6293.0.00.005

Australian Bureau of Statistics

Occasional Paper

# Labour Market Outcomes of Low Paid Adult Workers

## An Application Using the Survey of Employment and Unemployment Patterns

New Issue

# Occasional paper

# Labour Market Outcomes of Low Paid Adult Workers

## An Application Using the Survey of Employment and Unemployment Patterns

Yvonne Dunlop
Centre for Strategic Economic Studies
Victoria University
Melbourne

This occasional paper is intended to make the results of current research available to other interested parties.

Views expressed in this paper are those of the author and do not necessarily represent those of the Australian Bureau of Statistics nor Victoria University. Where quoted or used, they should be attributed clearly to the author.

AUSTRALIAN BUREAU OF STATISTICS

EMBARGO: 11.30 AM (CANBERRA TIME) FRI 17 MAR 2000

ABS Catalogue no. 6293.0.00.005
ISBN 0 642 47705 1



Produced by the Australian Bureau of Statistics

**INQUIRIES**

- For further information about the analysis in this occasional paper, contact Yvonne Dunlop 02 6279 8109.
  For information about the Survey of Employment and Unemployment Patterns, contact Mel Butler on Canberra 02 6252 5936.

## CONTENTS

## LIST OF TABLES AND GRAPHS

## LIST OF ABBREVIATIONS AND OTHER USAGES

ABBREVIATIONS

| | |
|---|---|
| ABS | Australian Bureau of Statistics |
| AIRC | Australian Industrial Relations Commission |
| ASCO | Australian Standard Classification of Occupations |
| OECD | Organisation for Economic Co-operation and Development |
| PRG | Population Reference Group |
| SEUP | Survey of Employment and Unemployment Patterns |

SYMBOLS

* Subject to sampling variability too high for most practical purposes.

## PREFACE

This occasional paper has been written by Yvonne Dunlop of Victoria University (Melbourne) under the auspices of the Survey of Employment and Unemployment Patterns Research Fellowship scheme. This scheme has been established to facilitate high quality analysis of the survey data by researchers who have experience in the analysis of longitudinal data and an in-depth understanding of labour market issues and operations.

After exploring the extent of low pay among adult workers in Australia, this paper identifies those factors that increase the risk of low pay. A model is then developed to investigate what factors may help these workers make the transition to better paying jobs. To better understand the impact of joblessness on people's labour market outcomes, the analysis is performed on both a representative sample of the general population and a group who are identified as having experienced a recent spell of joblessness or underemployment.

Barbara Dunlop
First Assistant Statistician
Social and Labour Division
Australian Bureau of Statistics

## SYNOPSIS

This paper uses data from the longitudinal Survey of Employment and Unemployment Patterns (SEUP), conducted by the Australian Bureau of Statistics (ABS) during 1995 to 1997, to examine the incidence of low pay and the earnings mobility and transition patterns of adult low paid wage and salary earners in Australia. The particular focus of the paper is to identify the extent of joblessness among adult low paid workers and examine the impact of joblessness on subsequent labour market transitions. This is achieved through analysing aggregate transition probabilities for low paid adults taken from two groups—the Population Reference Group (PRG) sample, representing Australia's general population, and the Jobseeker group, the majority of whom have experienced joblessness within the recent 12 month period. An empirical modelling approach using nested logit techniques for the transition period September 1995 to September 1996 is also undertaken to determine what factors may be associated with earnings mobility and transition patterns of low paid workers.

Examination of low pay incidence shows that at September 1995, there were about one million adult wage and salary earners who worked for low pay. As in other developed countries, specific groups of workers—adults who have never married, women, workers with low education levels and poor English proficiency, workers living in rural areas—are more likely to be found in the low paid group. Further, results indicate that the amount of joblessness in a worker's past is positively associated with the likelihood of low pay. In contrast, the potential to be low paid is significantly less for those who had improved their job skills through training during the past year, for workers who had a tertiary education, and as tenure in the current job increased.

Job related characteristics are also linked with the likelihood of low paid employment. Results in this paper indicate that the risk of being low paid is negatively associated with firm size, and skill, as measured by the occupation of the worker. Private sector employees and casual workers are more likely to be found among the low paid.

Observed labour market transition and earnings patterns using the PRG sample, indicate that there are many different 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 of all those employed to experience joblessness within the year. For Jobseekers, low paid work is even less likely to be the path to higher paying jobs. Comparison of aggregate transition rates for the Jobseeker and the PRG samples suggest that workers who are low paid and who have experienced a recent spell of joblessness or underemployment have double the chance of low paid workers in the general population to exit to joblessness and are four times more likely than higher paid adult wage and salary earners in the general population to move out of employment. This implies that joblessness has a negative impact on the labour market transitions of low paid workers in the Australian labour market.

Empirical modelling using nested logit techniques attempts to identify factors that may be associated with the probability of employment and the probability of the movement to higher pay for low paid adults. Results confirm the dominant influence of the amount of work in the previous 12 month period on the probability of employment. It is the low paid workers who have experienced the most amount of joblessness in the recent past who are the most likely to be out of a job within a year. This result implies that some workers can become trapped in a cycle of low pay and no pay where the chances of escape decrease with greater amounts of joblessness.

Consistent with research overseas, empirical modelling of transition rates for the population of low paid workers from the PRG and low paid jobseekers also suggests that there are particular groups of low paid adults such as those aged 30 or under and workers living in urban areas who have greater potential to escape low pay for better paying jobs. Further, low paid men in general are more likely to escape low pay than women, but men who have recently experienced joblessness as represented by the Jobseeker sample lose their advantage in escaping low pay, perhaps reflecting a greater scarring effect of joblessness for men.

Another important result of empirical modelling in this paper is the association between job related factors and negative labour market outcomes for low paid Jobseekers. This suggests that employer related factors such as conditions of employment, sector and firm size may have an important influence on a worker's ability to move out of a cycle of low pay and no pay.

## SECTION 1 INTRODUCTION

It is well known that the past twenty years has been a period of fundamental change in the Australian labour market. Borland (1998) has documented the fact that there has been an increasing dispersion of earnings between workers. Australia has had persistently high levels of unemployment since the early nineties with the unemployment rate remaining over 8% throughout the period to 1998. There has also been evidence to suggest that the very nature of work itself has changed markedly over the past two decades. For example, 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. Burgess (1997) has reported that part-time employment for both men and women has been on the increase. 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 shifts towards negotiated work contracts between employers and workers, with an aim to improve productivity and increase flexibility in the labour market.

Within this climate of change where the dispersion of workers' earnings has been widening, there is a growing interest in understanding more about those at the bottom of the earnings distribution—the low paid. In the recent Australian literature, a number of issues concerning low paid workers have been addressed. Richardson and Harding (1999), Harding and Richardson (1998), Richardson (1998), and Eardley (1998) have investigated living circumstances, income and poverty among low paid workers. Plowman (1995) and Gill (1990) have discussed the protection of low paid workers in the context of Australia's wage determination system. Mitchell (1999) has argued that, given such marked changes in work arrangements for earners in the Australian labour market, it is important to examine issues relating to labour market experiences and outcomes such as lifetime earnings potential, employment opportunities and work entitlements for workers who are low paid.

