Return to Work after Childbirth: does Parental Leave Matter in Europe?

(Article begins on next page)

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Chiara Pronzato
Carlo F. Dondena Centre for Research on Social Dynamics
Università Bocconi
via Guglielmo Röntgen 1
20136 Milan
Italy
chiara.pronzato@unibocconi.it
Other affiliations: ISER (University of Essex), Statistics Norway, and CHILD

Abstract

This paper investigates the role of extended parental leave in the return to work of mothers of newborn children. Exploiting the variability in policies offered by European countries, the paper studies the influence of statutory leave on the probability of returning to work at different ages of the child. Results suggest that providing paid leaves increases the probability of remaining at home when the child is under 3, and that lengthy statutory leaves are associated with being more likely to return eventually to work.

Keywords

parental leaves, women's labour supply, childbirth, childcare

JEL classification: J13, J22

1 Introduction

Statutory parental leaves have been introduced in the last 30 years in all European countries in order to extend the period of job-protection, allowing both parents to care for their child after the maternity leave period has expired. Proponents of these policies claim that statutory leave results in healthier children and a better position for women in the labour market, while opponents state that these restrictions may adversely affect women's careers. The expected impact of leave from work on maternal employment is ambiguous. On the one hand, it allows women to have a break to care for the child and its absence could persuade some women not to participate in the labour market. It also guarantees the woman's return to her previous job so that she does not lose her specific human capital. On the other hand, it may withdraw women from the labour market for long periods, with negative implications for their future employability, wages, and career. These effects are not clear a priori (Klerman and Leibowitz, 1997; Berger and Waldfogel, 2004) and need to be tested empirically.

The object of this paper is to investigate the effect of statutory parental leave on mothers' post-birth employment. Previous research on this topic, in the US context, shows a negligible influence of statutory leave duration on the time taken by the women to return to work (Han et al., 2007; Hashimoto et al., 2004; Baum, 2003; Klerman and Leibowitz, 1997) while the Canadian experience indicates a larger effect (Baker and Milligan, 2005). One explanation put

forward is that when statutory leave is short (e.g. 12 weeks in the US) we are less likely to observe any impact; while evidence appears stronger when statutory leave is longer (from 17-18 weeks to 29-70, in the Canadian case). Besides the duration, another important aspect to take into account, when analyzing the effects of statutory leave, is the process of self-selection into jobs covered by leave-regulations (Hashimoto et al., 2004; Baker and Milligan, 2005): women who have access to jobs with maternity rights may have unobservable characteristics which also affect their post-birth decisions.

In this paper, I exploit the variability in policies across EU countries, in terms of the length of the leave and payments during the leave-period. I compare women with similar human capital characteristics and household conditions but in different countries and consequently subject to different leave regulations. The EC directives require a minimum of 3 months of parental leave, but permits degrees of freedom for additional time, payments, and flexibility in the timing. And, indeed, the features of statutory parental leave differ substantially across Europe: from the minimum of 3 months to a maximum of 3 years, from 0% to 100% paid.

A comparative study on the effects of maternity leave has been carried out by Ruhm (1998), who compares employment rates and wages among women and men (used as comparison group) in different European countries, and shows how maternity leave availability is associated with an increase in women's employment but also with a reduction in their relative wages. The focus of my paper is, instead, on the effect of statutory parental leave (the optional leave which temporally follows maternity leave) on the return to work for mothers across Europe.

Understanding the economic consequences of statutory parental leave for women is relevant to policy for at least two reasons. First, it is important to understand whether leave policies may be used to enhance female labor market participation, especially in countries with a low participation rate compared to the 60% set by the Lisbon strategy (Council of the European Union, 2000). Second, it is important to evaluate whether they may be used as an instrument to make parents spend more time with their children (Baker and Milligan, 2008). Parental care, especially during the first year elapsed from childbirth (James-Burdumy, 2005), has been shown to be important for the child's development: a reduction in infant mortality (Ruhm, 2004), more breastfeeding, child immunization (Tanaka, 2005; Berger et al., 2005), better cognitive outcomes (Gregg et al., 2005; Ruhm, 2004), and better educational outcomes (Ermisch and Francesconi, 2002) have been observed.

In this paper, I analyse employment decisions of mothers after childbirth, using the European Community Household Panel (ECHP) and treating the data in a survival perspective. I first present the institutional background for different European countries (Section 2) and then the methodological framework (Section 3). The ECHP data are illustrated in Section 4, while Section 5 comprises the empirical estimations. Sections 6 and 7 compare and interpret the results across countries. Sensitivity analyses (Section 8) and conclusions follow (Section 9).

2 The Institutional Background

Parental leaves extend the period of job-protection, allowing both parents to care for their child after the maternity leave period has expired. The EC directives require a minimum of 14 weeks of maternity leave and 3 months of parental leave (Table 1). While the length of maternity leave and the replacement ratio are quite homogenous among countries, parental leave differs substantially in terms of length, paid period and incentives for fathers' take-up.

With respect to mothers' take-up, maternity leave is used by almost all of them, while the extended parental leave is optional and, given the amount of benefits, its use depends on mothers' constraints and preferences. The conditions required to qualify for the leave vary across countries, but women with at least 1 year of employment are likely to be covered.[1] We observe for Belgium, Portugal, and the Netherlands the minimum period of 3 months for each parent while very long leave of 2-3 years exists in France, Spain, Austria, Germany and Finland. For some countries, parental leave includes the right to be paid during the period surrounding the childbirth, with payment related to the previous wage (e.g. Finland and Italy) or as a flat rate (e.g. Austria). The right to leave can be individual or family based: in the first case, if one parent does not take the leave, it is lost for the family. In this sense, parental leave might play an important role in re-distributing the work division in the couple and promoting gender equality (see last column in Table 1): short leave, well paid and with no possibility to transfer months from the father to the mother, could lead fathers to share this task more frequently. In all countries, the parent's job position is protected during the whole leave, with the exception of Spain where the protection covers just one year. Moreover, in some countries women are allowed to take only part of the leave and to work a reduced number of hours, or allowed to postpone the leave until the child is older rather than immediately after childbirth.

For simplicity, I only study the first transition from non-employment to employment and I observe whether the availability of these arrangements changes women's choices between work and care activities. In particular, I focus on the effect of two characteristics of statutory leave: the duration of job protection and whether or not women receive transfers during the leave-period. To the author's best knowledge, in all analyzed countries, parental leave arrangements were introduced before the first wave of the utilized survey and duration and payments have not been substantially changed during the years of the survey. The only exceptions are Ireland and the UK where parental leave was introduced, respectively, in 1998 and 1999.

