January 2004

# Hourly Wages of Full-Time and Part-Time Employees in Australia

Joan R. Rodgers
*University of Wollongong*, jrrodger@uow.edu.au

# Hourly Wages of Full-Time and Part-Time Employees in Australia


## Abstract

This study investigates some aspects of part-time and full-time employment in Australia. The main objective is to analyze whether part-time workers receive lower hourly wages than full-time workers who have similar levels of human capital and perform similar jobs. The study is based on unit-record data from Wave I of the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The results indicate that unadjusted part-time wage penalties of 21 per cent for men and seven per cent for women can be explained by selection into full-time or part-time employment and controls for human capital and type of job. There are no statistically significant adjusted wage differentials after controlling for selection into type of employment and worker- and job-specific characteristics.



## Keywords

part-time, wages


## Disciplines

Business | Social and Behavioral Sciences


## Publication Details

This article was originally published as Rodgers, JR, Hourly Wages of Full-Time and Part-Time Employees in Australia, Australian Journal of Labour Economics, 7, 2004, 215-238.

# Hourly Wages of Full-Time and Part-Time Employees in Australia

By

Joan R. Rodgers
School of Economics and Information Systems
University of Wollongong
Wollongong, NSW 2522

Ph. 02-42-214583
Fax 02-42-213725
Email: joan_rodgers@uow.edu.au

Submitted February 2004
Revised May 2004

Submission to the AJLE HILDA special issue, Wave I papers.

I would like to thank two anonymous referees for their constructive comments. Any errors and omissions are, of course, the responsibility of the author.

## Abstract

This study investigates some aspects of part-time and full-time employment in Australia. The main objective is to analyze whether part-time workers receive lower hourly wages than full-time workers who have similar levels of human capital and perform similar jobs. The study is based on unit-record data from Wave I of the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The results indicate that unadjusted part-time wage penalties of 21 per cent for men and seven per cent for women can be explained by selection into full-time or part-time employment and controls for human capital and type of job. There are no statistically significant adjusted wage differentials after controlling for selection into type of employment and worker- and job-specific characteristics.

## 1. Introduction

Approximately 28 per cent of employed Australians now habitually work less than 35 hours per week on all jobs, almost double the rate of part-time employment thirty years ago (ABS, 6203.0 and 6204.0). Under the OECD's definition of part-time employment (30 or fewer hours usually worked per week in the main job) Australia's part-time employment rate of 27.2 per cent in 2002 was almost double the OECD average of 14.3 per cent. Of 30 countries, only the Netherlands (33.0 per cent) had a higher rate of part-time employment. Australia's rate exceeded those of New Zealand (24.2 per cent), Canada (18.1 per cent), the United States (13.0 per cent) and the United Kingdom (23.0 per cent in 2000) (OECD, 2002, p.224). Furthermore, during the 1990s, 75 per cent of employment growth in Australia was in part-time jobs (Gregory, 2002).[1] The incidence of part-time employment and its growth over the last few decades are among the most significant features of the Australian labour market.

Several reasons have been put forward to explain the growth in part-time employment. The first is growth of the service sector, which traditionally has employed a large proportion of its workforce on a part-time basis (Dawkins and Norris, 1995, p.10). Second, competitive pressures on firms to operate at more flexible trading hours have made it less costly to employ part-time workers than to pay full-time workers overtime rates. Firms that need to meet peak-time demand find part-time workers more productive than full-time workers, who would be underemployed during off-peak periods (Dawkins, 1996, p.276; de Ruyter and Burgess, 2000, p.453). Third, the increase in the labour-force participation rate of women, particularly married women with children, many of whom prefer to work few hours per week, has also contributed (Robertson, 1989, p.393; Sadler and Aungles, 1990, p.293).

In the popular press, part-time jobs are often depicted as poorly paid, with few entitlements, undesirable work schedules, poor working conditions and little opportunity for career advancement. In part, this opinion stems from the fact that almost two-thirds of part-time jobs are 'casual' rather than 'permanent'. Employers can terminate casual employees, simply by not renewing their contracts, and casual jobs by definition do not provide paid sick leave and holiday leave.[2] Many casual workers do, however, receive a compensating wage 'loading'. Furthermore, the vast

[1] There was also a movement away from permanent jobs to casual jobs.
[2] For more on the definition and conditions of casual employment in Australia, see Campbell and Burgess, 2001; Murtough and Waite, 2000 and 2001.

majority of part-time workers in Australia do not want to work full-time; most do not want to work longer hours.[3] This suggests that for many people part-time jobs are preferred jobs: they provide flexibility for those who are heavily involved in activities outside the labour market such as child care and education, they allow people to maintain job skills while raising children before resuming full-time work, they provide an entry point to full-time work, and they allow the semi-retired to earn an income and to continue to utilize their human capital.

This paper examines some aspects of part-time and full-time employment in Australia using a new data set: the Household, Income and Labour Dynamics in Australia (HILDA) Survey, conducted by the Melbourne Institute for Applied Economic and Social Research. The main objective is to analyze whether part-time workers receive lower hourly wages than full-time workers who have similar levels of human capital and perform similar jobs. As there appears to be no other published study of the full-time-part-time wage differential in Australia, the results presented in this paper contribute to current knowledge of the phenomenon.

As explained in Section 2, economic theory suggests that part-time jobs will incur a wage penalty, although there are circumstances when this is not the case. The findings of empirical studies of part-time-full-time wage differentials in other countries are summarized in Section 3. The econometric model that is used to measure the effect of part-time employment on wages is explained in Section 4. Section 5 discusses the advantages of using the HILDA data for a study of this kind and describes the particular subset of the HILDA data that was used to estimate the model. In Section 6 the reader will find some information on part-time and full-time employment derived from the data set and a description of the variables that appear in the model. The results of the econometric analysis are presented in Section 7, including estimates of the part-time-full-time wage differential after adjusting for selection into part-time or full-time employment, differences in the human capital of part-time and full-time workers, and differences in the attributes of part-time and full-time jobs. Section 8 concludes the paper with a summary of its major findings.

[3] In February 2003, only 8 percent of all part-time workers wanted to work full-time and were looking for full-time work. A similar proportion prevailed throughout the 1990s (see ABS, 6203.0, *Labour Force, Australia*, October 2001, p.7). In February 2003, 28 percent of all part-time workers preferred to work more hours (ABS, 6203.0, *Labour Force, Australia*, February 2003, Table 33). Since 1990 this proportion has varied from a high of 28 percent in 1993 to a low of 23 percent in 2000 (see ABS, 6204.0, *Labour Force, Australia, 1978-95*, Table 10; ABS, 6203.0, *Labour Force, Australia*, August 1996 through 2002, Table 20).

## 2. The theory of part-time and full-time wage differentials

At low wage rates workers with high opportunity costs of the time spent in employment are likely to work part time rather than full time. Women with young children, students and the semi-retired are examples. However, differences in preferences for work and leisure alone cannot explain a wage differential between full-time and part-time workers in competitive labour markets where workers are equally productive, jobs are homogeneous, information is freely available and job mobility is costless. A part-time wage penalty could not persist because employers would respond by demanding more part-time and less full-time labour and workers would respond by supplying less part-time and more full-time labour.

The most common explanation of a part-time wage penalty relates to quasi-fixed employment costs. These are costs that are directly proportional to the number of employees rather than to their hours of work. Examples are recruitment costs, training costs, administrative costs of maintaining records for each employee, at least some of the costs of supervising, monitoring, coordinating and communicating with employees, and any components of fringe benefits that are independent of hours worked (Owen, 1979). In the presence of quasi-fixed labour costs, an employer would be willing to pay a higher hourly wage to a full-time worker than to an identical part-time worker doing the same job because the average total cost of output produced part-time will exceed the average total cost of output produced full-time.
If forced to pay the same wage to both types of workers then the employer is likely to provide fewer non-wage benefits to part-time workers than to full-time workers.

In the absence of quasi-fixed labour costs, a part-time wage penalty is expected if part-time workers are less productive than full-time workers doing the same job. In employment where skills are acquired on-the-job, part-time workers are likely to be less experienced and therefore less productive than full-time workers even if they have the same formal qualifications and were hired at the same time. Blank (1998), using data from the Panel Study of Income Dynamics, found that part-time workers in the USA remain in part-time work for long periods of time, suggesting that they are less experienced than their full-time counterparts.

On the other hand, part-time workers are likely to be more productive than full-time workers in service jobs that face seasonal or otherwise fluctuating demand, because full-time workers would be idle much of the time. In such cases, a part-time

wage premium could occur. Of course, if output can be managed through the carrying of inventories at low cost then neither productivity differentials nor wage differentials would be expected.

Finally, a part-time wage penalty could be observed in aggregate data, even if part-time and full-time workers doing the same job receive the same wage, if full-time jobs are disproportionately concentrated in occupations, industries, types of firms or geographical locations where a wage premium is paid – perhaps for skill or to compensate for stressful, unsafe, unpleasant or undesirable working conditions.

## 3. Previous research

Although there have been several studies of part-time work in Australia, the only study of the difference between full-time and part-time wages of which I am aware is a working paper by Miller and Mulvey (1994) that appears to be out of print. According to Dawkins and Norris (1995) the Miller-Mulvey study found that part-time employees earn a premium of 15 per cent over full-time workers, after controlling for the industry of employment and levels of human capital. With the data available at the time of the Miller and Mulvey study it is unlikely that they would have been able to accurately control for casual versus permanent employment status. Unlike permanent employees, casual employees do not receive paid sick leave and holiday leave but typically receive a wage premium in lieu of these benefits. As many part-time workers are on casual contracts, the observed part-time wage premium could reflect the casual loading.