This paper adds to the Australian literature by investigating earnings mobility and labour market transitions among low paid adult wage and salary earners in Australia. The importance of research investigating the labour market outcomes of low paid workers is fundamentally motivated from a life cycle perspective. There will always be persons who work for low pay. If it is found that these workers are trapped in low paid jobs for extended periods with few avenues for earnings progression, then this raises important social welfare and equity issues. If, however, those who are low paid can move to better paying jobs by increasing their skills and gaining labour market experience over a relatively short period of time then these issues become less significant.

A major conclusion that has been drawn from the international literature is that, although there has been substantial movement of low paid workers out of low pay, a considerable number do not move onto higher paid jobs but to joblessness (Stewart and Swaffield, (1999) and OECD, (1997)). This highlights the importance of not only addressing earnings mobility among low paid workers but also their labour market transition patterns over time. To what extent do low paid workers in Australia experience joblessness? Does joblessness affect their subsequent labour market experiences?

A greater understanding of the experiences of low paid workers is particularly relevant within the Australian context where this research can add to 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), AIRC (1999)). Also, a great deal of debate has been concerned with finding solutions to Australia's unemployment problem. As the unemployed are more likely to be low skilled and less educated, increasing the number of low paid jobs to provide more employment opportunities for the unemployed is an important issue in the current debate. Understanding the nature of low paid work, labour market outcomes and the extent of joblessness among low paid workers can provide policy makers with a better understanding of this issue. The importance of this research has been noted 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." (Debelle, 1998, p.6)

Although there have been many studies which have investigated this issue in the international literature, the dynamics of low paid employment is an area of new research in Australia, because, until recently, appropriate data has not been available. Analyses of labour market outcomes of the low paid require the use of longitudinal data sets in which the experiences of the same individuals are traced over a number of years. This paper uses data from a longitudinal survey conducted by the ABS during 1994 to 1997. The Survey of Employment and Unemployment Patterns (SEUP) provides information about the labour market experiences of three groups of workers over the three year period.

Specifically, this paper has three main objectives. The first is to explore the incidence of low pay among adult wage and salary earners and identify factors that are associated with the risk of being low paid in Australia. Second, observed earnings mobility and transition patterns of low paid workers are investigated and using an econometric modeling approach, factors that may be associated with both improved and negative labour market outcomes for low paid workers are identified. Third, in an attempt to understand the extent and impact of joblessness on low paid workers, this paper presents a comparison of the labour market experiences of two groups—a representative sample of the population of low paid workers in Australia and a group who are identified as having experienced a spell of joblessness or underemployment during the past year.

Specifically, adults aged 21 to 59 who are wage and salary earners and are not in full-time study are the focus group for analysis. Although there is a high incidence of low pay among persons aged under 21 (Eardley, 1998), young workers and persons studying full time are excluded from this analysis. These workers are the most likely to be still making career and education choices such as combining work and study which may have a significant bearing on their future labour market experiences.

The paper is structured as follows. First, section 2 presents a brief overview of the results of overseas literature on the incidence of low pay and on the labour market outcomes of low paid workers. Section 3 describes the data drawn from the SEUP used in this paper and discusses the definition of low pay and other measurement issues. Section 4 examines the incidence of low pay among adult wage and salary earners in Australia and identifies factors associated with the risk of being low paid. In Section 5, the labour market transitions and earnings mobility patterns of low paid workers are investigated. Section 6 presents an analysis of the factors associated with the labour market outcomes of low paid workers and Section 7 draws together the main conclusions of the study.

## SECTION 2 LOW PAID WORK—AN OVERVIEW

There is a wealth of overseas literature that has investigated issues relating to low paid workers and the dynamics of low paid employment. Over recent years, much of this work has been undertaken in countries of the European Union, especially the UK where equity issues relating to low paid workers have been a major policy concern (Sloane and Theodossiou, 1994).

### TRADITIONAL THEORIES

From a theoretical perspective, the current literature relating to low paid workers challenges traditional views of how the labour market operates. In a perfectly competitive labour market, the wage rate reflects the position where the demand for labour and supply are equal. Observed differentials between the wages paid to workers represent, among other things, differences in their levels of skill, experience and abilities, and individual preferences such as the willingness to undertake high risk jobs. A worker can increase earnings by acquiring labour market skills through training, education and work experience.

### SEGMENTED LABOUR MARKETS

Segmented labour market theories raise questions about the potential for workers to be trapped in low pay jobs not because they lack ability or skills but because of the structures and/or the institutional settings which characterize the operating labour market (Rubery, 1978). This theory rests on the assumption that the labour market is divided into primary and secondary markets. Low skilled jobs tend to be found in the secondary labour market where there is poor security, low pay, very little prospect for advancement and generally no collective voice raising the potential that a worker may be trapped in a low paid job. Although the extent to which labour markets can be characterised in this way is still under debate, there is empirical evidence to suggest that labour market outcomes can be affected by factors relating to labour market structure (Dunlop and Sheehan, 1998).

### EMPIRICAL STUDIES

Based on these theoretical considerations, empirical work relating to the employment and wage outcomes of low paid workers has focussed on two areas—the incidence of low pay among wage and salary earners and the capacity of workers to escape low pay by moving onto higher paying jobs. In particular, work has concentrated on identifying variables, both demographic and job related that are associated with the persistence of low pay.

### Studies on the incidence of low pay

Although the actual number of workers who are found to be low paid varies because of differences in definitions and institutional factors relating to specific countries, most studies find that there are specific groups of workers for whom the likelihood of low pay is greatest. For example, using descriptive statistics, this research consistently finds that women are more likely to be low paid, reflecting in part the fact that most women have less labour market experience and lower educational qualifications than men (Fernie and Metcalf, (1996), Asplund and Persson, (1999)). Also, younger workers, those who have the least amount of education, workers in the sales and personal service areas and unskilled labourers (OECD, 1996) are found to be those at greatest risk of low paid employment.

For Australia, Harding and Richardson (1998) and Eardley (1998) have presented descriptive information about the characteristics of low paid workers[1] using the Income Distribution Survey of 1995–96. Their findings are consistent with those reported in studies overseas. Eardley, for example, reports that in 1995–96, the incidence of low pay among adult women was greater than men by about 3 percentage points. He also finds that those with no post secondary education, those who have never been married and young persons are disproportionately found among low paid workers.

Many UK studies have also investigated the relationship between the likelihood of low pay and job related characteristics. For example, Fernie and Metcalf (1996) find that the risk of being low paid is greater for workers who are employed part-time and Stewart and Swaffield (1997) find that employees who are in a non-unionised workplace are more likely to be low paid. A higher risk of being low paid is also found to be negatively associated with the size of the workplace.

