

Comparing the Labour Market Effects of Childbirth in Ireland, Sweden, the UK and Germany

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Introduction

In this paper we examine the effect of welfare state policy in shaping the impact of childbirth events on labour market outcomes. The paper builds on sociological research on the labour market in Europe over the last ten years which has highlighted the critical role of childbirth and child-rearing in shaping women's participation patterns and reproducing gender inequalities in employment (e.g. Rubery et al 1999) and earnings (Albrecht et al 1999; Barrett et al, 2000; Waldfogel, 1997) . It also builds on research which has shown that the extent of these effects is strongly influenced by the nature of the welfare regimes operating within countries (e.g. Stier et al. 2001; Gornick et al. 1997, 1998; Esping-Andersen 1999).

The paper extends previous longitudinal research in the this area which has outlined the factors that influence the duration of childbirth interruptions in single country studies (Jonsson & Mills, 2001; contributors to Blossfeld & Drobnic, 2001; Russell et al. 2002). It also extends the literature on the *effects* of duration of breaks on occupational outcomes which has tended to focus on first job after return and is largely restricted to the US and the UK (Macran et al 1996; Waldfogel, 1997a 1997b; but see Ziefle 2004). The comparative longitudinal data used in this paper provide a strong basis for further investigating the important question of the effects of childbirth on women's labour market careers in different institutional settings.

The paper argues that elements of state policy such as parental leave schemes can have important effects on the economic behaviour of individuals and households at the micro level and patterns of social inequalities at the macro level. If effective, parental leave schemes should increase employment continuity among mothers and preserve women's previously accumulated human capital. Therefore the 'motherhood penalty' on earnings (Waldfogel 1997a, 1997b; Budig and England 2001) and occupational position (Macran et al. 1996), should be lower for mothers under parental leave schemes. We explore this hypothesis at the micro-level by comparing the labour market effects of childbirth in four countries - Ireland, Sweden, the UK and Germany.

We focus on two questions

- What is the probability of re-entering employment at different points following the birth across the four countries – and what are the factors influence these probabilities?
- what is the medium term impact of childbirth on occupational position and earnings?

Previous Research

As mentioned above there have been a number of studies that have examined the effects of childbirth on women's careers within single countries. The collection of papers edited by Blossfeld & Drobnic (2001) provide a major empirical input on this debate and examine the influence of children on time out of the labour market across a range of individual European countries. These studies have found that re-entries to the workforce and length of time-out is found to be related to be strongly related to women's human capital in the form of education and accumulated work experience (see also Macran et al. 1996; Jonsson & Mills, 2001; Russell & O'Connell, 2004). Family-cycle characteristics are also important, such as age and number of children, and age of mother at birth, (Blossfeld & Drobnic, 2001). A number of studies have also demonstrated the role of demand side factors such as regional labour demand (Joshi & Hinde, 1993; Barnardi, 2001; Russell et al. 2001) and job characteristics (Jonsson & Mills, 2001; Saurel-Cubizolles et al. 1999; Ondrich et al 1996), although these are factors are more rarely considered.

Family policies are also found to be significant in structuring the duration of time-out and probability of returning to work. Jonsson & Mills (2001a) found that Swedish women who took parental leave returned to employment much more rapidly than those who left the labour market (for cohorts of births between 1942 and 1986). The introduction of universal leave schemes was also influential in that few women in later cohorts left the labour market at the time of birth. In Germany, Ondrich et al (1996) found that the leave policies had a significant impact of the timing of returns to employment, moreover the effects of other factors varied inside and outside the protection period for example previous experience only affected return probabilities after the protection period. Research in the US suggests the state maternity leave schemes did not effect the propensity to return to employment but did influence the length of leave (Klerman & Leibowitz, 1997)

There are relatively few cross-national studies in this field of research. Waldfogel et al, (1999) examine the rates of return to employment among mothers in the US, Britain and Japan. Access to maternity/parental leave was found to increase the probability of returning to employment in all three countries (although in Britain this effect could not be disentangled from previous tenure). Saurel-Cubizolles et al (1999) found that differences in the timing of returns to work after childbirth in France, Italy and Spain are consistent with the national leave arrangements.

The literature on the occupational/wage effects of childbirth and the intervening effect of social policy is less developed. Studies of the gender pay gap invariably find that time-out of the labour market or presence of children has a negative impact on women's wages (refs, Beblo & Wolfe, 2002). Recently, Ziefle (2004) showed for German data that women's post-birth wages are negatively related to the duration of work interruptions and that wage penalties for motherhood increase over women's careers. A number of studies have also found evidence of occupational downgrading among women re-entering employment (Macran et al. 1996; Russell et al. 2001) although this was less common in Sweden particularly among those taking parental leave (Jonsson & Mills, 2001b)¹.

The expectation is that providing maternity and parental leave will reduce occupational downgrading by guaranteeing employment at the same level and increasing job tenure. Similarly leave entitlements should protect women's wages by increasing tenure and maintaining good job matches and preventing employer changes. However if leave schemes encourage longer spells out of the labour market, then human capital theory suggests that this will reduce wages. There is some evidence of positive wage effect of maternity leave coverage in Britain and the US (Waldfogel 1998b). Here we aim to add to the literature on the effects of childbirth on subsequent career by providing a comparative analysis that follows women up to seven years and so is not limited to the first job after return.

Data and Methodology

The analysis will be carried out using five year panels for Ireland, the UK, and Germany, and seven year panels in Germany, the UK and Sweden, which allows us to follow women over time and capture the dynamic nature of labour market behaviour. For Ireland the data is the Living in Ireland Panel Survey (which is the Irish element of the ECHP). The British analysis relies on the British Household Panel Survey. The Swedish data come from the ULF panel surveys (the Statistics Sweden Survey of Living Conditions)². The German data come from

¹ They found that 19% of Swedish women were downwardly mobile following the birth of a child, but this fell to 7% among women who took parental leave

² See http://www.scb.se/statistik/le0101/Appendix_16.PDF for further details.

the German Socio-Economic Panel (GSOEP). Through extensive data preparation the data from these rich data national sources have been harmonised to enable comparative analysis.

The study covers the period of the 1990s and early 2000's. In the UK, the panel data analysed range from 1991 to 2002. In Ireland the data cover the period 1994 to 2001. The Swedish data refer to the years 1989 to 2001. Finally the German data cover the period 1990 to 2001. The German, Irish and British data-sets contain observations for every year. In order to maximise the number of childbirth events we include births in any year and follow the labour market outcomes for mothers 1, 5 and 7 years later³. Obviously for later years of the panel right-censoring occurs. For example in Ireland births occurring after the 1997 interview cannot be followed for five years.

The Swedish data are structured somewhat differently to the other panel surveys. Data are only collected at two points seven years apart and not for all the intervening years. Like the other datasets t0 covers a range of years, in the Swedish case 1989-1994.

