (1983), assume the decision to participate in the intervention can be written as an underlying response variable s_{Ii}* which is associated with individual characteristics X_i such that:

$$s_{Ii}^* = X'_i\beta + u_i ,$$

where u_i is the error term and $\hat{a}$ is the vector of coefficients to be estimated.

The response variable s_{Ii}*, however is unobserved. Instead, the dummy variable is observed:

$s_{Ii} = 1$ if $s_{Ii}^* > 0$

$s_{Ii} = 0$ otherwise.

This leads to the probability equation

(8.4) $$\Pr(s_{Ii} = 1) = 1 - F(-X'_i\beta) = G(X'_i\beta) ,$$

where F is the cumulative distribution function for u_i.

Similarly,

(8.5) $$\Pr(s_{Cj} = 1) = 1 - F(-X'_i\delta) = G(X'_i\delta) ,$$

where s_{Cj} is a 0/1 indicator representing participation in all three waves for individual j in the control group.

Equations 8.4 and 8.5 can be estimated using logit regression. The independent variables used in the participation regressions were derived from the LDS and administrative data. These included demographic and family characteristics such as gender, age, marital status and age of youngest child, details about home ownership and dummy variables indicating whether earnings or unearned income had been reported over the six month period to June 2000.[17] Also included was unemployment history information such as job search activities

[17] Unfortunately, education which is likely to be an important predictor of participation is not available on the LDS.

undertaken since July 1995 and whether exemptions had been granted or breaches enforced during the past five years. These variables were included as evidence from overseas studies has shown that together with demographic information, individuals' recent experiences of unemployment can be important predictors of program participation (Heckman, Ichimura and Todd 1997). A detailed description of the variables and summary statistics are presented in Appendix A8.2.

Table 8.9 presents the logit regression results for the probability that an individual assigned to the intervention age and phone restricted group participated in all three waves. Results are reported as log odds ratios. The log odds ratio represents the percentage increase or decrease in the likelihood of participating in the full intervention. For example, the figure of 1.605 for female in the first column suggests that females were 61 per cent more likely than males to participate in the intervention. The corresponding z-value of 2.77 suggests that the gender variable is statistically different from one at the 1 per cent level of significance.

Results indicated that the wave 3 intervention group participants were a non-random sample of the entire age and phone restricted group. Demographic characteristics and previous activities while on income support were associated with the likelihood that a person assigned to the intervention group fully participated. Sizeable differences in participation patterns were evident, for example, for females who were 60 per cent more likely than males to fully participate. Those who owned their own home and those who boarded were more likely than private renters to participate. In both cases, their probability of participation was over 60 per cent greater than the private renters. Also, age was positively related to participation with one year of age increasing the likelihood of participation by almost 3 per cent. Not surprisingly, persons who had moved in the first half of 2000 were less likely to participate. Their likelihood of participation was 53 per cent less than those who did not move. Some significant participation differences between Centrelink locations were also estimated.

Large significant effects were found for the variables describing activities undertaken while on income support. For example, those who had taken part in government assistance programs such as Intensive Assistance or Work for the Dole during the past five years were

64 per cent and 129 per cent more likely to participate than those who had not undertaken these programs. Also, those who had reported undertaking voluntary work had a participation rate 82 per cent greater than those who had no similar voluntary work experience.

The results pertaining to previous program participation were consistent with those found in other studies. For example, Heckman and Smith (1999) find that previous labour market experiences, in particular unemployment histories, rather than earnings histories are important indicators of participation in a large labour market training program in the US. Also, Gerfin and Lechner (2000) report that program participation history significantly increases the likelihood of current program participation for the Swiss labour market.

To summarise, results of the logit regression indicated that wave 3 participation was a non-random process. For example, the wave 3 participants were more likely to be females, persons who owned their own home and in particular, persons who had been involved in government assistance activities in the past.

Also presented in Table 8.9 are corresponding logit regression results for the control group. Like the intervention group, many of the demographic characteristics were significantly related to participation suggesting that the participation process was not random. Age, gender, living circumstances and Centrelink location all had similar effects on the probability of participation as those reported for the intervention group.

Some differences in results were also evident. For example, those who had separated or widowed were significantly less likely than the never married group to take part. Not unexpectedly, individuals from non-English speaking backgrounds were significantly less likely to take part in the phone interview. Their probability of participation was 51 per cent less than their Australian counterparts. Those with unearned income during the six months to June 2000 had a higher likelihood of participation. Estimated effects for the previous activity variables were also similar to those reported for the intervention group. Participation rates were greater for persons who had undertaken Intensive Assistance or Work for the Dole in the past. Individuals who had been breached due to failure to attend an activity had a lower probability of participation.

Using the same vector of X characteristics, the participation processes for the intervention and control groups were tested for their similarity by checking whether the vector of coefficients $\hat{a}$ was the same as the vector of coefficients $\ddot{a}$. This was done using a likelihood ratio test.[18] The null hypothesis was that the coefficients in the two logit regressions were identical. The calculated chi square statistic with 29 degrees of freedom is 22.82, a figure which is less than the 95 per cent probability cut off of 42.56 for the chi square distribution. The null hypothesis that the vector of coefficients are the same was accepted. [19] The results indicated that similar types of individuals participated in both the intervention and control groups and therefore the participation processes could be considered to be similar. The implication of these results was that, for the age and phone restricted intervention group, the impact for those who fully participated could be estimated by a simple comparison of average wave 3 outcomes.

The randomised experimental estimator can be written as:

$$\hat{\Delta}^{F}_{RE} = \frac{1}{n_I}\sum_{i=1}^{nI} Y_{1i} - \frac{1}{n_J}\sum_{j=1}^{nJ} Y_{0j}, \tag{8.6}$$

where n_I is the number of wave 3 intervention group participants and n_J is the number of wave 3 control group participants.

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[18] The test was performed in the following way. A regression is estimated on the pooled data from both groups. This constrains the coefficient estimates to be the same. The likelihood from this restricted regression is compared to the unrestricted likelihood which can be derived from running separate regressions for each group. The test statistic is given by:

$$LR = -2(\lambda_R / \lambda_U),$$

where λ_R and λ_U represent the likelihood functions of the restricted and unrestricted regressions respectively. *LR* follows a chi square distribution with degrees of freedom equal to the number of restrictions.

[19] Also, a logit regression which included intervention group interaction terms for all variables was estimated. A test of whether the associated coefficients for the interaction terms were jointly zero was found to be insignificant thus confirming the results from the likelihood ratio test.

