Access to Full-Time Employment: Does Gender Matter?

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Abstract

Women are participating in the labour market in higher proportions than in the past, with the female participation rate in June 2012 standing at 58.9 per cent. However, a gendered pattern of workforce engagement persists, particularly as it concerns part-time employment; 70 per cent all part-time employees are women, 46 per cent of women in paid work are employed on a part-time basis, compared to 16 per cent for men. In Australia, there has been a number of policy and regulatory changes to further support women's participation in the workforce, including labour law decisions concerning parental leave. Family provisions test cases illustrate also the capacity for regulation to impact in a collective and positive manner on women's paid employment. Against this policy context, this paper focuses on women's engagement with part-time employment after they have given birth to children. It has been shown in previous studies that women are more likely, than men, to 'choose' part-time employment after a child is born into the family (Rose, Hewitt and Baxter, 2011; Baxter and Renda, 2011). What has not been as extensively researched is the influence of other cumulative factors on women's employment status. Using the Household, Income and Labour Dynamics in Australia (HILDA) survey over ten waves, the paper examines the effect of child birth on women's employment patterns, including transitions into and between full-time and part-time employment. The paper concludes by providing direction for policy makers in addressing the participation and employment equity gaps.

1. Introduction

Women's access to the paid labour market has altered, most significantly in the last forty years. On the score of employment, women's labour force participation rate in June 2012 stood at 58.9 per cent, compared to 36.3 per cent in 1966 (Australian Bureau of Statistics, 2012; Australian Bureau of Statistics, 1993). In June 2012, women constituted 45.7 per cent of the employed workforce and their contribution has underlined the cumulative increase in Australia's workforce participation since the 1970s (Australian Bureau of Statistics, 2012; Australian Bureau of Statistics, 2011). Nonetheless a gendered pattern of workforce engagement remains apparent. In June 2012, 35.2 per cent of all full-time workers and 70.2 per cent of all part-time workers were women; 45.8 per cent of women in paid work were employed on a part-time basis, with the comparable figure for men being 16.4 per cent (Australian Bureau of Statistics, 2012). This pattern of employment has been attributed to caring for children, other caring and household responsibilities and the effect is more pronounced for single mothers (House of Representatives Standing Committee on Employment and Workplace Relations, 2009). Such findings suggest that women's engagement with the labour market is shaped by their dependent care responsibilities; women are significant more likely than men to have temporary or permanent withdrawals from full-time employment in the paid labour force. Each of these withdrawals is significant in terms of current and future foregone earnings.

This issue has already been the subject of detailed and recent examination using a variety of well-established data sources. Utilising Wave 1 of the Longitudinal Study of Australian Children (LSAC), Baxter, Gay, Alexander, Strazdins and Bittman (2007) confirmed that that having young children exercises a far greater effect on the employment patterns of mothers than fathers, evident in a lower likelihood of employment, a higher likelihood of working shorter hours and working different types of jobs compared to fathers. These findings illustrated differences in the preferences of working hours for mothers in paid employment, relative to current working arrangements. While almost two thirds of employed mothers did not wish to alter their current number of working hours (paid), among full-time employed women, more than half preferred to work fewer hours, while those working less than 16 hours were the most like to prefer more paid working hours. Similarly Abhayaratna, Andrews, Nuch and Podbury (2008) using weighted HILDA survey data linked part-time employment patterns to domestic care responsibilities noting that among women aged 25-44 years, 60 per cent of women working part-time identified care for children as the main reason. Rose, Hewitt and Baxter (2013) using Wave 4 (1996/7, 2000, 2003, 2006) of the Negotiating the Life Course (NLC) survey assessed whether and what point did part-time employment ease feelings and perceptions of time pressure. Their findings underlined the importance of distinguishing between different types of part-time work given their findings that medium to long part-time hours, and full-time hours, did not alleviate women's experience of time pressure, either in an overall sense, or at work (2003: 55). Transitions in and out of employment for lone and coupe mothers was the focus of research by Baxter and Renda (2011) using Waves 2 to 8 of the HILDA survey, the period 2001 to 2008. This data enabled analysis of changes in mothers' employment status in each month. The key finding was the higher movements out of work for lone mothers compared to couple mothers - 1.3 per cent of employed couple

mothers and two per cent of employed lone mothers left employment from one month to the next. Some factors most notably recent employment history, level of educational attainment, age of and number of children were important in explaining variations in employment history. Given its focus on differences between lone and couple mothers, in entering and exiting employment, this study did not assess transitions within paid employment and only focused on those parents who already had children, but did note that lone mothers were more likely to be classified as contract, casual or fixed-term employees. This may have also impact the classification of exits from employment given that those in contract or causal employment may not have access to paid leave, such as paid parental leave.

This paper utilises panel data from the Household, Income and Labour Dynamics in Australia (HILDA) survey for the period 2001 to 2010 (wave 1 to wave 10), to examine the basis of women's labour force engagement. The research outlined here builds on the corpus of research examining the gendered nature of part-time employment with a particular and distinct focus on the transition to part-time employment, from full-time employment, following children. The paper examines the effect of various socio-economic factors on the employment status of women in Australia. It is particularly focused on women's preference for part-time employment after they have given birth to children and more broadly examines the effect of child birth on women using longitudinal data. The paper will aim to answer the following questions:

1. What effect does having children exert on women's transition rates from full-time employment to part-time employment?
2. Is there evidence that women start to reduce their hours of work prior to having children?
3. Can we identify other factors that influence the likelihood of women choosing part-time employment?