This methodology has a number of advantages to those bases on retrospective work histories which has been the basis for most studies on childbirth and labour market behaviour. Firstly, the births are all within one cohort so within countries we are comparing women facing broadly similar labour market and policy constraints. Secondly, the information on employment is current and therefore contains information on earnings (except in Sweden) which cannot be reliably collected retrospectively. However there are a number of limitations the absence of adequate monthly data in Ireland (and annual data in the case of Sweden) means that our ability to model the exact timing of returns is restricted.⁴

As with all panel analyses the data are subject to attrition. In the Living in Ireland Panel data the attrition between wave 1 and wave 5 is 44%. Although there is a significant attrition in overall numbers, detailed analyses of non-responding individuals and households using information from previous waves shows that this was not biased by factors such as age, sex, education, household size, economic status of head of household although there is an

³ Since births are spread across the year and interviews are not always exactly 12 months apart it is more accurate to speak of the first, fifth and seventh interview post-birth rather than 1,5 and 7 years. However for the sake of brevity we sometimes refer to years.

⁴ Monthly data is available for Ireland but leave is not distinguished from employment in this data. Women on maternity leave are recorded as continuously employed

association between attrition and moving address which particularly affects young single households (Layte et al. 2001, Appendix 1). The attrition rates between wave 1 and wave 5 among women with recent births was lower than average at 29%. In the Swedish ULF panel the attrition between the two points in time used, t0 and t7 is considerably smaller. In the waves used in this study the attrition rates are between 18, 7% and 21, 3% and do not have a bias that should affect the analyses. Attrition in the GSOEP was 44,9% between waves 1990 – 2001, for a shorter 5-year-periods it was 25,9% on average. In the British Household Panel Survey attrition of persons with a full interview in 1991 (wave 1) was 40% by 2002 (wave 11).

Institutional Settings⁵

The institutional arrangements surrounding childbirth vary considerably across the four study countries. The countries selected for the analysis differ in the extent of parental leave provision and so provide an opportunity to study the influence of welfare institutions. Sweden has extensive and generous provision for parental leave. In Sweden state subsidised childcare is also widely available for working parents. Germany provides the longest parental leave of the four countries, indeed it is one of the longest duration across all OECD countries, and despite its conservative/traditional ideology has considerably higher levels of public investment in childcare than Britain and Ireland. In contrast, Britain and Ireland have relatively low levels of paid maternity leave and have only recently introduced parental leave entitlements which are unpaid. Both countries lag significantly behind the European Union average in terms of public provision/subsidies for childcare and as a result the average costs of such care is much higher (see Table 3).

Of the four countries leave entitlements for mothers are longest in Germany. German women are entitled to 14-weeks maternity leave which is paid at 100% of previous earnings. At the end of this period there is an entitlement parental leave until the child's third birthday. Parental leave entitlement is shared between the mother and father. Parents on parental leave may receive income-tested parental leave benefits (up to €300 per month) for up to 18 months per child. Those returning to work have a legal right to part-time hours (defined as 15 to 30 hours a week) until their child is three years old. (Bertelsmann Foundation, European Commission 2002).

⁵ This section draws on the background paper prepared by Nordenmark et al 2004.

In Germany there is a strong contrast in the level of childcare provision for those aged under three years and those aged 3-6 years. The OECD estimate that there is only 10% coverage for the younger age group compared to 78% for 3-6 year olds (OECD 2001b). Since 1997, every child aged from three to six years is entitled to kindergarten care. In practice, this means access to part-time centre offering five hours per day. These hours, like those of German schools, often conflict with full-time work schedules (Bettio & Prechal 1998). These policy arrangements, together with a tax structure that favours single breadwinner households, encourage mothers to drop out of the work force for long periods of time.

Over the period of the survey (1994-2001) Irish mothers were entitled to 14 weeks paid maternity leave and 4 weeks unpaid leave. In late 2001 this provision was increased to 18 weeks paid leave⁶ and 8 weeks unpaid leave. In addition, each parent may take 14 weeks of unpaid parental leave for each child up until the age of five. These parental leave entitlements were introduced in 1998 on foot of the EU directive (Council Directive 1996/34/EC) and are in the main limited to the minimum requirements of that directive. Pre-1998, Ireland along with the UK were two of only 4 countries in the EU15 without any parental leave regulation (Bruning & Plantenga, 1999). There is no paid paternity leave for fathers.

State support for childcare in Ireland is minimal compared to other European countries. State intervention in childcare is limited to capital subsidies to private providers and community sector providers in disadvantaged areas and limited staffing subsidies to this sector (which may then provide places at a reduced cost). Consequently there are long waiting lists for childcare services (4% of capacity) and average childcare fees amount to a very high proportion of average earnings (see table 3).⁷ (28-35% of average earnings). Family policy favours the traditional gender division of labour (male breadwinner, female homemaker) and there is a reluctance to provide any subsidies or tax breaks directly to parents as this is seen as favouring working parents vis-à-vis stay-at-home parents and government prefers to increase child benefits instead. This institutional setting has led to a high rate of withdrawal from employment among mothers and a reliance on informal care arrangements including unpaid family-member carers and informal childminders among those who do return. However rapid

⁶ The payment is valued at 70% of gross earnings. The minimum payment is €135.60 and the maximum is €232.40 per week. Permanent public sector workers have this payment brought up 100% of earnings.

⁷ More recently the OECD has estimated that cost vary between 28-35% of average earnings depending on family composition .

employment and earnings growth over the last decade may have muted these policy effects as female employment has increased rapidly in spite of the low supports for mothers.

Since 2003 mothers in the UK have the right to maternity benefits for 26 weeks around the time of the birth, plus the possibility of a further 26 weeks of *unpaid* leave for those with 6 months service with their employer prior to childbirth⁸. Maternity benefit, is paid for six weeks at 90 percent of earnings, then 20 weeks at €145 a week, is paid to women who have sufficient insurance. Fathers have the right to two weeks paid paternity leave, at €145 a week. The link between maternity benefits to insurance contribution means that the UK is one of the few EU countries where the coverage of maternity rights is considerably lower than 100% (Gornick et al 1998).

Parental leave regulations were introduced in the United Kingdom in 1999. Parental leave can be taken up to the child's fifth birthday and is limited to the minimum requirements from the European Union, which means three months' unpaid leave (Bertelsmann Foundation, European Commission 2002, Strandh & Nordenmark 2003). The regulations also restrict the time that can be taken each year to four weeks per child, so that the leave cannot be taken in one continuous block.