Table 8.9: Logit Results for Participation in Wave 3 - Age & Phone Restricted Group

	Age & Phone Restricted Intervention Group		*Control Group*	
	Odds Ratio	***z-value***	***Odds Ratio***	***z-value***
Age	1.027	2.21	1.034	3.71
Female	1.605	2.77	1.466	2.89
Marital Status				
Married	1.168	0.65	1.136	0.72
Separated	0.777	-1.18	0.540	-3.66
Never married				
Dependent Children				
Age of youngest child	1.013	0.47	1.030	1.37
Birthplace				
Australian born				
Overseas English speaking	1.451	1.06	1.032	0.12
Overseas non-English speaking	0.665	-1.31	0.486	-2.78
Living Circumstances				
Has moved in last 6 months	0.468	-2.40	0.571	-2.40
Own home	1.659	1.99	1.026	0.13
Private rental				
Government rental	1.429	1.38	1.148	0.69
Boarding	1.638	2.13	1.554	2.49
Other arrangements	1.428	1.31	1.367	1.59
Centrelink Location				
Brisbane	0.634	-1.57	0.817	-1.00
Pacific	0.490	-2.41	0.490	-3.47
Hunter				
West NSW	0.508	-1.58	0.652	-1.44
South Australia	0.584	-1.63	0.467	-2.86
Tasmania	0.594	-1.99	0.492	-3.72
South East Victoria	0.522	-2.28	0.279	-5.70
West Victoria	0.607	-1.91	0.486	-3.37
Earnings				
Reported earnings in six months to June 2000	1.125	0.66	1.109	0.79
Unearned Income				
Reported unearned income in six months to June 2000	1.157	0.63	1.428	2.02
Previous Activities since July 1995				
Length of time on income support	1.026	1.08	0.985	-0.78
Has participated in				
Intensive Assistance	1.642	2.83	1.317	2.08
Training program	0.951	-0.28	1.183	1.20
Work for the Dole	2.289	3.19	1.704	2.71
Voluntary work	1.824	2.02	1.043	0.18
Has received an exemption	1.290	1.54	1.163	1.20
Has had administrative breach	0.639	-1.29	0.713	-1.29
Has had activity breach	0.640	-1.40	0.459	-3.04
Sample size	1082		1800	
Pseudo R square	0.084		0.090	
Per cent correctly allocated	64.05		63.89	

A major drawback however, was the restriction of the impact estimation to the smaller age and phone restricted sub-group of the sample. Using the larger age restricted sub-group would increase the sample size by 50 per cent. For this group however, biases could be introduced if a simple wave 3 comparison was undertaken. To estimate the intervention impact for this larger group, the second approach which involved using non-experimental methods was implemented.

8.5.2 Non-experimental matching estimator

Two non-experimental estimators were considered to identify the intervention impact for the phone restricted group - the Heckman selection method (Maddala, 1983) and the non-parametric method of propensity score matching (Heckman, LaLonde and Smith 1999).

Heckman selection is a parametric approach which jointly estimates the participation process and the distribution of outcomes. In its implementation, it relies on finding and imposing an exclusion restriction to identify the participation decision. That is, a variable must be found which affects participation in the intervention but not the outcome. In the FaCS pilot survey, the Heckman approach would involve estimating the joint participation and outcome equations for the intervention group and control groups separately. A comparison of predicted outcomes from these equations would then provide an estimate of the intervention impact.

The Heckman selection approach was regarded as too restrictive for the following reasons. First, its estimation required the imposition of substantial structure on the estimation of the outcomes for the two groups. Second, an exclusion restriction which identified participation but not outcomes had to be found. It was unlikely that, with the available data, a suitable restriction variable was available.

The preferred non-experimental approach was the non-parametric method of propensity score matching.[20] Recall from equation 8.3 that estimation of the impact intervention

[20] The method of matching is often implemented as a one-to-one cell matching process. This can become computationally difficult as the number of matching variables increases. The method of propensity score

required the identification of the unobserved second component - representing those in the control group who would have participated had they been given the chance. The method of propensity score matching achieves this by pairing intervention group individuals with a person or persons in the control group who have a similar propensity or probability to participate. The intervention impact is then obtained by averaging the comparison of outcomes for the matched pairs.

In mathematical notation, following Blundell and Costa-Dias (2000), the propensity score matching estimator can be written as:

$$\hat{\Delta}^{F}{}_{M} = \frac{1}{n_I} \sum_{i \in I} \left[Y_i - \sum_{j \in C} W_{ij} Y_j \right], \tag{8.7}$$

where I and C represent the intervention and control groups; Y_i and Y_j , the outcome for individual i in the intervention group and individual j in the control group; n_I is the number of individuals in the intervention group; W_{ij} is the weight placed on the comparison individual j in C for individual i in I. In propensity score matching, this weight is determined by comparing the propensity scores of individuals in the intervention and control groups. These scores are estimated from the participation equation 8.4 which characterises the probability to participate for those in the intervention group.

Underlying the approach are two important assumptions. First, matching on observable characteristics fully determines the participation decision. This implies that no unobservable factors influence participation and affect outcomes (Blundell and Costa-Dias 2000; Rosenbaum and Rubin 1985). Thus, for example, if motivation affects both the decision to participate and the outcome measure under investigation and motivation is not captured by observed variables then a matching estimator may lead to biased results.

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matching overcomes this by representing all matching variables into one propensity score. The method is based on propositions proved by Rosebaum and Rubin (1985).

This underlying assumption highlights the importance of having a rich set of data upon which to match. Heckman, Ichimura and Todd (1997) suggest that matching estimators provide the most reliable results when the individuals in the control and intervention groups are from the same local labour markets and when the same questionnaire is used for both groups. In the FaCS pilots, these conditions were both met. Further, the information about historical information serves as a proxy to unobserved characteristics such as motivation. To the extent that this is true, the matching estimator should provide reliable results.

Another important assumption underlying matching is that of common support. This relates to the range of the data used in the match. A match can only be found for persons for whom there is a suitable control group person with similar characteristics. If there were no persons in the control group for a particular range of an observed characteristic then a suitable match could not be found. In the pilot survey, for example, there were no persons aged over 50 assigned to the control group. Thus, in a matching process based on the observed age, the common support assumption would not hold as no suitable control group matches could be made for persons aged over 50.

In the pilot survey, the method of propensity score matching was applied in the following way. Each person who fully participated was matched to control group persons based on their predicted probability of participation in the full intervention process. This propensity to participate was estimated using equation 8.4. The estimated propensity to participate equation is used to predict the probability to participate for persons in the control group, given their observable data. The average of the difference in outcomes of all the matched pairs then provided an estimate of the full treatment impact.

The weight W_{ij} used to obtain the match is a Gaussian kernel function given by the equation:

$$W_{ij} = \frac{G(\frac{\hat{P}_j - \hat{P}_i}{a_n})}{\sum_{k \in C} G(\frac{\hat{P}_k - \hat{P}_i}{a_n})} \quad .$$

where $G(u) \propto \exp(-u^2/2)$ and a_n is a bandwidth parameter.