The paper will begin in section 2 by outlining the policy framework increasingly directed toward women's labour force participation and work life balance. Establishing the policy parameters in this way arises also in the context of a debate concerned over the lingering imprint of the male breadwinner model over standard employment arrangements and the quality of labour market and social protection afforded to women by contemporary regulatory frameworks (Campbell *et al*., 2009). Data analysis and observations, drawn from HILDA, are presented in section 3 followed by concluding remarks concerning implications for policy.

2. Policy framework

Measures to facilitate women's engagement with paid work have been shaped by feminist agency, and policy initiatives concerning the organisation of working time. These initiatives have included access to paid leave and regulation that addresses child care accessibility, including tax transfer arrangements. Women's interest in their working hours has included working time flexibility; be it sustainable part-time employment opportunities, or increased flexibility in full-time working hours that would facilitate an effective work/life balance (Pocock, 2003; Pocock, 2006). It has also included a guaranteed right to a return to work following reproductive leave, and more recently paid reproductive leave entitlements. Our interest here lies in charting

those policy features that concern employment outside of full-time permanent employment and the availability of measures that assist the relations between paid work and dependent care responsibilities. These features provide an important context for examining shifts in women's paid employment.

For a significant period, employment outside of full-time, permanent employment was largely deemed 'casual' employment, although this was in effect an umbrella term encompassing a wide range of employment practices. This included casual employees who fell outside of specific labour regulation, casual employees who were covered by awards but who were vulnerable to the erosion of award conditions, and casual employees whose employment was effectively regulated (Campbell, 1996). Permanent part-time employment, as a category of employment, did not enjoy consistent recognition until the changes introduced to awards by way of the March 1987 National Wage Case. Permanent part-time employment offered a more sustainable alternative to casual employment, given its greater employment security and the access to provisions including annual leave, sick leave and long service leave. Initially, its availability was largely confined to base grade positions allocated to mature-aged women returning to the workforce following an extended break (Junor, 1998). Although the distribution of part-time employment has broadened since then, part-time workers remain underrepresented in higher skill level employment, with professionals comprising a relatively low share of part-time workers at 16 per cent (Abhayaratna *et al*., 2008). Even so, entitlements vary between full-time and part-time workers (Abhayaratna *et al*.,2008), and part-time workers experience lower access to the higher wage earnings arising from collectively bargained wage settlements (van Wanrooy *et al*., 2007; van Wanrooy *et al*., 2008). Campbell *et al* note that schisms remain between full-time and part-time employment as the latter 'often stands uneasily at the edges of social protection even when it is formally under a permanent contract of employment' (Campbell *et al*., 2009: 6).

These frailties noted, regulation and policy change has been distinct particularly as it concerns access to leave linked to dependent care responsibilities. Labour law decisions in the maternity leave, parental leave, family leave, personal/carer's leave and family provisions test cases illustrated the capacity for regulation to impact in a collective and positive manner on women's paid work experience. The initial maternity leave decision in 1979 provided women with 12 months' continuous employment with the right to 52 weeks unpaid maternity leave and a return to their current position. This benchmark was built upon through a series of additional decisions: adoption leave in 1985, 52 weeks parental leave in 1990, and the extension of leave entitlements to casual employees in 2001. Further decisions initially facilitated the use of sick leave for carer's leave, and then increased the quantum of personal leave that could be used for carer's leave (Smith, 2011). Under more recent legislation (the *Fair Work Act 2009*), the National Employment Standards (NES) include key entitlements in the areas of maximum working hours, unpaid parental leave, and personal/carer's leave. There is also a separate legislative entitlement (under the *Paid Parental Leave Act 2010*) to 18 weeks' paid parental leave, paid at the rate of the Federal Minimum Wage (currently $606.40) (introduced 1 January 2011). Additionally, the NES enables workers to request a change in their working arrangements to assist in the care of pre-school age children, or children under 18 years with a disability (Stewart, 2009).

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Policy initiatives have extended beyond labour law and have included taxation transfer measures and payments directed to mediate the cost of child care. A critical suite of measures introduced in July 2000 and maintained by successive governments included Family Tax Benefit A, and Family Tax Benefit B, the Child Care Benefit and the Child Care Rebate. These tax benefits are means tested and are directed to families with dependent children. As an example *Family Tax Benefit A* provides presently a benefit where families adjusted taxable income is less than $47,815 (currently) and where the taxpayer cares for a dependent child aged under 16 for at least 35 per cent of the time. *Family Tax Benefit Part B* is an extra payment for single parents and families with one main income to assist with the costs of raising children. Family Tax Benefit B is limited currently to families where the primary earner has an adjusted taxable income of $150,000 or less, per financial year. If the primary earner's income is at or below this limit, Family Tax Benefit Part B will be assessed on the basis of the second earner's income. Child Care Benefit is a payment to assist with the cost of child care services approved by, or registered with, the Government while the Child Care Rebate assists parents or guardians with out-of-pocket expenses for approved child care if the care giver is working, training or studying. Out of pocket expenses are total child care fees less the Child Care Benefit. The Child Care Rebate covers 50 per cent of out of pocket expenses, up to a maximum of $7,500 per child per financial year.

