

The Effects of Motherhood and Job Transitions on Female Earnings in Australia

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Abstract

Utilising recent Australian panel data, this paper investigates how job transitions undertaken by Australian mothers around the birth of a child affect hourly earnings. I examine transitions between full-time and part-time hours and mobility between employers. Both the economic theory of compensating amenities and institutional theories of labour market segmentation suggest that mothers who move to part-time hours or change employers after a birth will either experience a drop in hourly earnings or attract lower wage growth than mothers who return to work full-time and/or return to the same employer.

The analysis draws on data from the Household, Income and Labour Dynamics in Australia survey (HILDA), narrowing the sample to females who experience a birth over the course of the five waves of HILDA and who return to paid employment within three years. Changes in mothers' hourly earnings are modelled using first-differences regression. Results reveal that transitions from full-time to part-time working hours after a birth has a positive affect on wages. After adjusting for work experience and casual pay loadings, mothers who change from full-time to part-time work hours attract increases in hourly earnings which are around 13 per cent higher than other mothers who remain part-time do not appear to experience an earnings penalty. Supplementary analysis tests whether the effects of these two job transitions are similar for female employees at other stages across the lifecycle. These models reveal that other women experience a rise in hourly earnings when moving from full-time to part-time hours that is similar, though slightly lower, to the increase employed mothers attract when making this same transition after a birth.

In summary, these findings run contrary to predictions that the transition to part-time employment by Australian mothers following a birth entails immediate downward mobility. These results differ from reported findings in Britain and the United States, and are likely to reflect differences in the nature and regulation of part-time work in Australia. However, there remains the possibility that mothers who interrupt employment to be a full-time carer for more than three years are disadvantaged on their return to employment in a part-time job or with a new employer. As additional waves of HILDA become available this analysis could be extended to include mothers with longer career interruptions and to explore the longer term consequences of part-time work on wage growth.

Introduction

Recent cross-national comparative research shows that Australia scores low in comparison to most other developed countries on indices of welfare state support for mothers' employment (Gornick et al., 1998; Mandel & Semyonov, 2005, 2006; Stier et al., 2001). For instance, Australia lacks statutory paid parental leave entitlements and provides low state childcare subsidies (Jaumotte, 2004). The limited welfare state provisions in support of mothers' employment are often cited as a key reason for the comparatively low rates of employment among Australian mothers (Gornick et al., 1998; Jaumotte, 2004; Mandel & Semyonov, 2006). Among mothers with a youngest child aged less than three years, employment rates in Australia were only 45 per cent in 2000, in comparison to an average of 57.5 per cent across the 20 OECD countries (Organisation for Economic Co-Operation and Development [OECD], 2005)².

Despite the absence of strong enabling policies, a substantial proportion of Australian mothers do still return to paid employment while fulfilling the role as primary carer for an infant or toddler. The particular policy context in Australia means that women's negotiation of the transition to parenthood is likely to be characterised by a different series of constraints than is observed in other countries where public policies, such as parental leave and state child-care assistance, are provided to assist new mothers maintain an attachment to the paid workforce. Specifically, Australian mothers who seek to maintain an attachment to paid employment while their children are young are more reliant on arranging private solutions with their employer and family (O'Connor et al., 1999).

A relatively common arrangement taken up by Australian mothers is part-time working hours. In 2000, 66.7 per cent of all employed Australian mothers with a youngest child aged less than five years worked part-time, while the OECD average is 39 per cent (OECD, 2005)³. The high prevalence of part-time work among mothers with young children partly reflects a tendency for women to change from full-time to part-time hours on their return to paid employment after the birth of their first child. Recent data from the Longitudinal Survey of Australian Children (LSAC) shows that 75 per cent of mothers who worked full-time prior to the birth of their first child return part-time (where the return occurs within 15 months of the birth)⁴.

This paper examines whether job changes following the birth of a child disadvantage Australian mothers in paid employment. I focus on hourly wages, as this measure approximates the returns to paid work independent of the number of hours worked per week. This paper addresses two research questions. First, how do

transitions to part-time hours and the movement to a new employer affect the earnings of mothers on their return to paid work after the birth of a child? Sociological and economic theories of labour markets lead to predictions that new mothers who undertake a job transition after a birth will experience a drop in earnings or attract lower earnings' growth in comparison to mothers who return to the same job as held prior to the birth. The first transition I focus on is the transition from full-time and part-time hours on return to paid work, as existing literature consistently shows that rates of part-time work hours are high among Australian mothers with young children. The second transition I examine is movement to a new employer. The absence of statutory paid maternity leave, and unpaid maternity leave for a substantial minority of employees, suggests that it may be more difficult for Australian mothers to organise their return to employment after the birth of a child.

The second research question asks how earnings change when similar employment transitions are undertaken by females at other times across the life-course. To the extent that mothers' employment decisions are constrained by caring responsibilities and/or discrimination, mobility between employers and transitions to part-time hours are likely to lead to less negative outcomes in terms of earnings for women without a recent birth than for new mothers.

While other researchers have examined wage differentials between part-time and full-time employees in Australia using HILDA (Booth & Wood, 2004; Chalmers & Hill, 2005; Rodgers, 2004), this study adds to the research literature by examining the immediate effects of a transition to part-time work at a key stage of the lifecourse when reduced hours of employment are often sought. With five waves of data, I am also able to include those females who break employment for a short duration when moving from full-time to part-time hours, a trajectory likely to be relatively common around the birth of a child. The availability of longitudinal panel data also allows for the estimation of the effects of job transitions after controlling for unobserved individual heterogeneity, covering characteristics such as career ambition and cognitive ability.

This paper is organised as follows. The next section reviews the theoretical literature on job transitions. Section 3 outlines the statistical methodology and describes the data source, analytic sample and variables. Section 4 presents the results, commencing with a summary of the frequency of job transitions among mothers and female employees in the Australian labour market. The remaining part of section 4 uses regression to model changes in earnings associated with the two job transitions. The final section discusses why select findings appear contrary to the theoretical predictions.

I also note limitations and offer suggestions for how these might be addressed in future research.

The wage penalty for motherhood

Dramatic growth in the employment of mothers, particularly mothers with children pre-school age and younger, has contributed to the transformation of the previously dominant 'male sole breadwinner/female full-time carer' model of the family across most industrialised countries. Yet within dual-breadwinner families the allocation of care is still structured along traditional gender roles, with mothers' devoting a greater share of their time towards childcare and housework than fathers (Craig, 2006; Hofferth, 2001). This gendered division of care has consequences for the quantity of time mothers' devote to paid work, as well as the nature of their participation in the labour market. Hence, entry into motherhood remains a key transition over the lifecourse of women, contributing to gender gaps in earnings (Joshi et al., 1999; Waldfogel, 1998), wealth (Warren et al., 2001) and retirement income (Davies et al., 2000; Evandrou & Glaser, 2003).

Research shows that women with dependent children, on average, earn less than other women without children, a gap often referred to as the 'motherhood wage penalty'. Estimates of the magnitude of the overall gap in earnings between mothers and childless women vary, with findings that mothers earn up to 22 per cent less than childless women reported in the US (Anderson et al., 2003; Budig & England, 2001; Lundberg & Rose, 2000; Waldfogel, 1998) and up to 25 per cent less in Britain (Davies & Pierre, 2005; Harkness & Waldfogel, 1999; Waldfogel, 1998). Foregone work experience during breaks in employment to care for young children greatly contributes to the motherhood wage penalty (Budig & England, 2001; Gupta & Smith, 2002; Joshi et al., 1999; Lundberg & Rose, 2000; Waldfogel, 1998), and the combination of reduced employment and lower earnings substantially lowers mothers' potential lifetime earnings (Breusch & Gray, 2004; Chapman et al., 2001).

Mothers appear to attract the highest wage penalty in the year or so on return to paid work after a career interruption (Anderson et al., 2003). In turn, some researchers have shown that mothers who maintain employment continuity around a birth, by taking only a short period of leave, will avoid the pay penalty to motherhood, once controlling for other key employment characteristics (Joshi et al., 1999, for full-timers only; Lundberg & Rose, 2000). Other research, in contrast, reveals that even mothers who

take a short break from employment will experience a loss of earnings (Baum, 2002; Gupta & Smith, 2002).

As mothers have increasing shortened interruptions to paid employment around the birth of a child, a body of theory and research has emerged asking whether some groups of mothers experience particular difficulties returning to employment or in obtaining jobs which are accommodating of increased family demands (Estes & Glass, 1996; Glass & Riley, 1998; Hofferth & Curtin, 2006). A key theme is that it is those mothers who undergo a significant job transition who will be most affected by the birth of a child. This paper explores changes in earnings among Australian mothers' returning to paid employment after a short period of leave or after an interruption of less than three years.

How do job transitions around the birth of a child affect mothers' earnings?

Three key explanations have been put forward to explain why mothers' earnings will be negatively affected by a transition to part-time employment or mobility to a new employer on return to paid work after a birth. Informing these explanations are the theories of compensating amenities, labour market segmentation and human capital.

The economic theory of compensating amenities argues that all employees are able to negotiate a package of financial and non-financial rewards and that employers' ability to attract staff is affected by the agreeable or disagreeable conditions attached to a job, such as flexible hours or an isolated location. For employed mothers the theory of compensatory amenities proposes that mothers have unrestricted access to family-friendly job benefits, but because family-friendly benefits are costly for employers to implement mothers who utilise these conditions will forego some earnings. Many economists view part-time employment as a job amenity because employers with a large part-time workforce will face higher staffing costs. This follows from the premise that more part-time employees are needed to produce the same output as a full-time workforce and that staff costs are directly proportion to the number of employees. However, part-time jobs may actually impose no additional costs for employers, particularly across the service sector where there are large temporal variations in market demand.