### Studies on the dynamics of low pay

Although it has been important to identify factors relating to the incidence of low pay, the issue of low pay dynamics has been a major focus of studies of low paid employment. In particular, what is the extent of upwards earnings mobility among low paid workers? To this end, many studies have focussed on workers who are continuously employed or those who work in full-time employment. Findings indicate that, in general, there is considerable movement out of low pay. Over time, young men are the most likely group to move onto higher paid work. Also, education and training are found to significantly reduce the probability of remaining low paid. Factors found to negatively impact on upwards earnings mobility include part-time employment, lack of union coverage at the workplace and employment with a small firm.

1 Both studies include workers under the age of 21 in their analyses.

Studies on the dynamics of low pay *continued*

Recent studies, however, have suggested that concentrating on continuously employed workers does not describe the complete picture about the employment outcomes for low paid workers. Research which has investigated labour market transition patterns (Stewart and Swaffield, 1999) has concluded that, although many workers move out of low pay, a significant amount of this transition is to joblessness rather than to higher earnings in the labour market. Failing to take these transitions into account in empirical work may overstate the extent of upwards earnings mobility among low paid workers.

Hence, this literature identifies the importance of addressing the transitions to joblessness as well as upwards earnings mobility in analyses of low paid workers. The comparative study undertaken by the OECD (1997) provides a useful summary for the results of this research. Although earnings mobility is substantial, "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" (OECD, 1997 p.27).

## SECTION 3 DATA AND MEASUREMENT ISSUES

### THE SURVEY OF EMPLOYMENT AND UNEMPLOYMENT PATTERNS

The Survey of Employment and Unemployment Patterns is a longitudinal survey conducted by the Australian Bureau of Statistics covering the period September 1994 to September 1997. Respondents were aged 15 to 59 and were selected into the survey around May 1995. Interviews to collect data for these respondents were also done at this time and in September to October of 1995, 1996 and 1997. The survey comprised three sub-samples.

**Jobseekers**

The largest sub-sample comprised 5,488 persons (termed Jobseekers). These were individuals aged 15 to 59, living in private dwellings in both rural and urban areas of Australia and identified in May 1995 as either unemployed, underemployed or marginally attached to the labour market. The underemployed and marginally attached comprised only 20% of individuals recruited as Jobseekers. The underemployed included persons who were working part-time but who stated their desire to work more hours. The marginally attached included individuals who were discouraged from the labour force, that is, individuals who wanted a job but had ceased job search due to difficulties in finding employment. Other people who were prepared to commence work but who believed that there was no work available for them made up the balance of the marginally attached group. Persons who were studying full-time and desired a part-time job were not included in the sample.

**Population Reference Group**

A second smaller sub-sample drawn to represent the Australian population was also followed over the three year period. The Population Reference Group (PRG) comprised 2,311 persons aged 15 to 59 residing in private dwellings across urban and rural areas of Australia. The inclusion of this sub-sample made it possible to compare the labour market experiences of Jobseekers with the population of workers as a whole.

**Labour Market Program participants**

Another group of 1,019 persons made up the third sub-sample. These persons had commenced a subsidised employment placement and/or commenced a labour market training program between July 1994 and February 1995. This group was included in SEUP so that questions about the effectiveness of labour market programs could be addressed. Due to the small sample size, this group is not used for analysis presented in this paper.

**The SEUP data**

At each interview, two levels of information were collected. First, data was collected about the respondent at the time of the interview. These included details on current demographic and social characteristics of the respondent such as gender, age, educational qualifications, family structures, place of residence, weekly income, hours of work and annual income for the previous financial year from various sources. Information about current labour force status and, if working, the current job was

The SEUP data *continued*

also gathered. At each interview, respondents were also asked about the labour market experiences of other family members such as their spouse and/or their parents and other adults in the family. Details concerning past labour force history of themselves, their spouse and/or their parents were collected at recruitment to the survey.

Second, episodal information relating to each respondent's experiences in the labour market over the previous 12 month period was gathered. These data covered details on each spell of work, each period of looking for work and each period of time spent out of the labour market. For each spell of work during the previous 12 months, information about the job such as industry, occupation, employer size, hours of work, usual weekly earnings, permanent or casual status and sector of employment was collected. Job search data covered details on methods of search, job offers received and type of work desired. Information about each spell of absence from the labour market during the past year completed the picture of the yearly labour market experience for each person.

These data together allowed a continuous labour market history of all respondents for the period September 1994 to September 1997 to be formed. If any spell of work, job search or not in the labour force continued to the next interview date then details for this spell were collected again.

Weighting

Longitudinal weights which were assigned to individuals for each year were provided by the ABS. These weights were based on independently estimated distributions of the population and Jobseekers by various individual characteristics[1]. They also accounted for sample design and attrition[2] in the survey. Implementation of these weights allowed population estimates relating to each sample to be calculated.

## THE DEFINITION OF LOW PAY

There is no objective measure of low pay and hence many different definitions are used in the literature[3]. In studies relating to labour market outcomes, the most widely used approach, which is adopted in this paper, is to define a low pay threshold relative to the distribution of earnings across workers. The threshold is generally based on an hourly rate of pay which reflects the level of remuneration for skill, training, productivity and risk undertaken in a job and avoids issues relating to variations in hours worked between individuals[4].

1 For more information about the weighting procedure see ABS (1995).

2 The attrition rate for SEUP is similar to the level of attrition in other longitudinal surveys. See ABS (1995) for more information about the attrition in the survey.

3 Webb, Kemp and Millar (1996) provide a discussion of various measures of low pay based on labour market considerations and on poverty and needs.

4 A cutoff based on weekly pay could simply mean that the individual worked a small number of hours.

## The low pay threshold

The choice of the low pay threshold used in this paper is based on a number of considerations. First, an important component of Australia's wage determination system is the protection of its 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) in 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) choose a rate of $10 per hour for wage and salary earning adults in 1994–95. Harding and Richardson (1998) and Mitchell (1999) implement a threshold rate of $10 per hour in 1995–96 whereas Eardley (1998) uses a lower threshold of 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.

Based on these considerations, 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 (ABS Cat. no. 6302.0)[6]. Table 3.1 presents the hourly pay thresholds for September 1995 to September 1997. As the average weekly total earnings rose by 7% during the survey period, the low pay threshold increased to $10.12 in September 1995 and reached $10.76 by September 1997.

For comparative purposes, the defined low pay threshold is also presented in table 3.1 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 between $20,000 and $21,300. If an individual worked full-time for 38 hours per week, the weekly amount would be approximately 55% 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% of the median hourly earnings for all full-time and part-time workers in Australia.

---

5 Sensitivity tests using different low pay thresholds—$9.50 and $10.50—have been conducted and are available from the author. The broad conclusions presented in this report were found to hold 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. Hence using movements in the average weekly earnings attempts to capture the movements in the hourly wage distribution over time.

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 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% was assumed to apply to the pay rates of respondents who were identified as casually employed. The figure of 20% is based on work undertaken by Dawkins and Norris (1990). They estimate that a casual premium of 19.5% represents the amount required to offset casual workers for loss of holiday pay and sick leave entitlements (page 158). Hence, in order 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.