A number of the taxation and benefit measures identified here have particular application to women given women's disproportionate engagement, relative to men, in care and domestic activities. The effectiveness of these measures is the matter of ongoing debate. This debate includes question about whether the tax benefits including the systems of means testing provide workforce disincentives to low and middle-income couple families (although not sole parents) (Apps, 2006; Brennan, 2007a; Gong, Breunig and King, 2010). Hill (2007) questions the merit of delivering work and family policy through the taxation system and assesses that the Family Tax Benefit system, particularly Family Tax Benefit B, formalises assumptions of primary and secondary earners into the taxation system, and aligns women to the status of secondary earners and primary carers. A further disadvantage arises from the high effective marginal tax rates that apply to secondary earners (Dockery, Ong and Wood, 2011). In the area of child care the growth in child care places has primarily been through corporate child care providers (Brennan, 2007a), and there remain issues with affordability (Brennan, 2007b).

The initiatives concerning Family Tax Benefits and Child Care Support were joined in 2006 by a more controversial measure whereby single income parents, with school-aged children, receiving income support were required to be in paid work of at least 15 hours per week or looking for work of 15-25 hours per week in order to continue to receive that support. This measure dramatically increased the activity requirements attached to single parent income support payments, and was a form of policy stratification that placed confronting requirements on those at the bottom of the socioeconomic scale (Wilson, Meagher, Hermes, 2012). Some indication of the significant increase in the activity requirement can be taken from the measures that immediately preceded the 2006 changes. Activity requirements for recipients of single parent income support payments were not introduced until September 2002. At that

point the requirement was limited to a compulsory interview for recipients where their youngest child was 12 years or older, a measure that was extended in September 2003 to those with children aged 6-12 years. Those with children aged 12-15 years were required to engage in, on average, six hours per week of designated activities (Grahame and Marsten, 2012).

3. Data and analysis

The data used was drawn from the HILDA survey, extracted using PanelWhiz, a household-based panel study with 10 waves of data from 2001 to 2010. The data was restricted to individuals whose age is between 15 to 65 years of age using the HILDA household form. Some of the data was obtained from the HILDA household form, such as the number of children in the household, while other data was extracted from a multiple HILDA data sources, including that collected on individuals. The unbalanced and unweighted form of the data is used to examine the gendered pattern of workforce engagement using Stata v.12. table 1 presents the list of variables used in this study.

Table 1 - Description and descriptive statistics for the covariates used in the model (number of observation = 111411)

Covariates Name	Description	Mean (Std. Dev.)
EmplScore	Workforce attachment; not in the labour force, not marginally attached = 1, not in the labour force, marginally attached=2, Unemployed, looking for PT = 3, Unemployed, looking for FT = 4, Employed PT = 5, employed FT = 6	4.1372 (2.135)
sex	Male = 1, Female = 2	1.522 (0.499)
hgage	Age at last birthday in years	38.587 (14.103)
agesq	Age squared	1687.9 (1112.981)
rcyng	Age youngest resident own child (excl. Resident foster/step/grandchild)	2.931 (7.834)
Married_Broad	Broad marital status (0=Legally married and/or de facto; 1=other);	0.623 (0.484)
lnhifdip	Log Household financial year disposable income	10.952 (0.723)
Hhd0_4	Number of dependent children aged 0-4 (includes partner's children)	0.203 (0.526)
Hhd5_9	Number of dependent children aged 5-9 (includes partner's children)	0.194 (0.509)
Hhd10_14	Number of dependent children aged 10-14 (includes partner's children)	0.208 (0.534)
Hhd15_24	Number of dependent children aged 15-24 (includes partner's children)	0.138 (0.428)
Educ	Highest education level achieved; year 11 and below (including undetermined, certificate not defined, certificate I or II)=1; year 12 completed=2; trade=3; diploma=4; university level = 5	2.668 (1.537)
hglth	Long term health condition, disability or impairment; Yes=1; No=2	1.815 (0.388)

Table 2 - Pooled employment score overall, between and within for women and men, aged 15-65 years

	Women					Men					
	Overall		Between		Within	Overall		Between		Within	
EmplScore	Frequency	Percent	Frequency	Percent	Percent	Frequency	Percent	Frequency	Percent	Percent	
Not in Labour Force (not marginally attached)	12184	20.97%	4030	41.08%	53.19	5527	10.38%	2141	22.76	53.53	
Not in Labour Force (marginally attached)	4848	8.34%	2684	27.36%	35.14	2776	5.21%	1740	18.49	36.39	
Unemployed looking for PT employment	1004	1.73%	840	8.56%	25.93	619	1.16%	526	5.59	30.19	
Unemployed looking for FT employment	1213	2.09%	878	8.95%	29.57	1792	3.36%	1195	12.70	36.17	
Employed part-time in given year	18922	32.57%	5496	56.03%	55.63	6878	12.91%	2960	31.46	44.18	
Employed full-time in given year	19929	34.30%	5052	51.50%	63.10	35680	66.98%	6950	73.87	82.45	
Total	58100		18980 (n=9809)	193.50%	51.68	53272		15512 (n=9409)	164.88	60.65	

The pooled data for women and men was separately examined for the ten waves for those aged between 15 and 65 years of age. Table 2 presents the employment score or the labour market attachment overall, between and within. The 'overall' is the variation around the total mean for all individuals over ten waves. This is decomposed into a 'within' variation over time for each individual around that individual mean and a 'between' variation across individuals (Cameron and Trivedi, 2009: 244). In aggregate terms the data indicates that 33 per cent of women and 13 per cent of men were employed on a part-time basis. The comparable results for full-time employment were 34 per cent and 67 per cent. The data also indicates that 56 per cent of women and 31 per cent of men were working part time at some point during the review period. In addition, 41 per cent of women compared to 23 per cent for men were not in the labour force during the review period (not marginally attached). For 63 per cent of women employed on a full-time basis, were employed in that capacity over ten years.