The theory of compensatory amenities has also been drawn on to explain why mothers move between employers after a birth. Access to particular family-accommodating amenities, including flexible start and finishing times, the ability to work

from home or a supportive manager, may be obtained by mothers only through movement to a family-friendly employer. Where these family-friendly benefits are costly, a possibility if use of family-friendly provisions reduces mothers' job productivity, then transitions to a more family-friendly employer will involve the trading of earnings for improved benefits or job conditions.

However, research suggests that access to a family-friendly job is not readily available to all mothers and that it is often female employees in higher status jobs who have access to family-friendly provisions (Glass & Estes, 1997; Gray & Tudball, 2002). Moreover, empirical results show that mothers who take up family-friendly job provisions actually have higher, not lower, earnings than other mothers who do not utilise these provisions (Boushey, 2005; Estes & Glass, 1996). This association possibly reflects employers' decisions to offer family-friendly benefits to mothers in higher status jobs as a means of attracting skilled staff, reducing turn-over and increasing organisational commitment and loyalty (Davis & Kalleberg, 2006).

In contrast to theories of compensating amenities, institutional theories of the labour market move the focus away from the choices of individual mothers and instead highlight the formal and informal structures and processes within most workplaces which constrain mothers' employment opportunities. According to this perspective, the labour market has historically been structured around an ideal worker who maintains a continuous, full-time attachment to the labour force and is able to prioritise paid work above all other commitments (Williams, 2000). Part-time work is incompatible with this definition of an 'ideal' worker. Theories of segmentation maintain that institutional practices vary markedly between full-time and part-time segments of a workforce and that the part-time segment is largely made up of jobs which are poorly paid and offer few opportunities for advancement. Qualitative research from Australia and the UK suggests that part-time mothers feel that opportunities for part-time employees are more limited in their workplace (Pocock, 2003, ch 7; Sigala, 2005). Moreover, other research shows that managers and workplace peers who have remained in continuous full-time employment tend to view their part-time colleagues as less committed (Tomlinson, 2006). For mothers who are not able to meet the norm of a full-time, continuous employee, the move into part-time is seen to be accompanied by a shift into the more peripheral section of the workforce. In turn, transitions to part-time work, often on return to paid work after the birth of a mother's first child, are possibly linked to negative employment outcomes in terms of a drop in earnings and/or lower wage growth.

Human capital theory has also been drawn on in the research literature examining mobility between employers among mothers (Baum, 2002). According to human capital theory, job productivity and, in turn, earnings grow with increasing tenure due to the acquisition of firm-specific knowledge and skills. Employees who move to a new employer will show short-term declines in productivity while firm-specific knowledge and skills are built-up. This productivity decline means earnings will be negatively affected over the short-term. Hence, mothers who return to work for a new employer after a birth are likely to attract a decline in earnings due to the absence of firm-specific skills and knowledge.

In summary, both the theory of compensating amenities and institutional theories of labour market segmentation predict that mothers who move to part-time hours or change employers to access more 'family-friendly' job conditions after a birth will either experience a drop in hourly earnings or attract lower wage growth than mothers who return to work full-time and/or return to the same employer. Human capital theory also leads to similar predictions among mothers who change employers on return after a birth.

Yet the effects of job transitions on earnings may be blunted to the extent that all mothers experience difficulty negotiating their return to paid employment after a birth, regardless of whether the mother substantially reduces her working hours or changes employer. Existing empirical research reveals that mothers' experiences of returning to paid work after a birth are heterogeneous and that particular types of transitions are linked to poorer outcomes in terms of earnings. With a large sample of 1766 births taking place between 1979 and 1994 in the US, Baum (2002) found that mothers who returned to a pre-childbirth job experienced no penalty for a short interruption, whereas mothers who returned to a new employer experienced a significant decline in earnings of around 2.3 per cent per year. Likewise, Hofferth and Curtin (2006) observe that mothers who return to the same employer within two years after a birth attract positive wage gains in comparison to those mothers who return to a different employer. Similar findings have also been reported by Waldfogel (1998), who examined wage changes over a longer period of time.

Less empirical evidence is available on whether transitions from full-time to part-time work hours around a birth are associated with a drop in earnings or lower wage growth. Estes and Glass (1996), with a small sample of 63 mothers changing employers after a birth, found declines in work hours were not linked to a pay penalty. However, other research has revealed that part-time work accounts for a sizable part of the overall

motherhood gap in earnings in both the US and UK (Budig & England, 2001; Joshi & Paci, 1998; Waldfogel, 1997; Whitehouse, 2002). These findings indirectly point to the possibility that a transition to part-time work after a birth will have a negative affect on earnings.

There are also several explanations for why mothers, in the absence of a job transition, will be disadvantaged on return to paid employment after the birth of a child. The theory of new home economics, based on the work of Gary Becker (1985), proposes that motherhood makes employed females less productive because the caring demands of children limits the time and energy mothers have left to expend in paid employment. Given that parenting is most time-intensive for mothers in the years leading up to pre-school age (Baxter et al., 2005; Sayer et al., 2004), mothers' job effort is likely to be reduced most when children are young. An alternative perspective is that employers discriminate against mothers with young children and this affects mothers' earnings and opportunities for career advancement (Correll et al., 2007). Where new mothers' employment opportunities are constrained by caring responsibilities and/or discrimination, mobility between employers and transitions to part-time hours are predicted to have larger negative effects on the earnings of mothers who have a recent birth than other women who undertake this same transition.

Very little research has been undertaken comparing the outcomes of mothers' and other female employees' job transitions. Joshi et al. (1999) compare the effects of current part-time work for British mothers and childless women at age 33 and found no significant differences in the effects of part-time work on the earnings of mothers with resident children and childless women (controlling for differences in human capital). The authors conclude that all British women working part-time face similar pay penalties. However, the comparison here is between part-time childless women and part-time mothers. Yet it is plausible that part-time mothers with pre-school aged children or younger, rather than all part-time mothers, who are particularly disadvantaged by reduced working hours. A study of employer mobility among US workers by Keith and McWilliams (1995) reports that recent mobility between employers has a short-term negative affect on hourly earnings where the reason for quitting is family-related, in comparison to other females who left their previous employer for economic reasons. Again, mobility for family reasons may occur at other stages of the lifecourse, not just after a birth event, so it is unclear whether mobility around a birth has a more negative affect on earnings.

Job transitions in the Australian labour market

One peculiar feature of the Australian labour market is the tendency for part-time jobs to be offered on a casual basis. Recent Australian survey data shows that among female employees who work part-time in their main job 58.5 per cent are casual (based on the absence of leave entitlements) compared to only 9.9 percent of female employees working full-time (ABS, 2006, Cat. num 6342.0). Casual jobs lack paid sick and annual leaves, provide less protection against job termination and usually lack redundancy provisions (Smith & Ewer, 1999). In lieu of these foregone benefits, most casual employees attract a pay loading, with the size of this pay loading (and whether additional loadings apply for overtime, evenings, weekends and/or public holidays) varying across enterprise agreements and the different industry awards. Between 1994 and 2002, average casual loadings in enterprise agreements and awards ranged from 15 to 33 per cent (Watson, 2005).

Where a transition from full-time to part-time work is linked to movement from a permanent to casual contract, the negative effects of part-time work may be masked by the positive effects of a casual loading. To account for this possibility, the regression analysis examines the affect of a transition to part-time hours after adjusting for the casual pay premium.

Method

Data and sample

Data for this analysis come from the first five waves of the survey of Household, Income and Labour Dynamics in Australia (HILDA), a longitudinal household panel survey conducted on behalf of the Australian Department of Family and Community Services and Indigenous Affairs (FaCSIA). HILDA commenced in 2001 with a sample of 7,682 households, having achieved a response rate of 66 per cent (Watson & Wooden, 2002). The initial sample was designed to be broadly representative of all private dwellings in Australia. Within each sampled household, an individual interview was sought from each member aged 15 years or over. At wave 1, 13,969 personal interviews were conducted, with approximately 90 per cent of participating households providing complete data from all household members.

The analysis reported in this paper is divided into two sections. The first section examines the effects of a job transition on earnings where this coincides with the birth of

a child, while the second section explores whether the effects of a job transition is stronger where this occurs around a birth rather than at other stages across the lifecycle. For the first series of analysis, I restrict the sample to females who give birth to (or adopt⁵) a child between 2001 and 2005. Given the absence of data on each household member's date of birth in the publicly released data, identification of the arrival of an infant in the household draws on multiple sources of information, including: (a) changes in the number of children in the household between waves; (b) the presence of at least one resident child aged one year or less; and (c) where the respondent indicates in the self-complete questionnaire that a major life event in the previous 12 months has been the birth of a child.

To examine changes in earnings around the birth I construct a sample of mothers who have employment data *both before and after* the birth of a child. This means that the sample is restricted to those females who have at least one wave of data where they are working as an employee for a wage or salary before the birth occurs and then, after the birth of a child, return to the labour force as an employee. As the unit of analysis here is a birth event, mothers who have more than one birth between 2001 and 2005 can contribute multiple observations to the dataset. Only ten females, out of a possible 198, have two birth observations in the final dataset.

Given that some pregnant women will commence their leave or quit employment several weeks or months before they are due to give birth, I take the before birth employment data as either: (a) the wave immediately prior to the arrival of a new child in the household, or (b) two waves prior to the arrival of a new child in the household⁶. Of the 218 birth observations, 202 draw on employment data from the wave immediately preceding the entrance of a(nother) child into the household.

Post birth observations are taken as the first wave following the arrival of a new child where the mother is working as an employee for a wage or salary. Many mothers will be entitled to at least 12 months unpaid maternity leave, which means that the first employment observation after a birth does not always correspond to the wave where a(nother) child enters the household⁷. For 119 mothers the post-birth employment data coincide with the wave where the infant first enters the household, meaning that the mother has returned to employment within 12 months of the birth. The remaining 99 mothers in my sample are not employed at the wave where the infant first enters the household. For these cases the post-birth employment observation falls one to three years after the birth⁸.