Another policy which does not constitute the object of the study but can affect the return to work is the availability of childcare. The possibility of working when the child is young is constrained by the availability of childcare and, later, by the pre-primary and primary school system. Better access to care services for children as well as high quality and low costs can decrease the cost of working for mothers, discouraging them from looking after the child at home. We observe large differences in the public availability of childcare among European countries, especially for children under 3 (Table 2). When comparing the return to work for women from different countries in Section 7, I will also control for availability of childcare.

3 The Methodological Framework

Suppose a woman makes her labour market participation decisions in order to maximize the household's lifetime utility. When out of employment household utility u (measured in terms of consumption goods) depends on the husband's income (when in a partnership), on her private income and on her productivity at home, which varies with the number and ages of children. When in paid employment, the wage she receives in the labour market is an additional determinant of household utility (Ermisch and Wright, 1991).

[1] In almost all countries women need to be employed for at least 1 year to have the right to the parental leave, in some countries with the same employer. The most restrictive requirements are in Portugal where both the parents have to be employed, while the least restrictive are in Austria, where they only need to show they are eligible for family allowances.

After childbirth, she decides whether or not to work according to the wage offers she receives, which are assumed to be from a distribution $F(w,X)$ where X represents fixed characteristics of the woman. Let $V_2(X,H)$ be the expected discounted lifetime utility when not in employment and $V_1(X,H,w)$ when employed at wage w in a household with characteristics represented by H. The expected value of the best option, over an infinite span of life, is given by

$$T(X) = \int_{-\infty}^{+\infty} \max\{V_2(X,H), V_1(X,H,w)\} dF(w,X) \qquad (1).$$

Burdett et al. (1985) show that there is a stopping rule which guarantees the existence of this maximum: she will decide to be employed if and only if $V_1(X,H,w) > V_2(X,H)$, where $V_1(X,H,w)$ is strictly increasing in w. Burdett et al. (1985) derive that the corresponding maximizing strategy is characterized by a reservation wage function $z(X,H)$ so that she decides to be employed if $w > z(X,H)$. The larger is her utility for the time spent at home, the lower the probability of being employed, while the larger is her expected wage (which depends on her human capital) the higher the probability of employment.

When she has a child, the reservation wage may rise as motherhood increases the demand for her time in childcare activities, or it may decrease as a consequence of the increased demand for market goods required for home production. When time in inactivity passes, women tend to lose some human capital with a negative impact on the mean of the wage offer distribution, while the child becomes less time intensive with a consequent lowering of the reservation wage. Maternity and parental leave rights may guarantee the mother a return to her former job for a certain period of time (and therefore she has the probability of receiving an offer of 1) while any associated transfers will increase her reservation wage. On the whole, as time since childbirth passes, her participation behaviour will depend on the relationship between the loss in human capital which affects her potential wage; the loss in her productivity at home (due to the child's age) and the existence of maternity/parental leave rights, which affect her reservation wage in opposite directions.

In order to study mothers' participation in the labour market, I estimate a reduced form model of labour market participation where the dependent variable is defined as the elapsed duration from childbirth to re-entering the labour market. The higher is the probability of returning to work, the smaller is this duration. In this study the event of interest, the transition from non-work to work, may occur at any particular instant in time, but data are provided in discrete intervals of time, which leads to the use of a discrete hazard model. We observe a random sample of women from the moment of their childbirth onwards, and we follow them until the spell ends or until the end of the survey.[2] These latter observations are right censored.

Suppose the time is divided in equal intervals of 1 month, every interval is indexed by a positive integer. Let T be called the time spent out of the labour market, h the hazard of returning to work, S the survivor function associated with T. We observe every woman's spell from the first month after childbirth through to the end of the jth month, at which point her spell is either completed ($c_i=1$) or right censored ($c_i=0$).

[2] We therefore have an "inflow" sample (Jenkins, 2004).

The hazard rate, for a woman *i*, is given by

$$h_{ij} = \Pr[T_i = \mathrm{j} \mid T_i \geq j] \qquad (2),$$

which is the probability of leaving the non-employed state in the interval *(j-1, j]***,** given she has not worked until *j-1*.

The likelihood contribution for a censored spell is given by

$$L_i = \Pr(T_i > j) = S_i(j) = \prod_{k=1}^{j}(1 - h_{ik}) \qquad (3),$$

while the likelihood contribution for a completed spell is given by

$$L_i = \Pr(T_i = j) = h_{ij} S_i(j-1) = \frac{h_{ij}}{1 - h_{ij}} \prod_{k=1}^{j}(1 - h_{ik}) \qquad (4),$$

so that the likelihood for the whole sample is equal to

$$L = \prod_{i=1}^{n}[(\frac{h_{ij}}{1 - h_{ij}})^{c_i} \prod_{k=1}^{j}(1 - h_{ik})] \qquad (5),$$

which implies that

$$\log L = \sum_{i=1}^{n} c_i \log(\frac{h_{ij}}{1 - h_{ij}}) + \sum_{i=1}^{n}\sum_{k=1}^{j}\log(1 - h_{ik}) \qquad (6).$$

This expression has the same form as the likelihood for a common binary regression (Jenkins, 2004), where y_{ik} is equal to *1* when $c_i=1$ and T_i is included in the interval *(j-1, j]*:

$$\log L = \sum_{i=1}^{n}\sum_{k=1}^{j}[y_{ik}\log h_{ik} + (1 - y_{ik})\log(1 - h_{ik})] \qquad (7).$$

The hazard rate *h* may depend on the time already spent out of employment and on some other characteristics of the woman, the household and the social and economic environment she faces. I choose a complementary log-log hazard specification, which is consistent with a continuous time model and interval censored survival time data (Jenkins, 2004). The hazard rate into work for a woman *i* at time *j* is given by

$$h_{ij} = 1 - \exp[-\exp(\alpha + \eta_i + \beta X_i + \delta H_i + \lambda E_i + \gamma_1 J + \gamma_2 J^2)] \qquad (8).$$

That is, the hazard is a function of the characteristics of the woman (*X*), of the household (*H)*, of the regional economic environment (*E)*, of the time spent not working (*J*) and of its square (J^2), which corresponds to the age (and age square) of the child.

I estimate a model with a woman specific variable η_i, which follows a normal distribution and is assumed to be independent from both time and the other explanatory variables. If omitted variables are correlated with any of the included regressors, it will cause bias of the usual kind. But, even if they are not correlated, results will be biased and the bias will be different if we look at the estimated time dependence or at the estimated coefficients of the regressors: the model will tend to overestimate the negative effect of the time spent in the state, while the size of the estimated parameters will be underestimated (Lancaster, 1979; Nickell, 1979).