Simpson (1986) estimated that Canadian part-time workers incur a wage penalty of 10 per cent. The penalty is smaller for married females (three per cent) and for males (five per cent) than for single females (18 per cent). Main (1988) estimated that in Britain the wage penalty incurred by female part-time workers was between seven and eight per cent. Ermisch and Wright (1992) also found a part-time wage penalty for British women. Several cross-section studies have been conducted using U.S. data. An early study by Owen (1979) estimated that male part-time workers earned 30 per cent less than male full-time workers and female part-timers earned 17 per cent less than female full-timers. After controlling for characteristics of workers and jobs as well as selection both into the labour force and selection into part-time work, Blank (1990) found no part-time penalty for women; in fact she found that

female part-time workers earned a little more than female full-time workers. A part-time wage penalty of approximately 20 per cent was observed for men. Lettau (1997) compared average hourly compensation in full-time and part-time jobs with the same 3-digit occupational classification and in the same establishment, and found a 15 per cent part-time wage penalty. Lettau's data are from a survey of jobs, rather than workers, and consequently he was unable to control for workers' human capital. Montgomery and Cosgrove (1995) found no difference between the wages of part-time and full-time teachers but part-time teaching aids earned seven per cent less than full-time teaching aids in the same child-care establishment. Hirsch and Schumacher (1995) found part-time registered nurses earned higher wages than their full-time colleagues. Hirsch (2002), using panel data from the Current Population Survey, Outgoing Rotation Group, found that workers who switched between full-time and part-time jobs experienced only small wage changes. He concluded that there is a small part-time wage penalty for men but he found little evidence of a wage differential for women. Bardasi and Gornick (2000) estimated part-time wage penalties among women in the United Kingdom, the United States, Canada, Germany and Italy. Although unadjusted wage penalties were observed in all five countries, after controlling for selection into employment status and for observable characteristics of workers and jobs, only in Germany was evidence of a part-time wage penalty found.

## 4. The model

The model used to estimate the wage differential between part-time and full-time workers is a multinomial logit selection model (see Greene, 1998, pp.722-724).[4] Individual i is assumed to choose his or her employment status according to a multinomial logit model:

$$\Pr(Y_i = 0) = \frac{1}{1 + e^{\gamma_1' Z_i} + e^{\gamma_2' Z_i}} \qquad (1a)$$

$$\Pr(Y_i = j) = \frac{e^{\gamma_j' Z_i}}{1 + e^{\gamma_1' Z_i} + e^{\gamma_2' Z_i}} \qquad j = 1,2 \qquad (1b)$$

[4] Similar models have been used by Blank (1990) and, especially, Bardasi and Gornick (2000).

where j = 0, 1, 2 for non-employment, part-time employment and full-time employment, respectively; parameter vectors $\boldsymbol{\gamma}_1$ and $\boldsymbol{\gamma}_2$ each include a constant; and, as this is a reduced form model, vector $\mathbf{Z}_i$ includes variables that affect both the supply of, and demand for, hours of work.

The wage equations include a Heckman-type correction for self-selection into the chosen employment category:

$$\log(w_{1i}) = \beta_1' X_i + (\rho_1\sigma_1)\frac{\phi[H_1(\gamma_1' Z_i)]}{\Phi[H_1(\gamma_1' Z_i)]} + u_{1i} = \beta_1' X_i + \theta_1\lambda_{1i} + u_{1i} \qquad (2a)$$

$$\log(w_{2i}) = \beta_2' X_i + (\rho_2\sigma_2)\frac{\phi[H_2(\gamma_2' Z_i)]}{\Phi[H_2(\gamma_2' Z_i)]} + u_{2i} = \beta_2' X_i + \theta_2\lambda_{2i} + u_{2i} \qquad (2b)$$

where $w_{1i}$ and $w_{2i}$ are the individual's part-time and full-time hourly wages, respectively, only one of which is observed for each worker; $\mathbf{X}_i$ is a vector of job and worker characteristics that affect the wage from either the demand or supply side of the labour market; parameter vectors $\boldsymbol{\beta_1}$ and $\boldsymbol{\beta_2}$ each include a constant. $\phi[\ .\ ]$ and $\Phi[\ .\ ]$ are the standard normal density and cumulative distribution functions, respectively; $H_j$ is the inverse of the standard normal cumulative distribution function evaluated at $\Pr(Y_i = j)$; $\rho_j$ is the correlation between the error term in the selection equation and the error term in the equation for wage j; $\sigma_j$ is the standard deviation of the error term in the equation for wage j. Error terms $u_{1i}$ and $u_{2i}$ are $N(0, 0, \sigma_1^2, \sigma_2^2)$.

Separate wage equations allow for the possibility that part-time workers face an entirely different wage-determination process to that faced by full-time workers. A non-zero value for $\theta_1$ or $\theta_2$ implies that selection of employment type is endogenous. $\theta_2$ is expected to be positive in that more ambitious, motivated people are likely to choose full-time work and are also likely to earn higher than average wages compared with other people with the same observable labour-market-related characteristics. Whether this is also the case for people choosing part-time work is less obvious.

The unadjusted differential between full-time and part-time wages can be measured by the difference between the average log-wage of full-time workers minus the average log-wage of part-time workers, both of which are observable. A positive

(negative) value indicates a full-time wage premium (penalty) and, equivalently, a part-time wage penalty (premium). However, the effect of part-time employment on the average wage of part-time employees is conceptualized as the mean log-wage that part-time workers could earn if they were to work full-time – the counterfactual wage – minus the mean log-wage that part-time workers actually do earn in part-time work.[5] This 'adjusted' wage differential is:

$$\overline{\log(w_2 \mid PT)} - \overline{\log(w_1 \mid PT)} = (\beta_2 - \beta_1)'\bar{X}_1 + (\theta_2 - \theta_1)\bar{\lambda}_1 \qquad (3)$$

If observable, and unobservable, job and worker attributes are rewarded equally in part-time and full-time employment then $\beta_1 = \beta_2$ and $\theta_1 = \theta_2$, respectively.

## 5. The data

This study uses the unit-record file from Wave I of the Household, Income and Labour Dynamics in Australia (HILDA) Survey, which was conducted between August 2001 and January 2002 by the Melbourne Institute for Applied Economic and Social Research. The HILDA data are a complex random sample of 7,682 Australian households, which contain 13,969 people aged 15 years and older.

The HILDA data have several major advantages for this study compared with other Australian data sets. First, the data allow an estimate of each wage and salary earner's usual hourly wage in his or her main job. This is obtained by dividing the usual gross earnings per week in the main job by the usual hours of work per week in the main job. HILDA's practice of recording *usual* gross earnings and *usual* hours of work is preferred to data sets in which these variables relate to the week prior to the interview, which may be an atypical week in the life of the worker. Furthermore, in HILDA, both earnings and hours worked are recorded as continuous variables; in some data sets these variables are recorded in categories, which makes calculation of an hourly wage problematic.

Second, the HILDA data allow us to observe the wages of employees who are entitled to paid holiday leave or paid sick leave (or both) as well as the wages of

[5] Alternatively, the effect of part-time employment on the wage could be defined as the mean log-wage that full-time workers actually earn minus the mean log-wage that full-time workers could earn if they were to work part-time. The latter definition is not used because it seems less natural to envisage full-time workers in part-time jobs than it is to think of part-time workers in full-time jobs. After all, most part-time jobs have full-time equivalents but not all full-time jobs have part-time equivalents.

employees who receive neither of these two entitlements. In line with the ABS' terminology, this paper refers to the former group as 'permanent' employees and to the latter group as 'casual' employees. As pointed out in relation to the Miller-Mulvey study, the distinction is important because employment contracts that do not provide paid holiday and sick leave typically specify a substantial 'casual loading' on the hourly rate of pay. As most, but not all, part-time employees are on 'casual' contracts and most, but not all, full-time employees are 'permanent', the mean hourly wage differential of *all* part-time and *all* full-time employees will be heavily influenced by the casual loading. The methodology used in this study to estimate the full-time-part-time wage differential controls for the casual-permanent status of the employee.

The third advantage of the HILDA data set is that it distinguishes wage and salary earners who are employed in someone else's business from persons working in their own incorporated enterprise and paying themselves a wage or salary. The former are the focus of this study because the suggestion that part-time workers are poorly paid applies to employees, not to the self-employed. In most ABS unit-record data sets, the term 'employees' covers both groups and the numerous self-employed who do not pay themselves holiday or sick leave are misleadingly classified as casual employees. In this paper 'employees' are people who work for someone else.

Fourth, the HILDA data allow workers to be classified as part-time or full-time according to hours of work in their *main* jobs rather than in all jobs. Multi-job holders are identifiable and usual hours worked per week in the main job can be determined. In this study a part-time worker is defined as someone who usually works less than 35 hours per week in his or her main job. Most other data sets classify workers according to the standard ABS definitions: (a) a part-time worker is an employed person who usually works less than 35 hours per week in all jobs and who worked less than 35 hours during the reference week of the survey in which data were collected; (b) A full-time worker is an employed person who usually works 35 hours or more per week in all jobs or someone who, although usually working less than 35 hours a week, worked 35 hours or more during the reference week. Under the ABS definition, all part-time workers hold part-time jobs but not all full-time workers necessarily hold full-time jobs. The rate of part-time employment is therefore lower under the ABS definitions than under the conventions adopted in this paper.