**3.1** THE DEFINED LOW PAY THRESHOLD—1995 TO 1997

| | *1995* | *1996* | *1997* |
|---|---|---|---|
| **Gross hourly rate ($)** | **10.12** | **10.47** | **10.76** |
| Per cent of median of estimated hourly earnings distribution for all workers | 73 | 72 | 73 |
| AIRC minimum wage rate ($ 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) | 19 997.12 | 20 688.72 | 21 261.76 |

(a) Based on the weekly minimum wage of $359.40 divided by 38.
(b) Average Weekly Earnings, States and Australia (Cat. no. 6302.0).

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 episodal information. For a small number, a reasonable match between the information provided at the interview date about current employment arrangements and the daily labour market history could not be obtained. These data were discarded.

## SECTION 4 LOW PAID WORK IN AUSTRALIA

### THE INCIDENCE OF LOW PAY

SEUP finding

Estimates of the percentage of wage and salary earners from the general population aged between 21 and 59 who are low paid over the period of the SEUP survey using the PRG are presented in Table 4.1. About one million persons or just under one in five of all adult wage and salary workers earned under the defined low pay threshold during 1995 to 1997.

**4.1** THE INCIDENCE OF LOW PAY, 1995 TO 1997—PRG SAMPLE

| | *1995* | *1996* | *1997* |
|---|---|---|---|
| Estimated number of wage and salary employed adults ('000) | 5 147 | 5 594 | 5 565 |
| Estimated number of low paid workers ('000) | 981 | 1 010 | 1 030 |
| Per cent who are low paid | 19.1 | 18.1 | 18.3 |
| Sample size (no.) | 1 127 | 1 124 | 1 054 |

Other findings

Other estimates of the incidence of low pay in Australia have been reported by Eardley (1998) and Harding and Richardson (1998) who both use data from the 1995–96 Income Distribution Survey (ABS Cat. no. 6523.0). In comparison, the incidence of low pay for the general population reported using the SEUP data is higher than the other reported estimates. Eardley estimates the incidence of adult low pay as 10.6%[1] and Harding and Richardson find that 15%[2] of all wage and salary earners are low paid in 1995–96.

Comparison of findings

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 paper. 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.

Another important reason for the higher reported estimate of low pay incidence in this paper 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

1 Using Eardley's low pay threshold and the SEUP PRG sample, the estimate of low pay incidence is 8.6%.

2 Using Harding and Richardson's low pay threshold and the SEUP PRG sample, the estimate of low pay incidence is 15.1%.

Comparison of findings *continued*

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% during the survey period, indicating that the adjustment increases the low pay incidence rate by about 3 percentage points.[3]

## THE PROBABILITY OF LOW PAY

Who is at risk of being low paid? As reported in Section 2, many overseas studies have found that the risk of low pay is higher for workers with particular characteristics. Also, job related characteristics have been found to be significantly associated with low pay. In order to identify the relative importance of these factors on low paid employment in Australia, an empirical approach which estimates the probability of being low paid over the period 1995 to 1997 is adopted.

Estimating low pay probabilities

Using the PRG sample, a discrete choice regression technique, pooled probit regression[4] (Maddala, 1987) is implemented to estimate the probability that a wage and salary earner in Australia is low paid. This analysis provides useful initial information to identify workers who may have potential to become trapped in low paid jobs. It is not intended, however, to establish causality but to identify factors that are associated with the risk of low pay.

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—personal characteristics, 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 A.

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 greater than 1.96 or less than –1.96 indicates that, with 95% probability, the coefficient is significantly different from

3 A sensitivity analysis of the results without adjusting for the permanent/casual distinction has been conducted. Although there are significant differences in the reported low pay incidence, this adjustment makes very little difference in the overall results reported in this paper. Specific details are available from the author on request.

4 Random effects probit regression which account for specific individual effects which may bias the estimates 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.

Estimating low pay probabilities *continued*

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 672 suggests that the included variables are jointly significant in determining the risk of being low paid.

**4.2** PROBIT ESTIMATES OF THE PROBABILITY OF LOW PAY, 1995 TO 1997—PRG SAMPLE

| | *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 |
| 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 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 characterisitics | | | |
| 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 |
| Trade | –0.026 | –0.285 | –0.006 |
| Services | –0.086 | –1.037 | –0.018 |
| Government, education & health | –0.067 | –0.620 | –0.014 |
| Associated professionals, tradespersons and advanced clerical workers | 0.069 | 0.637 | 0.015 |
| Intermediate production and clerical workers | 0.098 | 0.937 | 0.022 |
| Elementary clerical workers and 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 — 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 $R^2$ | 0.221 | — | — |
| Number of Observations | 3134 | — | — |

Personal characteristics

Personal characteristics included in the estimation of the probability of low pay are gender, age, marital status, the presence of dependent children, geographic 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 of being low paid.

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 eighties in Australia,[5] 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, 1999) indicating 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. 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[6] 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. 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 more likely to be low paid. The exclusion of younger workers in this paper may contribute to the insignificance of this factor in the reported results.

5 His work relates to workers aged 15 and over.

6 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.

Personal characteristics *continued*

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. Coefficient estimates indicate 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% 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 well at all were at a higher risk of being low paid by about 10 percentage points. Similarly, workers living in a 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% in Preston's study to 30% for Rummery.

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.

Human capital factors *continued*

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

Human capital factors *continued*

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% 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.

Job related factors

As suggested by other studies (Sloane and Theodossiou, 1994, Gregory and Elias, 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.

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 11 and 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.

Job related factors *continued*

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 Wooden and Hawke (1998) and Burgess and Campbell (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.[7]

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 (ABS 1997) classifies occupations by skill level. In this study, this classification is used to divide individuals into 4 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 low pay risk this is higher by 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 pay measure which was used to define low paid earners could not be used to identify individual pay rates for multiple job holders.

7 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 by any substantial amount.

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, 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 in 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% 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.

Summary

In summary, the results of the regression 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 have the highest likelihood of being low paid.

Further, human capital factors are also found to be significantly associated with the likelihood of low pay. In particular, results indicate that having a tertiary qualification significantly reduces low pay risk, as does acquiring job skills through training during the most recent twelve month period. Also, the longer a worker is in a job, the less likely it is that he/she will be low paid. Similarly, the greater the amount of time spent in employment since leaving full-time education, the lower is a worker's potential for low pay.

Consistent with overseas studies, job related factors are 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

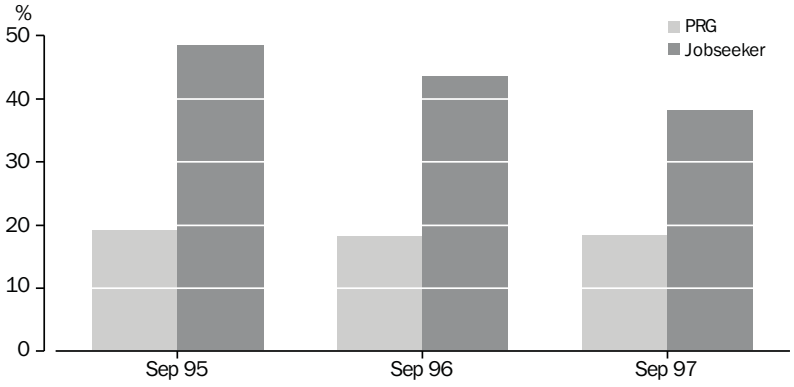
Summary *continued*

the likelihood of low pay. Those casually employed, workers in the private sector and workers who hold multiple jobs are also found to be most prevalent among the low pay group.

