Labor Market Performance and the Timing of Births. A Comparative Analysis across European Countries.

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Abstract

During the last two decades total fertility rates in Europe have plummeted, particularly in Southern Europe. I use the 1994-2000 waves of the European Community Household panel for 13 European countries to study how varying institutional and economic indicators across countries account for differences in the timing of the first three births. Female unemployment has a negative impact, stronger after the mid-eighties, in transitions to all parities. Maternity benefits boost transitions to first and second births. Large government employment has a positive impact on first births while part-time availability is crucial for second and third birth transitions. Later, I add individual employment history to the original data to estimate transitions to second and third births. Women's public sector and/or part-time employment provide stability and flexibility, and, as a result, increase hazard to second and third births. Long-term unemployment spells have lasting negative effect. Spouse's education and job stability are critical in Spain and Italy.

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1. Introduction

Two key developments characterize the demographic evolution of advanced countries during the last two decades. First, childbearing has been postponed and total fertility rates have plummeted, particularly in Southern Europe, where total fertility rate averaged around 2.5 by the mid 1970s but only about 1.25 by the end of the 1990s. Second, reversing standard trends, fertility rates and both female participation and female employment rates have become positively correlated across OECD countries since the 1980s. [While in countries with high female participation, such as the United States, New Zealand or Norway, fertility rates have stabilized closer to the replacement level of 2.1; in countries with lower levels of participation, such as Spain or Italy, fertility rates are approaching the unity level.]

Using the 1994-2000 waves of the European Community Household Panel (ECHP), I show that the labor market arrangements across European countries and the corresponding level of employment uncertainty during the last years explain, to a great extent, the cross-country variation in the timing of the first three births, and therefore the demographic trends in Europe. This paper constitutes the first multi-country analysis of spacing of births across Europe.

I estimate Cox proportional hazard models to undertake two types of analysis of the timing of births. The first part of the paper focuses on the effect of time-varying institutional and economic indicators across countries (such as maternity benefits, size of government, unemployment rates, part-time availability, prevalence of self-employment) to account for the underlying characteristics of the labor market where a woman lives. The second part of the paper also includes individual labor market information both of the woman and her spouse.

I find both aggregate and household economic performance to be crucial in explaining differences in the spacing of births. First, economic uncertainty in the form of aggregate unemployment has a negative impact, stronger after the mid-eighties, in transitions to all parities. Further, a woman's long-term unemployment experience has a lasting negative effect on her own childbearing history.

Second, stability and time-flexibility are valuable job characteristics for planning the timing of births, particularly in the midst of the turbulent times experienced by European labor markets

during the 1980s and 1990s. Women in countries with a large government sector, such as those in Northern Europe (and, to some extent, France), whose liberal leave programs and job security reduce the opportunity costs of childbearing, transit faster to first births. Flexible labor markets that accommodate different degrees of participation thanks to a wide availability of part-time jobs, such the Dutch and British markets, allow women to transit faster to higher parities. Spouse's job stability is critical in Southern Europe, where both female labor force participation is relatively low and short-term contracts among young workers have become the norm in recent years. Third, maternity benefits moderately boost transitions to first and second births. Finally, individual education slows down the first birth, speeds up the second birth and has a nonlinear effect on the third.

Section 2 presents the analytical framework of the paper. Section 3 lays out the methodology and the data used. Section 4 discusses the estimated effect of aggregate economic conditions in the transition to first, second and third births. Section 5 presents results that include individual employment data for the timing of second and third births. The paper concludes with some comments on further ongoing research and policy implications.

2. Theoretical Framework

During the last two decades, OECD countries have experienced two fundamental demographic transformations. On the one hand, the average total fertility rate in the OECD went down from 2.9 in 1960 to 2.0 in 1975 and then dropped to 1.6 in the late 1990s. As is apparent from Figure 1, within that downward trend, cross-country variance has remained substantial. In the US and in Spain total fertility rates have moved down from around 3 children in the early 1960s to, respectively, around the replacement level of 2.1 or to the lowest in the world, around 1.15 in 1997. On the other hand, fertility rates and both female participation and female employment rates have become positively correlated across OECD countries since the 1980s –a development that goes against standard textbook predictions on fertility decisions.

Preferences. Female labor force participation rates in the OECD climbed from 41% in 1960 to almost 48% in 1975 and then to 64% by the late 1990s. As women participate more intensively in the labor market, their opportunity costs increase and they trade-off children for less time-

demanding alternatives (Butz and Ward 1979, Becker 1981, Galor and Weil 1996). Thus, one obvious explanation for the extraordinary reduction in the number of children per women is a change in preferences in couples toward smaller families, larger investments per child and dual-careers.

Table 1 presents data on the reported ideal number of children by men and women of different ages of several OECD countries.[1] The data shows indeed a decline in the preferred number of children as we move from old to young cohort groups. But the fall in stated preferences for ideal family size (from 2.4 to 2.3) does not match the actual decline in fertility rates. In all cases, except for Eastern Germany, the ideal number of children is above 2 and, setting aside Ireland, the distribution is quite of homogeneous across European countries with an average around 2.35, not far from the rest of the OECD countries. More recent data from the 2001 Eurobarometer show the average for women 20-34 in the 15 European Union countries around replacement level 2.1, with Austria and Germany already below 2. Notice also that since the number of ideal children is relatively uniform across countries, preferences alone cannot explain the wide variation in fertility rates observed in Figure 1.

Labor Market Institutions and Economic Uncertainty. In the absence of substantial heterogeneity in preferences on the ideal number of children, the observed cross-country variation in the number of children women bear –and in their timing of births – must be related to the economic and institutional constraints that couples face in their attempt to combine work and family.