In the second part of analysis, the sample is widened to all person-time observations from female employees aged 22 to 45 years (as at 2001), excluding those who have adult children. The criteria used to select the sample of female employees and the number of cases retained at each step are summarised in Table 1.

In both samples, I exclude the self-employed and those combining employment with full-time education. I also restrict the sample to employees who work between 6 up to 60 hours per week because extreme values on work hours proved problematic when deriving hourly earnings. A small number of observations still remained with extremely low or high earnings⁹ and these observations were also removed. Females who work as an employee at a single wave only are excluded, as these persons lack longitudinal variation. I also exclude teenage mothers (first child at age 17 years or younger). Non-response at waves 2, 3 and/or 4 leads to difficulties in the identification of particular employment transitions and contributes to the loss of some female employees.

Table 1: Criteria used to select a sample of female employees aged 22 to 45 years

Criteria	Number of persons	Number of person-time observations
Female sample members (master release 5.1) ^a	12101	-
Respond at least once over 5 waves	9000	-
Aged 22 years to 45 years in 2001	3963	15531
Never had children or have resident children	3758	14322
Working as an employee for wage/salary ^b	2637	7999
First birth at age 18 years or older	2584	7885
Two or more employee observations per person	1959	7260
All female employees aged 22 to 45 years in final sample^c	1840	6723

Notes: ^a Household members aged 15 years.

^b Excludes person-time observations where employment is combined with full-time education, employees who do not receive a wage or salary and employees who are missing or have outlying values for hourly earnings.

^c Excludes females who have wave non-response, a spell of self-employment or full-time study (combined with paid work) falling between those waves where working as an employee. Also remove person-time observations where data are missing on explanatory variables.

Source: HILDA waves 1-5.

After applying these criteria and excluding cases with missing data I am left with a sample of 218 births where the mother has returned to employment within 3 years. For the regression analysis I also exclude the five mothers who move from part-to full-time work hours as this transition is too infrequent to produce any meaningful results.

In the second sample, I have 1840 female employees, with a total of 6723 person-time observations in the regression models. This panel dataset is unbalanced, with 670 females (36 per cent) contributing five observations (females who remain working as an employee across all five waves), 330 contributing four observations, 337 contributing three observations and 467 contributing two observations to the final dataset.

Analytic strategy

First-differences and fixed-effects regression are used to model changes in mothers' and childless women's hourly earnings respectively. Both first-differences and fixed-effects regression model within-person variation in wages and derive parameter estimates after differencing or demeaning out time-constant variation between persons. The advantage of the first-difference and fixed-effects approach is that the regression results control for unobserved heterogeneity between persons, thereby offering some protection against the types of bias arising where there are omitted variables (Halaby, 2004; Wooldridge, 2006). For example, with cross-sectional data the omission of an important explanatory variable can result in misleading interpretations where a stable characteristic, such as career ambition or cognitive ability, has the causal affect of both increasing wages and decreasing the likelihood of working part-time instead of full-time. In this situation, cross-sectional estimates of a part-time penalty are likely to be negatively biased (i.e. overestimating the magnitude of a 'true' negative effect) or spurious because the observed correlation between part-time work and low earnings is actually partly or fully an artefact of the unobserved causal effect of an omitted characteristic(s) on both these employment outcomes (Booth & Wood, 2004). First-differences and fixed-effects methods of regression derive parameter estimates for part-time work and other characteristics that control for unobserved factors, but on the assumption that these omitted variables are time constant.

Mothers' and female employees' wages are estimated using the model:

$$\ln(W_{it}) = \beta X_{it} + \nu_i + \varepsilon_{it}$$

where W is hourly wages, X is a vector of explanatory variables and β a vector of the corresponding coefficients. The unexplained component or error is divided into two components ν , representing individual-specific fixed effects, and ε , capturing the remaining time-varying within-person variation. The individual-specific fixed effects

capture the effects of time-constant omitted variables, such as cognitive ability and career orientation.

I use a first-differences regression to examine changes in females' earnings around the birth of a child¹⁰. Coefficients are derived using the equation:

$$\ln(W_{it}) - \ln(W_{it-1}) = \beta(\mathbf{X}_{it} - \mathbf{X}_{it-1}) + (v_{it} - v_{it-1}) + (\varepsilon_{it} - \varepsilon_{it-1})$$

where W_{it} is the first wage after the birth (time t) and W_{it-1} is the last wage before the birth (time $t-1$) for each female i and \mathbf{X}_{it} and \mathbf{X}_{it-1} are vectors of the explanatory variables after and before the birth respectively¹¹. By definition, v are constant over time, so the term $(v_{it} - v_{it-1})$ reduces to zero in the estimation equation. I adjust the standard errors for non-independence as a small number of mothers contribute more than one birth to the sample (using the cluster option in STATA).

The second series of analysis explores whether the effects of a job change varies depending on whether this transition occurs around a birth using fixed-effects regression. Fixed-effects regression is applied here because there is no longer a meaningful before and after observation for those females who do not experience a birth within the five year sampling timeframe. The coefficients are estimated through the equation:

$$\ln(W_{it}) - \ln(\bar{W}_i) = \beta(\mathbf{X}_{it} - \bar{\mathbf{X}}_i) + (v_{it} - \bar{v}_i) + (\varepsilon_{it} - \bar{\varepsilon}_i)$$

where W_{it} is the wage of person i at time t , \bar{W}_i is the mean wage of person i across all waves t , \mathbf{X}_{it} is a vector of the predictive variables at time t and $\bar{\mathbf{X}}_i$ is a vector of the mean values for each person i on the explanatory variable across waves t . Like the first-difference model, v_{it} is a constant here and reduces to zero in the final estimation model. The disturbance term $(\varepsilon_{it} - \bar{\varepsilon}_i)$ captures the remaining unobserved heterogeneity across person-time observations.

Variable construction

Dependent variable

The dependent variable is hourly earnings in main job. Hourly earnings are derived by dividing weekly wage/salary¹² by weekly working hours¹³ and are then adjusted to 2001 prices using the Current Price Index (ABS, 2001-2005, cat num. 6401.0)¹⁴. For respondents with two jobs, hourly earnings are derived using weekly wage/salary and hours in main job¹⁵. Plots of hourly earnings by hours worked are presented for each sample in Figure 1 and Figure 2 respectively.

For the regression analysis, I take the logarithm of hourly wages. This allows me to examine percentage changes in earnings around the birth of a child or job transition, rather than absolute changes. Percentage changes are arguably of greater interest than absolute changes because absolute changes are likely to vary across the wage distribution. Taking the logarithm of wages also brings the distribution closer to normal.

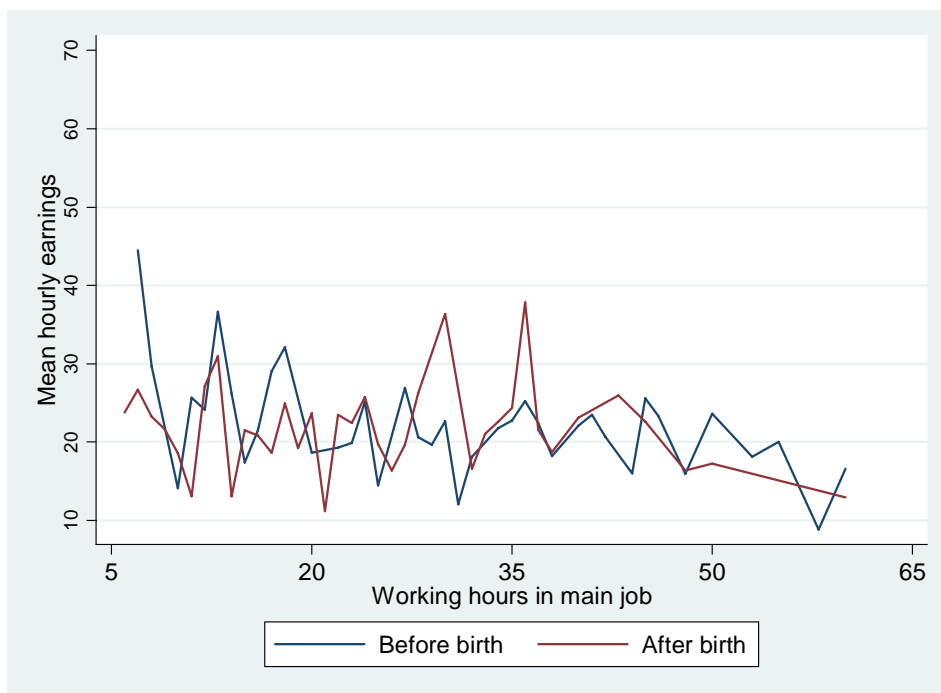


Figure 1: Mean hourly earnings by hours worked among Australian mothers before and after a birth event occurring 2001-2005

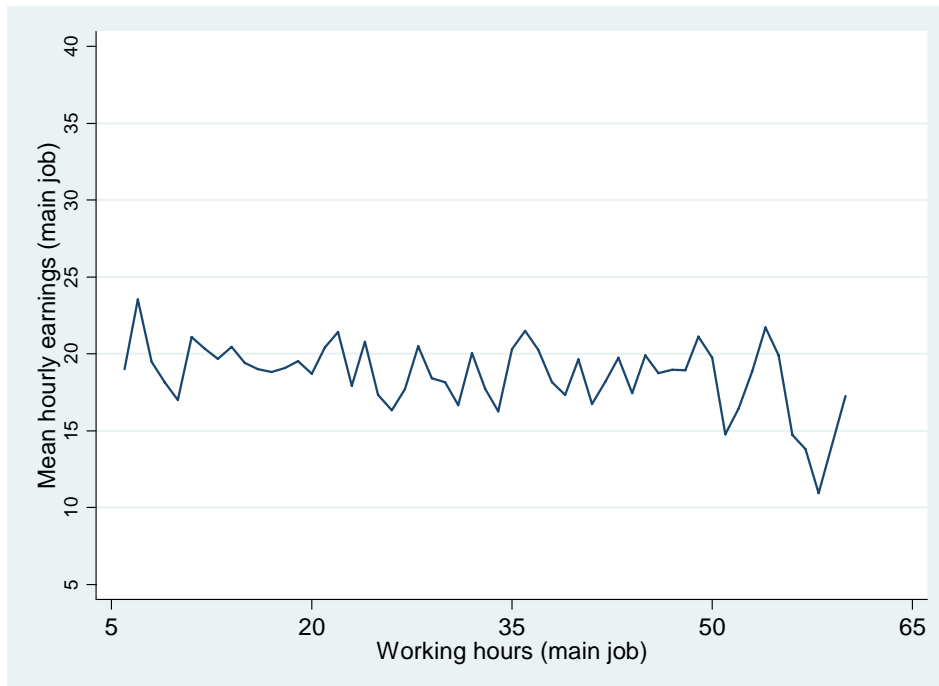


Figure 2: Mean hourly earnings by hours worked, female employees 22-44 years, Australia 2001-2005

Key explanatory variables

The two key explanatory variables are changes between full-time and part-time hours and mobility between employers. Part-time employment is defined as up to 35 hours per week in main job and full-time employment 35 hours or more. A recent transition to a new employer is defined as tenure with current employer of less than one year¹⁶. Where tenure is one year or greater, I assume that the respondent has not changed employers since the previous wave where working as an employee.