$\hat{P}_k = \Pr(S_{Ik} = 1 | X_k)$ is the predicted probability that individual k fully participated given a set of observable characteristics X_k and S_{Ik} is the indicator of wave 3 participation for the intervention group individuals. The bandwidth was chosen according to Silverman's robust bandwidth approach (Silverman 1986).[21]

8.6 The Results

Results for the estimate of the intervention impact are reported and discussed in this section for the age and phone restricted sample and the larger age restricted sample. For each sample, levels of economic and social participation for the intervention and control groups are compared to two ways, the first using a cross section estimator and the second using a difference-in-differences estimator. The cross section estimator compares average outcomes at wave 3. The validity of this estimator lies in the assumption that in the absence of the intervention, the economic and social participation levels of the control and intervention groups at wave 3 would have been the same. The difference-in-differences estimator compares the change in outcomes between waves 3 and 1 for the control and the intervention groups. This comparison allows for any systematic time invariant differences between the intervention and control groups. Thus, for example, differences in personal attributes that can't be measured but may affect the level of outcomes for the control and intervention groups in the absence of treatment will be differenced out using a difference-in-differences estimator.

For the age and phone restricted sample, where randomisation was achieved, both the cross section and difference-in-differences estimator should provide reasonable estimates of the intervention impact. Lack of randomisation in the age restricted sample suggests that the difference-in-differences estimator would provide an unbiased estimate. However, the

[21] Silverman's bandwidth h is determined by the following equation:
$h=0.9*A*n^{-0.2}$ where n is the sample size and A = min(ó,IQR/1.34) where ó is the standard deviation and IQR is the inter-quartile range of the data.

validity of both estimators is brought into question because of the variations in interview technique that occurred across waves for the intervention group. Recall that the first two waves for the intervention group were conducted as face-to-face interviews, the last as a telephone interview. In contrast, all control group data were collected via a telephone interview. If the change in interview technique influenced the accuracy of reporting of information for the intervention group then this may introduce bias into the impact estimates calculated using difference-in differences. Although at wave 3, both groups undertook a phone survey, cross section estimates could contain an element of bias, if the intervention group individuals reported more accurate information over the phone than the control group because of their prior recent face-to-face contact with Centrelink staff.

The conclusion therefore is that an element of bias may have been introduced into both estimators and the extent to which one is more accurate is difficult to gauge. The approach adopted here is to report both estimators with a preference towards the difference-in-differences results which controls for the differences in accuracy of the collected information across groups. However, consistent results in both estimators should be regarded as a stronger conclusion that there is an impact resulting from the intervention.

The cross section estimators used in the calculation of the intervention impact using the experimental approach and the matching method are given by equations 8.6 and 8.7. The corresponding difference-in-differences estimators are given by:

(8.8) $$\hat{\Delta}^{F}{}_{RE,\,DID} = \frac{1}{n_I}\sum_{i=1}^{nI}(Y^{t}{}_{1i} - Y^{t0}{}_{1i}) - \frac{1}{nJ}\sum_{j=1}^{nJ}(Y^{t}{}_{0j} - Y^{t0}{}_{0j}), \text{ and}$$

(8.9) $$\hat{\Delta}^{F}{}_{M,\,DID} = \frac{1}{n_I}\sum_{i\in I}\left[(Y_{it} - Y_{it0}) - \sum_{j\in C} W_{ij}(Y_{jt} - Y_{jt0})\right]$$

where t represents time at wave 3 and t_0 represents time at wave 1. All other terms are as previously described.

In Tables 8.10 and 8.11, the impact estimates for the age and phone restricted sample are presented. Table 8.10 reports the impact estimates representing the change in the average hours of work, looking for work and study or training and average hours of voluntary work. In Table 8.11, the intervention impact results for the proportion of individuals undertaking each activity are presented. Given that randomisation was achieved and the participation processes were similar, the randomised experimental estimator can be considered as the preferred and least biased estimate of the intervention impact. The matching method results are also presented for comparison.

Cross section results are presented in the column marked 'Wave 3'. To aid in interpretation for the difference-in-difference results, an example is provided. In Table 8.10, the difference-in-differences estimated intervention impact for hours of work is -0.66. This is calculated as the difference between 0.57 hours for the intervention group and 1.22 hours for the control group. The first figure, 0.57, represents the change from wave 1 to wave 3 in the average weekly hours worked by the intervention group. At wave 1, the intervention group worked on average just over 3 hours and 15 minutes per week. By wave 3, this had increased to 3 hours and 50 minutes per week which corresponds to an average increase of 35 minutes per week. Similarly, the control members worked on average just over 1 hour and 10 minutes more between wave 1 and wave 3.

Overall, the negative impact of -0.66 implies that, whereas both groups increased their average weekly hours of work, the intervention group increased their hours of work by 40 minutes less than the control group. Reported in brackets for each estimate is the standard error which indicates the statistical significance of the result.[22] In the example provided above, the reported standard error indicates that the difference-in-difference estimate for the impact on hours of work is not statistically significant suggesting that there was no significant change in the average weekly hours of work due to the intervention.

Looking at Table 8.10 and focussing on the randomised experiment results, the most consistent result is a significant positive effect of the intervention on the average weekly hours of study or training, obtained using both the cross section and the difference-in-

differences estimators. Although significant, the change in average hours was not large. The average hours of study and training undertaken by the intervention group at wave 3 was 1 hour and 10 minutes more per week than the control group. Difference-in-difference estimates indicated that at wave 3, those in the intervention group had increased their average weekly hours of study by almost 2 hours more than the control group.

This significant finding was the major contributor to a statistically significant result for the total average hours of economic participation in the difference-in-differences results. Overall, persons who participated in the full intervention had increased their economic participation by almost three hours to 13.65 hours per week. In contrast, the control group average weekly hours remained very similar over the period at about 15 hours per week. This same significant result however was not found in the cross section estimates.

Only one other measure of economic participation was significant in the randomised experiment results reported in Table 8.10 – average weekly hours of work. Here, the cross section results indicated that the intervention had a negative impact, with the intervention group undertaking almost 2 hours less work per week than the control group. This same impact was not significant in the difference-in-differences estimates which, as discussed earlier, weakens the evidence that this is an important and significant result. One reason for the negative effect however, could be related to the development of the participation plan. This could have redirected individuals to explore new avenues of training for example, which could lead them to improved work opportunities for the future.

[22] The standard error takes into account that the control and intervention groups are independent but the wave 1 and wave 3 results for each group are dependent.