In the UK as in Ireland childcare is mainly viewed as a private responsibility and to be solved through market mechanisms. The proportion of children in publicly subsidised childcare was significantly lower than on the European mainland over the period of the study (Gornick et al 1998, OECD 2001). As a consequence the average costs of childcare are high and prohibitive for many parents (Table 2). There have been a number of important policy developments in relation to childcare in recent years, some of which may have impacted on results in the later years of the panel. The Sure Start programme introduced in 1999 aims to provide free nursery places to all children under four in disadvantaged areas. There has been significant increased investment to provide all 3-4 year olds with free part-time early education by 2006. Childcare tax credits were also introduced in 2005 for working parents, to provide an indirect subsidy towards childcare costs (National Women's Council of Ireland, 2005).

⁸ This period of service must be completed by the beginning of the 14th week before the expected week of childbirth.

In Sweden parents are entitled to 480 days of parental leave. Out of the 480 days, 390 are paid at 80% of income with upper and lower ceilings.⁹ The remaining ninety days are paid at a flat rate. Thirty, and from 2002 sixty, of these days cannot be shared so the effective maximum for mothers is 420 days. The Swedish parental leave days can be used seven days a week, which would mean 16 months in total, or for fewer days per week in order to increase the parental leave time. The right of leave from the employer extends however only until the child is 18 months, although the parental leave days can be used until the child is eight years old. In addition to the parental leave the father is also entitled to 10 working days of leave together with the mother in conjunction with the birth of the child. These ten days are paid at 80% of the income but without an upper income limit. As in Germany parents are also entitled by law to reduced working hours when their children are younger than eight years old (Nordenmark et al, 2004; Försäkringskassan 2005).

Further, the state also offers publicly subsidized full-time day-care facilities for both pre-school and school age children (Boje & Strandh 2002, Strandh & Nordenmark 2003). Overall the policies are directed toward providing conditions that facilitate increased gender equality and are very much aimed toward making it possible for mothers to stay on the labour market (Somwestad 2001).

Table 1: Leave Arrangements Around Childbirth Events

	Late 1980s /Early 1990s		Early 2000s			
	Paid Maternity Leave	Wage Replace. Rate	Paid maternity leave	Wage replace. rate	Parental Leave	Wage replace. rate
Ireland	14 weeks	70%	18 weeks	70%	14 weeks	0%
Germany	16 weeks	100%	14 weeks	100%	36 months	Means related
Sweden	52 weeks	90%	480 days 390 days @ 80%, 90 days flat rate			
UK	18 weeks	46%	26 weeks	90% for 6 weeks 20 weeks flat rate	13 weeks	0%

Source: late 1980s Gornick et al., OECD 2001, UK – Department of Work and Pensions, Ireland Dept. Social and Family Affairs.

⁹ The minimum level is €16.70 per day the upper limit is about €2,680 per month (Nordenmark et al 2005).

Table 2: Average Costs of Full-time Formal Childcare 1996.

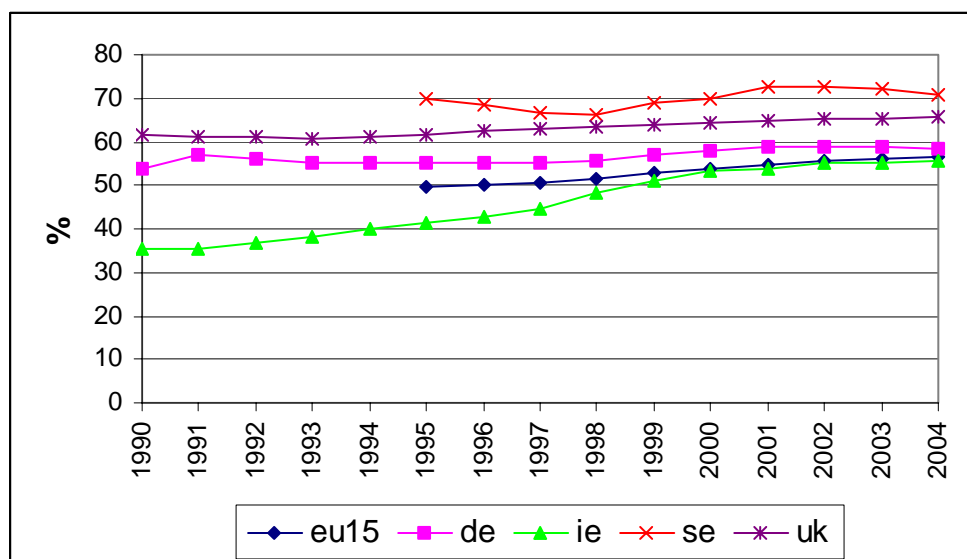
	% of Average Earnings
Germany	3
Ireland	20
Sweden	7
UK	23

Source: Ditch et al (1998) p65 Table 3.11.

Female Employment Patterns

The underlying employment rates among women differ significantly across the four countries studied and have also followed somewhat different trends over the period examined. Sweden has the highest female employment rate, which fluctuated slightly between 1995 and 2004. The UK and Germany also have employment rates above the EU average for most of the period. Female employment rates in Ireland were well below the EU mean for the early part of the period, but grew rapidly throughout the 1990s to reach the EU average by 2000.

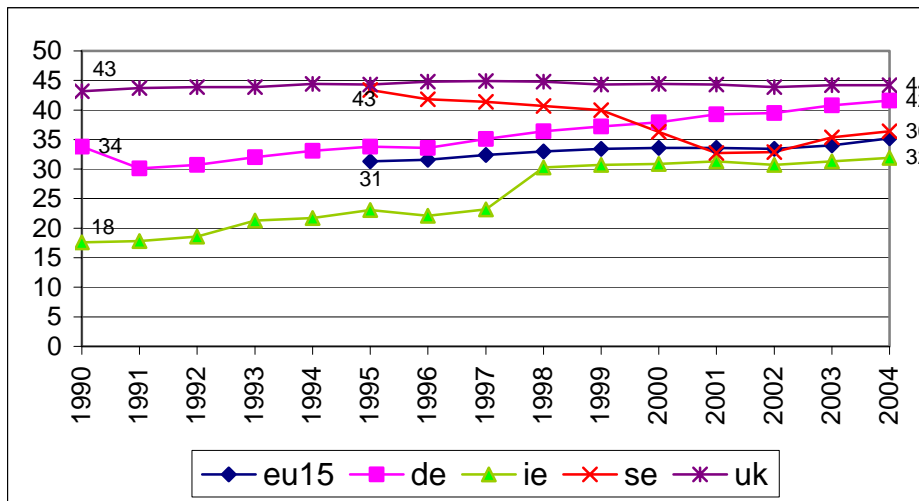
Figure 1: Employment Rates of Women Aged 15-64, 1990-2004



Returns to work following childbirth often involve transitions into part-time employment and reduced hours are legally guaranteed to parents in Germany and Sweden. Availability of part-time work is particularly important in the context of low levels of childcare provision to allow parent to combine employment and caring. The proportion of employed women working part-time is highest in the UK and has remained stable at about 44% between 1990

and 2004. Sweden also had a relatively high level of part-time working but this dropped sharply in the latter half of the 1990s. In contrast part-time working has increased steadily among German women since the early 1990s to a level close to the UK. Part-time work also increased in Ireland in the mid 1990s but stabilised out at a level below the EU in the late 1990s.