Families' fertility choices are conditional on how labor market institutions affect their expected income and accommodate women's labor force transitions in connection to childbirth. The wide variety of labor market arrangements across Europe has already been well documented (Gustafsson et al. 1994, Esping-Andersen 1999, Pampel 2001, Adsera 2004). Those differences, combined with a sharp increase of unemployment and economic uncertainty, have become more relevant for fertility decisions during 1980s and 1990s as European labor markets

[1]Data comes from the International Social Survey Program (ISSP): Family and Changing Gender Roles survey conducted in 1994.

have witnessed a fast entry in the market by women committed to dual the role of mother-worker.

By both reducing expected income and increasing uncertainty, unemployment influences household formation and fertility decisions. In general, temporary spells of unemployment that entail a reduction in a woman's opportunity cost of time may be good times to bear children (Butz and Ward 1979, Galor and Weil 1996). However, the fact that European unemployment during the last two decades has been persistent, and particularly intense not only for female but also for young male workers, modifies those expectations (Wright 1989, Macunovich 1995). First, a weak commitment by women to a volatile labor market may lead to large life-income losses. Second, the lack of employment stability among men has a vital effect on expected household income. The rise in unemployment rates has been particularly acute in Southern European countries where mature workers hold permanent and highly protected jobs, while young cohorts experience high turnover rates across precarious jobs in the lower end of a dual market. In an attempt to increase lifetime income through early skill-acquisition and to minimize unemployment risk, young women postpone (or abandon) childbearing.[2] Additionally, job market uncertainty and increasing demands of skills may exacerbate the shift toward "quality" of children as parents further limit their offspring and invest more per child to improve their future outlook (Becker, Murphy and Tamura 1990).

In addition to low unemployment rates, certain types of contractual arrangements minimize women's uncertainty when faced with the decision of bearing a child and, potentially, dropping out from the market temporarily. Where part-time arrangements are easily available, women can accommodate different degrees of participation, make their dual roles compatible and increase their certainty of re-employment if they decide to temporarily withdraw from the market –resulting in lower skill depreciation and income losses. Important differences in part-time regulation across Europe are partly responsible for the large differences in the shares of part-time over total employment presented in Appendix A. Overall presence of part-time in

[2] In 1998, Italy and Spain had the highest proportion in the OECD of 25-29 year-old women studying, and not in the labor force (OECD 2001).

total employment ranges from close to 40% in the Netherlands, to over 20% in the UK and Sweden until a low 7% in Southern Europe.

Finally, the extent to which jobs are protected, and, therefore, eliminate employment uncertainty after childbirth, shapes fertility rates as well. Here, two institutional structures play a key role. On the one hand, even if in Europe most mature workers hold permanent positions protected by high firing costs, young workers have more unstable jobs. Lately, this has been predominantly the case in Southern Europe where, in the presence of high unemployment, young workers were either consigned to precarious short-term contracts or resorted to self-employment. The lack of tenure, benefits and stable earnings that characterize those positions make long-run family financial planning difficult as well as greatly increase expected life-time income losses from women's temporary withdrawals of the labor market. On the other hand, government employment constitutes in Europe a unique source of stable jobs that come, hand in hand, with liberal and accommodating parental leave and work schedules. Even if the relevance of public employment is different across genders, since relative pay in the public sector is lower and men do not benefit so extensively from leave programs as women, a spouse with a public sector job is a guarantee of income stability for a household. In countries with a large government sector, such as those in Northern Europe (and, to some extent, France), women predominantly participate before childbirth and easily return to the labor market as benefits stop (Gustafsson et al. 1996).

As it should become apparent from the empirical analysis in the rest of the paper, the positive cross-country relation between female labor force participation and fertility in the OECD since the mid-eighties is a result of how labor arrangements jointly mold fertility and participation decisions. Fertility rates in countries with high female participation, and, either flexible employment, such as the United States, New Zealand or large government sectors, such as Norway, have stabilized close to replacement rates. By contrast, in countries with lower levels of participation, such as Spain or Italy, small government sectors and rigid markets have not tapered the uncertainty of young workers in the presence of rampant unemployment. In those countries, fertility rates are approaching the unity level (Adsera 2004).

3. Empirical Strategy

3.1 Timing of Births

To understand the importance of both personal and aggregate economic conditions in explaining recent changes in childbearing behavior of European couples, I use individual level data to estimate Cox proportional hazard models of the timing of births.

Figure 1.2 presents Kaplan Meier nonparametric estimates of the transition to first birth of women in European Union countries. Time is measured in months since age 16 and the graph records the proportion of women that are still childless after a certain number of months. Data on individual fertility histories is obtained from the first seven waves (1994-2000) of the European Community Household Panel Survey (ECHP). The graph presents estimates for 13 countries and separately for women born before 1963 or on/after that year until they reach age 35. Two important observations are drawn from the comparison of both graphs. First, while around half of women born before 1963 were mothers by age 27, the age was close to 30 for those born after 1963. Thus, the graph indicates a substantial postponement of motherhood in the youngest generation. Second, notwithstanding cross-country differences in the timing of first births for those born before 1963, the variance has widened for the younger generation, even as they reach age 35. Analysis of transitions to higher parities, as discussed latter in the paper, denotes that a large cross-country variance persists in the spacing of subsequent births as well as in the proportion of women who never transit to either a second or a third child.