Table 8.10: Evaluation Results – Average Hours - Age & Phone Restricted Group

		Randomised Experiment		*Propensity Score Matching*[a]	
Group	***Wave 1***	***Wave 3***	***Difference-In-Difference***	***Wave 3***	***Difference-In-Difference***
Economic Participation Measures					
Average weekly hours working					
Intervention	3.27	3.84	0.57	3.84	0.57
Control	4.45	5.67	1.22	5.76	1.30
Impact estimate		**-1.83 ***	**-0.66**	**-1.91 ***	**-0.72**
Standard error		**(0.77)**	**(0.65)**	**(0.76)**	**(0.68)**
Average weekly hours looking					
Intervention	6.46	7.04	0.58	7.07	0.58
Control	8.78	7.77	-1.01	7.75	-0.99
Impact estimate		**-0.73**	**1.59**	**-0.68**	**1.57**
Standard error		**(0.75)**	**(0.98)**	**(0.78)**	**(1.02)**
Average weekly hours studying or training					
Intervention	1.09	2.77	1.68	2.79	1.70
Control	1.89	1.61	-0.28	1.62	-0.26
Impact estimate		**1.16 ***	**1.97 ****	**1.16 ***	**1.96** **
Standard error		**(0.59)**	**(0.64)**	**(0.59)**	**(0.66)**
Average weekly hours all three above					
Intervention	10.82	13.65	2.83	13.70	2.86
Control	15.12	15.05	-0.07	15.13	0.06
Impact estimate		**-1.39**	**2.90 ****	**-1.43**	**2.81** *
Standard error		**(1.14)**	**(1.24)**	**(1.16)**	**(1.34)**
Voluntary Participation Measure					
Average weekly hours voluntary work					
Intervention	1.74	1.73	-0.01	1.74	0.02
Control	0.90	1.24	0.34	1.24	0.25
Impact estimate		**0.49**	**-0.35**	**0.50**	**-0.23**
Standard error		**(0.41)**	**(0.38)**	**(0.41)**	**(0.39)**

a. Bandwidth for kernel match is 0.037. Standard errors are bootstrapped.

** statistically significant at 1 per cent level; * statistically significant at 5 per cent level.

Sample sizes for randomised experiment - economic participation measures: 220 Intervention, 387 Control.

Sample sizes for randomised experiment - voluntary participation measure: 237 Intervention, 425 Control.

Sample sizes for propensity score matching - economic participation measures: 219 Intervention, 387 Control.

Sample sizes for propensity score matching - voluntary participation measures: 236 Intervention, 425 Control.

Table 8.11: Evaluation Results – Proportion - Age & Phone Restricted Group

		Randomised Experiment		*Propensity Score Matching*[a]	
Group	***Wave 1***	***Wave 3***	***Difference-in-Difference***	***Wave 3***	***Difference-in-Difference***
Economic Participation Measures					
Proportion working					
Intervention	0.277	0.305	0.028	0.301	0.027
Control	0.297	0.333	0.036	0.338	0.038
Impact Estimate		**-0.029**	**-0.009**	**-0.037**	**-0.010**
Standard Error		**(0.039)**	**(0.033)**	**(0.039)**	**(0.033)**
Proportion looking for work					
Intervention	0.823	0.750	-0.073	0.753	-0.073
Control	0.780	0.765	-0.015	0.758	-0.017
Impact Estimate		**-0.015**	**-0.057**	**-0.005**	**-0.057**
Standard Error		**(0.036)**	**(0.036)**	**(0.037)**	**(0.038)**
Proportion studying or training					
Intervention	0.091	0.173	0.082	0.174	0.087
Control	0.132	0.127	-0.005	0.127	-0.006
Impact Estimate		**0.046**	**0.087 ****	**0.046**	**0.092 ****
Standard Error		**(0.031)**	**(0.034)**	**(0.031)**	**(0.034)**
Proportion any three above					
Intervention	0.859	0.841	-0.018	0.840	-0.018
Control	0.840	0.850	0.010	0.845	0.007
Impact Estimate		**-0.009**	**-0.029**	**-0.005**	**-0.025**
Standard Error		**(0.031)**	**(0.027)**	**(0.031)**	**(0.029)**
Voluntary Participation Measure					
Proportion voluntary work					
Intervention	0.249	0.236	-0.013	0.237	-0.008
Control	0.172	0.224	0.052	0.222	0.048
Impact Estimate		**0.013**	**-0.064 ***	**0.015**	**-0.056**
Standard Error		**(0.034)**	**(0.032)**	**(0.040)**	**(0.030)**

a. Bandwidth for kernel match is 0.037. Standard errors are bootstrapped.

** statistically significant at 1 per cent level; * statistically significant at 5 per cent level.

Sample size for randomised experiment results for economic participation measures: 220 Intervention , 387 Control.

Sample size for randomised experiment results for voluntary participation measures: 237 Intervention , 425 Control.

Sample size for propensity score matching results for economic participation measures: 219 Intervention, 387 Control.

Sample size for propensity score matching results for voluntary participation measures: 236 Intervention, 425 Control.

The randomised experiment results of Table 8.11 which report changes in the proportions of individuals undertaking each activity strengthen the positive impact of the intervention for study and training outcomes. The difference-in differences estimator shows that the percentage of intervention group individuals undertaking study or training increased from 9 per cent to 17 per cent between waves 1 and 3. No similar increase was reported for the control group resulting in a significant positive effect of the intervention on the proportion of individuals undertaking study and training. The cross section results however do not show a similar significant impact suggesting a weaker result for an increase in the proportion of VLTUs undertaking study or training.

Impact estimates for the age and phone restricted sample derived using the method of propensity score matching are also reported in Tables 8.10 and 8.11. Standard errors for the matching results have been bootstrapped.[23] Figure 8.1 presents evidence of the common support for the propensity score equation used to calculate the matched results. This shows that persons in the control group have similar propensities to participate as those in the intervention group and so suitable matches could be found for all persons in the intervention group[24].

While results were based on the propensity score equation, there is no assumption on which to determine what factors should be included. Following Smith and Todd (2000), a useful test of the propensity score equation is to ensure that after conditioning on the variables used, no new information about the participation process can be provided. It is carried out by employing a Hotelling T^2 test to detect significant mean differences of the included variables between the intervention and control groups for quintile intervals of the

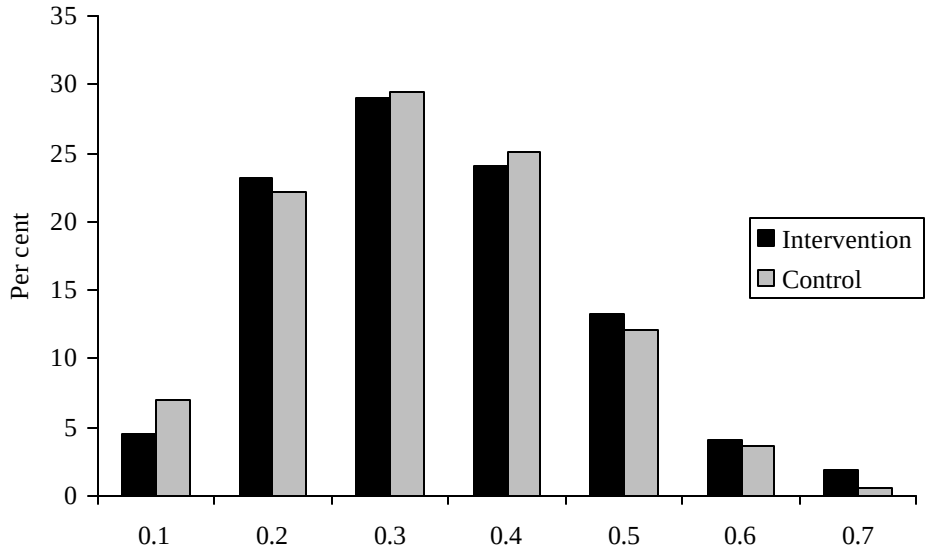
[23] This technique chooses 1000 samples of both the intervention and control groups and re-calculates the impact estimates. The standard deviation of the distribution of the impacts becomes the reported standard error. Using this bootstrap method, the standard errors take into account the complete matching process including the estimation of the propensity score equation.