The fifth advantage of the HILDA is that it provides a considerable amount of data on the demographic characteristics of employed persons, such as age, sex,

education and job tenure. There are also data on the attributes of respondents' jobs, such as occupation, industry, workplace size and type of business. HILDA provides data on the type of family in which the individual resides, his or her attitudes towards work and family, stated reasons for working part-time, and indicators of job satisfaction. Finally, HILDA allows the calculation of the individual's income from sources other than wages and salary, as well as the income of other household members.

Equations (1) and (2) were estimated using 7,230 observations from the HILDA data set. Exclusion of the self employed reduced the 13,969 observations in HILDA by 1,611; that of unpaid family workers by another 72. An additional seven employees were excluded because, due of missing data, they could not be classified as full-time or part-time; 496 more because they had insufficient data with which to compute their hourly wages. Of the remaining 11,783 individuals, 677 were excluded because they were still at school, 1,218 because they were older than 70 years, and one because she could not be classified as permanent or casual. This left 9,887 observations in the sample. Further exclusions were made because of insufficient data on the highest level of education achieved (239), occupation (8), industry (20), union status (53), nonlabour income of the individual (1,092), and income of other members of the household (1,245).

The 3,875 females and 3,355 males in the sample are each classified as not employed, employed part-time or employed full-time. It was decided to pool the unemployed and people not in the labour force into a single category called 'not employed' because the focus of the study is on the other two categories and because the numbers of unemployed in the sample (147 females and 227 males) are small compared to the numbers of observations in the other categories. The rate of part-time employment among employees in the sample is 27 per cent (44 per cent for females and 13 per cent for males).

## 6. The Nature of Part-Time and Full-Time Employment

Female and male employees are analyzed separately on the expectation that both the wage determination process and the factors that influence the choice of employment status are different for men and women. Certainly, female and male employees state different reasons for working part-time (see Table 1). Among

females, 35.2 per cent gave 'caring for children' as the main reason for working part-time, whereas only 4.8 per cent of males nominated this as the main reason. Of males, 37.1 per cent listed 'going to school, college or university' as the main reason, compared with only 15.4 per cent of females. 'Could not find full-time work' was more commonly stated by males (23.3 per cent) than females (10.4 per cent). A substantial proportion of both females (22.4 per cent) and males (17.8 per cent) responded that they 'prefer part-time work'.

Bardasi and Gornick (2002, p.9) argue that many part-time workers prefer to work fewer *hours* but end up underemployed as a result of the unsatisfying nature of the jobs that are available on a part-time basis. Contrary to this view, part-time employees in the sample, particularly females, experience similar levels of job satisfaction as do full-time employees (see Table 2). When asked to rate their level of job satisfaction on a scale of zero (completely dissatisfied) through ten (completely satisfied), similar proportions of part-time and full-time employees rated their job satisfaction at each of the various levels on the scale.

Table 3 gives descriptive statistics for the explanatory variables, **Z**, in the multinomial logit model of employment choice that was described in Section 4. Some of the explanatory variables ('Disability', 'Student', 'Age' and 'Family type') reflect the individual's preferences for work versus 'leisure', others measure the individual's non-labour income ('Individual's other income' and 'Other household income'), and others indicate the potential wage that the individual is capable of earning ('Education'). Finally, a set of explanatory variables reflects the individual's values and attitudes towards work and family. They are included in the multinomial logit equation in order to identify the wage equations. The individual's values and attitudes make suitable instrumental variables to the extent that they are correlated with an individual's choice of employment status but do not directly affect the individual's wage.

*Preferences*

The dummy variable 'disability' indicates that the person has a condition that limits the type or amount of work that he or she can do. 'Going to school, college or university' is the main reason given by men for working part time. Therefore, **Z** contains a dummy variable, 'student', that indicates whether or not the person is currently pursuing an educational qualification. The type of family in which the

individual resides is likely to be important in determining employment status, particularly for women, who give 'caring for children' as the main reason for working part time. Eight dummy variables in **Z** represent nine mutually exclusive and collectively exhaustive categories of living arrangements. First, married and *de facto* couples, single parents, other adults who live with a family, and persons living alone are distinguished from one another. Second, couples are further classified as those living by themselves, those with children under 5 years, those with children between 5 and 14 years but no children under 5 years, and couples with no children under 15 years but with other adults older than 15 years (dependent students, nondependent adult children, other related individuals) present. Single-parent households are similarly classified. The descriptive statistics for all these variables accord with expectations.

*Non-labour income*

The individual's other income equals his or her annual income from sources other than wages or salary in the last financial year. Income of other household members was computed as annual gross income of the household minus annual gross income of the individual in the last financial year.[6] Table 3 shows that part-time employees in the sample have higher levels of both types of 'other income' than do full-time employees of the same gender.

*Potential wage*

The proxy in **Z** for the potential market wage is the individual's level of education. Five dummy variables indicate the individual's highest level of education achieved, from Year 11 and below through to a postgraduate qualification. It is evident from Table 3 that part-time employees are less educated than full-time employees.

*Values and attitudes*

Individuals in the HILDA survey were asked to indicate the importance they attached to their employment and work situation and to their financial situation, using a scale of zero (least important) through ten (most important). This study uses a dummy variable to identify the forty per cent of respondents who gave a response of either nine or ten to the question about their employment situation. A second dummy

variable in **Z** identifies the thirty per cent of respondents who gave a response of nine or ten to the question about their financial situation. Among both females and males, a larger proportion of full-time employees than part-time employees attached a high degree of importance to their employment and work situation. A larger proportion of male full-time employees than male part-time employees attached a high degree of importance to their financial situation but there is no statistically significant difference between the same two groups of females in this respect.

Individuals were also asked to indicate the extent to which they agreed with six different statements about work and family. The statements appear in Table 3. Responses were measured on a scale from zero (strongly disagree) through 7 (strongly agree). A dummy variable identifies people who strongly agree with each statement, as defined by a response of six or seven. The largest apparent difference in attitudes is that a larger proportion of full-time employees than part-time employees, particularly males, strongly agree that 'having a paying job is important for happiness'.

Table 4 gives descriptive statistics on hourly wages and weekly hours worked. Part-time and full-time female employees in the sample earned, on average, $18.11 and $18.22 per hour, respectively. Male part-time employees in the sample earned, on average, $17.84 per hour compared with an average of $20.87 per hour earned by male full-time employees The unadjusted part-time wage penalty, measured by the average logarithm of the full-time wage minus average logarithm of the part-time wage, is approximately seven per cent for females and 21 per cent for males. The penalty is statistically significant for males but not for females. To understand the wage differential, or – in the case of females – the lack thereof, we explore differences between the observable labour-market characteristics of part-time and full-time employees and their (main) jobs.

The variables in Table 4, together education, comprise the vector of explanatory variables, **X**, in the reduced-form wage equations described in Section 4. Potential experience is defined as the number of years in full-time or part-time paid employment since leaving full-time education for the first time. Potential experience will overstate actual experience if some past employment was on a part-time basis.[7]

---

[6] Unfortunately, household gross income is not recorded for more than a quarter of the households in the HILDA survey. Consequently, as indicated in Section 5, many individuals had to be excluded from the sample because of missing data on 'other household income'.

[7] The correlation coefficient between hours per week usually worked in all jobs and hours per week worked one year ago is 0.78 for the female employees in the sample and 0.72 for the male employees.

Distortions are likely to be greater for women than for men, but not necessarily greater for part-time women than for full-time women. Table 4 indicates no statistically significant difference between the potential experience of female, part-time and full-time employees. Potential experience is likely to be a more accurate estimate of actual experience for full-time males than for part-time males and this could influence the estimate of the adjusted wage differential for men. Male, part-time employees in the sample, on average, have three years less potential experience than male, full-time employees but they are also younger by 2.6 years.

Many of the differences evident in Table 4 are well known: Part-time jobs occur in different occupations, and in different industries, than do full-time jobs; part-time jobs tend to be concentrated in small workplaces whereas full-time jobs are concentrated in large workplaces; a much larger proportion of part-time jobs than full-time jobs are 'casual' in the sense that their occupants receive *neither* paid holiday leave nor paid sick leave; part-time employees are less unionized than full-time employees. Table 4 also reveals that for females, a smaller proportion of part-time jobs occur in the government sector and a larger proportion occurs in the private sector, compared with full-time jobs. For males, a larger proportion of part-time jobs than full-time jobs occur in 'Other' businesses (private-sector not-for-profit organizations, and other commercial and non-commercial organizations). Female part-time employees are less concentrated in major cities and more concentrated in inner regional locations than their full-time counterparts. Male part-time employees also have shorter tenure in their current occupations than male full-time employees. Occupational tenure is an imperfect measure of actual occupational experience because the previous employment in the occupation could have been on either a full-time or a part-time basis.