Figure 2: Proportion of Employed Women Working Part-Time, 1990-2004



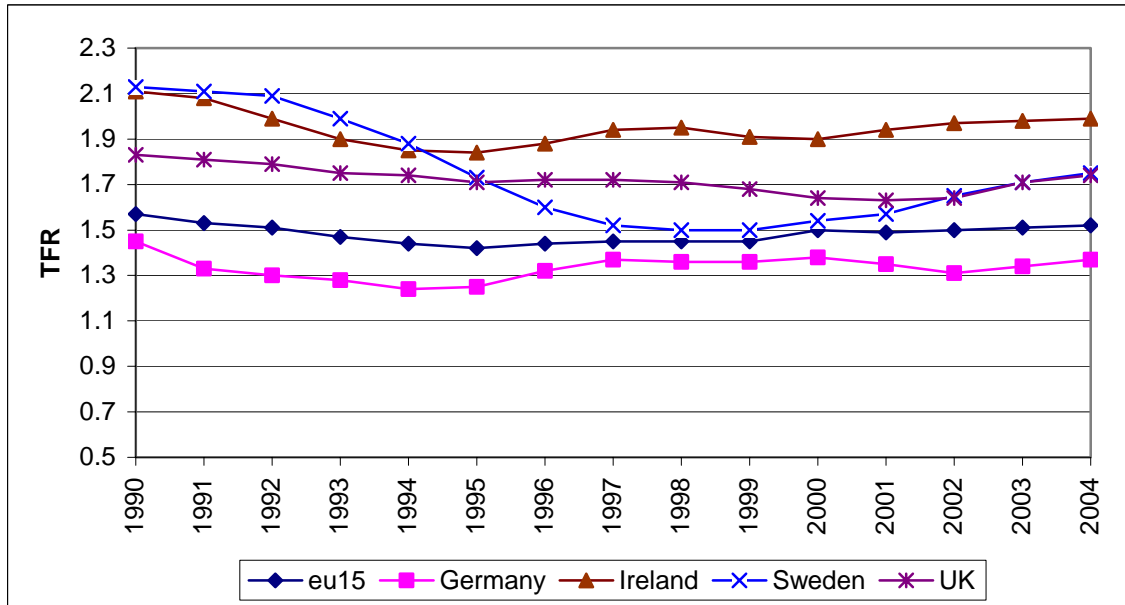
Source: New Cronos, EU Labour Force Survey series.
 Definitions : age 15+, part-time self defined.

Fertility patterns

The four countries compared here also have divergent fertility patterns which are likely to influence the data and their interpretation. Over the period 1990 to 2001 to which our data refer, total fertility rates in Ireland were the highest in the EU at 1.94. The average rate for the period in Sweden 1.76 and the UK, 1.73 were also significantly higher than the EU average (1.48). German fertility rates over the period were lower than the EU average at 1.33. These figures mean that a lower proportion of women in the German sample will experience a childbirth event than in the other three countries. Of additional significance is the birth order of children as this can impact on the probability of making a return to employment. Again the fertility figures show that the Irish pattern is distinctive. A much higher proportion of births are third order or higher compared to the other three countries. This pattern is particularly marked at the start of the period under consideration. In 1990 just under 40% of births in Ireland were third order or higher compared to 17% in Germany and 23% in Sweden and 24% in the UK. This means that the women in the Irish sample are less likely to be experiencing their first births, which will influence subsequent labour market behaviour.

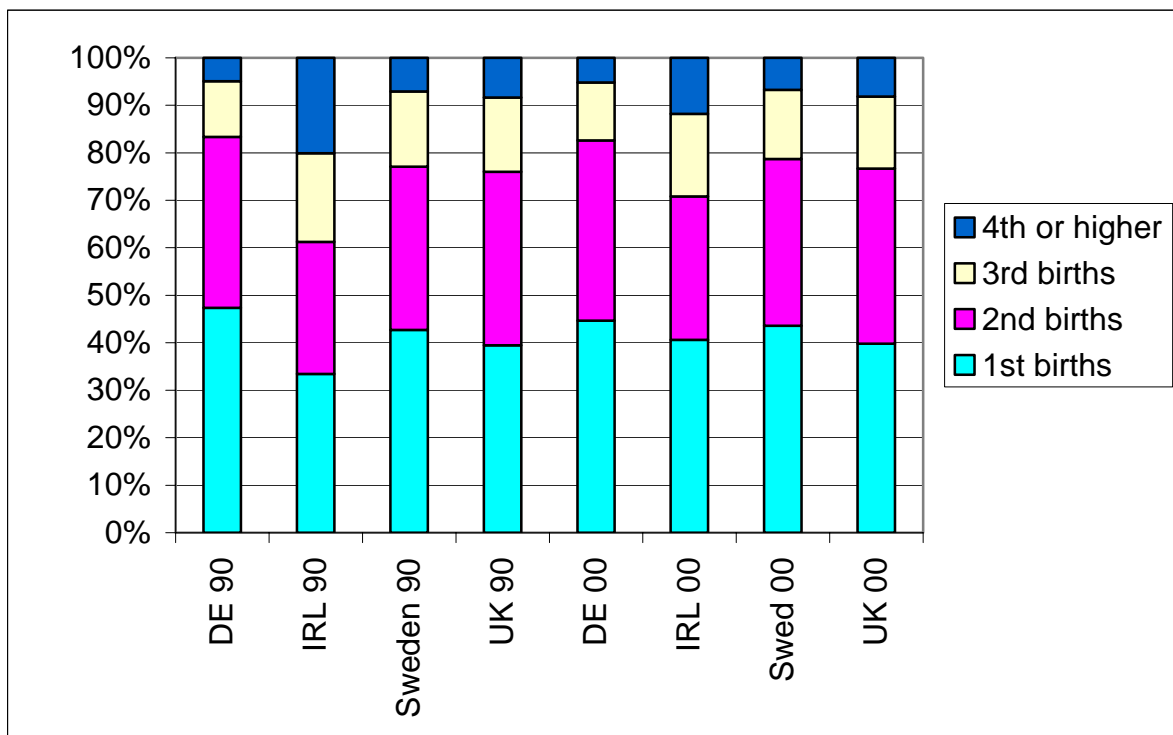
Restricting the analysis to first birth reduced the numbers too much therefore we include birth order as a control variable in the analysis.

Figure 3: Total Fertility Rates 1990 - 2004



Source: New Cronos Database.

Figure 4: Birth Order (% of births) 1990 and 2000



Source: New Cronos Database, population statistics.