[24] This is expected given the social experimental design and the fact that randomisation was achieved between the two groups.

propensity score distribution.[25] This test was undertaken using the matched samples and no statistical differences were found.

Figure 8.1: Comparison of Propensity Scores

Age and Phone Restricted Group



Presentation of these results provides a useful comparison of the validity of the matching method in this evaluation problem. For the age and phone restricted sample where randomisation was achieved, the randomised experiment and the matched estimates should be similar. Results from the two methods are very similar for all reported activity measures. Using matching, once again the most significant, though modest result was for hours of study and training where there was a positive intervention impact using both the difference-in-differences and the cross section estimators.

[25] The propensity score is divided into quintiles. For each quintile interval, the test determines whether there is a statistically significant difference between the means of all the included variables in the participation equation for the intervention and control groups.

Tables 8.12 and 8.13 present corresponding intervention impact results for the larger age restricted sample. These results are based on a total of 439 individuals who participated in all three waves. For completeness, both the matching and the randomised experiment estimates are again reported using the cross section and the difference-in-differences estimators. As randomisation was not achieved for this sample, the discussion focuses on the matching results which should provide the least biased estimate of the impact. The propensity score probability equation used in the matched results is reported in Appendix A8.3.[26] Also, Figure 8.2 indicates that the range of propensity scores was similar between the intervention and control groups. This ensured that suitable matches could obtained for all but a few individuals.

The matched results for the age restricted sample gave similar intervention impacts to those obtained in the age and phone restricted sample. Once again, the greatest impact of the intervention was for the hours of study and training. Results this time were significant for the difference-in-difference estimates only. Hours of study and training increased by about 1 hour and 30 minutes per week for the intervention group over and above the change for the control group. Similarly, total hours of economic participation increased by about 2 hours and 35 minutes. Once again, as reported for the smaller age and phone restricted sample, the proportion studying or training also increased significantly by about 8 percentage points.

The only other significant result in the age restricted sample equation was again obtained for the average weekly hours of work. Using the cross section estimator, a significant reduction of just over 2 hours because of the intervention was reported. As in the smaller sample results, this did not translate into a significant reduction in the proportion of individuals working (see Table 8.13).

[26] The hotelling T^2 test also showed that there was no difference in the range of the variables used in the participation equation.

Table 8.12: Evaluation Results – Hours - Age Restricted Group

		Randomised Experiment			*Propensity Score Matching*[a]		
Group	***Wave 1***	***Wave 3***		***Difference in Difference***	***Wave 3***		***Difference in Difference***
Economic Participation Measures							
Average weekly hours working							
Intervention	2.55	3.27		0.72	3.27		0.73
Control	4.45	5.67		1.22	5.53		1.26
Impact Estimate		**-2.40**	**	**-0.50**	**-2.25**	**	**-0.53**
Standard Error		**(0.71)**		**(0.60)**	**(0.71)**		**(0.58)**
Average weekly hours looking							
Intervention	6.81	7.41		0.60	7.44		0.61
Control	8.78	7.77		-1.01	7.81		-0.95
Impact Estimate		**-0.35**		**1.61**	**-0.37**		**1.56**
Standard Error		**(0.69)**		**(0.89)**	**(0.75)**		**(0.92)**
Average weekly hours studying or training							
Intervention	1.14	2.51		1.37	2.52		1.39
Control	1.89	1.61		-0.28	1.67		-0.18
Impact Estimate		**0.90**		**1.65**	**	**0.85**	**1.56**	**
Standard Error		**(0.50)**		**(0.54)**		**(0.49)**	**(0.54)**	
Average weekly hours all three above							
Intervention	10.49	13.2		2.71	13.23		2.73
Control	15.12	15.05		-0.07	15.01		0.13
Impact Estimate		**1.85**		**2.78**	**	**-1.78**	**2.59**	**
Standard Error		**(1.04)**		**(1.12)**		**(1.05)**	**(1.15)**	
Voluntary Participation Measure							
Average weekly hours voluntary work							
Intervention	1.45	1.59		0.14	1.59		0.15
Control	0.90	1.24		0.34	1.25		0.32
Impact Estimate		**0.34**		**-0.20**	**0.35**		**-0.17**
Standard Error		**(0.33)**		**(0.31)**	**(0.35)**		**(0.32)**

a. Bandwidth for kernel match is 0.028. Standard errors are bootstrapped.

** statistically significant at 1 per cent level; * statistically significant at 5 per cent level.

Sample sizes for economic participation measures: 310 Intervention, 387 Control.

Sample sizes for voluntary participation measures: 331 Intervention, 425 Control.

Table 8.13: Evaluation Results – Proportions - Age Restricted Group

		Randomised Experiment		*Propensity Score Matching*[a]	
Group	***Wave 1***	***Wave 3***	***Difference in Difference***	***Wave 3***	***Difference in Difference***
Economic Participation Measures					
Proportion working					
Intervention	0.235	0.260	0.025	0.258	0.026
Control	0.297	0.333	0.036	0.326	0.036
Impact Estimate		**-0.073** *	**-0.011**	**-0.068**	**-0.011**
Standard Error		**(0.035)**	**(0.217)**	**(0.035)**	**(0.028)**
Proportion looking for work					
Intervention	0.823	0.756	-0.067	0.758	-0.068
Control	0.780	0.765	-0.015	0.761	-0.014
Impact Estimate		**-0.009**	**-0.052**	**-0.003**	**-0.054**
Standard Error		**(0.033)**	**(0.032)**	**(0.033)**	**(0.033)**
Proportion studying or training					
Intervention	0.087	0.161	0.074	0.161	0.077
Control	0.132	0.127	-0.005	0.127	-0.002
Impact Estimate		**0.034**	**0.079** **	**0.034**	**0.080** **
Standard Error		**(0.027)**	**(0.029)**	**(0.027)**	**(0.030)**
Proportion any three above					
Intervention	0.852	0.833	-0.019	0.832	-0.019
Control	0.840	0.850	0.010	0.844	0.007
Impact Estimate		**-0.017**	**-0.029**	**-0.012**	**-0.026**
Standard Error		**(0.028)**	**(0.025)**	**(0.029)**	**(0.026)**
Voluntary Participation Measure					
Proportion voluntary work					
Intervention	0.224	0.224	0.000	0.225	0.003
Control	0.172	0.224	0.052	0.219	0.048
Impact Estimate		**0.000**	**-0.052**	**0.005**	**-0.045**
Standard Error		**(0.031)**	**(0.028)**	**(0.032)**	**(0.030)**

a. Bandwidth for kernel match is 0.028. Standard errors are bootstrapped.