Given the small number of transitions from part-time to full-time hours around a birth, the first-differences regression analysis examines transitions from full- to part-time work hours only. Supplementary analysis is undertaken to test whether earnings' growth (or decline) after a birth differs between mothers who remain full-time or remain part-time. This is done by adding a three-way interaction term between current part-time, previous part-time and accrued work experience.

Testing the effects of job transitions on hourly earnings is more complex in the second series of analysis, where the sample is widened to include all person-time observations for female employees. Analysis with the larger sample of female employees is used to test whether the movement from full- to part-time work has a more negative affect on female earnings where this transition coincides with a birth event. To

allow for this possibility in the regression models, I include a series of dummy variables for years since a transition from full- to part-time work and years since a transition from part- to full-time work. The inclusion of variables for years since a transition from full- to part-time and part- to full-time also allows me to test whether the effects of a movement between work hours' categories are symmetrical and assess whether the affect of a particular transition is permanent or transitory. The dummy variables included are: first year part-time, previously (last wave working as employee) full-time; second year part-time since transition from full-time; third or fourth year part-time since transition from full-time; first year full-time, previously part-time; second year full-time since transition from part-time; and third or fourth year full-time since transition from part-time. Measures of years since a work hours transition are censored, due to either: (a) the employee undertaking a second/third/fourth transition (e.g. part-time to full-time wave 1, remain full-time waves 2-4, then move back to part-time in wave 5), or (b) the second/third/fourth year after a transition falls later than the most recent wave of available data (e.g. 2006, 2007 or 2008). This censoring means that only a small number of cases are observed at the fourth year since a transition, which is why the dummy variables for third and fourth year are combined¹⁷.

For analysis with the larger sample of female employees, I again include a dummy variable identifying those employees who have changed employers in the previous 12 months. However, here I break-down the contrast category, no change in employer, into short, medium and long tenure. Short tenure is defined as one year up to two years and medium tenure two years up to five years. Long tenure, the reference category, is tenure of five years or more with current employer.

The second regression analysis also includes interaction terms between these work hours transitions and employer tenure by whether a birth event has recently occurred. The dummy variable for a recent birth is coded 1 for both the first year and subsequent years after a mother has experienced a birth event. The reference category here is no birth over the period 2001-2005, which includes both females who remain childless and mothers who have no additional children.

Control variables

Several control variables are included in the regression models. Adding these controls means that any significant results for the coefficients measuring a job transition are adjusted to take account of the possibility that female employees who change to part-time hours or change employers are more likely to change other key aspects of their

employment. The control variables for the first-differences regression are change in work experience, contract, sector, supervisory responsibility, managerial or professional occupation, single parent and child parity. Some factors commonly included in cross-sectional wage equations, such as workplace size and industry, did not have sufficient within-person variation and when added to the models led to poorer overall fit¹⁸.

Work experience captures accrued experience, in years, between the last employment observation before the birth and the first employment observation on return to paid work after the birth. This measure is derived using the employment calendar, where respondents list their employment status for the beginning, middle and end of each month since the previous wave. Directions on this question are ambiguous for employed persons taking long periods of unpaid leave, but inspection of the calendar data suggests that most mothers are marking that they were employed in the period around a birth. This means that the measure of work experience is probably capturing potential, rather than actual, work experience for mothers who have had a recent birth. Despite this limitation, I retain the accrued work experience measure in the models as substantively similar results were observed on the other coefficients when this term was excluded. This caveat, however, should be kept in-mind when interpreting the coefficient for work experience.

Employment contract is broken down into permanent or fixed-term jobs, coded 0, and casual jobs, coded 1. Sector is coded 0 for employment in the private sector and 1 for public sector. The reference category for the supervisor dummy variable is no supervisory responsibility. The contrast category for managerial or professional occupation encompasses managers, professionals and associate professionals (ASCO major groups 1, 2 and 3). The reference category includes all clerical workers (ASCO major groups 5, 6 and 8) and a very small number of tradespersons (ASCO major group 4) and manual workers (ASCO major groups 7 and 9). Single mothers include never married (and not de-facto), divorced, separated and widowed women. A dummy variable is coded 1 for a birth which is the mother's first, with the reference category encompassing all higher order births. Descriptive statistics on these control variables are presented in the appendix (see Table 10).

For the second series of analysis a more comprehensive series of controls are added because the larger sample has greater within-person variation on other key employment characteristics. Size of employer is added to the regression as a series of two dummy variables, the first for females working in a business with fewer than 20 employees and the second for a business with 20 to 99 employees. The reference is a

business with 100 or more employees. Members of trade unions or professional associations are coded 1 on the relevant dummy. Two control variables for education are included, the first identifying females who have a diploma or certificate and the second identifying those with a degree or higher qualification. The reference category for education is completed secondary or less. Region is controlled for with a dummy variable coded 1 for those females who live in a non-metropolitan area. See the appendix for summary statistics on all control variables for the sample of female employees (see Table 11).

Results

Job transitions around birth of a child

Table 2 describes the frequency of job transitions among Australian mothers where the mother returns to paid employment within three years. These results show that among Australian mothers experiencing a birth between 2001 and 2005, the transition from full- to part-time work hours is more likely after the birth of a first child than a higher order birth. Sixty-one per cent of mothers working full-time before the birth of their first child change to part-time hours on their return to paid employment, compared to only 41 per cent of mothers who have experienced a birth other than their first. Moreover, while around four in five prospective mothers work full-time before the birth of their first child, only one in three females work full-time prior to a higher order birth. Very few mothers move from part- to full-time hours after the birth of a child.

Table 3 summarises the frequency of transitions to a new employer after a birth. Around one in five new mothers commence paid work with a new employer, with negligible differences in the likelihood of this transition between mothers who have just had their first child and those who have had a higher parity birth. Although the cell counts become small in the cross-tabulation of movement to a new employer by work hours transitions, the results point to the possibility that mothers who change from full- to part-time hours are more likely to change employers in comparison to mothers who remain full-time. Just under one in five mothers who remain part-time change employers on return after a birth, which suggests that mothers with young children will change employers for reasons other than obtaining part-time work.

Table 2: Work hours before and after the birth of a child by whether first birth or birth other than first, Australia 2001-2005

Working hours before the birth	Work hours before birth (col %)	Work hours after the birth (row %)		Num births
		% Full-time	% Part-time	
Birth of first child				
Full-time	82	39	61	93
Part-time	18	5 ^b	95	21
All employees before birth	100	32	68	114
Birth of child other than first^a				
Full-time	33	59	41	34
Part-time	67	6 ^b	94	70
All employees before birth	100	23	77	104
All births				
Full-time	58	44	56	127
Part-time	42	5 ^b	95	91
All employees before birth	100	28	72	218

Notes: ^a Child other than first includes second and higher order births.

^b Cells with fewer than 10 birth observations.

Source: HILDA waves 1-5.

Table 3: Transitions between employers after the birth of a child by whether first birth or birth other than first, Australia 2001-2005 (column percentages)

	Transition to new employer after the birth (%)		Num births
	% Return to same employer	% Change employers	
Child parity			
First child	80	20	114
Child other than first	82	18	104
Work hours transitions			
Remain full-time	95	5 ^a	56
Remain part-time	78	22	86
Full to part-time	72	28	71
Part to full-time	100 ^a	0	5
All births	81	19	218

Notes: ^a Cells with fewer than 10 birth observations.

Source: HILDA waves 1-5.

Transitions between full- and part-time hours for all female employees remaining childless, remaining with pre-school children and remaining with school-aged children are presented in Table 5. These percentages are shown for, first, female employees who remain continuously employed wave-on-wave and second, female employees who break employment for a short duration (ranging from one to three waves, but 85 per cent of breaks are for one wave only). I retain female employees who have broken

employment, despite the relatively small number, because short breaks are common among mothers who have recently experienced a birth event¹⁹.

Table 4: Frequency of work hours transitions among female employees aged 22 to 45 years, Australia 2001-2005 (column percentages)

Work hours transitions	Age of youngest resident child			All (%) ^a
	No childn (%)	Child 0-5 years (%)	Child 6-17 years (%)	
Employee at t-1				
Remain full-time	79	23	36	50
Remain part-time	11	64	51	37
Full- to part-time	5	5	5	6
Part- to full-time	5	8	8	7
Total (n)	1846	845	1751	4701
Not employed at t-1				
Remain full-time	33	8 ^b	26 ^b	19
Remain part-time	15 ^b	65	61	42
Full- to part-time	22 ^b	8 ^b	6 ^b	27
Part- to full-time	30 ^b	18 ^b	6 ^b	12
Total (n)	27	49	31	182

Notes: ^a The total number of observations reported in this column does not equal the sum of observations from the previous three columns to the left because this sample includes transitions which coincide with the movement from no children to a child aged 0 years and from child aged 5 years to a child aged 6 years.