After having estimated the return to work separately for countries, I predict the probability of being at work for some typical women, when the child is 0-5 years old:

$$1 - \hat{S}_{qzj} \tag{9}$$

where *z* indicates the country of residence, *j* the elapsed time from childbirth and *q* a "typical" woman comparable across countries. I repeat this procedure for different kinds of women; I pool the predicted probabilities from all countries, matching ideally every woman in each country with a similar woman in all other countries, so that the remaining differences among countries may be attributed to the statutory parental leave

$$1 - \hat{S}_{qzj} = \beta_0 + \beta_1 PL_{zj} + \beta_2 PPL_{zj} + u_{qzj} \tag{10}$$

where *PL* indicates the right to the protected leave in country *z* at time *j,* while *PPL* is an interaction indicating the right to the paid and protected leave in the country *z* at time *j*. The variables "on protected leave" and "on paid protected leave" are shared by all women in the same country (aggregate measures), given the age of the child. If the disturbances are correlated within countries that are used to merge aggregate with micro data, then even small levels of correlations can cause the standard errors from OLS regressions to be seriously biased downward. The bias of the standard errors can result in a spurious finding of statistical significance for the aggregate variable of interest (Moulton, 1990). Consequently, the bias has been corrected by adjusting the estimates of the standard errors of β_k (with k=1, 2) to account for the non-independence of observations within each country (Primo et al., 2007).

The advantage of using different countries where the right is universal instead of one country where the right is given according to particular agreements is that it avoids the problem of women selecting themselves into certain jobs with preferred family policies (Berger and Waldfogel, 2004; Hashimoto et al., 2004). However my country-samples are composed of women who jointly decide to work and have a child: if the selection process in each country is influenced by the leave arrangements, the generalization of the results may not remain valid. I will discuss how the selection process may threaten the conclusions of the paper in the sensitivity analysis (Section 8).

4 The Data

For the empirical analysis I use data from the European Community Household Panel (ECHP), a dataset provided by Eurostat which covers a wide range of topics and allows a comparison of European member countries for the years 1994-2001.

I select women who have a child during the time of the survey and who have worked before[3] and I follow them over time: my dependent variable is defined as the duration, in months, between childbirth and the return to work. We do not have survey information about the take-up of the leave and the coverage of the leave. I assume that women working before childbirth have the right to it, and I study whether the availability of less or more generous leave schemes influence their working and caring decisions.

I include in the study Italy, Greece, Spain, Portugal, France, Belgium, Austria, UK, and Finland. I cannot study the remaining countries because I do not have monthly information concerning the date of birth or the employment pattern.[4]

In order to see when mothers return to work after having a child, I use two different and complementary sources of information: the job information stated at the moment of the interview, and the monthly activity calendar, which is reported for the previous calendar year. I am interested in defining whether they are "on the job" in the period surrounding childbirth and not whether they "hold" a job, since I am concerned with the potential loss in human capital, and the potential gain in child's health, which depend on how much time they actually spend at home (Klerman and Leibowitz, 1994). Many women are employed but not at work. Consequently, I double-check hours of work, hours of care, and earnings. I consider a woman to be "at work" when she works at least 15 hours a week, she cares for her child less than 9 hours a day, and her earnings are different from zero. For women I observe returning to work, about 90% have complete information about activities in the months between that interview and the previous one. For these women I can determine the month they started working. For the other 10%, I impute the medium point in the interval of time between the two interviews. For women not returning to the labour market (right-censored observations), the date of the final interview is the end of the spell.

In order to study which factors make women more likely to return to work, I estimate a complementary log-log model with random effects as described in the previous section. The regressions are estimated for each country separately. With reference to equation (8) I include variables related to the woman, her household and the regional economic environment.

In the hazard function I include the woman's potential wage, obtained by using a Heckman regression, and then imputed for every woman. The advantage of this procedure is that it controls for non-random sample selection, which may arise because women with a higher work commitment will be more likely to have worked more in the past and to earn more at the time of the childbirth. The potential wage is estimated on the whole ECHP sample of women aged 16-45 (fertile period). The logarithm of the wage is assumed to be a function of the level of schooling (tertiary, secondary, and less than secondary)[5], age and its square (Tables 3 and 4). I also include, in the selection equation, the following variables: married or cohabiting (single, excluded category), with one or more than one child (childless, excluded category), household income (excluding woman's earnings) and a set of dummies related to the region of residence and to the calendar year. In this way I can predict the logarithm of the potential

[3] I include women either working in the previous wave or having worked in the last two years.
[4] German and Danish data do not have month of birth, Dutch and Luxembourgian data do not have the activity calendar, while the Swedish dataset is not a panel.
[5] Given the inconsistencies in the education variable between waves, I make this variable constant over time. I include the level of education stated in the first wave they are interviewed since the first years of the panel look more reliable when compared with OECD statistics.

wage for each woman in the sample, which has been made unconditional on their work decisions and represents what they could earn while working.

I also include, in the discrete-time hazard model (8), the age of the child in years, and its square, to see if the hazard into work increases or decreases with time, and how this pattern varies across countries. In the sensitivity analyses (Section 8), I try different specifications of the time dependence, and test the robustness of the final results. Since parental leave was introduced in Ireland in 1998 and in UK in 1999, I introduce a dummy variable equal to 1 to indicate when the woman has the right to it. I also include household income to take into account its negative effect on the reservation wage. Although potentially endogenous, I include two variables regarding the fertility decisions of the woman: a dummy variable indicating the first childbirth compared to subsequent ones and a dummy variable indicating the birth of another child during the out-of-work spell. I include them in order to maintain comparability among countries with different fertility behaviour. By including the variable "first childbirth", I assume that the effect of the regressors is the same for all childbirths but for a shift parameter captured in this variable. An alternative could be to include only women at the first childbirth. But, first, this would imply small samples. Second, the possibility of observing the same woman more than once makes it easier to identify unobserved heterogeneity. Finally, I include the regional unemployment rate in order to consider the economic environment which women face. The regional unemployment rate is drawn from REGIO, a dataset from Eurostat which provides descriptive statistics on each country's labour market, year by year, region by region. All covariates change over time, with the exception of the potential wage and the dummy "first childbirth" which are constant over the spell.

In Table 5 I summarize the characteristics of the samples at the beginning of the spell. I have 10 countries in which I analyze from a minimum of 399 spells (11,496 month-observations, Austria) to a maximum of 911 spells (20,610 month-observations, Spain).