Hypotheses

The first question we wish to examine is whether the probability of returning to employment in the short and medium term varies across the study countries. Given the institutional arrangements outlined above we hypothesise that the return to work will be quickest in the Ireland and the UK and slower in Sweden and slowest in Germany where parents are entitled to longer periods of leave. However given the state supports for childcare we would expect the total proportion of mothers to have made the transition to employment by T5 and T7 to be highest in Sweden, and to be lowest in Ireland.

However the probability of employment is also likely to be influenced by other factors, especially the buoyancy of the labour market and the availability of part-time work. The stagnant employment market in Germany during the period of the panel compared to the more buoyant economic conditions operating in Ireland and the UK may offset some advantages German mothers have in institutional supports vis-à-vis Irish and British women wishing to return to employment. The Swedish labour market fluctuated over the period with high rates of unemployment in the early 1990s however there was a recovery in the mid-90s and in the late 1990s employment growth rates were above the EU average.

We also expect the welfare state arrangements across the four countries to influence the medium term impact of childbirth on labour market rewards. The guarantee of returning to the same position following an extended break for childcare should mean that the costs of childbirth in terms of occupational attainment and wage levels are reduced in countries with generous leave provisions (i.e. Germany and Sweden). However, accumulated experience has a strong effect on wage level so there may be a point beyond which longer leave periods become sub-optimal. In other words, by increasing the average time-out of employment may cancel out the benefits of returning to the same employer, this effect is most likely in Germany where leave lasts for up to three years.

The contrasting institutional contexts may also influence the impact of other socio-demographic factors on the propensity to return. For example due to the high cost of childcare in Britain and Ireland we might expect occupational position or educational attainment to have a greater influence on mother's employment transitions in these countries as only women with higher earning capacity can cover the costs.

Results:

The first step in our analysis is to examine the pattern of employment among mothers in the short and medium term across the four countries. The results in Table 3 show clearly the way the institutional arrangements shape these transitions. In Ireland and the UK a relatively high proportion of mothers (38% and 31% respectively) are found to be back in employment at the first interview after the birth, this compares to less than 16% of German mothers. The proportion of Irish and British women back in work by the second interview rises to 48% again more than twice the German rate. However, thereafter the proportions in employment in Ireland remain static, while in Britain the proportion increases at a much slower rate after this point to 59% in year seven. In Germany, the proportion in employment increases gradually each year to just under half by year seven. In Sweden, the proportion in employment is only available at t7. At that point 78 per cent of Swedish mothers are in employment, which is significantly higher than the other three countries.

In the right-hand-side of Table 3 we examine employment probabilities among women who were employed during their pregnancies. The probability of a return to employment is significantly higher among this group at each interview, however the cross national patterns remain broadly intact. German women have the lowest rate of return to employment by T5 even among those who were employed before the birth, but the rates are closer to British levels by T7. In Ireland and Britain there is little movement after T2 suggesting that the group divides into two distinct groups those who return to employment quickly and those who withdraw from the labour market for a relatively long period.

Table 3: Proportion of Mothers Employed at T0 (before birth) and T1-T7 after Birth

	All Mothers				Mothers Employed During Pregnancy			
	Ireland	UK	Germany	Sweden	Ireland	UK	Germany	Sweden
T0	62.2	67.4	42.3	82.1	100.0	100.0	100.0	100.0
T1	38.2	31.0	15.5		58.6	42.8	24.8	
T2	48.0	48.5	22.6		70.9	68.5	37.3	
T3	47.9	48.9	31.1		69.8	65.5	51.0	
T4	49.8	53.7	36.8		69.8	67.7	55.8	
T5	48.9	53.4	40.0		67.6	65.2	56.6	
T6	(46.4)	56.8	44.7		-	67.4	60.0	
T7	(55.3)	58.8	48.9	77.8	-	68.6	63.1	83.0

() figures unreliable due to small n.

As a first step to understanding this process we model the probability of being in employment by T1 in Germany, Ireland and the UK. We specify a multinomial equation which also separates those on maternity/parental leave from others not in employment who form the reference group¹⁰. This specification allows us to investigate the factors associated with being on leave in the three countries.

Despite the fact that the probability of being employed at T1 varies substantially across the 3 countries (table 3 above) the factors influencing this probability within countries are broadly similar. Looking first at family-cycle factors we see that birth order has a negative impact on employment at T1 in all three countries but the effect is stronger in Ireland and Germany than the UK. Higher age at birth reduces the probability of a quick return to employment in Ireland and the UK but is not significant in Germany. Lone parenthood reduces the chances of employment at T1 in the UK and Germany and is insignificant in Ireland, this is likely to be due to small numbers rather than higher employment rates among Irish lone mothers.¹¹

Contrary to our hypothesis education level is no less influential in Germany, perhaps because it is a marker of commitment to employment as well as an indicator of ability to command higher wages and bear childcare costs. Indeed since so few women have returned by T1 in Germany they are likely to be a highly selective group. Accumulated pre-birth work experience is strongly predictive of employment at T1 for mothers in all three countries. The positive effect of year in Ireland and Britain is likely to reflect the increasing employment opportunities that emerged in the latter half of the 1990s.

Turning to the factors that influence the probability of being on leave at T1 we find that birth order has a significant impact on this probability in all three countries. This result is likely to reflect the fact that women with larger families are more likely to have withdrawn from the labour market prior to the birth and therefore do not qualify for leave. Lone parenthood is associated with a lower likelihood of being on leave in Germany but insignificant in Ireland and the UK. We include time since birth as a control in Ireland and the UK. As leave entitlements are considerably lower than one year it is not surprising that women who gave birth earlier in the 12 months before interview are less likely to be on leave. This information

¹⁰ This group includes a small number of unemployed and students but is predominantly 'family care'.

¹¹ International evidence suggests that employment rates are low in the UK and Ireland and relatively high in Germany and Sweden (Bradshaw, 1998).

is not available for Germany but is less likely to affect results because mothers do not run out of leave entitlements in the first year.