In reviewing the data, analysis was first conducted to determine to what extent do women behave differently, with respect to their labour market involvement, on the expectation of a child's birth than men. This was tested by reviewing the transition rates from part-time employment in 2009 to full-time employment (FT) in 2010 for men and women. The rates are compared between the individuals belonging to two groups as identified below.

1) the youngest resident child is 1 year old (1 yo),
2) there are no children in the family in that year.

This reasoning was based on the view that when the youngest child is one year old, the attitude of the parents is easier to identify. When the child is aged less than one year old, the mother (or father) may still be on parental leave, but will return to a full-time job when the child is one year old. On the other hand, when the child is two years old or older, other factors may impact on their labour market participation, particularly with regards to full-time employment. This could be due to a range of complex reasons including employers' perception that their on-the-job skills deteriorating or that they may have lower career ambitions (Evertsson and Duvander, 2010).

The first hypothesis assesses whether the effect of having a child on the transition rate from part-time to full-time is the same for women and men. This can be more formally stated as follows:

H_0: Prob{PT --> FT for women with 1yo child} – Prob{PT --> FT for women with no children} =
Prob{FT --> PT for men with 1yo child} – Prob{ FT --> PT for men with no children}

H_1: Prob{PT --> FT for women with 1yo child} – Prob{PT --> FT for women with no children} <
Prob{PT --> FT for men with 1yo child} – Prob{PT --> FT for men with no children}

The likelihood of transferring to full-time employment from part-time employment after giving birth to child/ren is lower for women compared to men (z-score = -2.4018, p-value = 0.008) and the alternative hypothesis is accepted. Transition tables for men

Table 3 - Pooled transition results for women with the age of the youngest resident child is 1 in this period that was 0 in the previous period

Employment Score lagged 1	Employment score for women (row per cent)						
	Not in Labour Force (not marginally attached)	Not in Labour Force (marginally attached)	Unemployed looking for PT employment	Unemployed looking for FT employment	Employed part-time	Employed full-time	Total number (row)
Not in Labour Force (not marginally attached)	46.63	16.79	1.35	0.90	28.34	6.00	667
Not in Labour Force (marginally attached)	24.56	32.16	3.51	4.09	26.32	9.36	171
Unemployed looking for PT employment	11.76	29.41	0.00	17.65	29.41	11.76	17
Unemployed looking for FT employment	11.11	11.11	0.00	22.22	11.11	44.44	9
Employed part-time	7.80	3.39	1.02	0.68	71.86	15.25	295
Employed full-time	8.73	2.38	0.79	0.00	45.24	42.86	126
Total %	30.35	14.47	1.48	1.56	39.61	12.53	100.00
Total (number)	390	186	19	20	509	161	1,285

Table 4 - Pooled transition results for men with the age of the youngest resident child is 1 in this period that was 0 in the previous period

Employment Score lagged 1	Employment score for women (row per cent)						
	Not in Labour Force (not marginally attached)	Not in Labour Force (marginally attached)	Unemployed looking for PT employment	Unemployed looking for FT employment	Employed part-time	Employed full-time	Total number (row)
Not in Labour Force (not marginally attached)	62.50	12.50	0.00	0.00	4.17	20.83	24
Not in Labour Force (marginally attached)	26.92	15.38	0.00	3.85	19.23	34.62	26
Unemployed looking for PT employment	14.29	14.29	14.29	0.00	14.29	42.86	7
Unemployed looking for FT employment	6.67	13.33	0.00	36.67	23.33	20.00	30
Employed part-time	5.48	5.48	1.37	4.11	41.10	42.47	73
Employed full-time	0.55	0.55	0.00	1.43	3.18	94.29	911
Total %	3.17	1.96	0.19	2.61	6.82	85.25	100.00
Total (number)	34	21	2	28	73	913	1,071

are presented in table 3 and for women in table 4. The available data on transition for women and men, suggest that when the youngest child is equal to age one that 15 per cent and 42 per cent of women and men respectively switch from working part-time in the previous period to working full-time in the subsequent period.

The analysis was repeated for women and men with children aged less than five years of age. The first hypothesis assesses whether the effect of having a child(ren) aged less than five years of age on the transition rate from part-time to full-time is the same for women and men. The following set of hypotheses was tested:

H_0: Prob{PT --> FT for women with 0-5yo child} – Prob{PT --> FT for women with no children} =
Prob{PT --> FT for men with 0-5yo child} – Prob{PT --> FT for men with no children}

H_1: Prob{PT --> FT for women with 0-5yo child} – Prob{PT --> FT for women with no children} <
Prob{PT --> FT for men with 0-5yo child} – Prob{PT --> FT for men with no children}

The likelihood of transferring to full-time employment from part-time employment for women with children aged zero to five years old is lower for women compared to men (z-score = -3.729 and the one-sided p-value = 0.0002) and the alternative hypothesis accepted. The transition tables for women and men when the youngest resident child is aged zero to five years are presented in tables 5 and 6 respectively. The transition employment tables for men and women showed that 81 per cent and 91 per cent of women and men respectively continue to be employed full-time when the age of their youngest child is aged five years or less. In examining the transition from working part-time to working full-time, 17 per cent of women and 28 per cent of men made that change.