## JOBSEEKERS AND LOW PAY

Many of these identified low pay risk factors are also related to the risk of unemployment in Australia. Various studies have documented the fact that unemployment is more heavily concentrated among younger persons, those who are less educated and workers whose last occupation was as a labourer or tradesperson. (Harding and Richardson (1998), Borland and Kennedy (1998), Le and Miller(1999)). Saunders (1995) estimates, using the 1990 Survey of Income and Housing Costs and Amenities, that almost three quarters of full-time workers who had experienced a spell of unemployment during the year ending in June 1990 earned less than $500 per week whereas around half of all full-time workers earned less than this amount. Based on these results, it would be expected that persons who have previously experienced joblessness are more likely to seek and secure low paid work.

**4.3** THE INCIDENCE OF LOW PAY, COMPARISON OF PRG AND JOBSEEKER SAMPLES




The Jobseeker sample in SEUP is predominantly a group of individuals who were identified as being jobless at May 1995. The above graph presents a comparison of low pay incidence rates among wage and salary adults in the Jobseeker sample and the PRG for the period of the survey. At September 1995, almost one half of the adult Jobseekers who had secured wage and salary employment were in low paid work. As expected, due to the increasing time since being identified as a Jobseeker, this proportion dropped by 10 percentage points over the survey period suggesting that, as a group, Jobseekers improved their earnings position over time. In comparison to the incidence of low pay among all adult wage and salary earners in Australia however, the percentage of Jobseekers in low paid work, even two years after recruitment to the survey remained twice as high. At September 1997, 38% of wage and salary employed Jobseekers were low paid compared to 18% of all adult wage and salary earners in the population.

## SECTION 5 THE DYNAMICS OF LOW PAY

The incidence rates described above, however, only provide estimates of the extent of low pay at each particular point in time. They give no indication of whether it is the same individuals who are low paid in each time period or the extent to which adult workers move out of low pay onto higher paying jobs or even out of employment altogether from year to year. Although the risk of being low paid at any one time may be higher for adults with particular individual and job related characteristics, it may be the case that these workers move out of low pay quickly and are replaced by others with similar characteristics. The extent of earnings mobility and labour market transition for the low paid is examined in this section using both the PRG and Jobseeker samples by analysing transition probability matrices.

### 5.1 ONE YEAR TRANSITION PROBABILITY MATRIX—PRG SAMPLE

| | | *September 1996* | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *September 1995* | *Distribution—September 1995* | *Low paid* | *Higher paid* | *Non-wage & salary earner* | | *Total in employment* | *Total jobless(a)* | *Sample size* |
| 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.

A transition probability matrix identifies the extent and path of movement between various labour market states of individuals from one time period to another. 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[2] and those absent from the labour market.

1 These workers are those who are self employed, working in a family business for no pay or receive payments in kind. For these individuals, details on their weekly wages and hours of work are not reported in the survey—for them only annual earnings are available.

2 This means those in the labour market but without a job—not Jobseekers as per the definition which identifies the sample of Jobseekers which includes a small proportion of workers who are underemployed or not in the labour force.

## ONE YEAR TRANSITIONS

Using the PRG, 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% were still low paid one year on. The figure in the next column suggests that 45% 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% 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, 86% 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, i.e. 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.

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

Of low paid adults in September 1995, 87% were 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% of those earning higher wages in September 1995, and 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 still earned below the low pay threshold after one year.

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

Of those in low paid employment in September 1995, 13% 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% 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.

3 Hourly earnings could not be generated for some wage and salary earners (approximately 2% in each year). Their transitions are assumed to be random and evenly distributed across the 5 categories.

- Persons unemployed or not in the labour force 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 force at September 1995 remained jobless 12 months later. Of the unemployed who found wage and salary employment, 44% of them secured low paid jobs. Also, 36% of those who moved into wage and salary jobs from Not in the Labour Force moved into a low paid job. In comparison, the average rate of transition to low pay for all those in wage and salary employment in September 1995 was 15%.

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 sample which represents persons who have experienced joblessness or underemployment approximately 4 months prior to September 1995.

## 5.2 ONE YEAR TRANSITION PROBABILITY MATRIX—JOBSEEKER SAMPLE

| | | *September 1996* | | | | | |
|---|---|---|---|---|---|---|---|
| *September 1995* | *Distribution—September 1995* | *Low paid* | *Higher paid* | *Non-wage & salary earner* | *Total in employment* | *Total jobless(a)* | *Sample size* |
| 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 | 797 |
| 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 | 1 685 |
| 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.

A comparison of the transition patterns for the Jobseeker and PRG 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% 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% for higher paid adults in the population as represented by the PRG sample in table 5.1.

- 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.

Some 45% of Jobseekers who obtained low paid jobs by September 1995 and were also working at September 1996 moved above the threshold compared to 52% for the PRG 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% compared to 7% 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%. This compares with 7.3% 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%. This is almost twice the 16% 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% is over twice that reported by the general population of low paid workers (13%) 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% chance of becoming low paid. This compares with and is consistent with the results of table 5.1, where 44% of unemployed persons and 36% of those not in the labour force 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.

## TWO YEAR TRANSITIONS

Two year transition probability matrices using the PRG and Jobseeker 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[4] of the increasing length of time since respondents were identified into the sample.

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% after one year to 20% after two years. For those in higher paid employment the transition rate increased from 6% to 9%.

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.

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

## 5.3 TWO YEAR TRANSITION PROBABILITY MATRIX—PRG SAMPLE

| | | September 1997 | | | | | |
|---|---|---|---|---|---|---|---|
| September 1995 | Distribution—September 1995 | Low paid | Higher paid | Non-wage & salary earner | Total in employment | Total jobless(a) | Sample size |
| 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.

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% at September 1996 (table 5.1) to 51% at September 1997. Further, 70% of the unemployed in September 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 force in September 1995 but entered it, were more likely to be found in employment 2 years on.

## 5.4 TWO YEAR TRANSITION PROBABILITY MATRIX—JOBSEEKER SAMPLE

| | | September 1997 | | | | | |
|---|---|---|---|---|---|---|---|
| September 1995 | Distribution—September 1995 | Low paid | Higher paid | Non-wage & salary earner | Total in employment | Total jobless(a) | Sample size |
| 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 | 1 461 |
| 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% for those unemployed and 29% for those not in the labour force 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% are likely to have moved above the low pay threshold compared to 49% after one year.

## SUMMARY

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 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% 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%. 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.' p.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.

## SECTION 6 FACTORS AFFECTING THE TRANSITIONS OF THE LOW PAID

Conclusions drawn from Section 5 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?