## 7. Empirical results

*Multinomial logit equation*

Tables 5 and 6 give the maximum-likelihood estimates of the parameters in the multinomial logit model of employment choice for females and males, respectively. The model correctly predicted the employment status of 67 per cent of

females and 78 per cent of males in the sample.[8] The small P-values indicate that most of the independent variables have effects on females' choices of employment status that are statistically significant at conventional levels. The same is generally true for males except that family type is not statistically significant in the equation for part-time employment, and student status, surprisingly, has no statistically significant effect on the probability of choosing part-time employment. Gross income of other household members is not statistically significant in either the part-time, or the full-time, employment equation for females.

The coefficients in the multinomial logit equations do not equal the marginal effects of the independent variables on the probabilities of working part-time or full-time; they may not even indicate the directions of the marginal effects (Wooldridge, 2002, pp.497-498). The marginal effects can be simulated however, and the results of one set of simulations are reported in Table 7. First, three 'benchmark' probabilities were computed for both a hypothetical female and a hypothetical male using Equations (1a) and (1b), a chosen set of values for the independent variables, **Z**, and the coefficients in Tables 5 and 6. Our hypothetical person has no disability, is not a student, is 35 years old, lives in a married-couple-only family, has $3,000 per annum of own non-labour income and $30,000 of gross income per annum from the rest of the household, has an education below Year 12 and does not strongly agree with any of the values or attitudes listed in Tables 5 and 6. The multinomial logit equations predict that the hypothetical female (male) has a 24.0 (11.7) per cent probability of not being employed, a 22.4 (3.8) per cent probability of being employed part-time and a 53.6 (84.6) per cent probability of being employed full-time.

The marginal effects of any independent variable are computed as the changes in the benchmark probabilities resulting from a change in the independent variable under consideration, *ceteris paribus*.[9] For example, suppose our hypothetical female develops a disability. Table 7 indicates that her probability of not working increases by 35.5 percentage points (to 59.5 per cent), her probability of working part-time decreases by 7.0 percentage points (to 15.4 percent) and her probability of working full-time decreases by 28.5 percentage points (to 25.1 percent). The effect of a

[8] The difference in the success rates for females and males is to be expected given that the part-time and full-time employment rates are much more equal for females than for males.
[9] The *ceteris paribus* assumption is modified when comparing the hypothetical female or male to a single person in that the latter has other household income equal to zero.

disability on our hypothetical male is to increase his probability of not working by 38.8 percentage points (to 50.5 per cent), increase his probability of working part-time by 0.1 percentage points (to 3.9 per cent) and decrease his probability of working full-time by 38.8 percentage points (to 45.7 percent). The other marginal effects are interpreted in a similar way.

The marginal effects indicate behaviour that is in line with expectations as the following examples show.

(a) The marginal effect of being a student is to decrease the probability of working full-time, increase the probability of working part-time and increase the probability of not working.

(b) Age has a significant effect on employment probabilities but the marginal effect is nonlinear. For both the hypothetical 35 year old female and male, being one year older or younger has little effect on the probability of working full-time, part-time or not all, but being 10 years older increases the probability of not working, increases the probability of working part-time and decreases the probability of working full-time.

(c) The marginal effect of children under 5 years on our hypothetical female in a married-couple family is a large reduction in her probability of working full-time, a small reduction in her probability of working part-time and a large increase in her probability of not working at all. If the child is between 5 and 15 years then the mother's probability of working part-time increases, her probability of working full time decreases and her probability of not working increases. The effects of single motherhood and children of different ages resemble those of married females with children. There is little effect of children under 15 years on our hypothetical male in a married-couple family but the effects of being a single male parent are similar to the effects of being a single female parent.

(d) The marginal effect of the individual's non-labour income is in the expected direction. For both females and males, an increase in non-labour income reduces the probability of working full-time, increases the probability of working part-time and increases the probability of not working. However, the marginal effect of gross income belonging to other members of the household was unexpected: additional

income from other members of the household increases the probabilities of working full-time and part-time and decreases the probability of not working.[10]

(e) Finally, education has a significant impact on employment probabilities. The more educated is our hypothetical female the larger the probability of her working full time, the smaller the probability of her working part time, and the smaller the probability of her not working at all. The same is true for our hypothetical male but the magnitudes of the probability changes are smaller.

*Wage equations*

The coefficients in the wage equations for females and males are listed in Tables 8 and 9, respectively. Most of the coefficients in the full-time wage equations have the expected signs and relative magnitudes, and they are statistically significant at conventional levels. For example, the full-time log-wage increases with educational qualifications, increases with occupational tenure, and displays the expected non-linear relationship with potential experience. The wage of female part-time and full-time employees is maximized after 18 and 25 years of paid employment, respectively; that of male part-time and full-time employees after 22 and 32 years of paid employment, respectively.[11] Full-time professionals and associate professionals earn more than clerical, sales, and service workers; labourers earn less. Full-time wages are higher in construction and wholesaling, transport and storage, finance and property services – and for males in manufacturing, mining, electricity, gas and water – than in the retailing, accommodation and restaurant industries. Full-time employees in large workplaces earn a small wage premium and those in small workplaces incur a small wage penalty, compared to their colleagues in medium size workplaces. Full-time employees in the private and government sectors earn more than their counterparts in not-for-profit organizations. Full-time employees who are union members earn a small wage premium. Male full-time employees on casual contracts earn a small wage premium. The small casual penalty for female full-time employees is not statistically significant.[12]

---

[10] This result is inconsistent with those of Brook and Volker (1985), who found hours of work by females to be negatively related to husband's income. An anonymous referee has suggested that the observed positive correlation could be explained by assortative mating.

[11] Preston's (2001) wage equations for full-time wage and salary earners aged between 16 and 64 years, and estimated with 1996 Census data, imply wages are maximised after 25 and 28 years of potential experience for females and males, respectively.

[12] The coefficient on casual status is much less than the 20 per cent loading that is often regarded as the norm. It is possible that the smaller-than-expected coefficient reflects omitted variable bias: if potential experience does overstate actual experience and the error is larger for casual workers than for permanent workers then the coefficient on casual status is likely to be biased downwards.

In the part-time wage equations many of these variables are not statistically significant. Of the human capital variables only occupational tenure is statistically significant in the wage equation for male part-time employees. In general, education is not statistically significant in the wage equation for part-time females.[13] The wage differentials across occupations and industries that are so evident in the full-time wage equations, are not observed in the part-time wage equations, particularly for males. Male part-time employees in small workplaces incur a wage penalty compared to their colleagues in medium size workplaces, but otherwise workplace size has no effect on the part-time wage. Nor do type of business, geographical location or casual status. There is a small wage premium associated with union membership.

Of interest is the coefficient on 'lambda', the correction for self-selection, which is positive and statistically significant in the log-wage equations of full-time employees, both males and females. This is interpreted to mean that full-time employees have unobservable characteristics that result in their hourly wages being higher than expected on the basis of their observable characteristics.[14] The coefficient on 'lambda' is positive but not statistically different from zero at conventional levels of significance in the log-wage equations of part-time female and male employees.

Wage differentials, which are the focus of this study, are given in Table 10. The unadjusted wage differential (Line 3, Table 10), measured by the mean log of the full-time wage minus the mean log of the part-time wage, is 0.07 for females and 0.21 for males. Thus, females incur an unadjusted part-time wage penalty of seven per cent and males incur an unadjusted part-time wage penalty of 21 per cent. The adjusted log-wage differential given by Equation (3) is -0.09 for females and -0.03 for males, indicating a part-time wage premium of nine per cent for females and three per cent for males. Neither premium, however, is statistically different from zero at the five per cent level of significance.

One way to understand how an unadjusted part-time wage penalty and an adjusted part-time wage premium arise is via Equation (4), which decomposes the

[13] Although small and statistically insignificant rewards to human capital are frequently interpreted as evidence of dual labour markets, the wage differentials reported later in this section are inconsistent with the hypothesis that part-time employment constitutes a secondary labour market.

[14] These results seem consistent with Miller and Rummary (1991), who found that selectivity into the labour force was only marginally significant for men but was positive and highly statistically significant for women, and Creedy *et. al* (2000), who found non-significant coefficients on the inverse Mill's ratios in all of their estimated wage equations except that of single women.

unadjusted wage differential into the adjusted differential plus a term that measures differences in the mean levels of employee and job attributes:

$$\overline{\log(w_2)} - \overline{\log(w_1)} = \left\{\overline{\log(w_2 \mid PT)} - \overline{\log(w_1 \mid PT)}\right\} + \left\{\beta_2'(\overline{X}_2 - \overline{X}_1) + \theta_2(\overline{\lambda}_2 - \overline{\lambda}_1)\right\} \quad (4)$$

An unadjusted part-time wage penalty and an adjusted part-time wage premium imply that the left-hand-side of Equation (4) is positive but smaller than the second term on the right-hand side. This implies that, compared with part-time employees, full-time employees have high (low) average levels of those attributes that lead to high (low) wages. This is confirmed by the descriptive statistics in Tables 3 and 4. Another way to understand how an unadjusted part-time wage penalty and an adjusted part-time wage premium arise is via an examination of the coefficients in the wage equations: on average the coefficients on variables directly (inversely) related to the wage must be larger (smaller) in the part-time wage equation than in the full-time wage equation. Tables 8 and 9 indicate that the part-time wage premium results primarily from the larger constant term in the part-time wage equations. Full-time employees receive higher rewards for their human capital than part-time employees but not sufficiently so to counteract the impact of the smaller constant term in the full-time wage equation.