The effect of childbirth over time is studied by looking at each two subsequent years Y and Y+1. The following hypotheses were tested:

H_0: Prob{PT in year Y-1 --> FT in year Y for women with 1yo child in year Y} –
Prob{ PT in year Y-1 --> FT in year Y for women with no children in year Y} =
Prob{PT in year Y --> FT in year Y+1 for women with 1yo child in year Y+1} –
Prob{ PT in year Y --> FT in year Y+1 for women with no children in year Y+1}

H_1: Prob{PT in year Y-1 --> FT in year Y for women with 1yo child in year Y} –
Prob{ PT in year Y-1 --> FT in year Y for women with no children in year Y} <
or >
Prob{PT in year Y --> FT in year Y+1 for women with 1yo child in year Y+1} –
Prob{ PT in year Y --> FT in year Y+1 for women with no children in year Y+1}.

Index Y runs from 2002 till 2009 with similar tests performed and Bonferroni adjustments made. The age of the child is constrained to one year old to ensure that all four samples in each year cohort are independent. The findings were that the effect of childbirth on women does not change over time (z-score=0.7634, p-value=0.445).

Using an ordered probit model, further analysis was conducted assessing the extent to which women begin to reduce their hours of work prior to having children. An indicator variable ExpAChild is created that equals one only if the respondent

Table 5 - Pooled transition results for women with the age of the youngest resident child(ren) is between 0 to 5 years period

	Employment score for women (row per cent)						
	Not in Labour Force (not marginally attached)	Not in Labour Force (marginally attached)	Unemployed looking for PT employment	Unemployed looking for FT employment	Employed part-time	Employed full-time	Total number (row)
Not in Labour Force (not marginally attached)	57.97	17.81	1.58	1.00	18.23	3.41	2,403
Not in Labour Force (marginally attached)	29.99	37.69	3.49	3.13	20.14	5.55	1,117
Unemployed looking for PT employment	15.25	28.81	6.78	7.63	34.75	6.78	118
Unemployed looking for FT employment	16.13	23.66	3.23	16.13	22.58	18.28	93
Employed part-time	10.94	4.22	1.03	0.66	71.56	11.60	2,725
Employed full-time	5.97	2.85	0.73	0.46	21.85	68.14	1,089
Total %	28.15	13.93	1.64	1.40	38.61	16.26	100.00
Total (number)	2,124	1,051	124	106	2,913	1,227	7,545

Table 6 - Pooled transition results for men with the age of the youngest resident child(ren) is between 0 to 5 years period

	Employment score for women (row per cent)						
	Not in Labour Force (not marginally attached)	Not in Labour Force (marginally attached)	Unemployed looking for PT employment	Unemployed looking for FT employment	Employed part-time	Employed full-time	Total number (row)
Not in Labour Force (not marginally attached)	59.89	14.69	2.26	1.13	10.17	11.86	177
Not in Labour Force (marginally attached)	22.39	29.10	2.24	8.21	14.93	23.13	134
Unemployed looking for PT employment	14.29	23.81	4.76	14.29	19.05	23.81	21
Unemployed looking for FT employment	7.14	14.29	0.00	23.81	19.05	35.71	126
Employed part-time	5.28	4.75	1.58	3.43	48.55	36.41	379
Employed full-time	0.56	0.60	0.04	0.96	2.93	94.91	4,988
Total %	3.36	2.33	0.27	1.84	6.80	85.39	100.00
Total (number)	196	136	16	107	396	4,974	5,825

has no children in a given year and resident child aged less than one in the following year; otherwise ExpAChild equals zero. In addition, another variable was created as a measure of labour market attachment EmplScore with the larger is the score relates to stronger attachment to the workforce.

EmplScore = 1 if the respondent is not in the labour force (not marginally attached) in the given year

EmplScore = 2 if the respondent is not in the labour force (marginally attached) in the given year

EmplScore = 3 if the respondent is unemployed but looking for part-time employment in the given year

EmplScore = 4 if the respondent is unemployed but looking for full-time employment in the given year

EmplScore = 5 if the respondent is employed part-time in the given year

EmplScore = 6 if the respondent is employed full-time in the given year.

The variable EmplScore is treated as ordinal with the scores being inherently ordered (Greene, 2008). The model is built around a latent regression for EmplScore with the underlying score estimated as a linear function of the independent variables, ExpAChild and several other socio-economic factors, and a set of cutpoints (StataCorp, 2011).

Table 7 - Ordered probit baseline model for individuals aged 15-65 years of age

	Ordered Probit Model	
Number of Observations=110734	*Coef.*	*Std.Err*
sex	-0.7719	0.0074
hgage	0.1917	0.0019
agesq	0.0025	0.00002
rcyng	0.0042	0.0006
Married_Broad	0.0758	0.0092
lnhifdip	0.3527	0.0054
ExpAChild	0.1115	0.0402
hhd0_4	-0.4390	0.0075
hhd5_9	-0.2228	0.0076
hhd1014	-0.1649	0.0075
hhd1524	-0.0492	0.0097
educ	0.1254	0.0026
hglth	0.6008	0.0094
Cut1	5.8090	0.0696
Cut2	6.1286	0.0698
Cut3	6.1907	0.0698
Cut4	6.3026	0.0699
Cut5	7.1081	0.0704

Pseudo R^2=0.1475
Log Likelihood=-124583.85

Note: *All variables are significant at the 1% level or lower.