^b Small cells where fewer than 10 cases.

Source: HILDA waves 1-5.

Statistics in Table 4 show that among female employees who maintain continuous employment and are childless the most common work hours trajectory is to remain full-time. Around four out of five childless women continue in full-time work over a 12 month period. As expected, among mothers with pre-school or school-aged children the most common trajectory is to remain in part-time work. Across all three groups of females the transition from full- to part-time hours, where employment continuity is maintained, is fairly rare with around five percent of female employees undertaking this transition within a 12 month period. Finally, transitions from part- to full-time work hours are slightly more likely among mothers with resident children than childless women.

The number of females in each of the three groups who break employment for a short period is very small, so comparisons with females who have a continuous pattern of employment are difficult. Yet it appears that most mothers with pre-school aged children or school-aged children who break employment work part-time both before and after the break in employment. This finding perhaps reflects the tendency for mothers who work part-time to have a weaker attachment to paid work or alternatively to be in

parts of the labour market where redundancy or dismissal is more common. Due to the small numbers of female employees who were not employed at t-1, but employed earlier at t-2 (or t-3 or t-4), I do not separate this group from continuous employees in the subsequent analysis.

A breakdown of the frequency of movement to a new employer in the previous 12 months for all female employees is presented in Table 5. Overall rates of mobility to a new employer are quite similar across the three groups of female employees. In any given 12 month period, 12-18 per cent of female employees start working for a new employer.

Table 5: Frequency of job transitions among female employees aged 22 to 45 years, Australia 2001-2005 (column percentages)

	Age of youngest resident child ^a			
	No childn (%)	Child 0-5 years (%)	Child 6-17 years (%)	All females (%)
Remain full-time				
Change employers	15	8	9	13
Total (n)	1468	197	644	2407
Remain part-time				
Change employers	17	15	11	13
Total (n)	203	570	906	1831
Full- to part-time				
Change employers	48	29	23	34
Total (n)	104	49	90	312
Part- to full-time				
Change employers	37	24	22	26
Total (n)	98	78	142	333
All female employees				
Change employers	18	15	12	15
Total (n)	1873	894	1782	4883

Notes: ^a See notes to Table 4.

^b Small cells where fewer than 10 cases.

Source: HILDA waves 1-5.

However, differences between childless women and mothers with pre-school or school-age children emerge when movement to a new employer is examined separately by work hours transitions. Mothers with resident children are much less likely to change employers if they remain full-time than are childless women who remain full-time. Among female employees changing from full- to part-time hours, childless women are more likely to move to a new employer than mothers with resident children. Childless women who change from full- to part-time work hours may have other characteristics, such as poor health or elder care responsibilities, which means that a reduction in work

hours is accompanied by other changes to their conditions of employment, such as a shorter commute, which are realised by moving to a new employer. Also, childless women are more likely than mothers to move to a new employer when changing from part- to full-time work hours. The comparably high rates of employer mobility for childless women changing from part- to full-time work hours than mothers also undertaking this same transition probably captures movement out of part-time study, where this has been combined with part-time employment, after completion of a tertiary qualification.

Taken together, these descriptive results show that mobility between employers is no more frequent on return after a birth than among the broader population of female employees. However, transitions from full- to part-time work are more likely after a recent birth event. Around one third of mothers who return to paid work within three years move from full- to part-time hours, compared to five per cent among the wider population of female employees without a recent birth event.

Changes in earnings before and after a birth

A summary of earnings before and after the birth and the mean change in logged earnings for the different job transitions are presented in Table 6. Changes in logged earnings from before to after the birth approximate percentage increases or declines in earnings.

Table 6: Mean hourly earnings before and after the birth of a child by job transitions, female employees aged 22 to 45 years, Australia 2001-2005

	Mean earnings ^a (\$)		Mean change In earnings ^b	Birth obs (n)
	Before birth	After birth		
Working hours before and after the birth				
Remain full-time	21.70	21.59	-0.016	56
Remain part-time	21.65	20.99	-0.064	86
Full-time to part-time	21.27	24.07	0.115*	71
Employer mobility				
Return to same employer	21.88	22.52	0.011	171
Change employers	20.12	20.77	-0.002	42
All births	21.53	22.18	0.008	213

Notes: ^a Hourly earnings are adjusted to 2001 prices using the Current Price Index.

^b The statistical significance of changes in ln earnings around the birth of a child are assessed using two-sided paired t-tests. *** p < 0.001, ** p < 0.01, * p < 0.05, + p < 0.1

Source: HILDA waves 1-5.

The theory of compensating amenities and institutional theories of labour market segmentation predict that mothers who change from full- to part-time hours are likely to experience a drop in hourly earnings or no wage growth relative to those who continue working part-time or full-time. Contrary to these predictions, the descriptive statistics show that mothers moving from full- to part-time hours attract a statistically significant increase in earnings, averaging around 12 per cent. Mothers who remain full-time or remain part-time do not experience any significant wage growth (when wages are adjusted to 2001 prices). Results also show that there is no significant overall decrease in the earnings of mothers who move to a new employer and no overall increase in the earnings of mothers who remain working for the same employer.

Yet the premium attached to the transition to part-time work may be caused by the necessary movement from permanent to casual status when reduced hours are sought, the latter attracting an earnings premium to compensate for the loss of paid annual and paid sick leave. Of the mothers who change from full- to part-time work hours, around 20 per cent (n=15) also move from a permanent contract onto a casual contract. To examine the effects of a transition to part-time work, net of a casual pay loading where mothers also move off a permanent contract, I turn to the regression analysis.

Table 7 presents the results from the first-differences regression model comparing mothers' earnings using their last recorded wage before a birth and first wage on return to employment. Hourly earnings are logged, which means the coefficients, when multiplied by a factor of 100, reflect approximate percentage growth in earnings. All coefficients for categorical measures in the first-differences regression model are based on mothers who change categories around a birth. Hence, the reference category for the dummy variable measuring a transition from full- to part-time work encompasses both mothers who remain full-time and remain part-time. Results confirm that the transition from full- to part-time is positively associated with wages, even after adjusting for movement from a permanent to casual job contract. On average, the wages of mothers changing from full- to part-time increase by 14 per cent more than mothers who remain full-time or remain part-time. These results are illustrated graphically in Figure 3, where I plot predicted values holding constant gains in work experience at 1.2 years (the sample mean) 20. The figure illustrates that, on average, mothers who remain full-time or remain part-time with the same employer will experience a decline in earnings, whereas mothers who change from full-time to part-time hours experience earnings growth. Mothers who move to a new employer, but do not change from full- to part-time work, appear to be slightly worse off than those mothers who return to work for the same

employer. Yet the coefficient for changed employers does not reach statistical significance, so mothers who change employers may experience no penalty other than that attached to time away from paid employment.

Table 7: First-differences regression estimates of changes in hourly earnings around a birth, female employees with birth event 2001-2005

Coefficients	Model 1A	Model 1B
Full-time to part-time	0.136**	0.243**
Changed employer	-0.032	-0.034
Work experience	-0.062*	
Casual contract	0.167**	0.179**
Public sector	-0.002	0.009
Manager or professional	0.198***	0.193***
Supervisor	0.020	0.022
Sole mother	-0.141	-0.163
First child	0.048	0.029
Interactions:		
Work experience (ref = remain full-time)		-0.023
Work exp * remain PT		-0.042
Work exp * FT to PT		-0.112
Constant	2.806***	2.757***
F statistic	4.16 (9,193)	3.52 (11,193)
Probability > F	0.0001	0.0002
Person-time observations	426	426
Total persons	213	213

Notes: Standard errors are adjusted to take into account the non-independence of birth observations where more than one birth is observation for a given female.

*** p< 0.001, ** p< 0.01, * p<0.05, + p<0.1

Source: HILDA waves 1-5.

Unexpectedly, work experience is negatively associated with wages and this relationship is statistically significant at the 5 percent level (t-statistic = -2.47, prob t < 0.01). Hence, mothers who accrue greater work experience between their last before birth and first post birth employment observation attract higher wage penalties. Figure 4 illustrates this association. Controlling for changes on other key employment characteristics, mothers who gain 6 months additional work experience between the last wage before the birth and first wage after a birth experience a decline in wages of 3 per cent, whereas mothers who gain 12 months experience a decline of 6 per cent.

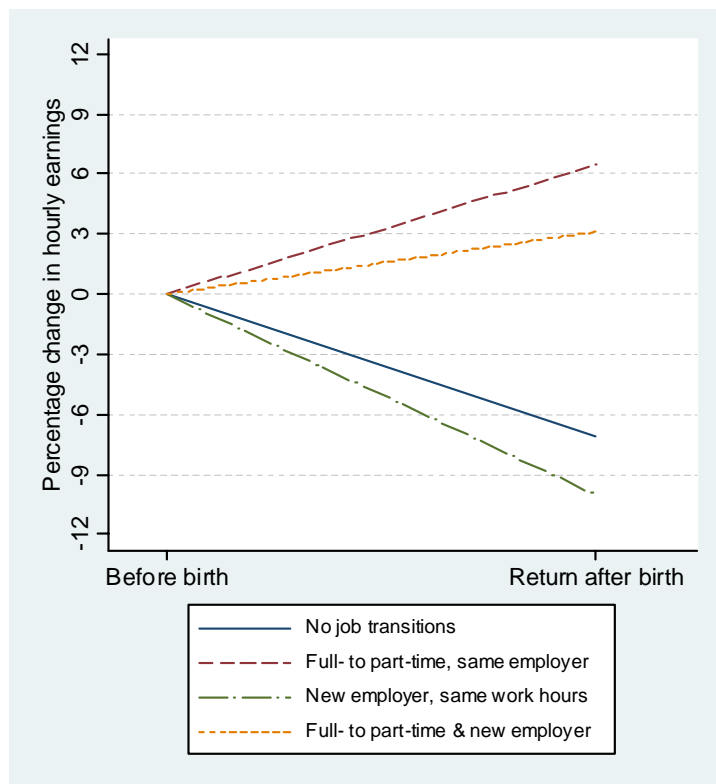


Figure 3: Predicted growth or decline in hourly earnings by job transitions around a birth, Australian mothers with a birth event 2001-2005

Notes: Predicted values calculated for mother after a birth other than her first who does not change any other aspect of their employment (i.e. sector, contract, occupation, supervisor) or their family circumstances (i.e. sole parenthood) and accrues 1.2 years work experience between their last wage prior to the birth and first wage after the birth event.