To test the sensitivity of the results to the methodology, the wage equations were estimated by least squares, without the correction for selection bias. The adjusted log-wage differentials are -0.08 for females and 0.02 for males (Line 7, Table 10). Although males receive a small part-time wage penalty, it is not statistically significant and in this sense the outcome is very similar to the results produced by the model that corrected for selection bias. The multinomial logit selection model was also estimated using a larger sample that included the 2,337 individuals who had been excluded because they had insufficient data on nonlabour income of the individual, and income of other members of the household. (These two variables were omitted from the multinomial logit model when the model was estimated with the larger sample.) The adjusted log-wage differentials are little changed: -0.09 for females and -0.05 for males (Line 12, Table 10). Finally, the wage equations were estimated, without the correction for selection bias, using the expanded sample. The results are much the same: a wage differential of -0.08 for females and -0.01 for males (Line 14, Table 10). In summary, the results in Table 10 indicate a small, but not statistically significant, part-time wage premium for both females and males, an outcome that

appears to be quite robust with respect to both methodology and the sample used for estimation.

## 8. Conclusion

Part-time employment has become an increasingly common phenomenon in the Australian labour market. This paper investigated whether part-time employees are paid a lower hourly wage than full-time employees. Male full-time employees' hourly wage is approximately 21 per cent more than that of male part-time employees; female full-time employees' hourly wage is approximately seven per cent larger than that of female part-time employees. These unadjusted wage differentials, however, do not measure the effect of part-time employment on wages unless, on average, the wages of full-time employees equal the wages that part-time employees would earn in full-time employment. It seems unlikely that this would be the case because full- and part-time employees have different characteristics and work in different types of jobs. In this paper a multinomial logit selection model was estimated using data from Wave 1 of the HILDA survey in an attempt to investigate the effect of part-time employment on wages. The latter, called the adjusted wage differential, is measured by the mean difference between the wage that part-time employees are predicted to receive if they were to work full time, minus the wage that part-time employees actually do receive in part-time employment. The adjusted wage differentials indicate a nine per cent part-time wage premium for females and a three per cent part-time wage premium for males, but neither is statistically different from zero at conventional levels of significance. It would seem, therefore, that neither part-time employees nor full-time employees are significantly disadvantaged.

## References


Australian Bureau of Statistics, 6203.0, *Labour Force, Australia*.

Australian Bureau of Statistics, 6204.0, *Labour Force, Australia, 1978-95*.

Bardasi, Elena and Janet C. Gornick (2000), 'Women and Part-Time Employment: Workers' 'Choices' and Wage Penalties in Five Industrialized Countries', *Luxembourg Income Study Working Paper No. 223*.

Blank, Rebecca M. (1998), 'Labor Market Dynamics and Part-Time Work', in Solomon W. Polacheck (ed.), *Research in Labor Economics, Volume 17*, JAI Press, Stamford, Conn.

Blank, Rebecca M. (1990), 'Are Part-Time Jobs Bad Jobs?' in Gary Burtless (ed.), *A Future of Lousy Jobs?* The Brookings Institute, Washington D.C.

Brooks, Clive and Paul Volker (1985), 'Labour Market Success and Failure: An Analysis of the Factors Leading to Workplace Destinations of the Australian Population', in Paul Volker (ed.), *The Structure and Duration of Unemployment in Australia*, AGPS, Canberra.

Campbell, Iain and John Burgess (2001), 'A New Estimate of Casual Employment?', *Australian Bulletin of Labour*, 27(2), 85–108.

Creedy, John, Duncan, Alan S., Harris, Mark N. and Rosanna Scutella (2000-01), 'Wage Functions for Demographic Groups in Australia', *Australian Journal of Labour Economics*, 4(4), 296-316.

Dawkins, Peter (1996), 'The Distribution of Work in Australia', *The Economic Record*, 72(218), 272-286.

Dawkins, Peter and Keith Norris (1995), 'The Growth of Part-Time Employment in Australia and the United Kingdom, 1978-93', *Labour Economics and Productivity*, 7(1), 1-27.

de Ruyter, Alex and John Burgess (2000), 'Part-Time Employment in Australia: Evidence for Globalization?', *International Journal of Manpower*, 21(6), 452–63.

Ermisch, J.F. and R.E. Wright (1992), 'Wage Offers and Full-Time and Part-Time Employment by British Women', *Journal of Human Resources* 28(1), 111-132.

Gregory, R.J. (2002), 'It's Full-Time Jobs that Matter', *Australian Journal of Labour Economics*, 5(2), 271-278.

Greene, William H. (1998), *LIMDEP, Version 7.0, User's Manual*, Revised Edition. Econometric Software, Inc., Castle Hill, NSW.

Hirsch, Barry (2002), 'Why Do part-Time Workers Earn Less? The Role of Worker and Job Skills', Paper presented at the Society of Labor Economists Annual Meeting, May 3-4, 2002, Baltimore.

Hirsch, Barry T., and Edward J. Schumacher (1995), 'Monopsony Power and Relative Wages in the Labor Market for Nurses', *Journal of Health Economics*, 14 (4), 443-76.

Lettau, Michael K. (1997), 'Compensation in Part-Time Jobs versus Full-Time Jobs: What If the Job Is the Same?', *Economics Letters*, 56(1), 101–06.

Main, B.G.M. (1988), 'Hourly Earnings of Female Part-Time versus Full-Time Employees', *Manchester School of Economic and Social Studies*, 56(4), 331-344.

Melbourne Institute for Applied Economic and Social Research (2002), *Household, Income and Labour Dynamics in Australia (HILDA) Survey*, Confidentialized Unit-Record data and accompanying documentation.

Miller, P. and C. Mulvey (1994), 'The Earnings of Part-Time Workers', University of Western Australia mimeo.

Miller, Paul and Sarah Rummery (1991), 'Male-Female Wage Differentials in Australia: A Reassessment', *Australian Economic Papers*, 30(56), 50-69.

Montgomery, Mark and J. Cosgrove (1995), 'Are Part-Time Women Paid Less? A Model with Firm-Specific Effects', *Economic Inquiry*, 33(1), 119–33.

Murtough, Greg and Matthew Waite (2000), The Diversity of Casual Employment, *Productivity Commission Staff Research Paper*, AusInfo, Canberra.

Murtough, Greg and Matthew Waite (2001), 'A New Estimate of Casual Employment? Reply', *Australian Bulletin of Labour*, 27(2), 109–117.

OECD (September 2002), *Employment Outlook, Statistical Annex*.

Owen, John D. (1979), *Working Hours*, D.C. Heath and Company, Lexington, Massachussets.

Preston, Alison C (2001), *The Structure and Determinants of Wage Relativities, Evidence from Australia*, Ashgate Publishing Company, Burlington VT.

Robertson, P.E. (1989), 'Some Explanations for the Growth of Part-Time Employment in Australia', *Australian Bulletin of Labour*, 15 (5), 384-99.

Sadler, C. and P. Aungles (1990), 'Part-Time Employment Growth in Australia, 1978-1989', *Australian Bulletin of Labour*, 16(4), 286-96.

Simpson, W. (1986), 'Analysis of Part-Time Pay in Canada', *Canadian Journal of Economics*, 19(4), 798-807.

Wooldridge, Jeffrey M. (2002), *Econometric Analysis of Cross Section and Panel Data*, The MIT Press, Cambridge, Massachusetts.

Table 1
Main Reasons for Working Part Time, 2001

| | Female PT Employees (%) | Male PT Employees (%) |
|---|---|---|
| Own illness or disability | 2.6 | 4.6 |
| Caring for children | 35.2 | 4.8 |
| Caring for disabled or elderly relatives | 0.4 | 0.0 |
| Other personal or family responsibilities | 3.8 | 0.9 |
| Going to school, college, university | 15.4 | 37.1 |
| Could not find full-time work | 10.4 | 23.3 |
| Prefer part-time work | 22.4 | 17.8 |
| Involved in voluntary work | 0.2 | 1.2 |
| Attracted to pay premium attached to part-time/casual work | 1.8 | 0.7 |
| Welfare payments or pension may be affected by working full-time | 0.5 | 1.5 |
| Getting business established | 0.1 | 0.6 |
| Prefer job - part time hours are part of that job | 0.2 | 0.7 |
| NEI to classify | 5.7 | 5.9 |
| Other (Specify) | 1.3 | 0.9 |
| | 100.0 | 100.0 |

Based on 946 of the 978 female part-time employees and 283 of the 304 male part-time employees in the sample who stated a main reason for working part time.
Source: Unit-record data, *Household, Income and Labour Dynamics in Australia (HILDA) Survey*, Wave I.

Table 2
Degree of Job Satisfaction, 2001

| | Female Employees | | Male Employees | |
|---|---|---|---|---|
| | Part-Time (%) | Full-Time (%) | Part-Time (%) | Full-Time (%) |
| 0. Totally dissatisfied | 0.7 | 0.8 | 0.5 | 0.5 |
| 1. | 0.8 | 0.6 | 2.0 | 1.0 |
| 2. | 1.1 | 0.8 | 1.0 | 1.4 |
| 3. | 1.4 | 1.8 | 3.9 | 2.3 |
| 4. | 2.7 | 2.0 | 4.5 | 2.4 |
| 5. | 6.3 | 7.0 | 7.8 | 7.8 |
| 6. | 6.9 | 7.8 | 12.0 | 9.4 |
| 7. | 13.2 | 17.1 | 21.8 | 20.4 |
| 8. | 25.5 | 27.5 | 21.2 | 26.8 |
| 9. | 20.6 | 19.8 | 12.7 | 16.7 |
| 10. Totally satisfied | 20.9 | 15.0 | 12.7 | 11.6 |
| | 100.0 | 100.0 | 100.0 | 100.0 |
| Number in sample (n) | 978 | 1138 | 304 | 2020 |

Source: Unit-record data, *Household, Income and Labour Dynamics in Australia (HILDA) Survey*, Wave I.