Comparing the timing of births across countries for different parities provides a rich picture of the underlying changes in fertility rates that, otherwise, synthetic indexes, such as age-specific or total fertility rates, may conceal. An age-specific fertility rate is the average number of children per year born to women in a particular age-group independent of the parity. Thus, even though fertility rates for women aged 30-34 were similar in Spain and the US – the two countries in the extremes of the distribution across the OECD- by the end of the 1990s, many Spaniards in their early thirties were having their first babies while American were already moving to higher parities. Similarly, the total fertility rate measures the total number of children a woman gives birth to in her lifetime if the prevailing age-specific rates remain unchanged. Sharp changes in the timing of children affect the total fertility rate indicator due to

temporary over-estimations of changes in the actual number of children per woman ("tempo effect"). Nonetheless, demographers expect women who become mothers later to bear fewer children by the end of their fertile-life. The observed cross-country variation in spacing subsequent births corroborates this conclusion. In section 5, Kaplan-Meier estimates show how women in countries with very low fertility rates, who overall were older first-time mothers, transit on average more slowly to second births. Looking at the timing of each birth and the proportion of women who do not transit to subsequent parities, it is apparent that the cross-country variation in fertility rates is not bound to disappear in the near future and, even if fertility rates for older women were to slightly recover in countries with very low fertility as the timing of childbearing stabilizes, demographers recognize that it seems unlikely fertility rates will rebound to the replacement level (Lesthaeghe and Moors 2000, Boongarts 2001).[3] The analysis of the economic and institutional constraints that couples face in the spacing their children provides an excellent understanding of fertility differences across European nations and how persistent are they expected to be in changing economic environments.

3.2 Methodology

I use Cox proportional hazard models to analyze timing of births across Europe. For women i = 1,...,N, who each enter a state (e.g. first birth) at time t=0, the (instantaneous) hazard rate function for ith person at time t>0 is assumed to take the proportional hazards form

$$\lambda_{it} = \lambda_0(t) \exp(X'_{it} \beta) \qquad (1)$$

where $\lambda_0(t)$ is the baseline hazard function which may take a parametric or non-parametric form (see below); exp (.) is the exponential function; X_{it} is a vector of covariates summarizing observed differences between individuals at time t; and β is a vector of parameters to be estimated. I use a grouped robust variance as estimated by Lin and Wei (1989) to account for unobserved heterogeneity. The dependent variable in all the estimates is time to a birth from either the previous birth or age 16 in the case of the first birth. Time is measured in months.

[3] The ensemble of changes in age at first birth jointly with delays in marriage, and increases in extra-marital births and in cohabitation is known among demographers as the "second demographic transition" (Van de Kaa 1987). Changes have been faster in those countries where they started later, such as in Southern Europe, possibly due to information flowing from their neighbors (Becker and Murphy 2000).

There is a large literature on spacing of births for different countries, starting with the seminal work of Newman and McCulloch (1984). However, this paper constitutes the first multi-country study of its kind. I conduct two types of analysis. The first part of the paper focuses on the underlying characteristics of the labor market where each woman lives. The second part of the paper also includes individual labor market information.

3.3 Data

I use the 1994-2000 waves of the European Community Household Panel Survey (ECHP), a unique dataset produced by the European Union Statistical Office (Eurostat), that presents comparable micro-level (person/households) data on income, living conditions, demography, migration, housing, health and work, for over 60,000 households across the 15 European Union member states. The dataset also includes observations from the household panel from Luxembourg (PSELL) and from the British household panel (BHPS). Since the interviews are conducted simultaneously across all countries and data from national household panels is homogenized to look as the rest of the ECHP, this is a particularly interesting dataset for conducting comparative studies and producing important policy recommendations. The survey does not include exact dates of birth for the children in Germany and Denmark. As a result these countries are not included here. The 13 countries considered are Netherlands, Belgium, Luxembourg, France, Greece, the UK, Ireland, Italy, Spain, Portugal, Austria, Finland, and Sweden.

4. The Timing of Births and Local Economic Conditions

4.1 Covariates

The first set of estimates in the paper focuses on how the underlying characteristics of the labor market of the country where a woman lives explain recent changes in the transition to the first three births. The sample includes only women who were 40 years old or under at the time of each interview and tracks them monthly from either age 16 when analyzing transition to motherhood or from the date of the previous birth. As a result, we have observations starting in 1969. Each transition to the first three births is studied separately. The sample contains 24,994 first births, 16,661 second births and 5,145 third births out of 50,789 women.

Among covariates considered only a few are specific to the individual and the rest are time varying institutional and economic indicators across countries and regions with the purpose to account for different institutional regimes and economic performance during the last decades.

(1) Personal Characteristics: I include covariates indicating foreign origin and birth outside the European Union as well as information on previous fertility history such as age at first birth. For the second birth, I control for the gender of the first child to see whether there is a gender preference. In the third birth estimates I include two covariates to control whether the two first-born were either two girls or two boys -this tests if a taste for variety increases the hazard to a third birth. Finally, instead of using aggregate levels of education in the country I add in each person's education given the marked time dimension of schooling at the individual level. The education or the student status of the individual at the time of each interview is available. I distinguish among those with less than upper secondary, upper secondary (the omitted category) and tertiary education. Unfortunately, a continuous variable of education such as years of schooling is not available. Further, the survey provides information about the time education was completed and whether or not the individual is still a student. As a result I have constructed a monthly time-varying variable that tracks the level of education of a woman in each particular month. Regular type of studies, such as high school, are assumed to be finished on the month of June of the year the surveyed person declares to have completed them. I expect the effect of education to vary for different parities, mostly by having a clear negative effect on transitions to first birth.