Table 8 - Partial effects of ordered probit baseline model for individuals aged 15-65 years of age

	Not in LF (not Marginally attached)	Not in LF (Marginally attached)	Unemployed, looking for part-time work	Unemployed, looking for full-time work	Employed, part-time	Employed, full-time
sex	0.1340	0.0589	0.0115	0.0198	0.0837	-0.3079
hgage	-0.0333	-0.0146	-0.0029	-0.0049	-0.0208	0.0765
agesq	0.0004	0.0002	0.0000	0.0001	0.0003	-0.0010
rcyng	0.0007	0.0003	0.0001	0.0001	0.0005	-0.0017
Married_Broad	-0.0133	-0.0058	-0.0012	-0.0019	-0.0083	0.0302
lnhifdip	-0.0612	-0.0269	-0.0053	-0.0090	-0.0382	0.1407
ExpAChild	-0.0180	-0.0084	-0.0017	-0.0029	-0.0134	0.0444
hhd0_4	0.0762	0.0336	0.0066	0.0113	0.0476	-0.1751
hhd5_9	0.0387	0.0170	0.0033	0.0057	0.0241	-0.0889
hhd1014	0.0286	0.0126	0.0025	0.0042	0.0179	-0.0658
hhd1524	0.0085	0.0038	0.0007	0.0013	0.0053	-0.0196
educ	-0.0218	-0.0096	-0.0019	-0.0032	-0.0136	0.0500
hglth	-0.1043	-0.0459	-0.0090	-0.0154	-0.0651	0.2397

Table 9 - Fixed effect model logistic model estimates of the probability working part-time; aged 15-65, women and men, HILDA waves 1-10

	Number of Observations = 34228 Number of Groups = 4324 Women		Number of Observations = 18343 Number of Groups = 2483 Men	
	Odd Ratio	Z	Odd Ratio	Z
FullTime_L1	0.651***	-9.77	0.641***	-7.46
PartTime_L1	1.841***	17.91	1.352***	5.89
LookForFT_L1	1.770***	5.75	1.543***	4.03
LookForPT_L1	2.556***	9.42	2.400***	6.68
MargAttached_L1	1.284***	4.49	1.320***	3.33
1.Married_Broad	0.736***	-5.51	0.542***	-6.90
ExpAChild	0.647***	-3.32	0.938	-0.30
Hh0_4	1.101***	2.55	1.091	1.29
Hh5_9	1.316***	6.94	1.067	0.88
Hh1014	1.230***	5.31	1.142*	1.82
Hh1524	1.011	0.25	1.029	0.36
lnhifdip	1.138***	4.73	1.073**	2.02
hgage	1.049***	2.57	0.769***	-10.92
agesq	0.999***	-3.22	1.003***	11.82
Education				
Year 12	1.212**	2.53	1.484***	4.46
Trade	0.939	-0.69	1.011	0.07
Diploma	0.727*	-1.94	1.973***	3.02
University	0.187***	-12.75	0.324***	-6.17
Has long-term disability	1.097*	2.00	0.927	-1.20
	$\chi^2(20)$	1664.54	$\chi^2(20)$	922.34
	Prob> χ^2	0.0000	Prob> χ^2	0.0000

Note: *10% significance, ** 5% significance, ***1% significance.

Table 10 - Fixed effect model logistic model estimates of the probability working part-time; aged 15-24 and 25-34, women HILDA waves 1-10

	Number of Observations = 7732 Number of Groups = 1365 Aged 15-24		Number of Observations = 5519 Number of Groups = 962 Aged 25-34	
	Odd Ratio	*Z*	*Odd Ratio*	*Z*
FullTime_L1	0.598***	-4.86	0.672***	-4.05
PartTime_L1	1.200**	2.56	1.033	0.39
LookForFT_L1	1.929***	3.87	2.174***	2.95
LookForPT_L1	3.282***	7.46	2.049***	2.69
MargAttached_L1	1.343***	2.93	1.542***	3.15
Married_Broad	0.581***	-5.34	0.796*	-1.66
ExpAChild	1.320	1.22	0.390***	-4.51
Hh0_4	0.729**	-2.41	1.189**	2.19
Hh5_9	1.846**	2.07	1.190	1.62
Hh1014	1.968	0.87	1.041	0.28
Hh1524	0.000	-0.02	0.983	-0.05
lnhifdip	1.082*	1.79	0.972	-0.34
hgage	2.052***	3.89	0.891	-0.44
agesq	0.981***	-4.09	1.004	0.87
Education				
Year 12	1.309**	2.27	1.272	0.52
Trade	0.887	-0.73	1.091	0.50
Diploma	0.584**	-2.19	0.690	-0.62
University	0.228***	-7.90	0.292**	-2.33
Has long-term disability	1.057	0.52	0.885	-1.01
$\chi^2(20)$ Prob> χ^2	575.94 0.0000		$\chi^2(20)$ Prob> χ^2	228.92 0.0000

Note: *10% significance, ** 5% significance, ***1% significance.

The model indicates a potential gender gap for employment between males and females which coincides with our summary statistics findings on the HILDA dataset. Although inference on the meaning of the coefficients cannot be made directly from the ordered probit model due to scaling differences, it can be noted from table 7 that females are less likely than males to be in employment based on the negative sign of the coefficient. It is observed that the younger the resident child (children), the more adverse is the effect on the employment score for the mother. This begins to decline as the child becomes older. Intuitively, income, health status and education have all shown to have a positive impact on employment. Further, being married or in a de facto relationship also increased the likelihood of employment, which may be attributed to positive factors of employability that are not captured in education and health status.