### AVERAGE TRANSITION PROBABILITIES

Table 6.1 presents average one year transition probabilities for low paid workers in 1995 for the PRG and Jobseeker 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'[1] 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.

#### Demographic characteristics

For the population of low paid adult workers as represented by the PRG 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, i.e. those 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% compared with 36% 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% moving to higher paid work compared with 48% for those with no disability.

1 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.

# 6.1 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* |
| **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 not 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 |

## 6.1 DISAGGREGATED TRANSITION PROBABILITIES—1995 TO 1996—*continued*

| | PRG | | | Jobseekers | | |
|---|---|---|---|---|---|---|
| | *Moved to higher pay* | *Stayed low paid* | *Moved to joblessness* | *Moved to higher pay* | *Stayed low paid* | *Moved to joblessness* |
| **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 |
| **Average transition probability** | 45.4 | 41.8 | 12.8 | 32.4 | 39.1 | 28.5 |
| **Sample size** | 205 | | | 454 | | |

(a) For a complete definition of variables see Appendix 2.

In general, the same broad transition patterns, disaggregated by worker characteristics are also evident for the Jobseeker 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 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 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.

### 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 samples. Low

Human capital factors *continued*

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 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 6.1. 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 sample, low paid adults who moved onto higher paid work had spent, on average, 90% of the previous year in paid work whereas those who moved out of employment had only spent 56% 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% and 36% respectively. 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.

Job related characteristics

Table 6.1 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 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 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 (i.e. 10 employees or less) to move onto higher pay over the year. For example, in the PRG sample, the likelihood of a low paid worker in a larger workplace moving to higher pay is 56% compared to 40% 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. Being a multiple wage earner significantly decreases the chance of upwards earnings mobility but also increases the probability of remaining in employment.

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 (ABS 1997). Occupations comprising this group are intermediate production workers, elementary clerical workers and labourers. The results suggest that, for the PRG 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 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.

## 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), modelling 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 as it is named, 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 paper.[2]

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 force. 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.[3] First, the probability that a low paid worker remains employed at time t is estimated.

$$Pr\left(Employed\ at\ t\right) = exp\left(X_{t-1}B^{E}\right) / \left(1 + exp\left(X_{t-1}B^{E}\right)\right), \qquad (1)$$

where $X_{t-1}$ is a vector of explanatory variables at time t-1 and $B^{E}$ is the corresponding vector of coefficients.

2 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.

3 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.

Empirical estimation of transitions *continued*

Next, for those employed at time t, the probability of moving above the low paid threshold is estimated,

$$Pr\left(Higher\ paid\ at\ t\ given\ employed\ at\ t\right) = exp\ \left(X_{t-1}B^{Z}\right) / \left(1 + exp\left(X_{t-1}B^{Z}\right)\right), \quad (2)$$

where $B^{Z}$ is the corresponding vector of coefficients.

## EMPIRICAL MODEL RESULTS

As the nested logit model results themselves are not straightforward to interpret, tables 6.2 and 6.3 present the estimated marginal effects calculated from the two stages of the estimation procedure[4] for the one year transition from September 1995 to September 1996 using the PRG[5] and the Jobseeker 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 6.2, 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 samples are presented in tables B1 and B2 in Appendix B.

PRG sample 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 6.2, if a low paid worker was able to work for about 5 more weeks in the previous 12 month period, which represents a 10% 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.

4 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.

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

## 6.2 ESTIMATED MARGINAL EFFECTS FROM NESTED LOGIT RESULTS—PRG SAMPLE(a)

| | *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 B, table B1.

(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.

The importance of recent employment history and the lack of significance of other variables in determining employment outcomes for Australian workers has also been discussed by Le and Miller (1999). 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

PRG sample results *continued*

market outcomes for low paid workers. For example, Sloane and Theodossiou (1996), Stewart and Swaffield (1997), and Gregory and Elias (1994) 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 (Preston (1997), Gregory and Daly (1992) and Rummery (1992) ). 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% in Preston's study to 30% 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 (Sloane and Theodossiou, 1998, Stewart and Swaffield, 1997).

Jobseeker sample results

Consistent with the estimation results using the PRG sample, results for the Jobseeker 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%. Further, the importance of this factor for Jobseekers is highlighted by a comparison to the results for the PRG sample. If Jobseekers were given the average experience levels of low

Jobseeker sample results *continued*

paid workers in the population as represented by the PRG sample, holding all other things constant[6], they would increase their chances of moving above the low pay threshold by about 25% and decrease their transition to joblessness by 37%.

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[7] 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.

**6.3** ESTIMATED MARGINAL EFFECTS FROM NESTED LOGIT RESULTS—JOBSEEKER SAMPLE(a)

| | *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 B, table B2.

(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.

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 report commissioned by the National Board of Employment, Education and Training (NBEET, 1992) explored the experiences of disadvantaged Jobseekers in obtaining work in the

6 This is calculated with a similar model for both the PRG and Jobseeker samples , excluding English Proficiency, Disabled and Multiple Wage Earners.

7 These two factors are significant at the 10% level.

Jobseeker sample results *continued*

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 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' (NBEET, 1992, p.67).

Burgess and Campbell (1998) 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.[8] 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% 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 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 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 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

8 The coefficient in the second stage results is not significantly different from zero.

Jobseeker sample results *continued*

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 *et al.* (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 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 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 sample, earnings mobility is negatively associated with workplace size, although the variable is only significant at the 10% 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.

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 samples. First, particular groups of low paid adults appear to have better prospects for improved labour market outcomes. Specifically, based on the PRG 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 paper they conclude that 'perhaps demand-side factors also play an important role relative to supply-side factors' (Sloane and Theodossiou, 1998, p.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'. (Wooden and Hawke, 1998, p.91.)

## SECTION 7 CONCLUSIONS

This paper uses data from the 1994–1997 Survey of Employment and Unemployment Patterns to examine the incidence of low pay and the earnings mobility and transition patterns of adult low paid wage and salary earners in Australia. Specifically, the focus group for analysis in this paper is wage and salary earners aged from 21 to 59 and who are not studying full-time. A special feature of this paper has been to compare the labour market experiences of the general population of low paid workers with low paid Jobseekers, the majority of whom have 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 transition patterns of low paid workers.

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 is greatest for particular groups of workers. Adults who have never married, women, workers with low education levels and poor English proficiency all have an increased chance of being found in the group of low paid workers. Further, low pay is more prevalent among workers who live in rural areas.

With regard to labour market experience, the amount of joblessness in a worker's past was found to be positively associated with the likelihood of low pay. In contrast, 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.

Job related characteristics are also linked with the likelihood of low paid employment. Results in this paper indicate that the risk of being low paid is negatively associated with firm size, and skill as measured by the occupation of the worker. Private sector employees and casual workers are those more likely to be found among the low paid.

Observed labour market transition and earnings patterns using the PRG sample representing the population of adults in Australia, indicates that there are many different 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.