The percentage of mothers returning to work by the end of the basic maternity leave varies from a minimum of 22% in Austria to a maximum of 60% in Portugal.[6] Indeed, these two countries represent two extremes for what concerns rights related to the parental leave: the Austrian government offers up to 18 months of paid leave while the Portuguese offers only 3 months, unpaid, with the exception of the first week. The "first childbirth" variable reflects different levels of fertility in Europe: we observe a high percentage (around 55%) of first-birth children in countries with a low fertility rate like Italy, Greece, Spain, Portugal, and a lower percentage of first-birth children (below 45%) in countries with a higher fertility rates like Ireland, Finland and Belgium. Household income is generally higher in North and Central Europe than in South Europe. The mean potential wage shows some variability across countries, going from 4 PPPs[7] per hour in Portugal to 8 PPPs in UK: these differences may be due to the characteristics of labour markets, to different self selection processes into work and fertility, and to the approximation driven by the use of the PPP indexes.

5 Model Estimates

In Table 6 I compare at which age of the child mothers re-enter the labour market. Overall, in Europe, at least 25% of new mothers are working when the basic maternity leave has expired. The few exceptions are represented by women in Austria and Finland, who return to work at a

[6] I assume that all women use the basic maternity leave so that they are at risk from the 4th month.
[7] PPP stands for parity purchasing power, and it is used to make incomes comparable across countries.

slower rate, probably influenced by the generous statutory parental leave to which they have the right. On the other hand, in Belgium and in Portugal at least 50% of women are working by the time the child is only 4 months old. In almost all countries at least one-half of mothers are working when the child is 3 years old. In Italy, Spain, Greece and Ireland we are not able to observe the first 75% of them back in the labour market.

The estimated parameters of the participation hazard equations are reported in Tables 7 and 8. We find that the potential wage has a positive and significant effect: women with a higher opportunity cost associated with maternity tend to start working very early after childbirth. The impact seems to be relatively larger in Italy, Spain and Greece while smaller in Austria and Finland. This is consistent with the finding that the effect of mother's education is usually found to be weaker where policies are more generous (Gustaffson et al., 1996; Gutierrez-Domenech, 2005).

As the child grows up, the likelihood for a woman to work will depend on the relationship between the decline of the potential wage and of the reservation wage, which depends on her productivity at home and on the statutory leave schemes. I estimate the sum of these effects by looking at the impact of the time spent out of the labour market. In all analyzed countries but Austria and Finland, the hazard to work decreases when time out of paid employment passes by. The squared term is, however, positive and significant, but not so large in size as to change the negative trend in the first years elapsed from childbirth. On the other hand, Austria and Finland, with longer statutory leave, show weak but positive duration dependence.

Looking at the household characteristics we find a negative effect of household income on the hazard rate into work, as expected. In most countries, the first childbirth compared to subsequent ones raises the hazard into work, with the exception of Finland. Lengthy leaves introduce the possibility for women to have multiple children before returning to their job. Indeed, the effect of the birth of another child is negative in countries with long parental leave like France and Finland: in these countries the woman can decide to have only one career-break, giving birth to the second child before entering the labour market. In the French case, the leave is paid only for the second child. In Finland, she receives more generous benefits in the first 6 months of the leave than for the rest of the period. The increased benefit and the increased necessity of time for caring, in both cases, may have a negative influence on her working decision. In Belgium, when the woman decides to have another child, she has to quit her job to remain home for a longer period, taking an unprotected break from her career.[8] In this case, the increased labour supply may be due the increased demand for market goods required in the larger family.

When significant, the regional unemployment rate has the expected negative sign. The dummy variable "EC directive" has a positive and significant effect in UK, where parental leave was introduced in 1999. UK mothers, with the addition of this period of leave after the basic maternity leave, seem to return sooner.

6 Comparing Mothers' Return to Work across Europe

In order to facilitate the interpretation of the results, I plot the predicted probability of being at work for comparable women across countries. The probability of being back to work is given by the complement of the survivor function at any month elapsed from childbirth. In Figure 1,

[8] The parental leave is too short to have time to have another child.

I simulate the cases of three women 30 years old, at the first child, with different levels of schooling. I predict the survivor functions with the potential wage for the three different women specified above, in each country, with median household income by level of education, and with an unemployment rate equal to the one stated in Eurostat statistics for 2001. In this way, I can first give an idea of the average level of labour market participation for new mothers in different countries when they have the first child, and then I can investigate the role played by education in order to ascertain how the reconciliation between work and family depends on the woman's characteristics rather than on the social environment.

Figure 1 indicates that in countries with generous statutory parental leave (Finland and Austria), a large proportion of mothers is out of the labour market after childbirth. About 75% of mothers with a medium level of schooling are at home one year after childbirth in Austria and Finland. In Finland the payments mothers receive during the 6 months is related to their wage (a replacement rate of 66%), and it decreases radically in the subsequent two and one-half years to a fixed amount of money. In Austria mothers are paid for the whole leave period (18 months), and as already clear in the estimations, there is not a large difference among women with different schooling.

In France, only 5% of women with secondary education are not yet working when the child is 1 year old, nevertheless the leave is 36 months long. However, the leave for the first child is not paid.[9] This may explain why France has the highest average post first-birth employment compared with other countries with long parental leave provisions. Moreover, in France the difference in behaviour between the first and the second childbirth is very large (see Table 8), suggesting that mothers of more than one child tend to stay at home after birth for a longer period.

The three countries with the fastest return to work are those in which women have the right to shortest parental leave (3 months in Portugal and Belgium, 4 in the UK). British women do not receive any payment during this period; Portuguese women are paid only the first week, while Belgian women receive lump sum payments for the whole period, which may explain a higher percentage of women (20%) out of the labour market when the child is 6 months old compared to the British and Portuguese women.

In Ireland, though mothers do not receive any payment for the leave, which lasts only three and one-half months, we observe a higher percentage of medium and low educated women out of the labour market when the child is 1 year old (35% and 45%, respectively). We observe the same phenomenon for Italy, Greece, and Spain: highly educated women seem to be influenced by the parental leave schemes, which grant shorter time in Italy, and Ireland compared to Spain and Greece, while medium and low educated women generally find it more difficult to return to work. Spain and Greece exhibit very low labour market participation after childbirth. The leave arrangements are not very generous (they have long leave but they do not receive any payment during the leave) and the availability of childcare services is very low. When the child is 3 years old, 25% of mothers are not yet working. In Italy, the job is protected and they receive 30% of their wage for the 6 months of parental leave. What emerges in these three countries, and Ireland as well, are the differences between the three groups of women: education plays a bigger role than in most of the other countries. While highly educated women return to work after childbirth, others are more likely to give

[9] From 2004, the leave is paid also for the first child, but only for the first 6 months.

up. This could be due to the lack of protected leave which forces women to quit their job, to the low childcare availability or to less favorable attitude towards women's work in these societies. In contrast, in Austria and in Finland, where long and paid leave is provided, the differences among women with different levels of human capital are almost non-existent. Also highly educated women seem to take the opportunity to care for the child by themselves.