The average partial effects based on the categorical outcomes of the model are presented in table 8. The data suggests that being female leads to 0.31 less likelihood of becoming full time employed reinforcing the gender gap phenomenon we have observed previously. Another significant deterrent to becoming employed on a full-time basis is the impact of having young children aged zero to four and aged five to nine. This is measured by a lower likelihood of being employed on a full-time basis; 0.18 per cent children aged zero to four), and 0.09 (children aged 5-9). The effect

persists for those with children aged between 10 to14 having a reduced likelihood of full time employment of 6.6 per cent, and tending to decrease to negligible amounts once the child is at least 15 years of age. Positive stimulants for full time employment include health status, education and household disposable income.

The regressions presented thus far focused on a universal measure of employment that encompassed women in all situations, from full-time employment to complete unemployment. Our attention now turns to part-time employment status and factors influencing its likelihood. A binary variable part_time was created that equals one if the woman has a part-time job in a given year, and equals 0 otherwise. A logistic regression was run where the dependent variable is part_time and the predictors are various socio-economic factors. Further, the sample was assessed for all ages and then segmented into age categories. Additional independent variables, household financial year disposable income (the log), education, and long term health condition, were included. The aim was to predict the likelihood of transitioning into part-time status in a given year as accurately as possible. Analysis was conducted on age of the youngest resident child and further on the number of dependent children in different age categories with similar findings. For women aged between 15 to 65 years, all of the employment factors were significant with the expected sign. If women were looking for work, full-time or part-time, in the previous period they were more likely to be working part-time in the following period. Testing was conducted by segmenting the age of the persons in age groups of 10 years. Women who were working full time in the previous year, were not married or in a de facto relationship, were expecting a child, had dependent children aged 15 and over, or were university educated were less likely to be employed part-time in the following year. The data presented in table 9 suggests that a number of factors were positively associated with women's part-time employment in the following period. These include existing part-time employment status, looking for employment, having a marginal attachment to the labour market, having dependent children aged less than 14 years of age and a maximum education level of year 12 or health limitations. The age of the woman has a positive non-linear relationship with part-time employment and a negative relationship with being married or in a de facto relationship, having an education level beyond secondary school and expecting a child. For men, expecting a child, having dependent children aged up to nine years of age or aged 15 to 24 did not have any statistically significant relationship with part-time employment. Further, age appears to have a negative non-linear relationship to working part-time.

The data presented in table 10 suggested that for women, aged 15 to 24 years, looking for full time or part-time employment in the previous year, being marginally attached to the labour market, age, having children aged five to nine years, and having a year 12 or university education are all positively associated with working part-time. In contrast being employed full time in the previous period, being married or in a de facto relationship, having a diploma or university education, are all negatively and statistically significantly associated with part-time employment. For women aged 25-35 years of age, having a university education, expecting a child, being married or in a de facto relationship, and working full-time in the previous period are all negatively associated with part-time employment. In contrast having a child(ren) aged zerp to

four years of age, looking for full-time, or part-time employment or not in the labour force (marginally attached) in the previous year are all positively significantly related to part-time employment.

Data concerning women aged 35 to 44 years of age, and women aged 45 to 55 years of age is presented in table 11. For women aged 35 to 44 years of age, being employed in a full-time position in the previous year and expecting a child were negatively and statistically significantly associated with working part-time. In contrast working part-time, looking for employment, having child (children) aged five to nine years of age, and having the highest education level of year 12, trade or diploma level were positively significant associated with part-time employment. For women aged 45 to 55 and 55 to 64 working part-time in the previous period is positive and statistically significantly associated with part-time employment. For women aged 55 to 64, their data is presented in table 12.

Table 11 - Fixed effect model logistic model estimates of the probability working part-time; aged 35-44 and 45-54, women HILDA waves 1-10

	Number of Observations = 6805 Number of Groups = 1141 Aged 35-44		Number of Observations = 4956 Number of Groups = 792 Aged 45-54	
	Odd Ratio	Z	Odd Ratio	Z
FullTime_L1	0.676***	-4.06	1.054	0.47
PartTime_L1	1.292**	3.32	1.537***	4.55
LookForFT_L1	1.719**	2.38	1.274	0.84
LookForPT_L1	1.925***	2.64	1.482	1.34
MargAttached_L1	1.070	0.55	1.101	0.59
Married_Broad	1.310*	1.86	1.246	1.13
ExpAChild	0.391**	-2.43	omitted	
Hh0_4	0.940	-0.70	0.592	-1.44
Hh5_9	1.188**	2.21	1.141	0.77
Hh1014	1.109	1.46	1.008	0.07
Hh1524	0.889	-1.39	0.988	-0.15
lnhifdip	1.002	0.03	1.019	0.23
hgage	0.980	-0.06	1.079	0.16
agesq	1.001	0.17	0.999	-0.30
Education				
Year 12	2.289*	1.79	0.438	-1.56
Trade	1.625*	1.83	1.062	0.21
Diploma	4.326**	2.49	3.189	1.61
University	0.947	-0.10	1.658	0.76
Has long-term disability	0.955	-0.42	0.120	1.18
$\chi^2(20)$	144.82		$\chi^2(20)$	64.39
Prob> χ^2	0.0000		Prob> χ^2	0.0000

Note: *10% significance, ** 5% significance, ***1% significance.