Further, the results using the Jobseeker sample, many of whom have had previous experience of joblessness suggest that for these workers, low paid work 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 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 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 joblessness has a negative impact on the labour market transitions of low paid workers in the Australian labour market. Empirical modeling of the factors associated with the probability of employment among low paid workers over a year confirms the dominant influence of the amount of work in the previous 12 month period indicating that it is the low paid workers who have experienced the most amount of joblessness in the recent past who are the most likely to be out of a job within a year. This suggests that for some, low pay can become a cycle of low pay and joblessness where the chances of escaping decrease with longer spells of joblessness.

Consistent with research overseas, empirical modeling of transition rates for the population of low paid workers and low paid Jobseekers suggests that there are particular groups of low paid adults such as younger adults and those living in urban areas who have greater potential to escape low pay for better paying jobs. Further, results suggest that low paid men in the population are more likely to escape low pay than women but, men who have recently experienced joblessness as represented by the Jobseeker sample lose their advantage in escaping low pay perhaps reflecting that a greater scarring effect of joblessness for men.

Finally, results of empirical modeling in this paper highlight the association between job related factors and negative labour market outcomes for low paid Jobseekers. As has been suggested by others, it may be the case that for Jobseekers, many of whom have experienced joblessness within the previous year, demand side influences may 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 A DEFINITION AND 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 | 38.472 | 9.640 |
| Age squared | Age of Respondent in Years squared | 1573.0 | 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 | 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 can only speak 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 |
| 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 a 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. | 6.527 | 7.244 |
| Current job tenure squared | Tenure squared | 95.063 | 193.327 |
| 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 one 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 one 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 one 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 one 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 one of the following occupations—Management , Administration and Professionals, and 0 otherwise. | 0.250 | 0.433 |
| Associated professionals, tradespersons, and advanced clerical workers | Dummy variable which takes on the value of 1 if the respondent works in one of the following occupations—Associated Professional, Tradesperson and Advanced Clerical and 0 otherwise. | 0.272 | 0.445 |
| Intermediate production and clerical workers | Dummy variable which takes on the value of 1 if the respondent works in one of the following occupations—Intermediate Clerical and Production Workers, and 0 otherwise. | 0.297 | 0.457 |
| Elementary clerical workers and labourers | Dummy variable which takes on the value of 1 if the respondent works in one of the following occupations—Elementary Clerical and Labourers and 0 otherwise. | 0.180 | 0.384 |
| 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 one 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 |
| 1995 | Dummy variable which takes on the value of 1 for the year—1995. | 0.340 | 0.474 |
| 1996 | Dummy variable which takes on the value of 1 for the year—1996. | 0.339 | 0.473 |
| 1997 | Dummy variable which takes on the value of 1 for the year—1997. | 0.321 | 0.467 |

## APPENDIX B DEFINITION OF VARIABLES AND RESULTS FOR NESTED LOGIT ANALYSIS

| *Variable* | *Definition* |
|---|---|
| Prior employment history | Percentage of the amount of time spent in employment since leaving full-time study up to one year prior to the transition period |
| 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. |
| 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 one job at the beginning of the transition year and 0 otherwise. |

## B1 NESTED LOGIT RESULTS—PRG 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 | | | |

## B2 NESTED LOGIT RESULTS—JOBSEEKER 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 | | | |

## REFERENCES


Asplund, R., & Persson, I. (2000). Low Pay: A Special Affliction of Women. In M. Gregory, Bazen, and Salverda, (Eds.), *Low Wage Employment: A European Perspective.* Forthcoming.

Australian Bureau of Statistics. (1995). *Survey of Employment and Unemployment Patterns—Information Paper No. 3*. Canberra: Australian Bureau of Statistics

Australian Bureau of Statistics. (1997). *Australian Standard Classification of Occupations—Second Edition*, Catalogue No. 1220.0. Canberra: Australian Bureau of Statistics.

Australian Bureau of Statistics (1997). *Income Distribution, Australia, 1995–96*. Canberra: Australian Bureau of Statistics.

Australian Bureau of Statistics. (Various issues). *Average Weekly Earnings, States and Australia*. Catalogue No. 6302.0. Canberra: Australian Bureau of Statistics.

Australian Industrial Relations Commission. (1997). *Safety Net Review—Wages*. Canberra: AGPS.

Australian Industrial Relations Commission. (1999). *The Living Wage Case* 1999. Melbourne.

Borland, J. (1998). *Earnings Inequality in Australia: Changes, Causes and Consequences.* (Discussion Paper No:390): Centre for Economic Policy Research, ANU.

Borland, J., Gregg, P., Knight, G., & Wadsworth, J. (1999). *They Get Knocked Down. Do They Get Up Again? Displaced Workers in Britain and Australia*. Unpublished.

Borland, J., & Kennedy, S. (1998). *Dimensions, Structure and History of Australian Unemployment* (Discussion Paper No: 388): Centre for Economic Policy Research, Australian National University.

Borland, J., & Wilkins, R. (1996). Earnings Inequality in Australia. *The Economic Record, 72*(216), 7–23.

Burgess, J. (1997). Part-time Employment in Australia: Unusual Features and Social Policy Issues. *International Journal of Social Issues, 24*(7/8/9), 831–846.

Burgess, J., & Campbell, I. (1998). Casual Employment in Australia: Growth Characteristics, a Bridge or a Trap? *Economic and Labour Relations Review, 9*(1), 31–54.

Chapman, B. & Mulvey, C. (1986). 'An Analysis of the Origins of Sex Differences in Australian Wages'. *Journal of Industrial Relations*, *28*(4), 504–520.

Dawkins, P., & Norris, K. (1990). Casual Employment in Australia. *Australian Bulletin of Labour, 16*(3) 156–273.

Dawkins, P. (1996). The Distribution of Work in Australia. *The Economic Record, 72*(218), 272–286.

Debelle, G. (1998). 'Introduction', in Borland, J. and G. Debelle (eds.). *Unemployment and the Australian Labour Market.* Sydney: Reserve Bank of Australia, Sydney, PP. 1–7.

Dunlop, Y., & Sheehan, P. (1998). Technology, Skills and the Changing Nature of Work. In P. Sheehan & G. Tegart (Eds.), *Working for the Future Technology and Employment in the Global Knowlege Economy. Melbourne: Victoria University Press.*

Eardley, T. (1998). *Working But Poor? Low Pay and Poverty in Australia*: (Discussion Paper No.91). Social Policy Research Centre.

Ehrenberg, R. G. & Smith, R. S. (1996). *Modern Labor Economics: Theory and Public Policy. (6th edition)*. Reading, Massachusetts: Addison-Wesley.

Fernie, S., & Metcalf, D. (1996). *Low Pay and Minimum Wages: the British Evidence.* Centre for Economic Performance, London School of Economics.

Gill, F. (1990). Social Justice and the Low-Paid Worker. *Social Issues, 25*(2), 83–102.

Gray, M. (1999). *The Effects of Unemployment on the Earnings of Young Australians*, PhD Thesis. Australian National University.

Greene, W. H. (1993). *Econometric Analysis*. New York: Macmillan Publishing Company.