Generally, we observe that different leave arrangements seem to shape survivor functions in different countries. In the next section, I test whether differences across countries are significantly associated with the characteristics of statutory leave.

7 Simulations and Interpretations

In order to compare more formally the results across Europe, I create a sample of women, from different countries, for which I predict the probability to be at work after childbirth. The hazard to work, and the derived probability to be at work, is calculated for 9 typologies of women, combining three levels of education (tertiary, secondary, and less than secondary) and three ages at birth (25, 30, and 35). Since I am interested in the short and long run consequences of parental leave, I predict the probability to be at work from the 4th to the 36th month after childbirth (short run) and from the 37th to the 60th month (long run). For all 10 countries in the study, I predict the probabilities to be at work for these 9 typologies of women, for 57 points in time, and I pool the observations.

All women in the "simulated" sample have had their first child and do not have other children during the spell of out of employment, given the potential endogeneity of these two variables. The household income used in the predictions is the median one by country and by level of education. The unemployment rate is the one at national level in 2001. In this way, the countries I am comparing can be considered equivalent in terms of human capital composition and fertility history.

In the short run, when the child is younger than 3 years old, I observe whether the probability of working is lower when and where the right of parental leave exists. In the long run, once all leaves are expired[10] and the child is 4-5 years old, I observe if there is any association between the length of (un)paid leave and mothers' employment.

Consequently, I estimate two OLS regressions[11] (equation 10) where the outcome is the probability to be at work (expressed in percentage points). In the "short run" model, I include the dummy variable "on protected leave" which is equal to 1 in the months and in the countries where the woman has the right to it, and the interaction "on paid and protected leave" when and where she is also entitled to receive transfers. Similarly, I include the "number of years of protected leave" and the interaction "number of years of paid and protected leave" in the "long run" regression. I control for age of the child, childcare availability[12] and unemployment rate. I include the level of education, though not necessary,

[10] Not all parental leaves are actually expired. In France, Spain, Austria, and Finland, parental leave need to be taken immediately following the childbirth; but, for example, in Italy it can be taken until the age 8 of the child. However, I only focus on the first transition from non-work to work.

[11] A fractional logit regression has also been used, since it better fits my outcome variable which is restricted between 0 and 1 (Wooldridge, 2002). But betas are more difficult to interpret. However, using a fractional logit regression, directions and significance of the estimated effects are confirmed.

[12] Available places in public crèches every 100 children (depending on the age of the child: infants from 4 to 30 months, pre-primary children from 31 months to 50).

to observe the relative importance of institutional variables compared to human capital variables. Institutional characteristics seem to be important determinants of the return to work for mothers in Europe, also compared with human capital characteristics. In Table 9, we observe that the possibility of transfers during the leave increases the probability of staying at home by around 35 percentage points for women in the constructed sample. There is no significant difference, in the short run, between return to work for women with and without protected leave. But, in the long run, we observe that women from countries with longer parental leave are more likely to work. Passing from 1 year leave to 2 years leave increases the probability to be at work by 4 percentage points in the constructed sample.

Heterogeneous effects by level of education are also interesting from a policy point of view. By estimating the model separately by level of education, we find that the effect of paid leave on the probability of staying at home when the child is younger than 3 is significant for all women, but seems stronger for highly educated women, probably because they face a higher opportunity cost from not working. Their probability of staying at home is increased by 38.2 percentage points, while it is increased by 33.7 for women with secondary schooling and by 32.9 for women with lower education. The positive effect of the length of the leave on working, in the long run, is instead driven by lower educated mothers: one year more of job protection increases their probability of being at work by 9 percentage points in the constructed sample while there is no significant effect for higher educated women. For countries with relatively short leaves and a relatively high percentage of lower educated women (like Italy, Spain, and Greece, see bottom Table 4), longer leave policies would work to reinforce labor market attachment of lower educated mothers.

8 Sensitivity Analysis

In this section, I perform some further analyses to check how sensitive results are to different choices I could make. I first replicate the analyses changing the way I introduce the time dependence in the model. Then I consider an alternative model where I directly include human capital characteristics instead of the potential wage obtained through the Heckman selection model. In fact, the high values of estimated *rhos* in Table 3 suggest some misspecification of the model. Finally, in order to assure external validity of the results, I study how the probability of being in the sample (having a child and being previously employed) is associated with the characteristics of statutory leave.

Table 10 summarizes the final results (the effects of length and generosity of statutory leave obtained with the simulated samples) when I estimate the hazard of returning to work including different regressors from the ones defined in Sections 3 and 4. The 1st panel of Table 10 shows the final results presented in Section 7 in order to make the comparison easier with the “new” results. Instead of considering age of the child and its square, I include two dummy variables which indicate the first and the second year of life of the child, with the excluded category indicating when the child is older than 2. This specification seems to fit the data better for Austria and Finland, where the probability of being at work is significantly higher when the child is 3 than before. In the final estimations (Table 7), we have found, for these two countries, a positive but weak dependence on time. However, final results do not change (Table 10, 2nd panel). The positive effect on the probability of working, when the child is older than 3, is slightly smaller and less significant, which may be due to the fact that the model fits the data less for the remaining 8 countries. If I keep the “best” specification for each country and generate the two simulated samples, I still get the same results, more precisely estimated (3rd panel of Table 10). If I go for a less parsimonious specification,

including age of the mother at birth, its square and level of education (instead of potential wage), I still get the same results (4th panel, Table 10).

Can these results be generalized? For each country, I select new mothers, previously employed, with similar personal and household characteristics. Suppose that in countries with long and generous statutory leave family-oriented women are more likely to decide jointly to work and have a child. This would imply an average slower return to work estimated from countries characterized by long and generous leave policies. Thinking about the final results (Table 9), this would mean overestimating the negative effect of statutory leave on work when the child is aged 3 or younger, and underestimating the positive effect when the child is older than 3.