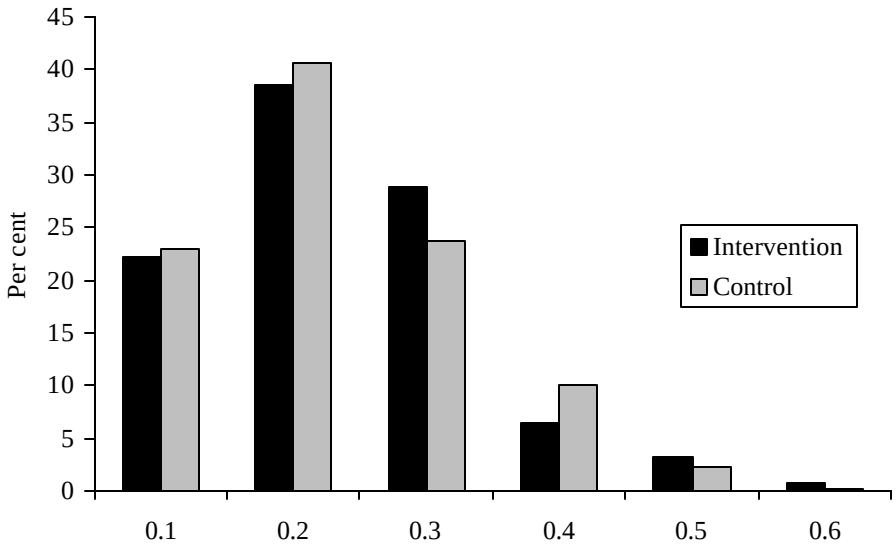
** statistically significant at 1 per cent level; * statistically significant at 5 per cent level.

Sample sizes for economic participation measures: 310 Intervention, 387 Control.

Sample sizes for voluntary participation measures: 331 Intervention, 425 Control.

Figure 8.2: Comparison of Propensity Scores

Age Restricted Group



In summary, the main finding from the results reported in Tables 8.10 to 8.13 was that for individuals who went through the full intervention process, there was a significant though modest, increase in their average hours of study and training. Further, the results suggest that an increase in the proportions of individuals undertaking study and training could be attributed to the intervention.

A possible explanation for the significant positive effects for study and training may be related to the referrals provided to individuals as part of their participation plan during the intervention process. Almost all individuals received referrals, many for interviews with a psychologist, a disability officer, but others to Intensive Assistance or to attendance at study programs, literacy courses and the like. The increase in the hours of study and training and the corresponding increase in the proportions of VLTU persons undertaking study may be reflecting the take up of these referrals. This perhaps highlights the importance of face-to-face contact in obtaining a positive response in participation from

disadvantaged individuals. The extent to which the increase in study and training may lead to better work or job search participation levels is a longer-term question that cannot be addressed with the data available in the pilot survey. Data about outcomes to address this issue may become available in the future.[27] With respect to other measures of participation, both economic and social, the intervention had little effect. Although some negative effect was found in the hours of work undertaken as a result of the intervention, it was a weaker result than the impact on study and training.

8.7 Discussion and Conclusions

Evidence to suggest that some individuals may be in a relatively disadvantaged position in the Australian labour market has been a major policy concern. In particular, addressing the persistently high level of long-term unemployment despite the recent declines in the overall level of unemployment has remained a priority for policy development. This chapter has investigated the efficacy of one initiative designed to address the position of the long-term unemployed. A randomised trial was set up with an aim to gather information about individuals in a long-term situation of welfare reliance and to determine whether an intensive interview process could improve their levels of economic and social participation – in particular their hours of work, job search, study and training and voluntary work. The underlying assumption is that active participation will place individuals on a pathway towards eventual self reliance through stable employment.

Due to the lack of data for individuals who did not take part in the pilot survey, an impact estimate could only be calculated for individuals who participated in the full intervention process. Further, the evaluation methodology overcame selection issues brought about by the data limitations by using both experimental methods and the non-experimental method of matching to estimate the effect of the targeted assistance measures on the economic and social participation for the VLTU.

[27] Information about outcomes could be obtained from the LDS administrative database.

The main finding of the evaluation was that a modest increase in economic participation levels for the participating VLTU members could be attributed to the intervention process. Specifically, the amount of study and training and the proportion of individuals undertaking study and training both increased as a result of the intensive interviews. The extent to which this may translate into a broader range of outcomes, particularly an increase in employment is a longer-term question not able to be addressed in this chapter. Weak evidence that hours of work may have decreased as a result of the intervention could perhaps have been associated with the development of the participation plan directing individuals to areas of study and training that may improve their ability to increase their level of economic participation over time.

In general, the minimal impact of the intensive interview process identified here is not surprising given the size of the intervention. The evidence indicates that the VLTU face significant and multiple barriers to employment including psychological problems, health issues, difficult family circumstances and demand related barriers. These hinder their ability to find work and even participate in job search activities. The idiosyncratic nature of these barriers together with their lack of skills reported by the interviewers highlight that these individuals require highly specialised and targeted help that would need to be continued over a long period of time. Such barriers are likely to overshadow any options open to them to participate in the labour market and would need to be tackled as a first step in assisting individuals back into employment.

Overall, this study draws attention to the position of disadvantage for the long-term unemployed in the Australian labour market. In particular, the results suggest that moving individuals away from the position of reliance on welfare support is a difficult process which highlights an important policy consideration. Improving the labour market situation of individuals before they become reliant on income support over a long period of time must be a priority for government in the labour market environment for the new decade ahead.

Appenidx A8.1: The FaCS Randomised Experiment Letters

CONTROL GROUP LETTER – 1ST INTERVIEW

«TITLE» «FIRST_NAME» «LAST_NAME»
«HOME_ADDRESS_LINE_2»
«HOME_SUBURB» «HOME_STATE»
«HOME_POSTCODE»

Dear «TITLE» «LAST_NAME»,

The Commonwealth Department of Family and Community Services would like to gather information on activities undertaken by customers in order to help us develop services that best meet your needs.

Your name was randomly selected from Centrelink records to participate in this very important research. The Department has contracted ACNielsen, an independent research company, to conduct this research and a representative from ACNielsen may contact you shortly by telephone. In order that the results will truly represent the situations of all customers it is important that each person contacted by ACNielsen participates. They may also ask you to take part in some shorter follow-up

Your comments will be treated confidentially. Participation in the survey will not affect any social security payments you currently receive. The research company will not identify individual respondents to the Department and the information gathered will only be used for research purposes.

We understand that your telephone number is «ISD» «PHONE». If it is not suitable for ACNielsen to call you on this number, please contact this office as soon as possible on 1800 018 312 . This is a toll-free number attended between 8.30am and 5.00pm Eastern Standard Time. You may also call 1800 018 312 if you wish to be interviewed in a language other than English, or if you have any queries.

Participation in the survey is voluntary and you may decline to participate at any time. However, we would greatly appreciate your co-operation as we can only improve our service if we know what customers need.

Thank you for your assistance.