Closer inspection of the employment history data, which is used to derive the measure of work experience, shows that most mothers are not experiencing any spells of non-employment. Mothers appear to be marking periods of leave around a birth as part of a continuous spell of employment. Yet, the quantity of work experience gained between the before-birth and post-birth waves is also affected by the timing of the HILDA fieldwork relative to both the timing of the birth and the timing of a mother's return to paid work. Thus, I am not convinced that the work experience measure is picking up the effects of longer potential work experience where a mother has taken a longer duration of leave around a birth. Moreover, although there is a moderate correlation between low work experience gains and movement to a new employer on return after a birth, the coefficient for movement to a new employer does not significantly change when work experience is excluded from the regression model (results not shown but available on request).

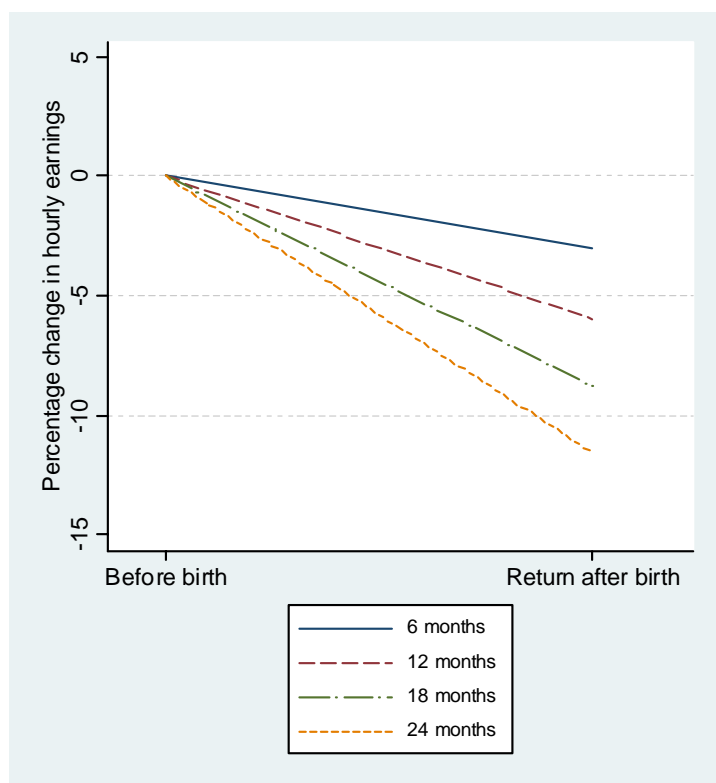


Figure 4: Predicted growth or decline in hourly earnings by change in work experience around a birth, Australian mothers with a birth event 2001-2005

Notes: Predicted values calculated for mother after a birth other than her first who does not change any other aspect of their employment (i.e. work hours, employer, sector, contract, occupation, and supervisor) or their family circumstances (i.e. sole parenthood).

Movement into (or out of) casual employment is linked to a significant increase (decrease) in earnings of around 17 percent, a premium which falls within the 'average' range observed across Australian industrial agreements and awards (I. Watson, 2005). The coefficient for managerial or professional occupation is positive and highly statistically significant (t-statistic = 3.65, prob t < 0.000). The model shows that wages decline (increase) by around 20 per cent with a transition out of (into) a managerial or professional job relative to those mothers who remain in the same occupation.

The coefficients for public sector employment and supervisory duties are both statistically insignificant, meaning that movement between sectors and the giving-up (or take-up, which is less common) of supervisory duties does not affect changes in wages around a birth. The two measures of family composition, first, whether the mother moves into or out of a couple relationship and second, whether the birth is the mothers' first, do not reach statistical significance.

One possibility not accounted for in the first regression model is that there are differences in wage growth between mothers who remain full-time and mothers who remain part-time around a birth. If there is something associated with remaining part-time, instead of remaining full-time which disadvantages mothers on return after a birth, then it is likely that this will be reflected in differences in the affect of accrued part-time versus full-time work experience on earnings growth. To test for this possibility, a second regression model is estimated with an interaction term between part-time after the birth, part-time prior to the birth and work experience gains. The main effects of remaining part-time are not reported because this characteristic is time-invariant and is swept out with the person fixed-effects. None of the interaction terms between work experience and work hours reach statistical significance. However, the absence of results here could be affected by limitations in the measure of changes in work experience around the birth of a child.

Finally, interactions are also added to test whether the positive affect of a change from full- to part-time work is lessened where this coincides with movement to a new employer. None of the interaction terms are statistically significant (results not shown here, but available on request).

The short-term effects of a job transition on female's earnings

The second series of regression analysis aims to test whether the effects of job transitions are more negative where this transition is undertaken by mothers around a birth. Due to the small number of birth events, interactions are first entered between work hours transitions and a recent birth, and a separate model is run with interactions between movement to a new employer and a recent birth. Results from the fixed-effects regressions are presented in Table 8 and Table 9. These models estimate the short-term effects of a job transition after controlling for time-constant unobserved heterogeneity between female employees, such as cognitive ability or career ambition.

Based on the premise that mothers' job placement may be more greatly constrained after a recent birth because of time-constraints or employer discrimination, I predicted that the transition from full- to part-time work hours would be associated with less negative outcomes for the earnings of women who have not experienced a recent birth than would this same transition for mothers with a newborn or infant. Yet, earlier analysis already reveals that mothers who have changed to part-time work on return after a birth actually attract a pay premium, not a penalty. With the sample expanded to

include all female employees, the results again show that a transition from full- to part-time hours is linked to a pay premium and, on average, this is around 10 per cent.

The interaction terms between changes in work hours and a recent birth event show that the premium mothers attract for changing from full- to part-time hours is possibly slightly higher than that attracted by female employees undertaking this same transition at other times across the lifecycle (t-statistic = 1.79, prob t = 0.073). Mothers who have a recent birth experience and change from full- to part-time experience a wage increase which is around 2.5 per cent (6.9 minus 4.4 per cent) higher than that of female employees who undertake this same transition, but not in connection with a birth.

Surprisingly, the coefficient for third/fourth year since a transition from full- to part-time work is statistically significant. This coefficient is positive and suggests that wage growth is greater for females after a recent transition to part-time work than for female employees who remain part-time or remain full-time between 2001 and 2005. The censoring of observations after a work hours transition means that only a small proportion of the sample have a measure of hourly earnings at three or four years after movement from full- to part-time work (just under 1 per cent of longitudinal sample from a total of 54 females). Thus, the result may reflect something peculiar about this small group which I have not been adequately controlled for.

An increase in work hours with the movement from part- to full-time status, while uncommon around a birth event, is sought by females at other times across the lifecycle. Results in Table 8 reveal that this transition has a negative affect on female earnings in Australia. Given the very small number of mothers who have had a recent birth and who move from part- to full-time, it is not surprising that the interaction term is insignificant.

The coefficient for a recent birth event is negatively associated with female earnings and is statistically significant at the five per cent level. This result suggests that mothers who have had a recent birth and continue working part-time or full-time experience a decline in earnings in comparison to other female employees who likewise remain working part-time or full-time hours.

To examine whether results are sensitive to the inclusion of both females who remain full-time and remain part-time in the reference category two additional models were estimated. The first of these models limits the sample to female employees who were working full-time at the previous wave of employment, while the second model takes females who were previously working part-time. Results on the two coefficients for

work hours transitions are broadly similar to the earlier analysis with the full sample of female employees, though both coefficients increase slightly in value.

Table 8: Fixed-effects regression estimates, female employees aged 22 to 45 years, Australia 2001-2005

Coefficients	All female employees	Full-time last wave employed	Part-time last wave employed
Recent birth * work hours transitions (ref: no change)			
No birth, 1st year full- to part-time	0.094***	0.102***	-
No birth, 2nd year since full- to part-time	0.029	-	-
No birth, 3rd & 4th year since full- to part-time	0.084*	-	-
No birth, 1st year part- to full-time	-0.074***	-	-0.089***
No birth, 2nd year part- to full-time	-0.052*	-	-
No birth, 3rd & 4th year since part- to full-time	-0.030	-	-
Recent birth, no change work hours	-0.044*	-0.030	-0.027
Recent birth, 1st year full- to part-time	0.069+	0.025	-
Birth, 2nd year full- to part-time	0.054	-	-
Birth, 3rd & 4th year full- to part-time	-0.067	-	-
Recent birth, 1st year part- to full-time	0.064	-	0.022
Birth, 2nd year part- to full-time	-0.105	-	-
Birth, 3rd & 4th year part- to full-time	(dropped)	-	-
Employment characteristics			
Tenure (ref: tenure 4 up to 10 years)			
Changed employers in previous year	-0.023+	-0.004	-0.031
Tenure 1 up to 2 years	-0.022+	-0.011	-0.031
Tenure 2 years up to 4 years	-0.019+	0.003	-0.042*
Work experience	0.025***	0.034***	0.015**
Casual contract	0.034**	0.028	0.026
Public sector	0.026*	0.022	0.015
Manager or professional	0.052***	0.031*	0.068***
Supervisor	-0.003	0.008	-0.011
Size of employer (ref: 100 plus)			
Less than 20	-0.047***	-0.046**	-0.047*
20 to 99	-0.018	-0.007	-0.031
Union member	0.011	-0.0004	0.026
Personal characteristics			
Education (ref: complete secondary or less)			
Diploma or certificate	-0.011	-0.040	0.028
Degree & higher	-0.005	-0.002	0.003
Single	-0.003	0.005	-0.002
Non-metropolitan region	-0.058*	-0.041+	-0.089+
Constant	2.515***	2.402***	2.658***
Person-time observations	6723	3886	3192
Total persons	1840	1152	1008

Notes: *** p< 0.001, ** p< 0.01, * p<0.05, + p<0.1

Source: HILDA waves 1-5.