Table 5: Probability of Being Employed or on Maternity Leave T1, Women with Birth T0-T1

	Ireland		Germany		UK	
	Coef.	Sig.	Coef.	Sig.	Co-ef	Sig.
Employed						
Second Birth	-0.79	.000	-0.785	.018	-0.617	.000
Third or higher birth	-1.18	.000	-1.169	.003	-0.697	.001
Time-since birth (0-12 months)	0.02	Ns			0.088	.000
Age (ref: under 25yrs)						
25-30	-0.34	ns	-0.348	ns	-0.258	.307
31-35	-1.05	.020	-0.334	ns	-0.772	.021
over 35	-1.92	.001	-0.256	ns	-1.78	.000
Lone Parent T1	-0.07	ns	-1.561	.063	-0.505	.074
Education (ref: primary or less)						
Incomplete Secondary	1.52	ns	0.750	.015	0.774	.004
Complete Secondary	2.41	ns	1.241	.000	0.785	.010
Third Level Ed.	3.91	.013	1.456	.000	1.314	.000
Time employed at T0 (months)	0.02	.000	0.011	.000	0.018	.000
Year	0.08	.015	-0.087	ns	0.082	.001
Constant	-4.040	.011	-0.967	ns	-3.419	.000
Maternity/parental leave						
Second Birth	-0.906	.004	-0.751	.001	-1.372	.000
Third or higher birth	-1.462	.000	-1.253	.000	-2.275	.000
Time-since birth (0-12months)	-0.478	.000	-	-	-0.465	.000
Age (ref: under 25yrs)						
25-30	-0.017	ns	-0.189	ns	0.897	.007
31-35	-0.919	ns	-0.498	Ns	0.796	.090
over 35	-2.337	.006	-2.088	.000	0.443	ns
Lone Parent at T1	0.079	ns	-1.017	.028	-0.393	ns
Education (ref: primary or less)						
Incomplete Secondary	1.149	ns	1.512	.000	1.077	.007
Complete Secondary	2.356	.097	1.453	.000	1.145	.008
Third Level Ed.	3.856	.008	0.879	.008	1.793	.000
Time employed at T0 (months)	0.027	.000	0.010	.000	0.013	.000
Wave	0.074	ns	0.322	.000	0.096	.003
Constant	-3.282	.023	-3.622	.000	-2.301	.000
N. Observations	958		928		1371	
Pseudo R2	0.3059		0.1806		.273	

Significance levels calculated with robust standard errors.
All demographic vars measured at T1 unless otherwise stated.

Labour market characteristics also influence the chances of being on leave at T1. The probability of being on leave increases with education level in all three countries however the effect is stronger in the UK and Ireland compared to Germany. Accumulated work experience measured before the birth increases the probability of being on leave compared rather than outside the labour market in all three countries this is likely to reflect both attachment to the labour market and eligibility for leave (especially in the UK where duration of leave is linked to previous experience). The probability of being on leave increases over time in Germany and Britain which is likely to reflect enhancements to the leave schemes over the period (1991-2000).

Next we extend the analysis to consider the factors that influence the chances of being in employment at the fifth annual interview after the birth (Table 6) and seventh interview in Sweden, Germany and the UK (Table 7). We find that the influence of birth order has weakened in Ireland and the UK but remains significantly negative in Germany. Unsurprisingly, additional births between T1 and T5 have a negative impact on being employed by T5 in all three countries. Additional births are also significant when we extend the analysis out to year seven in Germany and UK, however the effect of birth order has weakened in Germany. In contrast, neither birth order nor additional births have this negative effect among mothers in Sweden, suggesting that institutions there are indeed effective at reducing the impact of childbirth on employment in the medium term. Mothers age at the time of birth has a strong influence on employment at T5 in Ireland and Germany, older mothers are significantly less likely to be back at work at this point compared to those aged under 25 years, controlling for educational level. In the UK the age effect is non-linear: mothers most likely to have returned are those aged 25-30 years, however as in Germany and Ireland those aged over 35 are least likely to have returned (this result has also been found in France (Saurel-Cubizolles et al. 1999, p192).

The influence of accumulated work experience prior to the birth is still significant at T5 in Ireland, Germany and the UK and at T7 in the Germany and the UK but the effect is weaker than that observed at T1, perhaps because by five/seven years after the birth some of those less attached to the workforce will also have re-entered.¹² Education influences the medium term employment probabilities of mothers in all four countries. However in Ireland only

¹² There is no information on total time employed in Sweden however adding job tenure at time of birth did not change the pattern of results outlined here, effect of tenure itself appeared non-linear.

those with third level education have a significantly higher probability of being employed, this may reflect the barriers to employment faced by lower earning mothers in Ireland.

Table 6 : Odds of Being in Employment at T5 , Women with births Between T0 and T1

	Ireland		Germany		UK	
	B	Sig.	B	Sig.	B	Sig.
Second Birth	0.008	.981	-0.683	.008	-0.270	.133
Third or higher birth	-0.348	.379	-0.940	.002	-0.318	.198
Additional birth t1-t5	-0.567	.048	-2.276	.000	-0.969	.000
Education (ref: primary or less)						
Incomplete Secondary	-0.656	.473	0.619	.002	1.121	.000
Complete Secondary	0.277	.757	1.447	.000	0.742	.007
Third Level Ed.	1.757	.066	1.135	.001	1.441	.000
Age group						
25-30	-0.632	.187	-0.175	.449	0.571	.012
31-35	-0.859	.135	-0.467	.122	0.200	.471
over 35	-1.244	.073	-1.240	.003	0.275	.452
Time employed at T0	0.009	.001	0.005	.001	0.003	.021
Wave	0.208	.071	-0.012	.774	-0.040	.384
Constant	-0.472	.644	0.151	.746	-0.262	.606
N of Observations	341		781		852	
Pseudo R2	.184		.1539		.104	

Table 7 : Odds of Being in Employment at T7, Women with births Between T0 and T1

	Sweden		Germany		UK	
	B	Sig.	B	Sig.	B	Sig.
Second Birth	0.089	.757	-0.207	.423	-0.009	.973
Third or higher birth	-0.407	.239	-0.528	.078	-0.826	.005
Additional birth t1-t7	-0.261	.318	-0.999	.000	-1.239	.000
Incomplete Secondary	1.049	.001	0.440	.035	1.052	.000
Complete Secondary	0.847	.048	0.793	.002	0.75	.033
Third Level Ed.	1.567	.000	1.253	.001	1.451	.000
25-30	0.459	.116	-0.230	.350	0.692	.019
31-35	0.295	.423	-0.591	.072	0.348	.349
over 35	0.188	.479	-1.383	.002	0.057	.916
Time employed at T0			0.005	.008	0.005	.017
Wave	0.082	.229	-0.026	.624	-0.05	.572
Constant	-0.073	.860	0.418	.440	0.179	.857
N observations	486				547	
Pseudo R2	0.10				0.145	

While the models confined to mothers illuminate some interesting differences across countries, more distinct national patterns emerge when we compare the situation of mothers to other women (aged under 50 years) five and seven years later (Tables 8 and 9). There is a clear negative impact of childbirth on employment probabilities at T5 for women in Ireland, Germany and the UK. The effect of a birth between T0 and T1 is still clearly significant five years on, and births in the intervening period have an additional negative impact on employment. In Germany and the UK these more recent births have a greater effect than births T0-T1 however in Ireland earlier births have an equal impact, this may reflect the poor childcare provision for the 3-6 year age group compared to Germany and even the UK. The stronger negative effect of recent births in Germany compared to the other countries is consistent with the provision of extended leave periods which reduces early returns.

When the analysis is extended to seven years (Table 9) the distinctive position of Sweden emerges again. In contrast to the other countries, none of the four variables representing family status are found to influence the probability of employment in year seven. In Germany and the UK the patterns are very similar to those observed in year five, although there appears to be some weakening in the effects of births in the first year of our panels.