In order to study the selection process of the sample in different countries, I employ an empirical strategy which resembles the one used for the main analysis. I select all women aged 21-45 from the 10 countries: the probability of entering the "new-mothers-previously-employed" sample in any given year *t* is 0.05, while the percentage of women entering the sample sometime during the panel is 18.5%. The percentage of women varies from a minimum of 14.6% in Greece to a maximum of 22.9% in Belgium. Separately for each country, I estimate the probability of being in the sample, taking into account the same personal and household characteristics as before. I then predict the probability of being in the sample for a standardized group of women with different ages (25, 30, and 35), different levels of education (tertiary, secondary, and less than secondary) and different fertility history (with and without children). I finally pool the observations and observe that no significant correlation between the characteristics of statutory leave and the probability of being in the sample is found (Table 11).

9 Conclusions

The aim of this paper is to investigate empirically the effect of statutory leave on European mothers' post-birth employment. I first analyze the return to work separately by country: women with higher potential wages return more quickly, while women with higher family incomes return to work at a slower rate. The impact of human capital characteristics seems to be relatively larger in Italy, Spain and Greece while smaller in Austria and Finland, where parental leave arrangements are more generous.

In order to generalize the results, I match women with similar human capital characteristics and fertility history from different countries and, consequently, under different parental leave regulations. Exploiting the variability in policies offered by the EU countries, in terms of length of the leave and transfers during the leave-period, I study the influence of statutory parental leave on the probability for the mother of being at work, at different ages of the child. Institutional characteristics seem to be important determinants of the return to work for mothers in Europe, also when compared with human capital characteristics. If the policy interest is in increasing female labour market participation, I find that longer periods of job protection make lower educated women more likely to return to work after childbirth. When the policy interest is in children's development, women in countries with paid leave are observed to spend more time at home with the child, regardless of the level of education.

While it is admittedly difficult to define similar women in different countries, cross-country comparison can help us understand the constraints that individuals face in different

institutional contexts and explain part of the large behavioural differences observed across Europe.

Two further characteristics of statutory parental leave merit attention, both from a "child" and a "mother's career" point of view: the possibility to take the leave on a part-time basis and the possibility to share the leave with the father. This is left for future research.

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References

Baker M. and Milligan K. (2005), *How Does Job-protected Maternity Leave Affect Mothers' Employment and Infant Health?*, NBER Working Paper no 11135.

Baker M. and Milligan K. (2008), *Maternal Employment, Breastfeeding, and Health: Evidence form Maternity Leave Mandates*, Journal of Health Economics, 24: 871-887.

Baum C. L. (2003), *Does Early Maternal Employment Harm Child Development? An Analysis of the Potential Benefits of Leave Taking,* Journal of Labor Economics, 21: 409-448.

Berger L. M., Hill J., and Waldfogel J. (2005), *Maternity Leave, Early Maternal Employment and Child Health and Development in the US*, The Economic Journal, 115: F29-F47.

Berger L.M. and Waldfogel J. (2004), *Maternity Leave and the Employment of New Mothers in the United States*, Journal of Population Economics, 17: 331-349.

Burdett K., Kiefer N. M., and Sharma S. (1985), *Layoffs and Duration Dependence in a Model of Turnover*, Journal of Econometrics, 28: 51-70.

Council of the European Union (2000), *Presidency Conclusions. Lisbon European Council*, 23-24 March 2000.

De Henau J., Meulders D., and O'Dorchai S. (2008), *Parents' Care and Career: Comparing Parental Leave Policies*, in Del Boca D. and Wetzels C. *Social Policies, Labour Markets and Motherhood: a comparative Analysis of European Countries*, Cambridge University Press, Cambridge, Massachusetts, 63-106.

Ermisch J. and Francesconi M. (2002), *The Effect of Parents' Employment on Children's Educational Attainment*, Working Paper of Institute for Social and Economic Research no 21, University of Essex.

Ermisch J. F. and Wright R. E. (1991), *Employment Dynamics Among British Single Mothers*, Oxford Bulletin of Economics and Statistics 53: 99-122.

Gregg P., Washbrook E., Propper C., and Burgess S. (2005), *The Effects of a Mother's Return to Work Decision on Child Development in the UK*, The Economic Journal, 115: F48-F80.

Gustaffson S., Wetzels C., and Vlasblom J.D., and Dex S. (1996), *Women's Labor Force Transitions in Connection with Childbirth: A Panel Comparison between Germany, Sweden and Great Britain*, Journal of Population Economics 9: 223-246.

Gutierrez-Domenech M. (2005), *Employment after Motherhood: a European Comparison,* Labour Economics, 12: 99-123.

Han W. J., Ruhm C., and Waldfogel J. (2007), *Parental Leave Policies and Parents' Employment and Leave-Taking*, IZA Discussion Paper no 3244.

Hashimoto M., Percy R., Schoellner T., and Weinberg B. A. (2004), *The Long and the Short of It: Maternity Leave Coverage and Women's Labor Market Outcomes*, IZA

Discussion Paper no 1207.
James-Burdumy S. (2005), *The Effect of Maternal Labor Force Participation on Child Development*, Journal of Labor Economics, 23: 177-211.
Jenkins S. (2004), *Survival Analysis*, mimeo.
Klerman J. A. and Leibowitz A. (1994), *The Work-Employment Distinction among New Mothers*, The Journal of Human Resources, 29: 277-303.
Klerman J. A. and Leibowitz A. (1997), *Labor Supply Effects of State Maternity Leave Legislation*, in Blau F. D. and Ehrenberg R. G. (eds) *Gender and Family Issues in the Workplace*, Russell Sage Foundation, New York, 65-91.
Lancaster T. (1979), *Econometric Methods for the Duration of Unemployment*, Econometrica 47: 939-956.
Moulton B. R. (1990), *An Illustration of a Pitfall in Estimating the Effects of Aggregate Variables on Micro Units*, The Review of Economics and Statistics, 72: 34-338.
Nickell S. (1979), *Estimating the Probability of Leaving Unemployment*, Econometrica 47: 1249-1266.
Primo D. M., Jacobsmeier M. L., and Milyo J. (2007), *Estimating the Impact of State Policies and Institutions with Mixed-Level Data*, State Politics & Policy Quarterly, 7: 446-459.
Ruhm C. J. (1998), *The Economic Consequences of Parental Leave Mandates: Lessons from Europe*, Quartely Journal of Economics, 112: 258-317.
Ruhm C. J. (2004), *Parental Employment and Child Cognitive Development*, The Journal of Human Resources, 39: 155-192.
Tanaka S. (2005), *Parental Leave and Child Health Across OECD Countries*, The Economic Journal, 115: F7-F28.
Wooldridge J.M. (2002), Econometric Analysis of Cross Section and Panel Data, The MIT Press, Cambridge, Massachusetts, 661-663.