Table 9 presents results for the model with interactions between a recent birth event and movement to a new employer. The reference category here consists of female employees working with the same employer for five years or more. Although the coefficient for movement to a new employer over the previous 12 months is negative, as predicted, the result does not reach statistical significance (t-statistic = -1.75, prob t = 0.117). The interaction term, however, suggests that employer mobility has a negative affect on the earnings of mothers who have recently experienced a birth. Mothers who return to paid work with a new employer attract declines in hourly earnings of around 10 per cent (-1.9 plus -2 plus -6.4 per cent) relative to female employees who do not experience a birth and continue with the same employer where they have tenure of at least five years. However, the interaction term is only statistically significant at the 10 per cent level (t-statistic = -1.65, prob t = 0.100), so this result should be treated with caution.

Overall, the results in Table 8 and Table 9 are suggestive of flatter wage growth among female employees with fewer than five years work experience, although the coefficients are only significant at the 10 per cent level and do not reach conventional levels of significance in some specifications. These findings suggest that increases in wages with an additional year of work experience appear to be offset by declines linked to the incremental 'movement' across the three categories of short tenure.

Several of the control variables added to the regression models are significantly associated with female earnings. Work experience is positively associated with wages. Female employees who gain an additional year of work experience, on average, attract an increase in wages of around 2.5 per cent. The coefficients for casual employment, public sector employment and managerial and professional occupations are also statistically significant and are both positively associated with wages.

Workplace size is significant in the fixed-effects regression models. The estimates show that female employees who move from a large workplace with 100 or more employees into a small workplace with fewer than 20 employees will attract an average decline in hourly earnings of just under five per cent, on top of the decline expected with any movement to a new employer and after controlling for other employment characteristics.

None of the coefficients for education are significant. The absence of any significant association between earnings and education, a consistent finding in cross-sectional research, arises because few females gain a further qualification over the five waves.

Coefficients in the fixed-effects specification link changes on explanatory variables with changes in wages, so predictors which vary little over time are likely to be inconsequential in these models.

Table 9: Effects of employment transitions on hourly earnings, female employees aged 22 to 45 years, Australia 2001-2005

Coefficients	All female employees
Recent birth * work hours transitions	
(ref: no birth, tenure 5 years or more)	
No birth, changed employers in previous year	-0.019
No birth, tenure 1 up to 2 years	-0.020
No birth, tenure 2 up to 4 years	-0.019+
Recent birth, tenure 5 years or more	-0.020
Birth, changed employers	-0.064+
Birth, tenure 1 up to 2 years	-0.032
Birth, tenure 2 up to 4 years	0.016
Work hours transitions	
1st year full- to part-time	0.109***
2nd year since full- to part-time	0.040+
3rd & 4th year since full- to part-time	0.059+
1st year part- to full-time	-0.069***
2nd year part- to full-time	-0.054*
3rd & 4th year part- to full-time	-0.028
Employment characteristics	
Work experience	0.025***
Casual contract	0.035**
Public sector	0.025+
Managerial or professional occupation	0.053***
Supervisor	-0.003
<i>Size of employer (ref: 100 plus)</i>	
Less than 20	-0.046***
20 to 99	-0.017
Union member	0.012
Personal characteristics	
<i>Education (ref: complete secondary or less)</i>	
Diploma or certificate	-0.011
Degree & higher	-0.006
Single	-0.003
Non-metropolitan region	-0.058*
Constant	2.517***
Person-time observations	6723
Total persons	1840

Notes: *** p< 0.001, ** p< 0.01, * p<0.05, + p<0.1
 Source: HILDA waves 1-5.

Discussion

The aim of this paper has been to examine the how job transitions affect the earnings of Australian mothers who return to paid employment up to three years following a birth event. I have focussed on transitions from full-time to part-time work and movement to a new employer. Descriptive statistics confirm that transitions from full- to part-time work hours are relatively common among mothers' returning to work after the birth of a child, especially after a mother's first child. Interestingly, mothers appear no more likely to move to a new employer on return after a birth than other female employees. I expected that the absence of job-protected maternity leave for a substantial share of the female workforce would make it more difficult for Australian mothers to return to their pre-birth employer. One possibility, however, is that those Australian mothers who experience difficulty negotiating their return after a birth will interrupt employment for several years. The analysis presented in this paper only includes mothers who return to paid work within three years after a birth event and, hence, is likely to exclude those mothers who find it more difficult to locate suitable employment.

Contrary to predictions that movement into part-time work would lead to a drop in earnings or lower wage growth, my results reveal that the earnings of Australian mothers who change from full- to part-time hours after a birth attract increases in hourly earnings which are around 13 per cent higher than among those mothers who remain working part-time or remain full-time. This premium persists even after controlling for casual pay loadings. Further analysis reveals that female employees who move from full- to part-time employment at other points across the lifecourse experience a similar rise in hourly earnings. A transition from part-time hours back into full-time hours is also found to be negatively associated with earnings. Previous Australian research using HILDA, has likewise shown that there is a pay premium for transitions into part-time work and a penalty for movement back into full-time work among female employees in Australia (Booth & Wood, 2004).

These findings offer no support for arguments of compensatory amenities where part-time workers incur a pay penalty because of the higher staffing costs faced by employers who offer part-time jobs. Moreover, the absence of a penalty or lower wage growth among mothers who move from full- to part-time work hours is inconsistent with arguments that access to part-time work hours necessarily involves movement into a more peripheral segment of the workforce where remuneration is lower. While there is increasing evidence that not all part-time jobs are necessarily bad jobs (Fagan & O'Reilly, 1998), previous research from liberal welfare states, particularly the US and

UK, tends to support arguments that much part-time work is of poor quality (Rubery, 1998). Across several countries, studies of female earnings have shown that part-time employment is associated with lower overall hourly wages compared to full-time employment, and that a portion of this part-time pay penalty is not explained by differences in human capital and broad employment characteristics (Bardasi & Gornick, 2000; Gornick & Jacobs, 1996). The strong negative effect of current part-time work also emerges in research on mothers' earnings (Budig & England, 2001; Joshi & Paci, 1998; Waldfogel, 1997).

The appearance of a pay premium for transitions from full- to part-time hours among both Australian mothers returning to employment after a birth and female employees more widely is unexpected. The discussion concentrates on possible reasons for an earnings' premium where mothers move from full- to part-time hours after a birth, as a large share of Australian women experience this transition in their lifecourse. However, some of these explanations may apply more generally across to other female employees who make a transition from full- to part-time work. Possible reasons for the positive association between transitions to part-time work and earnings include the compressed nature of the female wage distribution in Australia, mothers' selection into part-time work, and/or error associated with my derived measure of hourly earnings.

Previous cross-national research, albeit drawing on cross-sectional data, has found that the wage differential between full-time and part-time females is notably lower in Australia than in other liberal welfare states, even after controlling for differences in human capital and occupation (Gornick & Jacobs, 1996). These findings have been attributed partly to Australia's centralised industrial relations system. Historically the centralised industrial relations system in Australia has resulted in narrower wage dispersion and a relatively high minimum wage in comparison to other industrialised countries. This may have provided Australian mothers some protection against downward earnings mobility when changing from full- to part-time hours. However, this does not explain why mothers attract significantly higher wage growth with a transition from full-to part-time hours.

The positive association between transitions from full- to part-time work and hourly earnings growth could reflect variation across the Australian labour market in mothers' access to part-time work hours. By taking the difference of wages from before to after a birth, the regression coefficients account for the possibility that mothers who have access to part-time work on return after a birth tend to be located in higher status jobs,

which attract higher hourly wages, prior to a birth. However, the regression coefficients do not adjust for the possibility that mothers who attract higher wage growth, rather than simply higher absolute wages before a birth, are more likely to select into part-time work on return to paid work. Part-time working hours may only be readily available to those mothers who are working in the types of jobs or occupations that tend to attract higher wage growth. Alternatively, mothers may only choose to move from full- to part-time hours where they perceive that their further job prospects are good. Jobs which are seen to offer such prospects may also tend to offer better returns. However, if this were the case then I would expect to see that wage returns among mothers remaining part-time would be slightly higher than among mothers who remain full-time. The results, however, show that wage growth does not significantly vary between mothers who remain part-time and those who remain full-time.

The finding that Australian mothers who move from full- to part-time working hours attract a significant rise in earnings could be caused by deriving hourly earnings from measures of usual weekly earnings and usual hours worked per week. Derived estimates of full-time hourly wages could be biased downwards where full-time jobs require some or longer unpaid overtime than part-time jobs. Where mothers' augment a transition from full- to part-time work hours with a reduction in the frequency or intensity of unpaid overtime, hourly earnings will appear as increasing even if the notional rate of pay remain unchanged.

Yet with only five waves of data available, I am not able to investigate the longer term consequences of part-time work on wage growth. Previous research suggests that wage growth among continuous full-time employees is higher than among continuous part-time employees (Chalmers & Hill, 2005; Manning & Robinson, 2004) and that returns to work experience are lower for each year of part-time experience relative to full-time experience (Budig & England, 2001; Olsen & Walby, 2004). Some US research suggests that females who change from full- to part-time do not attract a significant increase or decline in hourly earnings relative to those who make no change (Hirsch, 2005). Hence, lower wage growth with part-time, rather than full-time experience, may explain the seemingly contradictory findings that part-time employees earn less than full-time employees in cross-sectional specifications, but tend to attract higher wage growth immediately after a transition from full- to part-time work hours in panel regression models. Follow-up research on the medium-term consequences of part-time work on wage growth could test for this possibility.