(2) Economic Conditions: Male and/or female unemployment rates in the country of residence are used to measure the underlying uncertainty in the labor market. Prevalence of self-employment, the share of public sector employment and part time availability (Appendix A includes cross-country descriptive data) as well as other time varying economic indicators such as income per capita and the weeks and replacement rate of maternity benefits in each country are also included. Part time availability is, in turn, interacted with female labor market participation to properly account for its relevance on female employment. Most data on the structure of the labor market was obtained from the OECD *Labour Force Statistics* and completed, whenever needed, using national official statistics. I gathered complete series for

1968-2001. Data on part-time employment, however, was only available for the period 1979-2001. As a result, when part-time is included in the estimates, the period of coverage is shorter. GDP per capita in purchasing power parity terms $1995 was obtained from the OECD *Economic Outlook*. The US Department of Health and Human Services regularly publishes *Social Security Programs Throughout the World*, a compendium of social legislation for most world countries. I combined that information with data from the OECD *Jobs Study* (1991), I.L.O (1985) and various issues of the OECD *Employment Outlook* to generate two annual series on maternity benefits since the late 1960s, one with the number of weeks of maternity leave and another with information on replacement rates, a percentage of previous earnings, during maternity leave. Time-varying economic conditions are lagged one year since fertility decisions are obviously taken some months prior to actual birth.

A set of testable hypothesis regarding aggregate labor market opportunities and fertility can be derived from observations in Section 2. Regions with lower unemployment rates, larger public sectors, more availability of part-time, more stable contracts and better provisions for maternity benefits or family allowances should be better environments for faster transitions to motherhood and higher parities.

4.2 Discussion

Tables 1.1 through 1.3 present estimates and simulations separately for the transition to first, second and third birth. In each table one column containing country dummies is added for within country comparisons. Before discussing the results, a simple look at the Figure 1.2 conveys why analyzing transition to births of different parities provides information on the underlying reasons that have lead to those sharp changes both in levels and in cross-country variance in total fertility rates introduced in the previous section.

4.2.1 First Births

Table 1.1 (a) presents estimates of the transition to first birth using the complete sample of 50,789 women starting at age 16. Foreign women transit faster to motherhood independent of their country of origin with the exception of those born after 1962 outside the European Union: they experience slower transitions to first birth than EU-born. As expected, education has a

linearly negative effect. Table 1.1 (b) adds both part time employment and its interaction with female labor force participation to the model estimated in Table 1.1 (a). As a result, the sample period is restricted to 1980-2001. Coefficients on the individual covariates are similar to those estimated in the longer sample.

In the previous section I argued that unemployment and economic uncertainty are key explanatory variables of the drastic changes in fertility. Both female and male unemployment rates, lagged one year, are included in different ways in Table 1.1 (a). Male unemployment enters negatively both for the sample of all women and for that of those born after 1962 (columns 1 and 4). Results are similar if female unemployment is included instead (columns 2, 3 and 5). To test whether there is a change in the relevance of unemployment within the estimating period, in column (2) I include an additional covariate for female unemployment from 1985 onwards. The coefficient of female unemployment turns positive and significant, as expected by an opportunity costs argument. But the coefficient for unemployment after 1985 is large, negative and highly significant. Unemployment since the mid-eighties has been less cyclical and has particularly affected workers of fertile ages. Interestingly, it is precisely in the mid 1980s, when fertility in Southern European countries, such as Spain, moved under European averages, that unemployment rates suffered the sharpest increases and became persistent. Figure 1.3 presents both total unemployment rates and unemployment rates of women 20 to 24 years of age in Spain during the sample period. Total unemployment started to increase by the beginning of the eighties and moved over the 20% mark twice, during the mid 1980s and the mid 1990s. The increase in young female unemployment was parallel but even sharper, to levels closer to 50%. Fertility rates for that age group have suffered the steepest declines.

In column (3) the coefficient on female labor market participation rates is positive and significant, while female unemployment continues to enter negatively. The positive coefficient on female activity matches the finding of a change in correlation between overall country fertility and female participation. As noted, since the mid eighties, those countries with higher female participation are also those with higher fertility rates -faster transitions to a first birth positively affect the total number of children by women. Finally, in column (5), rising

unemployment rates within a country also have a negative and significant impact in the speed of transition to motherhood. As expected, within-country increases in female participation also entail a delay in childbearing.

In table 1.1 (b) I include both female and male unemployment simultaneously. Female unemployment continues to have a negative impact. Yet male unemployment now enters positively. To better interpret these results, it is important to note that, throughout the last two decades, variance in female unemployment rates across Europe has been much lager than on male unemployment (Azmat, Guell and Manning 2004). Thus, female unemployment rates may explain a larger part of the cross-country variance in timing to first birth.

The coefficient for the weight of the public sector in overall employment is positive and significant in Tables 1.1 (a) and (b), except for the within-country estimates, where the coefficient is negative. Women in countries with large government sectors transit faster to motherhood than those with fewer opportunities of public employment. Two potential reasons account for this result. First, public sector employment often entails job-tenure in Europe. Second, benefits and leave for bureaucrats tend to be more generous than the national averages. Countries such as Norway, Denmark, Finland and Sweden, which have large states, generous maternity programs provide strong incentives for women to be employed full time before childbirth (Gustafsson et al.1996, Ronsen and Sundstrom 1996, Rosen 1996), specially in the public sector, which guarantees stable job prospects after childbirth.[4] The fact that, in those countries, childbearing and participation go together hand in hand explains, in part, the change in the cross-country correlation between participation and fertility from negative to positive across OECD countries since the mid 1980s (Boix 1997, Adsera 2004).[5]

[4] Gustafsson and Stafford (1994) note that, in Sweden, "simply working without children means that one loses out on extensive benefits, and simply having children without labor market attachment implies a low standard of living. Combining the influence of the tax system with child dependent benefits, the full effect of the Swedish system is to encourage fertility and a career lifetime commitment to the labor market by women."(p.342).
[5] Additionally, some statistics, particularly in Northern Europe, count some women on leave as employed, therefore boosting the level of employment and participation rates. Table 1 in Gustafsson and Jacobsson (1985) shows that, already in the early 1980s, 20% of female workers were absent in Sweden, including those in parental leave.