Table 8 : Odds of Being in Employment at T5 All Women Under 50 years.

	Ireland		Germany		UK	
	B	Sig.	B	Sig.	B	Sig.
No. kids <16 t0	-0.194	.000	-0.229	.000	-0.384	.000
Birth t0-t1 only	-0.882	.000	-1.020	.000	-0.857	.000
Birth t1-t5 only	-0.881	.000	-2.307	.000	-2.892	.000
Births t0-t1 and t1-t5	-1.513	.000	-3.219	.000	-2.378	.000
Incomplete secondary	0.519	.000	0.445	.000	0.744	.000
Complete secondary	1.212	.000	0.922	.000	1.014	.000
Tertiary	2.184	.000	1.054	.000	1.171	.000
25-30	-0.628	.000	-0.119	.025	0.185	.050
31-35	-0.915	.000	-0.302	.000	-0.246	.044
Over 35	-1.542	.000	-0.902	.000	-1.113	.000
Time in Emp. T0	0.008	.000	0.006	.000	0.005	.000
Wave	0.095	.001	-0.011	.154		
Constant	0.101	.488	0.799	.000	0.769	.000
N observations	4929		22850		11208	
Pseudo R2	.239		.585		.256	

Table 9 : Odds of Being in Employment at T7 All Women Under 50 years.

	Sweden		Germany		UK	
	B	Sig.			B	Sig.
No. kids <16 t0	-0.003	.949	-0.197	.000	-0.259	.009
Birth t0-t1 only	0.000	1.000	-0.896	.000	-0.671	.000
Birth t1-t7 only	-0.061	.612	-2.093	.000	-2.902	.000
Births t0-t1 and t1-t7	-0.185	.293	-2.106	.000	-2.435	.000
Incomplete secondary	0.538	.000	0.416	.000	0.861	.000
Complete secondary	0.699	.000	0.873	.000	1.016	.000
Tertiary	0.958	.000	1.092	.000	1.171	.000
25-30	0.367	.003	-0.069	.252	0.091	.414
31-35	0.444	.002	-0.165	.021	-0.433	.003
Over 35	0.520	.000	-0.990	.000	-1.415	.000
Time in Emp. T0			0.005	.000	0.004	.000
Wave	0.078	.000	0.003	.753	0.01	.563
Constant	-154.447	.000	0.886	.000	0.941	.000
N observations	4701		17652		11047	
Pseudo R2	.056		.1398		.254	

These results show that having children has a clear negative effect on participating in the labour market in Germany, Ireland and the UK. This effect is still powerful five to seven years after the birth. However this effects is not present in Sweden. Furthermore the influence of other family cycle variables such as birth order and age of mother are highly influential. This pattern of results is consistent with the welfare state context outlined above. In the next section we examine the medium labour market outcomes associated with childbirth for women who return to employment.

Impact of Childbirth on Occupational Status Attainment

We focus first on occupational status. We rank occupations according to the International Socio-Economic Index of Occupational Status (ISEI) (see Ganzeboom et al 1992; Ganzeboom & Treiman , 1996) which has the advantage of translating easily for ISCO codes. This provides a more finely differentiated status scale than conventional class schemas and so is suited to examining occupational mobility over a relatively short period, but is more uni-dimensional than class scales in terms of its focus. The status scores for occupations range

from 16 to 90 with Judges holding the highest score, and ‘Labourers’ and ‘Cleaners’ holding the lowest score.

In Table 10 we examine the occupational status scores of all women under 50 years at T5, including an identifier for our mothers who had a birth between T0 and T1. We also include a range of other variables to capture family status. As we are primarily interested in the evolution of women’s occupational status over time we include a control for occupational score before birth (T0).

The results show that women who had a birth in the first year of the panel had significantly lower occupational scores in year five in Ireland and Britain and in year 7 in Britain and Sweden. This effect is in addition to the negative effect of having other children aged under 16 at year 0 which is significant in Ireland, Britain and Germany. These negative effects are also additional to the decline in status associated with reduced labour market experience. Months in employment between year 1 and year 5/7 is controlled in the models (except for Sweden) and has a significant positive impact on status scores in Germany and the UK at both time points.¹³

The absence of the effect for our T0-T1 mothers in Germany supports the hypothesis that extended periods of leave helps preserve occupational position for those who re-enter employment. The difference in results between Sweden (where there is still a negative effect) and Germany may reflect different patterns of selection. In Germany significantly fewer mothers are back in employment by T7 compared to Sweden, therefore these women may have more favourable unobserved characteristics such as commitment to employment.¹⁴ Selection issues may also lie behind the result that intervening births (between year 1 and year 5) have no impact on subsequent status in Ireland.

¹³ The negative coefficients do not necessarily reflect downward mobility, if there was an upward trend in status for the group as a whole these results could mean lower than average growth, however it is more likely that the underlying pattern is one of stability.

¹⁴ Further analysis of this issue is planned.

Table 10: Occupational Status Score at T5, All Employed Women < 50

	Ireland		Germany		UK	
	B	Sig.	B	Sig.	B	Sig.
One child <16 at t0	-1.342	.096	-1.748	.000	-2.613	.000
Two or more children at t0	-2.069	.005	-2.071	.000	-4.425	.000
Child born year1 of panel	-2.228	.067	-0.092	.902	-2.265	.000
Children between t1 and t5	-0.339	.636	-0.924	.009	-1.912	.000
Age	-0.273	.362	0.292	.003	-0.649	.000
Age Squared	0.002	.604	-0.004	.005	0.010	.000
Incomplete secondary	0.734	.586	2.089	.000	2.771	.000
Complete secondary	3.772	.006	2.832	.000	5.401	.000
Tertiary	10.810	.000	8.883	.000	6.510	.000
Job Status Score at T0 ¹	0.510	.000	0.663	.000	0.438	.000
Time in Emp T0	-0.011	.563	0.002	.395	-0.008	.012
Time in Emp T1-T7	0.006	.209	0.049	.000	0.128	.000
Year	0.700	.030	0.107	.020	-0.747	.000
(Constant)	24.980	.000	5.715	.001	37.459	.000
N of observations	1669		11001		11979	
Adjusted R square	.431		.607		0.34	

¹ ISEI occupational status scale. For those not employed at T0 we used status score of last job.