Yours sincerely,

Intervention group letter 1st Interview

«TITLE» «FIRST_NAME» «LAST_NAME»
«HOME_ADDRESS_LINE_2»
«HOME_SUBURB» «HOME_STATE»
«HOME_POSTCODE»

Dear «TITLE» «LAST_NAME»,

Dear

I am writing to you to let you know you are required to attend an interview to discuss employment assistance options that may be available to you and to check that you are getting the right amount of Newstart Allowance. We will also discuss with you any plans you may have for the future and how we can help you.

As part of a new pilot programme, we are especially interested in finding out more about people in situations similar to yours and whether they might like more help in gettting access to services that are helpful to them. This pilot programme is confidential.

At this interview you will be required to negotiate and sign a Preparing for Work Agreement which will include activities you will undertake in order to maximise your chances of finding work.

If you do not attend this interview or make other arrangements, your payments will be stopped and a penalty will apply when you reclaim payments. If your payments are stopped we will write to you about this.

You need to ring the Centrelink Call Centre on *XXXX within the next 14 days* to make an appointment with a customer service officer. If, after you have booked an appointment, you cannot attend the interview please get in touch with us as soon as possible to make new arrangements. Our address and phone number are at the top of this letter.

If you have a Jobseeker diary, please bring it and this letter to the interview.

Yours sincerely,

Intervention group letter 2nd Interview

Dear

I am writing to confirm an appointment for you to follow up on our meeting about two months ago. At that meeting we discussed your current activities and your plans for the future.

We have arranged to meet with you at:

Centrelink (address of office)
At (time) on (day and date).

If you cannot make the appointment at this time, please get in touch with me as soon as possible to make new arrangements. I can be contacted on [phone number]. It is important to note that if you do not attend this appointment your payment may be affected..

At the interview I will confirm your circumstances and discuss progress towards your goals and any further assistance Centrelink is able to offer.

The interview should take around 40 minutes. When you come to the interview please bring this letter with you. On arrival at the office, please hand this letter to the officer at reception.

Yours sincerely

INTERVENTION GROUP – SAID 'YES' TO 3RD INTERVIEW BUT NO PHONE NUMBER IN RECORDS – ASKED TO RECONSIDER

<<TITLE>> <<FIRST_NAME>> <<LAST_NAME>>

<<HOME_ADDRESS>>

<<HOME_SUBURB>> <<HOME_STATE>>

<<HOME_POSTCODE>>

Dear <<TITLE>> <<LAST_NAME>>,

I'm writing to thank you for being a part of the trials last year when you attended two interviews held by Centrelink staff. Most people have said how helpful and positive they found these interviews. We are now about to start on the third and final phase of these trials and need your help one more time. We would really appreciate the opportunity to talk with you **but do not have your telephone number on our record.**

This final phase will involve a short telephone interview lasting about 15-20 minutes, undertaken by A.C. Nielsen, a market research company. **Nothing you say in the interview will affect any payment that you or your family may be receiving.** If there is a telephone number where we can reach you, please contact this office as soon as possible on
1800 809 819. This is a toll-free number attended between 8.30am and 5pm (Eastern Standard Time) Monday to Friday. You may also call 1800 809 819 if you wish to be interviewed in a language other than English, or if you have any queries.

I sincerely hope that you will contact us very soon on the above number. Thanking you for your assistance.

Yours sincerely,

INTERVENTION GROUP – SAID 'NO' TO 3RD INTERVIEW BUT PHONE NUMBER IN RECORDS, ASKED TO RECONSIDER

<<TITLE>> <<FIRST_NAME>> <<LAST_NAME>>

<<HOME_ADDRESS>>

<<HOME_SUBURB>> <<HOME_STATE>>

<<HOME_POSTCODE>>

Dear <<TITLE>> <<LAST_NAME>>,

I'm writing to thank you for being a part of the trials last year when you attended two interviews held by Centrelink staff. Most people have said how helpful and positive they found these interviews. We are now about to start on the third and final phase of these trials and need your help one more time.

This final phase will involve a short telephone interview conducted by A.C. Nielsen, a market research company. At a previous interview with Centrelink you said you would rather not be phoned for a third interview. I would really like you to reconsider. The phone interview should take only about 15 minutes and it is very important to us, and vital for the project, that you take part. **Nothing you say in the interview will affect any payment that you or your family may be receiving.**

If you are able to take part in this short interview and there is a telephone number where we could reach you, please contact this office as soon as possible on 1800 809 819. This is a toll-free number attended between 8.30am and 5pm (Eastern Standard Time) Monday to Friday. You may also call 1800 809 819 if you wish to be interviewed in a language other than English, or if you have any queries.

I sincerely hope that you will contact us very soon on the above number. Thanking you for your assistance.

Yours sincerely,

INTERVENTION GROUP – SAID 'NO' TO 3RD INTERVIEW – NO PHONE NUMBER IN RECORDS, ASKED TO RECONSIDER

<<TITLE>> <<FIRST_NAME>> <<LAST_NAME>>

<<HOME_ADDRESS>>

<<HOME_SUBURB>> <<HOME_STATE>>

<<HOME_POSTCODE>>

Dear <<TITLE>> <<LAST_NAME>>,

I'm writing to thank you for being a part of the trials last year when you attended two interviews held by Centrelink staff. Most people have said how helpful and positive they found these interviews. We are now about to start on the third and final phase of these trials and need your help one more time.

This final phase will involve a short telephone interview conducted by A.C. Nielsen, a market research company. At a previous interview with Centrelink you said you would rather not be phoned for a third interview. I would really like you to reconsider. The phone interview should take only about 15 minutes and it is very important to us, and vital for the project, that you take part. **Nothing you say in the interview will affect any payment that you or your family may be receiving.**

If you are able to take part in this short interview, please contact this office as soon as possible on 1800 809 819. This is a toll-free number attended between 8.30am and 5pm (Eastern Standard Time) Monday to Friday. You may also call 1800 809 819 if you wish to be interviewed in a language other than English, or if you have any queries.

I sincerely hope that you will contact us very soon on the above number. Thanking you for your assistance.

Yours sincerely,

INTERVENTION GROUP – ASKING CUSTOMERS TO CONTACT ACNIELSEN FOR 3RD INTERVIEW – NO PHONE NUMBER RECORDED

<<TITLE>> <<FIRST_NAME>> <<LAST_NAME>>

<<POSTAL_ADDRESS >>

<<POSTAL_SUBURB>> <<POSTAL_STATE>>

<<POSTAL_POSTCODE>>

Dear <<TITLE>> <<LAST_NAME>>,

I wrote to you recently about being involved in a short telephone interview for the Department of Family and Community Services (FaCS). I would really value your involvement in this third and final interview, and would like to offer you another way to participate that might suit you better.

To make it easier to participate, ACNielsen, a market research company, have set up a **freecall** number for you to phone them on. It is **1800 642 837** and is open between **9.30am** and **9.00pm** from **2 April to 8 April 2001**. If you call this number, someone at ACNielsen will be able to organise an interview with you over the telephone.