Table 3
Descriptive Statistics on Variables in the Multinomial Logit Equation

| | Females | | | | Males | | | |
|---|---|---|---|---|---|---|---|---|
| | Not-Empl | Part-Time | Full-Time | | Not-Empl | Part-Time | Full-Time | |
| Disability | 0.25 | 0.07 | 0.05 | | 0.43 | 0.11 | 0.07 | * |
| Student | 0.11 | 0.19 | 0.13 | *** | 0.13 | 0.37 | 0.14 | *** |
| Age (years) | 45.9 | 36.9 | 36.2 | | 48.1 | 34.3 | 36.9 | *** |
| *Family Type* | | | | | | | | |
| Couples only | 0.31 | 0.19 | 0.33 | *** | 0.35 | 0.17 | 0.24 | ** |
| Couples, with kids <5 | 0.17 | 0.15 | 0.04 | *** | 0.05 | 0.08 | 0.18 | *** |
| Couples, with kids 5-14 only | 0.10 | 0.20 | 0.11 | *** | 0.07 | 0.07 | 0.18 | *** |
| Couples, no kids, with others | 0.09 | 0.10 | 0.09 | | 0.10 | 0.07 | 0.08 | |
| 1-parent, with kids <5yrs | 0.05 | 0.03 | 0.01 | *** | 0.01 | 0.00 | 0.00 | |
| 1-parent, with kids 5-14 only | 0.05 | 0.06 | 0.03 | *** | 0.01 | 0.01 | 0.01 | |
| 1-parent, no kids, with others | 0.03 | 0.02 | 0.05 | ** | 0.01 | 0.01 | 0.01 | |
| Other person in family | 0.08 | 0.17 | 0.18 | | 0.21 | 0.45 | 0.18 | *** |
| Single persons | 0.12 | 0.07 | 0.16 | *** | 0.19 | 0.14 | 0.12 | |
| *Other Income* | | | | | | | | |
| Individual's income ($000) | 8.4 | 3.1 | 1.7 | *** | 11.5 | 4.6 | 2.1 | *** |
| Other household income ($000) | 29.1 | 39.5 | 34.4 | ** | 18.3 | 33.7 | 24.3 | *** |
| *Education* | | | | | | | | |
| Post graduate qualification | 0.03 | 0.09 | 0.12 | * | 0.04 | 0.07 | 0.09 | |
| Bachelor degree | 0.09 | 0.17 | 0.25 | *** | 0.06 | 0.16 | 0.16 | |
| Ad diploma, diploma | 0.07 | 0.10 | 0.12 | | 0.09 | 0.07 | 0.09 | |
| Certificate | 0.22 | 0.25 | 0.20 | * | 0.31 | 0.22 | 0.35 | *** |
| Year 12 | 0.11 | 0.17 | 0.14 | * | 0.12 | 0.31 | 0.12 | *** |
| Year 11 and below | 0.48 | 0.23 | 0.17 | ** | 0.38 | 0.18 | 0.20 | |
| *Values & Attitudes* | | | | | | | | |
| Work situation important | 0.15 | 0.34 | 0.46 | *** | 0.21 | 0.30 | 0.45 | *** |
| Financial situation important | 0.40 | 0.42 | 0.44 | | 0.40 | 0.30 | 0.41 | *** |
| A paying job is important for happiness | 0.44 | 0.42 | 0.47 | * | 0.52 | 0.47 | 0.56 | ** |
| Would enjoy having a job, regardless of money | 0.30 | 0.37 | 0.40 | | 0.31 | 0.31 | 0.30 | |
| Mothers who don't need the money should not work | 0.32 | 0.18 | 0.15 | | 0.32 | 0.19 | 0.23 | |
| Better if the man works, the woman cares for children | 0.32 | 0.14 | 0.11 | * | 0.35 | 0.19 | 0.18 | |
| FT child care OK for children under 3 yrs | 0.13 | 0.14 | 0.16 | | 0.10 | 0.06 | 0.11 | ** |
| The father should be as involved as the mother | 0.66 | 0.71 | 0.73 | | 0.61 | 0.65 | 0.64 | |
| Number in sample | 1759 | 978 | 1138 | | 1031 | 304 | 2020 | |

*,**,*** means PT and FT are statistically different at 5%, 1% & 0.1% levels of significance, resp.
Source: Unit-record data, *Household, Income and Labour Dynamics in Australia (HILDA) Survey*, Wave I.

Table 4
Descriptive Statistics on Variables in the Wage Equations

| | Females | | | Males | | |
|---|---|---|---|---|---|---|
| | Part Time | Full-Time | | Part Time | Full-Time | |
| Hourly wage | 18.11 | 18.22 | | 17.84 | 20.87 | *** |
| Log-hourly wage | 2.76 | 2.83 | | 2.72 | 2.93 | *** |
| Hours worked per week | 19.39 | 41.86 | *** | 18.93 | 45.35 | *** |
| Potential Experience (years) | 14.5 | 14.9 | | 13.9 | 16.9 | *** |
| *Occupation* | | | | | | |
| Mgers, admin, professionals | 0.23 | 0.39 | *** | 0.18 | 0.31 | *** |
| Associate professionals | 0.06 | 0.15 | *** | 0.07 | 0.12 | * |
| Tradespersons | 0.02 | 0.03 | | 0.08 | 0.19 | *** |
| Clerical, sales, service workers | 0.56 | 0.37 | *** | 0.33 | 0.16 | *** |
| Production, transport workers | 0.02 | 0.02 | | 0.13 | 0.14 | |
| Labourers | 0.10 | 0.04 | *** | 0.21 | 0.08 | *** |
| *Industry* | | | | | | |
| Agriculture, forestry, fishing | 0.01 | 0.01 | | 0.03 | 0.04 | |
| Mining, electricity, gas, water | 0.00 | 0.01 | | 0.01 | 0.05 | *** |
| Manufacturing | 0.04 | 0.08 | *** | 0.08 | 0.19 | *** |
| Construction & wholesaling | 0.03 | 0.05 | ** | 0.05 | 0.15 | *** |
| Retailing, accomm, restaurants | 0.29 | 0.13 | *** | 0.34 | 0.12 | *** |
| Transport & storage | 0.01 | 0.03 | * | 0.05 | 0.07 | |
| Finance, property services | 0.13 | 0.23 | *** | 0.12 | 0.17 | * |
| Govt, educ, health services | 0.43 | 0.40 | | 0.21 | 0.16 | * |
| Recreation, cultural services | 0.06 | 0.06 | | 0.11 | 0.06 | *** |
| *Size of workplace* | | | | | | |
| Small (fewer than 20) | 0.49 | 0.32 | *** | 0.49 | 0.35 | *** |
| Medium (20 to 99) | 0.29 | 0.34 | * | 0.30 | 0.33 | |
| Large (100 or more) | 0.22 | 0.34 | *** | 0.21 | 0.32 | *** |
| *Type of Business* | | | | | | |
| Private sector, for profit | 0.62 | 0.58 | * | 0.75 | 0.74 | |
| Government | 0.26 | 0.33 | *** | 0.18 | 0.22 | |
| Other | 0.11 | 0.09 | | 0.07 | 0.04 | ** |
| *Geographical Location* | | | | | | |
| Major city | 0.61 | 0.71 | *** | 0.66 | 0.66 | |
| Inner regional | 0.29 | 0.20 | *** | 0.26 | 0.25 | |
| Other | 0.10 | 0.09 | | 0.08 | 0.09 | |
| Casual status | 0.52 | 0.09 | *** | 0.72 | 0.12 | *** |
| Member of a union | 0.25 | 0.35 | *** | 0.24 | 0.35 | *** |
| Years in occupation | 7.70 | 8.27 | | 5.8 | 9.4 | *** |
| Number in sample (n) | 978 | 1138 | | 304 | 2020 | |

*,**,*** means PT and FT are statistically different at 5%, 1% & 0.1% levels of significance, respectively.
Source: Unit-record data, *Household, Income and Labour Dynamics in Australia (HILDA) Survey*, Wave I.