Table 1.1 (c) presents simulations of estimates of the joint effect of female unemployment and government employment in columns (2) and (3) of Table 1.1 (b). The combined effect of unemployment and public sector is undeniably large, and it has become even more relevant for the younger generation. Less than half of the women were mothers by the age of 30 in countries with the highest levels of female unemployment and small government sectors, such as Spain or Italy, while almost two thirds of them had already had a child in countries with low unemployment and large public sectors, such as Northern European countries. Those percentages move to one third and more than eighty percent, respectively, when the analysis is conducted for those born after 1962. Thus, the gap between those groups of countries has widened.

As noted, estimates in Table 1.1 (b) include part-time and the interactive with female activity rates. The coefficient in part-time is negative, but part-time in countries with higher participation has a positive effect on transitions. The second part of Table 1.1 (c) presents simulations of the effect of part-time in countries with different rates of female labor market participation -either 50% (the mean European rate for the period of estimation) or 70% (corresponding to countries with the highest proportions of women in the labor force such as Sweden, Finland or the UK). Part-time is allowed to vary between 7% (among the lowest levels, such as those in Southern Europe) and 20% (on the higher side of the distribution). The combined effect of part-time is negative but not very sizable, particularly as participation increases. Women in countries with higher levels of female labor market participation experience faster transitions to motherhood.

Maternity benefits enter significantly and positively in most columns in Table 1.1 (a). Its relevance decreases in shorter samples or when only younger individuals are included. Nonetheless, column (5) in Table 1.1 (a) and column (3) in Table 1.1 (b) indicate faster transitions to first births within countries when maternity benefits improve.

In all columns a higher per capita income slows down transition to first birth. In columns that include country dummies, this indicates motherhood has been postponed, as countries have grown richer. Self-employment enters positively in the longer samples but loses its relevance

in the shorter ones. The fact that rural self-employment was more prevalent for the late 1960s and 1970s might explain those changes. However, for column (3) in Table 1.1 (b), when country dummies are included in the shorter sample, countries with growing self-employment sectors have slower transitions to second births. Coincidentally, these are, in general, the same countries that experience rising unemployment rates since the mid 1980s. Lack of alternative employment or sub-contracting from firms trying to avoid non-wage costs fattened the self-employment pool in those countries.

4.2.2 Second Births

Table 1.2 (a) presents estimates of the transition to second birth using a sample of 24,979 women who already have a child. In column (1) the estimation period starts in 1969, when the first birth is observed, but, in columns (2)-(4), part-time employment is included as a covariate and the sample is restricted to 1980-2001. Foreign origin is only significant and negative in (1). The effect of a woman's age at first birth is consistently found to be negative in the literature. The more women postpone a first birth, the less likely they are to transit to a second birth. The significant negative coefficient in columns (1), (2) and (4) accords to those expectations. However, the coefficient on age at first birth is highly significant and positive for the sample of those born in and after 1963, in column (3). Changes in women's education and careers, family planning and medical advances in then last decades should account for that change. Further, the fact that it is the most educated women who postpone motherhood, but who, in turn, are in better financial conditions to sustain larger families in a context of aggregate economic uncertainty may be an additional potential explanation to the change in sign of the coefficient. A woman's education linearly increases the hazard to second birth. College educated couples may have a set of reasons to time the two first births together: economies of scales on childcare costs, income effects from better jobs, minimizing the overall time of woman's detachment from the labor force, or the fact that college educated women are already older at childbirth and cannot afford to wait much longer for a second child.

With regard to the underlying economic conditions in the country, female unemployment is again significantly negative in columns (1) and (2). However, the lack of significance of the coefficient in the sample of those born after 1962 may result both from an older and more

selected sample of first time mothers than for previous ones. As unemployment increases within a country, second births occur latter (column 4). Further, the coefficient on government is now negative and its significance is weaker in the shorter sample. Simulated results of the joint effect of government employment and unemployment in 1.2 (b) clearly demonstrate that the implied negative effect of the government is smaller than that of unemployment, particularly considering the absence of countries with both high unemployment and large government in the sample. Eighty per cent of mothers in countries with low unemployment and large government sectors, such as Sweden, have had a second child by the time their first child is eight, compared to only two-thirds of those in countries with small government sectors and high unemployment, such as Spain.