Table 11: Occupational Status Score at T7, All Employed Women < 50

	Sweden		Germany		UK	
	B	Sig.	B	Sig.	B	Sig.
One child <16 at t0	-1.041	.051	-1.947	.000	-2.873	.000
Two or more children at t0	-0.514	.327	-2.217	.000	-3.981	.000
Child born year1 of panel	-2.425	.000	0.017	.984	-1.792	.029
Children between t1 and t7	-0.779	.196	-1.529	.000	-2.745	.000
Age	-0.511	.020	0.248	.039	-0.859	.000
Age Squared	0.006	.052	-0.004	.014	0.012	.000
Incomplete secondary	0.763	.220	2.071	.000	2.964	.000
Complete secondary	4.346	.000	3.254	.000	5.376	.000
Tertiary	9.164	.000	9.790	.000	6.717	.000
Job Status Score at T0 ¹	0.597	.000	0.631	.000	0.388	.000
Time in Emp T0			0.003	.147	-0.008	.054
Time in Emp T1-T7			0.028	.011	0.130	.000
Year	-0.229	.041	-0.024	.713	-1.691	.000
(Constant)	482.667	.031	10.789	.000	51.851	.000
N of Observations	3250		8373		7421	
Adj R Square	.529		0.5711		0.3	

¹ ISEI occupational status scale. For those not employed at T0 we used status score of last job.

Wage Effects of Childbirth

In the final models we examine the impact of childbirth on hourly earnings five years later for those who have re-entered employment. No earnings information is available in the Swedish dataset so Sweden is excluded from the analysis. We base the analysis on gross hourly wage as this makes it easier to compare earnings across those working different numbers of hours. We log the earnings figures to reduce the effect of outliers and to ease interpretation as co-efficient can be interpreted as percentage increases. Because our five year blocks are spread over a range of years within countries we deflate earnings to the base year using the national consumer price index. The data pre-date the introduction of the Euro so earnings are recorded in national currencies.

The results show that there are no significant negative impact of births five years later, among those who are back in employment. In fact in Germany our group of mothers are found to have higher than average earnings at T5 compared to women who did not have a birth. Furthermore, additional births in the panel period were also associated with higher earnings in Germany ($p < .10$) and the UK. It is again probable that selection effects are operating here, in that mothers who return to work relatively quickly (within their national context) are those most committed to employment and have other characteristics that are positively associated with wages. In the German context, returning within five years of a birth demonstrates strong labour market attachment, since only 40% of women have returned at this point (see table 3). Zielfe (2004) found that negative wage effects of childbirth were higher in the longer than the short term. Further analysis is required to investigate these selection effects.

However the absence of a direct effect for birth does not mean taking time out of employment (whether on leave or out of the labour market) has no effect on these women's earnings. The effects of months of employment experience between T1 and T5 show that each month of work experience has a strong positive effect on earnings, which women forgo. By corollary each month out of employment reduces earnings by half a percent among Irish women and .1 of a percent in Britain, each year out leads to a 19% drop in hourly earnings in Germany. The strong effect of time out in Germany runs contrary to our expectations that extended leave provisions in that country should reduce the penalties attached to time out.

Further analysis is necessary to compare the effect of time spent on leave and time spent outside the labour market.¹⁵

It is also noteworthy that the number of children aged under 16 at T0 has a significantly negative effect on women's earnings in Germany and to a lesser extent Ireland and the UK. These earlier births may have a more negative impact because this group will include women who have spent longer than five years outside the labour market.

Table 12: Log Gross Hourly Wages at T5 – All employed Women < 50 years

	Ireland		Germany		UK	
	B	Sig.	B	Sig.	B	Sig.
1 kid <16 T0	-0.068	.024	-3.826	0.000	-0.175	0.000
2+ kids <16 T0	0.006	.826	-4.622	0.000	-0.250	0.000
Birth T0-T1	0.065	.136	3.912	0.000	-0.023	0.366
Additional Birth T1-T5	0.019	.488	0.736	0.075	0.033	0.147
Age	-0.011	.256	1.079	0.000	0.043	0.000
Age square	0.000	.790	-0.012	0.000	-0.001	0.000
Incomplete Secondary	0.102	.027	2.278	0.000	0.174	0.000
Complete Secondary	0.346	.000	4.755	0.000	0.300	0.000
Third Level Ed.	0.883	.000	14.456	0.000	0.505	0.000
Time in Employ T0 (mons)	0.002	.000	0.006	0.004	0.001	0.004
Time in emp (t1-t5)	0.005	.000	0.193	0.000	0.003	0.000
wave	0.065	.000	-0.173	0.001	0.340	0.000
(Constant)	1.284	.000	-5.638	0.002	0.357	0.004
N observations	2063		13606		8092	
Adj R2	0.442		0.181		0.25	

Note: Only includes people employed at t5.

Earnings are calculated in national currencies (data precedes the introduction of the Euro)

Germany: earnings have not been logged.

Conclusions

In this paper we examine the careers of mothers across four different European countries one five and seven years after a childbirth event. It is clear from the results that institutional settings shape the patterns of returns to work among women in the short and medium term. The return to employment was found to be considerably quicker among mothers in Ireland

¹⁵ This analysis is only feasible in Germany and the UK. Analysis of the German data suggests that absence on leave schemes only partly reduces the negative wage effects.

and the UK where paid leave is available for less than six months after the birth. In the UK 31% of mothers were in work by the first interview and in Ireland 38% of mothers were employed compared to only 16% in Germany. The cross-national gap had narrowed by year 5 but German mothers were still less likely to have returned. Swedish figures are only available for year seven but at that point, Swedish mothers were most likely to be in employment.

In the UK and Ireland women face a stark choice between returning to work within months of childbirth or leaving their employer and exiting the labour force. It appears these systems polarises women into two distinct groups: those who return relatively quickly (within two years) and those who remain outside the labour market for long periods. Even among women employed during pregnancy almost one third have not returned by year five/seven in these two countries.

The results relating to the effect of childbirth on occupational status supported some but not all of our hypotheses. In the UK and Ireland our mothers were found to have lower occupational status scores by T5 compared with women who did not have births (even when original status was controlled). No such effect was found in Germany, which is consistent with the hypothesis that generous leave arrangements help protect mothers occupational position. However, the significant negative impact of childbirth on occupational status in Sweden was not anticipated. This results suggests that while the Swedish welfare state is effective at getting mothers back into employment it has not been so effective at ameliorating the negative impact of childbirth on future status attainment. Factors such part-time working and barriers to promotion restrict occupational mobility among working mothers. It is possible that selection effects play a role in these patterns too – German working mothers are likely to be a more selective group than those in Sweden. This issue requires further investigation. It should be noted that even in Germany time-out of employment during the panel period has a negative impact on occupational status.

The earnings models show no direct negative effects of childbirth after five years however there is a significant penalty attached to time out of employment in Germany, Ireland and Britain (could not be tested in Sweden). There was no evidence that this penalty was any less severe in Germany despite the protection offered by extended leave. It is possible that after 5 years women who have made a more concerted break from employment have not yet

returned. Even after five years has elapsed we may still be capturing mothers with greatest attachment to the workforce. The strong effect of recent labour market experience on wages suggests that mothers in Germany will be penalised for their longer leave period.

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