This interview will only take about 15 minutes and will be a shorter version of the interviews you had with Centrelink late last year. The information you provide to ACNielsen will only be used for research purposes. **Your comments will be treated confidentially and nothing you say in the interview will affect any payment that you or your family may be receiving.**

If you have any other questions about the interview or would like to be interviewed in a language other than English, you can contact this office on 1800 809 819. This is a toll-free number attended between 9.00am and 5.00pm (Eastern Standard Time) Monday to Friday.

Your participation in this final interview is very important and will help us to better understand the needs of our customers and so improve our services to you.

Thank you for your assistance.

Yours sincerely

Appendix A8.2: Variable Description for Participation Logit Estimations

Variable	*Description*
Age	Age in years at 30 September 2000
Female	Dummy variable taking on the value of 1 if individual is female and 0 otherwise.
Marital Status	
Married	Dummy variable taking on the value of 1 if individual is married or de facto and 0 otherwise.
Separated	Dummy variable taking on the value of 1 if individual is separated, widowed, divorced and 0 otherwise.
Never married	Dummy variable taking on the value of 1 if individual has never been married or de facto and 0 otherwise.
Dependent Children	
Age of youngest child	The age of the youngest child
Birthplace	
Australian born	Born in Australia
Overseas English speaking	Born overseas in an English speaking country
Overseas non-English speaking	Born overseas in a non-English speaking country
Living Circumstances	
Has moved in last 6 months	Has changed reported postcode in the 6 months January 2000 to June 2000
Own home	Dummy variable which is 1 if the individual owns a home or is purchasing a home and 0 otherwise.
Private rental	Dummy variable which is 1 if the individual rents privately and 0 otherwise.
Government rental	Dummy variable which is 1 if the individual rents from Government and 0 otherwise.
Boarding	Dummy variable which is 1 if the individual pays board, lodging, mooring fees, site fees, maintenance fees for a nursing home or retirement village and 0 otherwise.
Other arrangements	Dummy variable which is 1 if the individual has other arrangements or pays no rent and 0 otherwise.
Centrelink Location	
Brisbane	Dummy variable taking on the value of 1 if the individual was chosen from the Brisbane region Centrelink Location and 0 otherwise.
Pacific	Dummy variable taking on the value of 1 if the individual was chosen from the Pacific region Centrelink Location and 0 otherwise.
Hunter	Dummy variable taking on the value of 1 if the individual was chosen from the hunter region Centrelink Location and 0 otherwise.

Variable	*Description*
West_NSW	Dummy variable taking on the value of 1 if the individual was chosen from the West NSW region Centrelink Location and 0 otherwise.
South Australia	Dummy variable taking on the value of 1 if the individual was chosen from the South Australia region Centrelink Location and 0 otherwise.
Tasmania	Dummy variable taking on the value of 1 if the individual was chosen from the Tasmania region Centrelink Location and 0 otherwise.
South East Victoria	Dummy variable taking on the value of 1 if the individual was chosen from the South East Victoria region Centrelink Location and 0 otherwise.
West Victoria	Dummy variable taking on the value of 1 if the individual was chosen from the West Victoria region Centrelink Location and 0 otherwise.
Earnings	
Reported earnings in 6 months to June 2000	Has reported earnings in any fortnight in the 6 month period ending June 2000
Unearned Income	
Reported unearned income in 6 months to June 2000	Has reported unearned income in any fortnight in the 6 month period ending June 2000
Previous Activities while on Income Support	
Length of time on income support	Duration of time in days the individual has continuously been on income security payments. Breaks of 6 weeks in the first 12 months and 13 weeks after 12 months are allowed.
Has participated in	
Intensive Assistance	A dummy taking on the value of 1 if the individual has been involved in one of the following activities in the period July 1995 to June 2000 and 0 otherwise - Intensive Assistance
Training Program	A dummy taking on the value of 1 if the individual has been involved in one of the following activities in the period July 1995 to June 2000 and 0 otherwise - Literacy and numeracy, training, adult migrant education, formal training, courses on self employment, Army reserve training, jobs pathway program
Work for the Dole	A dummy taking on the value of 1 if the individual has been involved in one of the following activities in the period July 1995 to June 2000 and 0 otherwise - Work for the Dole voluntary or compulsory participant

Variable	*Description*
Voluntary work	A dummy taking on the value of 1 if the individual has been involved in one of the following activities in the period July 1995 to June 2000 and 0 otherwise - engaged in voluntary work
Has received an Exemption	A dummy taking on the value of 1 if the individual has been exempted from an activity during the period July 1995 to June 2000 and 0 otherwise
Has had administrative breach	A dummy taking on the value of 1 if the individual has received an administrative breach during the period July 1995 to June 2000 and 0 otherwise
Has had activity breach	A dummy taking on the value of 1 if the individual has received an activity breach during the period July 1995 to June 2000 and 0 otherwise

Appendix A8.3: Participation in Wave 3 - Age Restricted Group

	Age Restricted Intervention Group		*Control Group*	
	Odds Ratio	***z-value***	***Odds Ratio***	***z-value***
Age	1.034	3.66	1.034	3.71
Female	1.801	4.39	1.466	2.89
Marital status				
Married	1.320	1.46	1.136	0.72
Separated	0.826	-1.20	0.540	-3.66
Never married				
Dependent children				
Age of youngest child	1.020	0.82	1.030	1.37
Birthplace				
Australian born				
Overseas English speaking	1.129	0.45	1.032	0.12
Overseas non-English speaking	0.735	-1.24	0.486	-2.78
Living circumstances				
Has moved in last 6 months	0.517	-2.85	0.571	-2.40
Own home	1.652	2.38	1.026	0.13
Private rental				
Government rental	1.321	1.39	1.148	0.69
Boarding	2.011	3.94	1.554	2.49
Other arrangements	1.440	1.77	1.367	1.59
Centrelink location				
Brisbane	0.619	-2.06	0.817	-1.00
Pacific	0.466	-3.21	0.490	-3.47
Hunter				
West NSW	0.532	-1.90	0.652	-1.44
South Australia	0.771	-1.07	0.467	-2.86
Tasmania	0.622	-2.45	0.492	-3.72
South East Victoria	0.589	-2.32	0.279	-5.70
West Victoria	0.688	-1.81	0.486	-3.37
Earnings				
Reported earnings in six months to June 2000	1.109	0.71	1.109	0.79
Unearned income				
Reported unearned income in 6 months to June 2000	1.675	2.75	1.428	2.02
Previous activities since July 1995				
Length of time on income support	1.009	0.48	0.985	-0.78
Has participated in				
Intensive Assistance	1.590	3.36	1.317	2.08
Training program	1.177	1.15	1.183	1.20
Work for the Dole	1.941	3.21	1.704	2.71
Voluntary work	1.674	2.39	1.043	0.18
Has received an exemption	1.111	0.82	1.163	1.20
Has had administrative breach	0.499	-2.23	0.713	-1.29
Has had activity breach	0.524	-2.42	0.459	-3.04
Sample size	2729		1800	
Pseudo R square	0.089		0.090	
Per cent correctly allocated	63.87		63.89	

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