While the relevance of public employment dwindles for second births, part-time is crucial in explaining cross-country variation in the speed to second parity transition, particularly in countries with lower levels of female labor market participation and for the youngest generation. Simulations in Table 1.2 (b) present results for three levels of female activity: 40%, the level in Southern Europe for most of the sample; 50%, the mean of the sample and 70%, the level in countries such as Sweden, Finland or the UK for most of the sample years. In columns (1) and (2), women in countries with lower participation levels transit faster, but that difference reverses and almost disappeared in the youngest generation, both because the implied effect of participation is much smaller in column (3) than in column (2) and because actual cross-country differences in female participation have diminished during the last decade. By contrast, extended availability of part-time work, which already matters in the complete sample, increases its significance for the younger generation. Simulations illustrate how, eight years after the first birth, there is a steady 10-point difference in the proportion of second time mothers across all participation levels when comparing countries with either 7% or 20% of their work force in part-time. When restricting the sample to those born after 1962, the implied effect moves from a 14-point difference in countries with a 40% female activity rate to a 12.5% and 8% in countries with 50% and 70% female participation rates. Interestingly, as seen in Appendix A, part time sectors are particularly small in countries with lower female participation, such as in Southern Europe. Lack of flexibility in the market to enable women to adjust their careers to their childbearing circumstances has lead women in Southern Europe to

face a choice between either dropping out of the market – and lessening their ability of reentering it- or keeping precious full-time positions and either postponing or abandoning further maternity (Adam 1996).

The coefficient of a country's per capita income is negative for the longer samples, but fails to reach any significance for the estimates of the youngest group. As countries have grown richer, in column (4), transition to second birth has been progressively delayed. Self employment is significant and negative when all women are included, but fails to be significant for the younger generation. Again, mothers born after 1962 may constitute a more selected group than that of mothers from all cohorts since they were negatively affected by extensive self-employment in their transition to first births. Women who have already become mothers in that birth cohort may not be individually as affected by the distinctive characteristics of self-employment as those who have not transit yet to maternity. Maternity benefits have a significant positive effect in all estimates, though its intensity is weaker for those born after 1962. Simulations in Table 1.2 (b) indicate that, after eight years from the first births, the proportion of women who have had a second child goes from 74% to 88.5% for women in countries with maternity benefits index of either 16 to 40 when all women are included. The difference is only from 76% to 85% among those born 1963 or after.

4.2.3 Third Births

Table 1.3 (a) presents estimates for third births. Column (1) comprises all period starting in 1972 –when the first second birth is observed in the sample- and columns (2)-(4) start in 1980 given data availability for part-time employment.

Coefficients on previous fertility history enter significantly and in the expected direction. Age at first birth and the length of time between births are significant and negative, whereas having two previous children of the same gender or being born outside the European Union come in positively in the model. The relation between transition to a third birth and a woman's education is U-shaped. The fact that those with upper secondary school have the lowest hazard among educational groups can be explained by a combination of two effects: on the one hand, a highly educated woman (with a strong commitment to the market, demand for child quality

and/or better family planning formation); and, on the other, a negative income effect from a relatively lower pay (and worse career expectations) than that of college-graduates, particularly in a market with high unemployment.[6] Interestingly among the highest educated women, there seems to be a clear divide between those who never transit to a first birth (childlessness is particularly important among the more educated) and those who decide to have three or more children. Given the constraints that the labor market imposes in most women, individual family size preferences may surface better among those with stronger positions in the market (non binding constraints). As a result there seems to be a bimodal distribution on that educational group.[7] Those with intermediate levels of education (upper secondary) seem to be caught by the constraints of the market and may have higher demands (in terms of child quality) than those less educated. As a result, that particular group has a slower transition to third births.

The estimated coefficient of female unemployment is, again, significant and negative in columns (1) to (3), while government employment is not in any of the columns. Table 1.3 (b) presents some simulated results for the proportion of women who did not transit to a third child in countries with different rates of female unemployment. Results for the sample of those born after 1962 are very similar. While almost half of the women in the risk pool have had a third birth after eight years from the second birth in those countries with rates around 5%, the proportion is only around 20% for those with the highest rates of unemployment.

Part time availability eases transitions to third birth, particularly for countries with low levels of female participation, as it did for the second birth. The strength of this effect is, again, larger for the younger generation. In countries with female activity around the period mean of 50% and with only 7% of workers employed part-time, only less than a third of mothers have three children eight years after the birth of their second child, while 45% of them do in countries with 20% of part-timers.

[6] Similar results are obtained for Spanish women using the 1999 fertility survey (Adsera 2002) and for Norwegian women by the end of the 1980s (Hoem and Hoem 1989, Kravdal (1992).
[7] In that regard, Kravdal (2001) notes than when the first births among Norwegian women are modeled jointly, the high fertility among better educated is partly explained by selection.

Interestingly, while the coefficient on income per capita is significantly negative for the sample starting in 1972 in column (1) and not significant in the shorter sample of column (2), it changes to a strong and positive value when the model is estimated only for those born after 1962 in column (3). This result is similar to what I find in the second part of the paper when I restrict the sample to births occurred in the 1990s and use individual employment and income data. Younger generations in richer countries transit faster to third births and, as a result, have higher number of children on average. Finally, the effect of maternity benefits though significantly negative is, as shown in Table 1.3 (b), negligible.

In this first part of the paper, I have shown results for the transition to the first three parities of women in 13 European countries. Among main findings, education slows down transition to first birth but speeds it for second birth. Those with the highest and lowest educational levels transit to third births the fastest. Female unemployment has a negative impact, stronger after the mid-eighties, in transitions to all parities. Maternity benefits boost transitions to first and second births. Large government employment has a positive impact on first births while part-time availability is crucial for second and third birth transitions. In the second part of this paper, I conduct a similar analysis but include individual employment information of both the woman and her spouse.