Table 5
Multinomial Logit Equations of Employment Choice by Females

| | Part-Time | | Full-Time | |
|---|---|---|---|---|
| | coeff | P-value | coeff | P-value |
| Constant | -4.093 | 0.000 | -5.832 | 0.000 |
| Disability | -1.281 | 0.000 | -1.665 | 0.000 |
| Student | -0.359 | 0.012 | -1.246 | 0.000 |
| Age (years) | 0.232 | 0.000 | 0.387 | 0.000 |
| Age squared/100 | -0.319 | 0.000 | -0.538 | 0.000 |
| *Family Type* (Compared with: Couples only) | | | | |
| Couples, with kids <5 | -1.315 | 0.000 | -3.593 | 0.000 |
| Couples, with kids 5-14 only | -0.197 | 0.262 | -1.744 | 0.000 |
| Couples, no kids, with others | 0.059 | 0.763 | -0.568 | 0.005 |
| 1-parent, with kids <5yrs | -1.057 | 0.000 | -2.932 | 0.000 |
| 1-parent, with kids 5-14 only | -0.137 | 0.561 | -1.471 | 0.000 |
| 1-parent, no kids, with others | 0.378 | 0.265 | 0.701 | 0.028 |
| Other person in family | 0.401 | 0.038 | 0.118 | 0.532 |
| Single persons | 0.064 | 0.754 | 0.417 | 0.033 |
| *Other Income* | | | | |
| Individual's gross inc, excl wages & salary ($0000) | -0.650 | 0.000 | -1.119 | 0.000 |
| Gross income of other household members ($00000) | 0.066 | 0.584 | 0.043 | 0.748 |
| *Education* (Compared with:Year 11 & below) | | | | |
| Postgraduate qualification | 1.606 | 0.000 | 2.240 | 0.000 |
| Bachelor degree | 1.124 | 0.000 | 1.736 | 0.000 |
| Adv diploma, diploma | 0.966 | 0.000 | 1.558 | 0.000 |
| Certificate | 0.558 | 0.000 | 0.609 | 0.000 |
| Year 12 | 0.632 | 0.000 | 0.621 | 0.000 |
| *Values & Attitudes* | | | | |
| Work situation important | 0.761 | 0.000 | 1.135 | 0.000 |
| Financial situation important | -0.073 | 0.492 | -0.131 | 0.257 |
| Important to have a paying job | -0.052 | 0.617 | 0.095 | 0.392 |
| Would enjoy having a job, regardless of money | 0.256 | 0.014 | 0.301 | 0.007 |
| Mothers who don't need the money shouldn't work | -0.355 | 0.005 | -0.535 | 0.000 |
| Better if the man works, woman cares for children | -0.539 | 0.000 | -0.788 | 0.000 |
| FT child care OK for children under 3 years | 0.031 | 0.826 | 0.332 | 0.024 |
| Father should be as involved as mother | 0.227 | 0.030 | 0.195 | 0.088 |
| Number in sample (1759 not employed) | 978 | | 1138 | |

Estimated by the Method of Maximum Likelihood, using LIMDEP.

log-likelihood = -2930.6, restricted log-likelihood (constant, no covariates) = -4112.0.

Per cent correctly predicted = 66.8.

Source: Unit-record data, *Household, Income and Labour Dynamics in Australia (HILDA) Survey*, Wave I.

Table 6
Multinomial Logit Equations of Employment Choice by Males

| | Part-Time | | Full-Time | |
|---|---|---|---|---|
| | coeff | P-value | coeff | P-value |
| Constant | -2.587 | 0.001 | -3.654 | 0.000 |
| Disability | -1.448 | 0.000 | -2.078 | 0.000 |
| Student | 0.263 | 0.158 | -0.757 | 0.000 |
| Age (years) | 0.084 | 0.022 | 0.318 | 0.000 |
| Age squared/100 | -0.133 | 0.002 | -0.453 | 0.000 |
| *Family Type* (Compared with: Couples only) | | | | |
| Couples, with kids <5 | 0.133 | 0.687 | -0.130 | 0.556 |
| Couples, with kids 5-14 only | 0.101 | 0.754 | -0.065 | 0.756 |
| Couples, no kids, with others | 0.313 | 0.298 | -0.062 | 0.767 |
| 1-parent, with kids <5yrs | -1.410 | 0.186 | -3.766 | 0.000 |
| 1-parent, with kids 5-14 only | -0.644 | 0.450 | -1.767 | 0.001 |
| 1-parent, no kids, with others | -0.197 | 0.821 | -0.350 | 0.499 |
| Other person in family | 0.148 | 0.575 | -1.061 | 0.000 |
| Single persons | 0.133 | 0.607 | -0.818 | 0.000 |
| *Other Income* | | | | |
| Individual's gross inc, excl wages & salary ($0000) | -0.189 | 0.002 | -0.423 | 0.000 |
| Gross income of other household members ($00000) | 0.757 | 0.001 | 0.617 | 0.001 |
| *Education* (Compared with:Year 11 & below) | | | | |
| Postgraduate qualification | 1.595 | 0.000 | 1.812 | 0.000 |
| Bachelor degree | 1.151 | 0.000 | 1.245 | 0.000 |
| Adv diploma, diploma | 0.346 | 0.258 | 0.549 | 0.007 |
| Certificate | 0.315 | 0.133 | 0.689 | 0.000 |
| Year 12 | 0.965 | 0.000 | 0.476 | 0.007 |
| *Values & Attitudes* | | | | |
| Work situation important | 0.451 | 0.010 | 0.931 | 0.000 |
| Financial situation important | -0.630 | 0.000 | -0.350 | 0.003 |
| Important to have a paying job | 0.234 | 0.137 | 0.440 | 0.000 |
| Would enjoy having a job, regardless of money | -0.125 | 0.443 | -0.242 | 0.043 |
| Mothers who don't need the money shouldn't work | -0.126 | 0.504 | 0.017 | 0.898 |
| Better if the man works, woman cares for children | 0.076 | 0.700 | -0.117 | 0.406 |
| FT child care OK for children under 3 years | -0.359 | 0.193 | 0.110 | 0.537 |
| Father should be as involved as mother | 0.448 | 0.004 | 0.115 | 0.310 |
| Number in sample (1031 not employed) | 304 | | 2020 | |

Estimated by the Method of Maximum Likelihood, using LIMDEP.

log-likelihood = -2029.1, restricted log-likelihood (constant, no covariates) = -2975.0.

Per cent correctly predicted = 77.9.

Source: Unit-record data, *Household, Income and Labour Dynamics in Australia (HILDA) Survey*, Wave I.

Table 7
Marginal Effects of Variables in the Multinomial Logit Equation

| | Females | | | Males | | |
|---|---|---|---|---|---|---|
| | Not-Empl | Part-Time | Full-Time | Not-Empl | Part-Time | Full-Time |
| Base probability (%)* | 24.0 | 22.4 | 53.6 | 11.7 | 3.8 | 84.5 |
| Marginal Effects (Δ in probability, measured as percentage points) | | | | | | |
| Disability | 35.5 | -7.0 | -28.5 | 38.8 | 0.1 | -38.8 |
| Student | 19.6 | 6.0 | -25.6 | 9.1 | 5.0 | -14.1 |
| Age (10 more years) | 7.4 | 0.7 | -8.1 | 5.3 | 0.6 | -5.9 |
| *Family Type* | | | | | | |
| Couples, with kids <5yrs | 52.2 | -3.3 | -48.9 | 1.3 | 1.0 | -2.3 |
| Couples, with kids 5-14 only | 22.4 | 13.1 | -35.5 | 0.6 | 0.6 | -1.2 |
| Other couples, with others | 6.7 | 8.0 | -14.7 | 0.4 | 1.6 | -2.1 |
| 1-parent, with kids <5yrs | 45.3 | 0.1 | -45.4 | 68.5 | 2.6 | -71.1 |
| 1-parent, with kids 5-14 only | 19.0 | 12.6 | -31.6 | 29.8 | 3.3 | -33.2 |
| 1-parent, no kids, with others | -9.4 | -2.6 | 12.0 | 4.0 | 0.4 | -4.4 |
| Other person in family | -3.6 | 6.0 | -2.4 | 14.1 | 6.0 | -20.0 |
| Single persons | -5.2 | -4.1 | 9.3 | 13.6 | 3.7 | -17.4 |
| *Other Income* | | | | | | |
| Individual's non-labour inc (extra $1,000) | 1.8 | 0.2 | -2.0 | 0.4 | 0.1 | -0.5 |
| Other household income (extra $10,000) | -0.1 | 0.1 | 0.0 | -0.6 | 0.1 | 0.5 |
| *Education* | | | | | | |
| Postgraduate qualification | -20.2 | -4.9 | 25.2 | -9.5 | -0.4 | 9.9 |
| Bachelor degree | -17.9 | -5.0 | 23.0 | -8.0 | 0.0 | 8.0 |
| Adv diploma, diploma | -16.9 | -5.0 | 21.8 | -4.5 | -0.5 | 5.1 |
| Certificate | -9.2 | 1.8 | 7.4 | -5.4 | -1.0 | 6.4 |
| Year 12 | -9.5 | 3.0 | 6.5 | -4.3 | 2.6 | 1.7 |
| *Values & Attitudes* | | | | | | |
| Work situation important | -13.9 | -2.3 | 16.2 | -6.6 | -1.2 | 7.9 |
| Financial situation important | 2.1 | 0.3 | -2.4 | 4.3 | -1.0 | -3.2 |
| Important to have a paying job | -1.0 | -2.0 | 2.9 | -3.8 | -0.6 | 4.3 |
| Would enjoy having a job, regardless of money | -4.9 | 0.7 | 4.2 | 2.7 | 0.3 | -3.0 |
| Mothers who don't need money shouldn't work | 9.8 | -0.3 | -9.5 | -0.1 | -0.5 | 0.6 |
| Better if man works, woman cares for children | 15.1 | -1.1 | -13.9 | 1.2 | 0.7 | -1.9 |
| FT child care OK for children under 3 years | -4.3 | -3.4 | 7.7 | -0.9 | -1.4 | 2.3 |
| Father should be as involved as mother | -3.5 | 1.6 | 2.0 | -1.3 | 1.5 | -0.2 |

* The hypothetical person has no disability, is not a student, is part of a married-couple-only family, receives $3,000 per annum of non-labour income, lives with other people who receive $30,000 of gross income per annum, is 35 years old, has an education below Year 12 and does not strongly agree with any of the values and attitudes listed in Tables 5 and 6.