Tables

Table 1: Statutory Maternity Leave and Parental Leave in Europe

	Maternity leave		Parental leave			
	Period (weeks)	Average replacement rate (%)	Total leave duration (months)	Paid period (% of the total leave)	Father's period (months)	Transferable months
IT	22	80	11	55	6	0
DK	18	62	11	70	0	11
IE	18	70	6.5	0	3.25	0
UK	18	43	8	0	4	0
FI	18	66	33	100	0	33
PT	17	100	6	8	3	0
EL	17	50	7	0	3.5	0
ES	16	100	36	0	0	36
FR	16	100	36	100	0	36
LU	16	100	12	100	6	0
NL	16	100	6	0	3	0
AT	16	100	24	100	6	18
BE	15	77	6	100	3	0
GE	14	100	36	67	0	36
SE	14	80	18	79	2	12

Source: De Henau, Meulders and O'Dorchai (2008).

Table 2: Public Childcare in Europe

	Infants (younger than 3 years old)			Pre school aged children (older than 3 years old)		
	Coverage (%)[a]	Public funding (%)[b]	Opening hours (per day)[c]	Coverage (%)[a]	Public funding (%)[b]	Opening hours (per day)[c]
DK	55	75	10.5	90	75	10.5
SE	40	85	11	72	85	11
FR	39	78	10	87	100	8
BE	30	83	9	99	100	7
FI	23	85	10	42	85	10
GE	9	82	10	73	82	6
PT	12	80	7	72	100	5
AT	10	82	7	70	82	6
IT	6	80	10	87	91	8
LU	3	83	9	76	100	5
EL	3	80	9	48	100	4
ES	5	80	5	77	100	5
IE	2	100	9	50	100	4
NL	2	65	10	66	100	7
UK	2	94	8	60	100	5

Notes: [a] Percentage of slots per 100 children. [b] Percentage of costs covered by public funding. [c] Number of hours covered per day in European countries. Source: De Henau, Meulders and O'Dorchai (2008).

Table 3: Earnings Equations (Finland, UK, Ireland, Belgium, Austria)

	Finland	UK	Ireland	Belgium	Austria
Log wage					
Age	0.10	0.98***	0.50***	0.37***	0.96***
Age square	0.01	-0.14***	-0.05***	-0.03***	-0.12***
Tertiary ed.	0.15***	0.19***	0.32***	0.33***	0.22***
Secondary ed.	0.02*	0.14***	0.05***	0.13***	0.07***
Constant	2.02***	0.32***	0.89***	0.99***	0.28***
Selection					
Age	2.43***	2.03***	2.93***	4.36***	1.40***
Age square	-0.28***	-0.25***	-0.42***	-0.60***	-0.19***
Tertiary ed.	0.44***	0.19***	1.01***	1.14***	0.81***
Secondary ed.	0.10**	0.06**	0.71***	0.44***	0.43***
Married	0.28***	0.36***	0.07*	0.42***	-0.16***
Cohabitant	0.23***	0.34***	0.27***	0.55***	0.24***
Income	-0.02***	-0.00***	-0.01***	-0.01***	-0.01***
One child	-0.34***	-0.99***	-0.54***	-0.31***	-0.11**
More children	-0.24***	-1.38***	-1.04***	-0.62***	-0.54***
Constant	-4.36***	-2.83***	-4.44***	-7.11***	-1.74***
Time dummies	yes	yes	yes	yes	yes
Region dummies	yes	yes	yes	yes	yes
Rho	-0.90	-0.57	-0.62	0.30	-0.79
Lambda	-0.28***	-0.21***	-0.26***	0.07***	-0.33***
Observations	10,378	19,289	11,959	11,246	10,737
Descriptives					
Age	30.7	31.0	30.4	31.9	30.3
Low ed.	31.3%	50.3%	40.1%	27.2%	33.8%
Secondary ed.	35.6%	16.1%	44.4%	33.5%	59.2%
Tertiary ed.	33.1%	33.6%	15.6%	39.2%	7.0%

Notes: Heckman regressions (*** significant at 1% level, **at 5%, * at 10%). Region and year dummies included but not reported.

Table 4: Earnings Equations (France, Italy, Greece, Spain, Portugal)

	France	Italy	Greece	Spain	Portugal
Log wage					
Age	0.77***	0.13***	0.98***	0.43***	-0.04
Age square	-0.09***	0.00	-0.11***	-0.03***	-0.02***
Tertiary ed.	0.45***	0.41***	0.52***	0.51***	0.93***
Secondary ed.	0.12***	0.19***	0.21***	0.21***	0.45***
Constant	0.35***	1.36***	-0.73***	0.61***	1.06***
Selection					
Age	3.72***	2.72***	3.10***	2.92***	3.41***
Age square	-0.47***	-0.35***	-0.40***	-0.38***	-0.49***
Tertiary ed.	0.53***	0.84***	0.91***	0.85***	1.07***
Secondary ed.	0.42***	0.47***	0.31***	0.21***	0.28***
Married	0.10***	-0.01	-0.34***	-0.19***	0.20***
Cohabitant	0.16***	0.23***	0.12	0.08*	-0.06
Income	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***
One child	-0.10**	-0.30***	-0.25***	-0.39***	-0.05
More children	-0.66***	-0.53***	-0.44***	-0.69***	-0.46***
Constant	-6.80***	-5.11***	-5.55***	-4.96***	-5.57***
Time dummies	yes	yes	yes	yes	yes
Region dummies	yes	yes	yes	yes	yes
Rho	-0.23	-0.36	0.37	-0.10	-0.36
Lambda	-0.09***	-0.11***	0.13***	-0.04**	-0.13***
Observations	22,542	31,380	17,579	28,635	19,136
Descriptives					
Age	31.0	30.5	30.1	30.0	29.9
Low ed.	30.7%	50.3%	41.4%	52.1%	73.8%
Secondary ed.	35.9%	43.8%	37.0%	29.7%	18.9%
Tertiary ed.	33.4%	5.9%	21.7%	18.3%	7.3%

Notes: Heckman regressions (*** significant at 1% level, **at 5%, * at 10%). Region and year dummies included but not reported.

Table 5: Descriptive Statistics

	Work (%)	Pot. wage (PPP)	HH income (PPP)	First childbirth (%)	Unempl. rate (%)	Number of spells	Number of month-observations
FI	24.7	7.02	15,615	43.0	11.1	526	9,544
UK	43.3	8.38	20,826	49.9	6.8	879	17,153
IE	34.9	7.87	20,368	34.9	10.4	644	13,531
BE	57.8	7.60	24,039	43.4	10.1	519	5,633
AT	22.1	7.66	27,702	51.4	4.0	399	11,496
FR	43.3	8.01	21,314	47.4	10.8	893	14,637
IT	48.1	7.02	18,294	56.9	11.7	896	13,318
EL	39.2	4.31	16,959	53.2	9.8	543	10,762
ES	27.8	6.29	17,719	54.9	19.8	911	20,610
PT	60.4	4.04	13,679	58.0	5.5	773	7,688

Notes: Descriptive statistics of the samples, the 4th month after childbirth.