5. Transition to Second and Third Births with Individual Employment Information

5.1 Covariates

The second part of the paper uses individual labor market information in addition to information on aggregate economic conditions. The ECHP survey provides detailed information on labor market activities for the interview year as well as for the previous year (or the recent past). In addition, some questions provide general information on market activities of the individual since 1989, as well as information on the first time the individual held a job. However, complete retrospective labor market histories are not available. Given the lack of complete information, I only study transitions to second and third birth of women aged 18 to 45 who had either their first or second birth on or after January 1992. The estimates of transition to second birth contain data on 8,041 women with 3,362 observed second births, and

those to third birth, 6,463 women with 1,075 observed third births. The span of information available is too short to obtain any meaningful result on estimates of transition to first birth from teenage years. Three types of explanatory variables are considered: (1) individual and spouse personal characteristics, (2) time varying economic indicators for the country and across regions; and (3) individual and spouse employment history.

(1) Personal Characteristics

The survey distinguishes between marriages and consensual unions. Since information on changes in marital status is only provided yearly, I consider the date of change of civil status to be either the month the individual moves in the household or January of the year the individual indicates that change occurred. The estimates include one covariate for monthly variation of marriage status and a second that controls whether the woman is “living in a couple" regardless of whether she is married or in a consensual union. Single is the omitted category. Again, information on previous fertility history, on country of birth and on the education of the woman and also of her spouse (with less than upper secondary as omitted category) is also included. Since housing availability is also an important determinant to family formation, particularly in countries where house ownership is the norm, I construct a variable to indicate whether the family owns or rents their home.

(2) Labor Market Conditions

Given that economic performance has varied dramatically during the last decades, I include some variables that track the changing conditions of the labor market. In particular female unemployment rates, the share of public sector employment, income per capita and the weeks and replacement rate of maternity benefits in each country are also included. In addition, to study the importance of flexibility in each sector of employment I generate a covariate on the prevalence of part time employment both in the private and public sectors using the complete dataset on each wave. Again, those covariates are lagged one year. The hypothesized effect of aggregate conditions laid out in the previous section applies fully to this second set of estimates.

(3) Personal Employment and Income

The ECHP provides three types of information regarding employment: a) monthly labor market status on the year previous to the interview; b) most frequent labor market activity on the year of the interview; c) dates of start and end of current and past jobs. As a result I can reconstruct fairly well an individual's labor history during the years of the interview as well as the most recent months. For this reason, the sample is restricted to women who had a (first or second) birth on or after January 1992.

Estimates use information on the activity status of both the woman and her spouse, when present. Covariates for working status and unemployment are included and inactivity is the omitted category. Among those working I distinguish between those working full or part time, and those who are self-employed. Furthermore I can control for the prevailing type of contract (fixed or permanent as well as its length) and sector (public or private). The ECHP also provides information on the existence of long-term (more than 12 months) spells since 1989. Income information is available in the survey. Income is transformed to PPP terms for comparability across countries. In particular, I use data on whether the individual/household is receiving unemployment benefits or family allowances as well as on work income or household income. All time varying labor market and income covariates are lagged 7 months.

The analysis of results on individual labor market history is not clear-cut. Given that labor supply decisions and fertility decisions are likely to be jointly determined, coefficients on labor market status cannot be granted a direct causal interpretation. In studies on the effects of changes on family size on labor supply, for example, the endogeneity problem has been found to be important among less educated women but negligible for men (Angrist and Evans 1998). In this paper the individuals labor market status is introduced as an explanatory variable of the spacing of births. Notwithstanding the inability to interpret the effect of women’s covariates causally, the direction of the sign provides crucial information on the types of positions that are associated with faster transitions to births. Based on arguments laid out in section 2, I expect that jobs that allow women to exit temporarily the labor force without penalty (such as public employment) or ease out the entry after childbirth (through part-time) should accelerate transitions as opposed to unstable jobs (short-term contracts) or unemployment that increase uncertainty. Experiences of long-term unemployment spells may be particularly negative since

they may be accompanied by a loss of skills with a permanent income effect as well as an increase in individual precautionary behavior. In regard to spouse's employment, stable jobs with relative good pay should provide a good environment for faster transitions, particularly in regions where men's earnings constitute the bulk of household income.

Models are estimated separately for second and third birth and, though relevant covariates are quite similar for both parities, they vary in strength and significance. Results are presented in sections 5.2 and 5.3 respectively.

5.2 Second Births

Before discussing any estimates of the hazard models, it is worth looking at Kaplan Meier nonparametric estimates of transition to second births presented in Figure 2.1. Overall, half of women have had their second child before four years from their first birth. Estimates, however, vary dramatically and significantly across countries. [8] Southern European countries are those with latter mean births and for which a higher percentage of women do not transit to a second birth. After five years of the first birth, less than half of the Spanish, Portuguese and Italian women in our sample have given birth to a second child. Women in Nordic countries and the Netherlands are the fastest to transit to second births. By the end of the fifth year, almost 80% of Dutch women have a second child. It is important to remember that this sample exclusively includes women that have at least one child and that the level of childlessness has increased in Europe, particularly in the South, during the last two decades. Thus, the observation of the Kaplan-Meier graphs in Figure 2.1 points to a high variance across countries not only on transitions to first births, as seen in section 4.2, but also to second births. Both observations combined imply huge differences in total fertility rates among those countries.

Tables 2.1 to 2.3 present Cox estimates of the transition to a second birth. In Table 2.1 (a), even though columns (1)-(3) do not include country dummies since our interest is on variation among European women, as a way to compare results to within country variation, column (4) does include them. In all columns, whereas the age at first birth decreases the hazard to second

[8] Country codes are as follows: Neth (3), Belgium (4), Lux. (5), France (6), UK (7), Ireland (8), Italy (9), Greece (10), Spain (11), Portugal (12), Austria (13), Finland (14) and Sweden (15).

birth, marriage (as opposed to union or single-parenthood) increases it. There is no significant effect of the gender of the first child. Again both a woman's and also her spouse's education linearly increase the hazard to second birth. As discussed this might indicate some form of catching-up after an initial delay, the desire to shorten the time out of the labor force for working mothers or economies of scale in the organization of child care.