The second job transition I look at among mothers returning to paid work after a birth is movement to a new employer. Overseas research shows that movement to a new employer after a birth has a negative affect on mothers' earnings (Baum, 2002; Hofferth & Curtin, 2006; Waldfogel, 1998). My results for Australian mothers are inconclusive. Analysis using data from mothers who have had a recent birth shows that mothers who move to a new employer fare no worse in terms of hourly pay than mothers who return to work with their pre-birth employer. However, later models, with the full sample of female employees, suggest that mothers who change employers after a birth attract wage declines relative to female employees who continue with the same employer and do not have a(nother) child. Results in this second series of analysis also points towards the significance of mobility between small and large organisations on female earnings, as well as the possibility that employer mobility largely impacts on females who move away from an employer where they had accrued long tenure (five years or more). The sample of birth observations accessible with the first five waves of HILDA is too small to allow these measures to be included in the regression analysis. Yet this remains an interesting direction for future research on mothers' employment transitions.

A limitation with my analysis is that I lack a measure of the duration mothers spend on leave from a job or not in employment around a birth event. This will possibly bias results if movement to a new employer follows on from a spell where the mother is not employed, while other mothers who return to the same employer remain employed over the period of maternity leave. Checks do show that exclusion of the term for work experience does not alter the key findings. Yet the association may be obscured to some extent where the exclusion of a control for the duration of an interruption contributes to unobserved heterogeneity.

Also, the job shopping literature argues that many mobility events, particularly movement arising after a voluntary resignation, are preceded by a period of job search (Fuller, 2004; Keith & McWilliams, 1995). Employees are seen to search for jobs which will offer an improved combination of higher remuneration and/or better conditions. Hence, the absence of conclusive results as to the effects of employer mobility on wages may arise where the positive effects for voluntary moves to a new employer are cancelled out by the negative effects of involuntary mobility (e.g. dismissal, retrenchment). Again, this is a possibility I intend to explore in future research.

The availability of five waves of longitudinal data limits my analysis to Australian mothers who return to paid work within three years of a birth event. Mothers who

interrupt employment to be a full-time carer for more than three years, still a significant proportion of mothers in Australia, possibly face greater constraints negotiating a return to the paid workforce, particularly given that unpaid maternity leave entitlements in Australia only guarantee 12 months job-protected leave (but this entitlement excludes some casual employees). Previous research shows that longer periods of foregone work experience, during employment breaks to care for young children, more negatively affects mothers' earnings (Budig & England, 2001; Gupta & Smith, 2002). As additional waves of HILDA become available my analysis could be extended to include those mothers who return to paid work more than three years after a birth.

Finally, the quality of the jobs mothers can access on return after a birth is not just reflected in rates of hourly pay. Other characteristics, including schedule flexibility, job security, on-the-job training, internal mobility, autonomy and job content, are all important when considering the overall quality of mothers' employment (Chalmers et al., 2005).

Appendix

Table 10: Descriptive statistics for control variables for models of changes in earnings around the birth of a child

Control variables	Percent		Freq change into contrast cat after birth (into ref cat)
	Before birth	After birth	
Casual	15	24	23 (4)
Public sector	39	35	4 (12)
Manager or professional	62	58	10 (17)
Supervisor	55	46	16 (35)
Sole mother	4	3	4 (6)
First birth	0	52	n/a

Notes: Mean accrued work experience between the last wage before the birth and first wage after the birth is 1.2 years.

Source: HILDA waves 1-5.

Table 11: Variable means, all female employees aged 22 to 45 years (n=6723)

Variable	Mean (person-time) ^a
Hourly wage (ln)	2.891
Work hours transitions	
1st year full- to part-time	0.046
2nd year since full- to part-time	0.019
3rd & 4th year since full- to part-time	0.010
1st year part- to full-time	0.011
2nd year part- to full-time	0.006
3rd & 4th year since part- to full-time	0.003
Change work hours * birth	
Recent birth, no change work hours	0.064
Recent birth, 1st year full- to part-time	0.050
Birth, 2nd year full- to part-time	0.020
Birth, 3rd & 4th year full- to part-time	0.008
Recent birth, 1st year part- to full-time	0.003
Birth, 2nd year part- to full-time	0.0009
Birth, 3rd & 4th year part- to full-time	0
Tenure	
Changed employers in previous year	0.191
Tenure 1 up to 2 years	0.108
Tenure 2 up to 4 years	0.310
Tenure * birth	
Recent birth, tenure 5 years or more	0.064
Birth, changed employers	0.010
Birth, tenure 1 up to 2 years	0.004
Birth, tenure 2 up to 4 years	0.018
Control variables	
Work experience	15.2
Casual	0.186
Public sector	0.381
Manager or professional	0.526
Supervisor	0.470
Workplace size	
Less than 20	0.203
20 to 99	0.144
Union member	0.312
Education	
Diploma or certificate	0.259
Degree & higher	0.228
Single	0.271
Non-metropolitan	0.325

Notes: ^a For categorical variables the mean corresponds to the proportion of respondents falling in a given category. A mean of 0 would indicate no respondents fall in a given category, while a mean of 1 would indicate that all respondents fall in a given category.

Source: HILDA waves 1-5.

Endnotes

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² The average rate of employment among OECD countries is mostly based on data collected 2001.

³ Rates of part-time employment among mothers are typically calculated by the OECD using a definition of part-time as less than 30 hours per week. In Australia, part-time employment is defined as less than 35 hours per week, which makes precise cross-national comparisons of the prevalence of part-time work difficult.

⁴ Calculations by author using LSAC wave 1.5 survey data (Whitehouse, Baird and Diamond 2006).

⁵ I refer to the entrance of a new child into the household through both a biological birth or the adoption of an infant as a “birth” event. I am not able to assess whether any of the birth events are actually an adoption as questions in the parenting section of the personal interview do not distinguish between biological and adoptive children.

⁶ For instance, where an infant arrives in a household between waves 2 and 3, I will take wave 2 as the before birth observation if the mother is working as an employee with a wage/salary at wave 2. If the mother is not working at wave 2, but is working for an employee at wave 1, I take wave 1 as the before birth observation.

⁷ The skip logic of the HILDA questionnaire directs mothers who are away from work on unpaid maternity leave past the current employment section (unless this leave has been for less than four weeks), while mothers currently on paid maternity leave (or less than 4 weeks unpaid leave) are directed to complete the employment questions. I am not able to directly identify new mothers who are away from work on paid maternity leave from those mothers who have returned back to work. However, several new mothers (n=8) indicate that they current work zero hours per week at the wave immediately following the arrival of a new child. Presumably these mothers are on paid maternity or other paid leave. These observations have been excluded from the sample.

⁸ Ideally I would like to know when the mother returned to work in terms of months since the birth. Because I do not have information on when the birth occurs relative to the timing of the HILDA survey fieldwork I am not able to more precisely identify the timing of mothers return to employment.

⁹ Observations are removed where earnings are greater then \$120 per hour (threshold chosen on visual inspection of the distribution) and where earnings are less than half an approximation of the minimum wage. Technically, minimum wages are set as a minimum weekly wage for full-time adult employees. I approximate a minimum hourly wage by dividing the minimum weekly wage by 38 hours. Approximate estimates of a minimum hourly wage are \$10.88, \$11.35, \$11.80, \$12.30 and \$12.75 for each year from 2001 to 2005 respectively.

¹⁰ First-differences and fixed-effects regression will produce the identical results where data from persons are available across two periods of time. The usual convention is to present results from a two-period panel analysis using the first-differences regression framework.

¹¹ Time (t-1) will not necessary coincide with wave - 1 as many mothers are not employed at the wave where the infant first enters the household.

¹² For respondents who indicate that their most recent salary was not typical of their usual salary, I use reports of usual salary to derive a measure of hourly earnings.

¹³ Total working hours include paid and unpaid overtime and work done both at the workplace and at home. For respondents who indicate that their hours vary I use reports of average work hours per week.

¹⁴ The current price index is taken for the third sector of each year, as this most closely approximates the timing of the HILDA fieldwork schedule. Setting 2001 wages to 100, the wages for subsequent years are adjusted by the factors 0.97 (2002), 0.94 (2003), 0.92 (2004) and 0.90 (2005).

¹⁵ The main job is defined as the job where the greatest pay is received per week. Earnings in main job, rather than all jobs, are used as levels of missing data are notably higher for second/other jobs than for main job only.

¹⁶ While the HILDA questionnaire asks respondents whether they have changed employers since the previous wave, this question is directed only to those who were employed at the previous wave. Using tenure to identify a change in employers allows me to include employees who have recently started working for a new employer and happened to experience a spell outside the labour force within the sampling period of the previous wave.

¹⁷ HILDA does not include a retrospective work history component, so I lack information on work hours' transitions before 2001. This means that I am not able to identify years since a transition where this occurred shortly before the female entered the HILDA survey. For instance, some females who remain full-time across the five waves possibly changed from part- to full-time in the year preceding the first wave of data collection in 2001. This will possibly bias findings towards the null hypothesis of no effect. Also, I am not able to test for differences in the effects of years part-time versus years full-time work experience on current wages.

¹⁸ Model fit based on testing the null hypothesis that all coefficients equal zero at the 5 percent level.

¹⁹ Note that differences between females with continuous employment and those females with broken employment may be diminished where females who appear to be employed continuously have interrupted paid employment but are not contacted for a survey interview during the period outside of employment. In the regression analysis work experience is included to control for foregone experience during spells outside of employment.

²⁰ Predicted values are derived using the equation: $(e^{\beta X}) * 100$

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