Table 6: Survival Times

	First quartile survival time (months)	Median survival time (months)	Third quartile survival time (months)
Finland	9	22	42
UK	4	10	72
Ireland	4	35	-
Belgium	4	4	22
Austria	11	36	90
France	4	14	75
Italy	4	7	-
Greece	4	19	-
Spain	4	46	-
Portugal	4	4	22

Table 7: Model Estimates (Finland, UK, Ireland, Belgium, Austria)

	Finland	UK	Ireland	Belgium	Austria
Age of the child (years)	0.04 (0.19)	-1.18*** (0.16)	-1.25*** (0.23)	-1.37*** (0.26)	0.05 (0.20)
Age of the child square (years)	0.05 (0.04)	0.21*** (0.02)	0.20*** (0.03)	0.20*** (0.04)	0.06* (0.03)
Potential wage (PPP)	0.42** (0.19)	0.95*** (0.11)	0.77*** (0.13)	0.94*** (0.16)	0.31** (0.16)
HH income (/10,000 PPP)	-0.14** (0.07)	-0.19*** (0.07)	-0.15 (0.10)	-0.04 (0.07)	-0.10 (0.06)
First childbirth	-0.75*** (0.17)	1.85*** (0.21)	2.02*** (0.30)	0.97*** (0.26)	1.07*** (0.31)
Another child	-0.73** (0.28)	0.22 (0.30)	0.29 (0.43)	1.15** (0.46)	-0.27 (0.34)
Unemployment rate	-0.10*** (0.03)	0.06 (0.05)	0.07 (0.06)	-0.08* (0.04)	-0.32* (0.18)
EC directive		0.65** (0.28)	0.53 (0.45)		
Constant	-4.51*** (1.41)	-10.69*** (1.07)	-9.94*** (1.34)	-6.91*** (1.29)	-5.86*** (1.51)
Observations	9,544	17,153	13,531	5,633	11,496

Notes: Discrete hazard model; standard errors in brackets (*** significant at 1% level, **at 5%, * at 10%).

Table 8: Model Estimates (France, Italy, Greece, Spain, Portugal)

	France	Italy	Greece	Spain	Portugal
Age of the child (years)	-0.68***	-1.37***	-1.35***	-0.74***	-0.97***
	(0.16)	(0.19)	(0.23)	(0.18)	(0.21)
Age of the child square (years)	0.13***	0.19***	0.21***	0.13***	0.14***
	(0.02)	(0.03)	(0.04)	(0.03)	(0.04)
Potential wage (PPP)	0.49***	0.89***	1.19***	1.01***	0.65***
	(0.07)	(0.12)	(0.16)	(0.09)	(0.09)
HH income (/10,000 PPP)	-0.17**	-0.23**	-0.19*	-0.17*	-0.17
	(0.07)	(0.09)	(0.10)	(0.10)	(0.11)
First childbirth	2.66***	0.55**	0.48*	0.82***	0.48**
	(0.24)	(0.22)	(0.29)	(0.25)	(0.24)
Another child	-1.72***	0.78	0.67	-0.30	0.34
	(0.53)	(0.49)	(0.45)	(0.48)	(0.47)
Unemployment rate	0.02	-0.03*	0.03	-0.05**	-0.04
	(0.05)	(0.02)	(0.07)	(0.02)	(0.07)
Constant	-6.88***	-6.84***	-7.38***	-9.46***	-2.34***
	(0.85)	(0.94)	(0.97)	(0.85)	(0.58)
Observations	14,637	13,318	10,762	20,610	7,688

Notes: Discrete hazard model; standard errors in brackets (*** significant at 1% level, **at 5%, * at 10%).

Table 9: Effects of Statutory Leave Characteristics on the Probability of Working (Simulated Samples)

	Short run Mothers of children 0-3 years old	Long run Mothers of children 4-5 years old
Tertiary education	29.5*** (7.4)	20.5** (7.8)
Secondary education	11.8*** (3.0)	10.0** (3.9)
On protected leave	1.6 (10.8)	
On protected and paid leave	-34.9** (11.3)	
Years of protected leave		4.0** (1.7)
Years of paid and protected leave		-0.7 (3.6)
Age of the child (years)	7.9 (4.9)	3.9** (1.4)
Childcare availability	0.1 (0.1)	0.3** (0.1)
Unemployment	-2.6 (1.8)	-3.0** (1.0)
Constant	64.6*** (16.0)	58.6*** (11.8)
Observations	2,970	2,160

Notes: OLS regressions (dependent variable expressed in percentage points); standard errors in brackets, adjusted for clustered observations (*** significant at 1% level, **at 5%, * at 10%).

Table 10: Sensitivity Analysis

	Mothers of children 0-3 years old	Mothers of children 4-5 years old
Final results (Table 9)		
Protected leave	1.6	4.0**
	(10.8)	(1.7)
Protected and paid leave	-34.9**	-0.7
	(11.3)	(3.6)
First and second year dummies		
Protected leave	1.6	3.1*
	(10.6)	(1.6)
Protected and paid leave	-36.0**	1.2
	(11.0)	(2.8)
Mixed		
Protected leave	-2.1	4.3**
	(10.5)	(1.5)
Protected and paid leave	-36.0**	2.2
	(11.0)	(3.0)
Human capital characteristics		
Protected leave	3.9	5.0***
	(9.9)	(1.4)
Protected and paid leave	-34.6**	-0.9
	(10.9)	(3.6)

Notes: OLS regression (dependent variable expressed in percentage points); standard errors in brackets, adjusted for clustered observations (*** significant at 1% level, **at 5%, * at 10%). Age of the child, childcare availability, and unemployment rate are included in the model but coefficients are not reported.

Table 11: Probability of Being in the Sample

Probability of being in the sample	
Protected leave	0.34
(years)	(0.98)
Protected and paid leave	0.73
(years)	(0.98)
Childcare availability	0.03
	(0.05)
Unemployment	-0.03
	(0.21)
Constant	8.93***
	(1.80)
Observations	270

Notes: Logistic regression; standard errors in brackets, adjusted for clustered observations (*** significant at 1% level, **at 5%, * at 10%).

Figure 1: Survivor functions, by Country and level of Education