Table 12 - Fixed effect model logistic model estimates of the probability
working part-time; aged 55-64, women HILDA waves 1-10

	Number of Observations = 4956 Number of Groups = 792 Aged 55-64	
	Odd Ratio	*Z*
FullTime_L1	1.054	0.47
PartTime_L1	1.537***	4.55
LookForFT_L1	1.274	0.84
LookForPT_L1	1.481	1.34
MargAttached_L1	1.101	0.59
Married_Broad	1.246	1.13
ExpAChild	omitted	
Hh0_4	0.592	-1.44
Hh5_9	1.141	0.77
Hh1014	1.008	0.07
Hh1524	0.988	-0.15
lnhifdip	1.019	0.23
hgage	1.079	0.16
agesq	0.998	-0.30
Education		
Year 12	0.438	-1.56
Trade	1.062	0.21
Diploma	3.189	1.61
University	1.658	0.76
Has long-term disability	1.134	1.18
	$\chi^2(19)$	64.39
	Prob> χ^2	0.0000

Note: *10% significance, ** 5% significance, ***1% significance.

     A further analysis was conducted on part-time employment and the potential impact of interactive terms to consider the effect of independent variables variation being dependent on the value of another independent variable (Long and Freese, 2006). The interactions between the binary variable for the full-time status in the previous year (FullTime_L1) and various socio-economic factors were added. The aim was to determine whether the effect of socioeconomic factors on the transition rate (full-time status to part-time status) is different from the effect of socioeconomic factors on the transition rate (any non-full-time status to part-time status). Interactive variables were created with full time employment lagged one period interacting with ExpAChild (FT_L1_ExpAChild), number of dependent children of different age groups (FT_L1_hhd0_4, FT_L1_hhd5_9; FT_L1_hhd1014, FT_L1_hhd1525), (FT_L1_MB) married broad and income with age (lnhifdip_age) categories. The optimal logistic model is presented in table 13.

Table 13 - Fixed effect model logistic model estimates of the probability working part-time; aged 15-64, women HILDA waves 1-10

		Number of Observations = 18343 Number of Groups = 2483	
	Coef.	*Odd Ratio*	*Z*
FullTime_L1	-0.729***	0.482***	-8.83
PartTime_L1	0.290***	1.337***	5.66
LookForFT_L1	0.421***	1.524***	3.90
LookForPT_L1	0.852***	2.344***	6.50
MargAttached_L1	0.265***	1.304***	3.18
FT_L1_ExpAChild	-0.675	0.509	-1.47
FT_L1_hhd0_4	0.008	1.001	0.08
FT_L1_hhd5_9	0.009	1.008	0.08
FT_L1_hhd1014	-0.042	0.959	-0.40
FT_L1_hhd1524	-0.086	0.918	-0.70
Married_Broad	-0.788***	0.455***	-8.16
FT_L1_MB	0.511**	1.666***	4.95
ExpAChild	0.166	1.181	0.64
Hh0_4	0.078	1.081	0.97
Hh5_9	0.053	1.055	0.62
Hh1014	0.140	1.151	1.69
Hh1524	0.057	1.058	0.61
lnhifdip	0.162**	1.176**	2.09
Lnhifdip_age	-0.003	0.997	-1.37
hgage	-0.218***	0.804***	-6.79
agesq	0.003***	1.003	11.29
Education			
Year 12	-0.420***	1.522**	4.72
Trade	0.041	1.041	0.27
Diploma	-0.706***	2.026***	3.14
University	-1.092***	0.336***	-5.95
Has long-term disability	-0.070	0.932	-1.10
		$\chi^2(27)$	954.37
		Prob> χ^2	0.0000

Note: *10% significance, ** 5% significance, ***1% significance.

The data suggests that not only do very young children increase the probability of part-time employment among mothers, they also increase the transition rate from full-time employment in year Y to part-time employment in year Y+1. The second observation is that younger resident children increase the likelihood of the mother seeking part-time employment. Similar to findings in earlier models, different likelihoods of part-time employment were evident at different ages. The third observation is that expecting a child in the forthcoming year appears to decrease the likelihood of part-time employment in a statistically significant way. However, this may arise because mothers were likely to completely remove themselves from the labour force for the next one to two years. The fourth observation is that being married or living with a partner decreases the likelihood that the woman will seek part-time employment. Finally the sensitivity of the likelihood of part-time employment to having young children does not change.

4. Conclusion

Despite labour market reforms, the barriers to women's full economic participation remain resilient. The reforms may have been successful in generating significantly increased levels of participation in the labour force but at issue here is the quality of that participation. The data suggests that this question is most pertinent for women with dependant care responsibilities, particularly where children are aged less than 15 years of age. Women are far more likely to be engaged on a part-time basis, an employment status that has a significant impact on their current and future income security, given the low-income status of significant tracts of part-time employment. The distinctiveness and persistence of the pattern of employment of women with dependant care responsibilities poses some questions for the utility of those policy measures directed to facilitating a paid work/life balance in a way that does not comprise women's access to full citizenship. The data suggests that the 'choice' of part-time employment continues to be shaped very directly by dependent care responsibilities. This is not to suggest that other factors are without impact, or that the issue of women's 'choice' of part-time employment is not without complexity. From the data presented here, the impact of economic cycles warrants more detailed research, as too precise policy measures including specific welfare to work reforms. Yet the persistent features of the data presented here is the flight (or movement) to part-time employment that occurs in the period following childbirth, particularly for single women. Women continue to make substantial sacrifices in terms of their labour market engagement in order to care for children, sacrifices that are not replicated by their male partners. This suggests that there are barriers to women combining parenthood of young children, in particular, with full-time employment, that have only been partially resolved by labour law, taxation and childcare reforms.

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