Gregory, R and Daly, A. (1992). 'Who Gets What? Institutions, Human Capital and Black Boxes as Determinants of Relative Wages in Australia and the United States', in *National Wages Policy and Workplace Wage Determination—the Critical Issues*, Monograph No. 7, Australian Centre for Industrial Relations Research and Teaching, University of Sydney, 71-104.

Gregory, R. G. (1993). Aspects of Australian and US Living Standards 1970–1990. *Economic Record*, *69,* 61–76.

Gregory, M., & Elias, P. (1994). Earnings Transitions of the Low-Paid in Britain, 1976–91: A Longitudinal Study. *International Journal of Manpower, 15*(2/3), 170–188.

Gregory, M., & Jukes, R. (1997). *The effects of Unemployment on Subsequent Earnings: a Study of British Men*. The Labour Market Consequences of Technical and Structural Change, Discussion Paper No. 21. London: London School of Economics, Centre for Economic Performance.

Hancock, K. (1998). The Needs of the Low Paid. *Journal of Industrial Relations*, 40, 42–62.

Harding, A., & Richardson, S. (1998). *The Lowly Paid, the Unemployed and Family Incomes.* Paper presented to the 27th conference of Economists University of Sydney.

Hernandez-Iglesias, F., & Riboud, M. (1988). Intergenerational Effects on Fertility Behavior and Earnings Mobility in Spain. *Review of Economics and Statistics, 70*(2), 253–258.

Jones, D. C., & Kato, T. (1997). The Nature and the Determinants of Labor Market Transitions in Former Communist Economies: Evidence from Bulgaria. *Industrial Relations*, *36*(2), 229–254.

Jones, S. R. G. & Riddell, W. C. (1999). The Measurement of Unemployment: An Empirical Approach. *Econometrica, 67*(1), 147–162.

Le, A. T., & Miller, P. W. (1998). The ABS Survey of Employment and Unemployment Patterns. *The Australian Economic Review, 31*(3), 290–297.

Le, A. T., & Miller, P. W. (1999). *A Risk Index Approach to Unemployment An Application Using the Survey of Employment and Unemployment Patterns.* Australian Bureau of Statistics Occasional Paper Cat. no. 6293.0.00.001.

Maddala, G. S. (1987). Limited Dependent Variable Models Using Panel Data. *Journal of Human Resources*, *22*(3), 307–338.

McConnell, C. R., & Brue, S. L. (1992). *Contemporary Labor Economics*. (3 ed.). New York: McGraw-Hill.

Miller, P., & Mulvey, C. (1992). Trade Unions, Collective Voice and Fringe Benefits. *The Economic Record, 68*(201), 125–141.

Miller, P., & Mulvey, C. (1996). Unions, Firm Size and Wages. *Economic Record, 72*(217), 138–153.

Mincer, J. (1974). *Schooling, Experience and Earnings*. New York: Columbia University Press.

Mitchell, D. (1999). 'Labour Market Regulation and Low Wages', in S. Richardson (Ed.) *Reshaping the Labour Market: Regulation, Efficiency and Equity in Australia*. Melbourne: Cambridge University Press.

National Board of Employment, Education and Training (1992). *Disadvantaged Jobseekers: Casual, Part-time and Temporary Work*, Commissioned Report (Vol. 18). Canberra: Australian Government Publishing Service.

Norris, K., & McLean, B. (1999). Changes in Earnings Inequality, 1975 to 1998. *Australian Bulletin of Labour, 25*(1), 23–31.

OECD. (1996). *Employment Outlook* July 1996. Paris: OECD.

OECD. (1997). *Employment Outlook* July 1997. Paris: OECD.

Parker, S.C. (1995). The Structure of the Earnings Distribution: How Are Households and Individuals Related? *Bulletin of Economic Research, 47*(2), 127–142.

Plowman, D. H. (1995). Protecting the Low Income Earner: Minimum Wage Determination in Australia. *The Economic and Labour Relations Review, 6*(2), 252–287.

Pocock, B. (1995). Women's Work and Wages. In A.M. Edwards, Magarey (Eds.), *Women in a Restructuring Australia*. Sydney: Allen and Unwin.

Preston, A. (1997). Where are We Now With Human Capital Theory in Australia? *The Economic Record, 73*(220), 51–78.

Richardson, S. (1998). *Who Gets Minimum Wages?*. (Discussion Paper No. 386) Centre for Economic Policy Research Australian National University.

Richardson, S., & Harding, A. (1999). Poor Workers? The Link between Low Wages, Low Family Income and the Tax and Transfer Systems. In S. Richardson (Ed.), *Reshaping the Labour Market Regulation, Efficiency and Equality in Australia*. Melbourne: Cambridge University Press.

Rubery, J. (1978). Structured Labour markets, Worker Organisation and Low Pay. *Cambridge Journal of Economics, 2*, 17–36.

Rummery, S. (1992). The Contribution of Intermittent Labour Force Participation to the Gender Wage Differential. *Economic Record, 68*(203), 351–364.

Saunders, P. (1995). *Unpacking Inequality: Wage Incomes, Disposable Incomes and Living Standards*. Social Policy Research Centre Discussion Paper No. 63. Sydney: University of New South Wales.

Simpson, M., Dawkins, P., & Madden, G. (1997). Casual Employment in Australia: Incidence and Determinants. *Australian Economic Papers, 36*(69), 194–204.

Sloane, P. J., & Theodossiou, I. (1994). The Economics of Low Pay in Britain: A Logistic Regression Approach. *International Journal of Manpower, 15*(2/3), 130–149.

Sloane, P. J., & Theodossiou, I. (1996). Earnings Mobility, Family Income and Low Pay. *The Economic Journal, 106*, 657–666.

Sloane, P. J., & Theodossiou, I. (1998). An Econometric Analysis of Low Pay and Earnings Mobility in Britain. In R. Asplund, P. Sloane, & I. Theodossiou (Eds.), *Low Pay and Earnings Mobility in Europe*. Cheltenham, UK: Edward Elgar.

Stewart, M., & Swaffield, J. (1997). The Dynamics of Low Pay in Britain. In P. Gregg (Ed.), *Jobs, Wages and Poverty: Patterns of Persistence and Mobility in the Flexible Labour Market*. London School of Economics: Centre for Economic Performance.

Stewart, M. B., & Swaffield, J. K. (1999). Low Pay Dynamics and Transition Probabilities. *Economica, 66*(261), 23–42.

Taha, H. (1976). *Operations Research. An Introduction*. Macmillan Publishing Co., New York.

Valentine, T. (1996). The Minimum Wage Debate: Politically Correct Economics? *Economic and Industrial Labour Relations Review, 7*(2), 188–197.

Webb, S., Kemp, M., & Millar, J. (1996). The Changing Face of Low Pay in Britain. *Policy Studies, 17*(4), 255–271.

Wooden, M., & Hawke, A. (1998). Factors Associated with Casual Employment: Evidence from the AWIRS. *Economic and Labour Relations Review, 9*(1), 82–107.