Table 8
Log-Wage Equations: Part-Time and Full-Time Female Employees

| | Part-Time | | Full-Time | |
|---|---|---|---|---|
| | coeff | P-value | coeff | P-value |
| Constant | 2.296 | 0.000 | 2.225 | 0.000 |
| Potential Experience (years) | 0.016 | 0.000 | 0.013 | 0.000 |
| Potential Experience squared/100 | -0.044 | 0.000 | -0.027 | 0.001 |
| Tenure in occupation (years) | 0.007 | 0.002 | 0.004 | 0.004 |
| *Education* (Compared with:Year 11 & below) | | | | |
| Postgraduate qualification | 0.152 | 0.029 | 0.220 | 0.000 |
| Bachelor degree | 0.041 | 0.481 | 0.146 | 0.000 |
| Adv diploma, diploma | 0.103 | 0.084 | 0.105 | 0.009 |
| Certificate | 0.024 | 0.596 | 0.039 | 0.244 |
| Year 12 | 0.049 | 0.356 | 0.054 | 0.145 |
| *Occupation* (Compared with:Cler'l, sales, etc) | | | | |
| Mgers, admin, professionals | 0.318 | 0.000 | 0.219 | 0.000 |
| Associate professionals | 0.073 | 0.247 | 0.112 | 0.000 |
| Tradespersons | -0.103 | 0.294 | 0.032 | 0.590 |
| Production, transport workers | -0.193 | 0.058 | -0.091 | 0.202 |
| Labourers | -0.120 | 0.023 | -0.123 | 0.024 |
| *Industry* (Compared with:Retail, accomm, rest) | | | | |
| Agriculture, forestry, fishing | 0.185 | 0.178 | 0.034 | 0.725 |
| Mining, electricity, gas, water | 0.546 | 0.094 | 0.138 | 0.247 |
| Manufacturing | 0.309 | 0.000 | 0.080 | 0.082 |
| Construction & wholesaling | 0.116 | 0.227 | 0.200 | 0.000 |
| Transport & storage | 0.082 | 0.504 | 0.197 | 0.002 |
| Finance, property services | 0.165 | 0.001 | 0.193 | 0.000 |
| Govt, educ, health services | 0.070 | 0.166 | 0.041 | 0.318 |
| Recreation, cultural services | 0.000 | 1.000 | 0.040 | 0.425 |
| *Size of workplace* (Compared with: Medium) | | | | |
| Small (fewer than 20) | -0.001 | 0.977 | -0.057 | 0.022 |
| Large (100 or more) | 0.033 | 0.435 | 0.058 | 0.014 |
| *Type of Business* (Other) | | | | |
| Private sector, for profit | 0.060 | 0.277 | 0.082 | 0.036 |
| Government | 0.069 | 0.205 | 0.105 | 0.003 |
| *Geographical Location* (Compared with:Other) | | | | |
| Major city | -0.063 | 0.063 | -0.035 | 0.147 |
| Inner regional | -0.097 | 0.048 | -0.023 | 0.501 |
| Casual status | -0.002 | 0.950 | -0.048 | 0.176 |
| Member of a union | 0.068 | 0.064 | 0.051 | 0.027 |
| Lambda | 0.086 | 0.166 | 0.078 | 0.031 |
| Number in sample | 978 | | 1138 | |
| R-squared | 0.22 | | 0.32 | |
| F-statistic | 9.09 | 0.000 | 17.72 | 0.000 |

Estimated by least squares, with correction for self-selection, using LIMDEP.

Source: Unit-record data, *Household, Income and Labour Dynamics in Australia (HILDA) Survey*, Wave I.

Table 9
Log-Wage Equations: Part-Time and Full-Time Male Employees

| | Part-Time | | Full-Time | |
|---|---|---|---|---|
| | coeff | P-value | coeff | P-value |
| Constant | 2.595 | 0.000 | 1.680 | 0.000 |
| Potential Experience (years) | 0.007 | 0.365 | 0.012 | 0.000 |
| Potential Experience squared/100 | -0.015 | 0.327 | -0.019 | 0.001 |
| Tenure in occupation (years) | 0.017 | 0.000 | 0.004 | 0.000 |
| *Education* (Compared with:Year 11 & below) | | | | |
| Postgraduate qualification | -0.027 | 0.851 | 0.285 | 0.000 |
| Bachelor degree | 0.064 | 0.591 | 0.266 | 0.000 |
| Adv diploma, diploma | 0.031 | 0.812 | 0.109 | 0.003 |
| Certificate | -0.138 | 0.112 | 0.044 | 0.069 |
| Year 12 | -0.128 | 0.240 | 0.175 | 0.000 |
| *Occupation* (Compared with:Cler'l, sales, etc) | | | | |
| Mgers, admin, professionals | 0.139 | 0.184 | 0.254 | 0.000 |
| Associate professionals | 0.195 | 0.100 | 0.220 | 0.000 |
| Tradespersons | -0.094 | 0.390 | 0.077 | 0.012 |
| Production, transport workers | -0.126 | 0.192 | -0.025 | 0.431 |
| Labourers | -0.195 | 0.022 | -0.080 | 0.032 |
| *Industry* (Compared with:Retail, accomm, rest) | | | | |
| Agriculture, forestry, fishing | 0.090 | 0.566 | -0.026 | 0.603 |
| Mining, electricity, gas, water | 0.132 | 0.697 | 0.308 | 0.000 |
| Manufacturing | 0.269 | 0.032 | 0.095 | 0.003 |
| Construction & wholesaling | 0.253 | 0.047 | 0.094 | 0.004 |
| Transport & storage | 0.148 | 0.289 | 0.088 | 0.039 |
| Finance, property services | 0.223 | 0.024 | 0.216 | 0.000 |
| Govt, educ, health services | 0.087 | 0.418 | 0.043 | 0.294 |
| Recreation, cultural services | 0.033 | 0.740 | -0.038 | 0.383 |
| *Size of workplace* (Compared with: Medium) | | | | |
| Small (fewer than 20) | -0.165 | 0.015 | -0.090 | 0.000 |
| Large (100 or more) | 0.054 | 0.514 | 0.085 | 0.000 |
| *Type of Business* (Other) | | | | |
| Private sector, for profit | -0.126 | 0.305 | 0.254 | 0.000 |
| Government | -0.208 | 0.086 | 0.252 | 0.000 |
| *Geographical Location* (Compared with:Other) | | | | |
| Major city | -0.062 | 0.332 | -0.043 | 0.027 |
| Inner regional | 0.006 | 0.956 | -0.080 | 0.006 |
| Casual status | 0.031 | 0.648 | 0.056 | 0.044 |
| Member of a union | 0.135 | 0.066 | 0.088 | 0.000 |
| Lambda | 0.096 | 0.305 | 0.263 | 0.000 |
| Number in sample | 304 | | 2,020 | |
| R-squared | 0.31 | | 0.39 | |
| F-statistic | 4.00 | 0.000 | 42.03 | 0.000 |

Estimated by least squares, with correction for self-selection, using LIMDEP.

Source: Unit-record data, *Household, Income and Labour Dynamics in Australia (HILDA) Survey*, Wave I.

Table 10
Full-Time-Part-Time Wage Differentials

| | Females | Males |
|---|---|---|
| (1) Mean log-wage of FT employees in FT employment | 2.83 | 2.93 |
| (2) Mean log-wage of PT employees in PT employment | 2.76 | 2.72 |
| (3) Unadjusted wage differential (1) – (2) | 0.07 | 0.21*** |
| Multinomial Logit Selection Model | | |
| (4) Mean predicted log-wage of PT employees in FT employment | 2.67 | 2.69 |
| (5) Adjusted wage differential (4) – (2) | -0.09 | -0.03 |
| Regression Model (no Correction for Self-Selection) | | |
| (6) Mean predicted log-wage of PT employees in FT employment | 2.68 | 2.74 |
| (7) Adjusted wage differential (6) – (2) | -0.08 | 0.02 |
| Number of Observations | 3,875 | 3,355 |
| Expanded Sample, Including Individuals with Incomplete Financial Data | | |
| (8) Mean log-wage of FT employees in FT employment | 2.81 | 2.94 |
| (9) Mean log-wage of PT employees in PT employment | 2.75 | 2.71 |
| (10) Unadjusted wage differential (1) – (2) | 0.06 | 0.23*** |
| Multinomial Logit Selection Model | | |
| (11) Mean predicted log-wage of PT employees in FT employment | 2.66 | 2.66 |
| (12) Adjusted wage differential (11) – (9) | -0.09 | -0.05 |
| Regression Model (no Correction for Self-Selection) | | |
| (13) Mean predicted log-wage of PT employees in FT employment | 2.67 | 2.70 |
| (14) Adjusted wage differential (13) – (9) | -0.08 | -0.01 |
| Number of Observations | 5,233 | 4,334 |