The next set of covariates corresponds to the labor market position of the woman and her spouse seven months ago. As indicated coefficients on a woman's individual labor market attachment in these estimates cannot be readily interpreted in a causal manner since an obvious self-selection process occurs. However the direction and size of the coefficients constitutes an important indication of which are the most favorable situations for women to bear children and to understand the aggregate country implications for fertility levels given the different degree of provision of those type of employment in each country. Coefficients for women's work, part-time and public sector are significant and with the expected sign. Figure 2.2 presents simulations from column (1) on the instantaneous hazard to second birth for women with different degrees of labor market attachment to better understand the size of coefficients. Women working full time in the private sector have the lowest hazards to a second birth, a third lower than those inactive. Working in the public sector, as opposed to the private sector, or working part-time, as opposed to full time, clearly increase this hazard.[9] A woman working part-time in the public sector has a 20% higher hazard than an inactive woman. Simulated results presented in Table 2.1 (b) show that 80% of those women working part-time in the public sector would already have second child after eight years from their first birth, as compared to only around 60% of those working in the private sector full time. There is no difference among the inactive and those working part time in the private sector: around 73% of them would have experience a second birth by the eight year. It is important to note that independent of the individual labor market situation, the experience of a long-term

[9] Among working women under 49 years of age (in the 1999 wave) over 40% in Northern Europe are in the public sector, whereas in Southern Europe the proportion is only half of that. However, while only 19% of women without children work in the public sector in Spain, the proportion is over 30% for those with children. In Sweden, the other extreme case, these percentages are 42% and 54%, respectively. In Southern Europe and in the Nordic countries differences between the proportions of mothers and childless women who are public employees are larger than in the rest of Europe; however, the size of their public sectors is overwhelmingly different (see Appendix B).

unemployment spell sometime after 1989 has a lasting negative impact for second births.[10] Table 2.1 (b) presents the estimated survival function for an average woman with and without a long-term unemployment spell. After eight years from the first birth there is a 10-point difference in the proportion of women who transit to a second birth between both groups from 70% to only around 60% of those with a history of long-term employment.

Results for the spouse's employment are mixed. Women with a spouse working as a bureaucrat or part-time have not significantly higher hazards than others in the cross-country sample, but those with a spouse working in the public sector have significantly higher hazard to a second birth as compared to other in their own country (column (4) in Table 2.1 (a)). Only the coefficient for a self-employed spouse is positive and significant in all estimates. A closer look at the sectors of employment and remuneration of those workers should shed light on the cause of that link. On average earnings of self-employed are lower than those of the total working population, but their relative size varies across countries. Spouse's unemployment enters negatively and significantly in the estimates except when work income is also included.

Column 2 includes work income for the individual and her spouse. As expected, a higher income from the spouse increases the hazard to second birth, while the opportunity cost of higher earnings, discourages woman from fast transitions. As for the country economic conditions, in countries with higher maternity benefits, higher income per capita and lower female unemployment second births occur earlier. As expected, the sing of the coefficient on income per capita reverses when country dummies are included in column (4), since as income has grown over time, women have delayed childbearing in each country. Results follow closely those obtained in the first part of the paper.

To better understand the effect of part-time employment, I construct measures of the proportion of all workers interviewed in each wave who are part-timers both for the private sector and for the public sector and lagged them one year. I interact each one of these measures with the working status of each woman depending on whether they are public or private sector

[10] Note, however, that these are women who have already surpassed the negative odds of not having a first child. Further, I have also estimated the model controlling for whether individuals with a long-term unemployment spell have ever been employed before or not. Coefficient for an interactive between long-term unemployment and never worked is not significant for women. It is highly significant 2.4 (t=3.02) for men, though there are exceptionally few cases.

employees. This covariate aims to measure the expectations of part-time availability in a sector that each woman forms before deciding on childbearing. Both coefficients in column (3) are highly significant, particularly for the private sector. Figure 2.4 presents simulations of the instantaneous hazard for women in each sector for varying aggregate levels of part-time employment. The baseline is the hazard of a women working in the private sector in a country with no part-time. The hazard for women working in the private sector in countries with 10% of part-timers, such as Spain, is only half to that of women in countries where part-time extends to almost half the working population, such as the Netherlands. Numbers for the public sector are similar. Simulations in Table 2.1 (b) present the aggregate effect of those hazards. Eight years after the first birth, around 80% of women working in a public sector with wide part time availability, but only around 55% of those working in a private sector with few part time positions would have had a second child.

Table 2.1 (c) presents similar estimates with a set of additional independent variables. Household income, in column (1), is significant and negative. Dominant substitution effects from the woman's labor market opportunities can account for this result. In column (2) I substitute the public sector variable for another that includes, in addition to public sector employees, those individuals working in education, social work and health. The coefficient remains pretty stable and highly significant. Interestingly, the coefficient is again not significant for spouses. This sectoral definition was chosen to include jobs that, potentially, have more stability and time flexibility (such as extended holidays for educators). From Appendix B, it is clear that France has the youngest cohort of public employees in the sample. Over 20% of public employees are under 30 years of age. Only the central government in Germany (that expanded after reunification) has a higher proportion. The overall size of that age-group in the German public sector, however, is smaller (public workers in the länder comprise a large proportion of the total government sector). In Table 2.1 (c) column (3) I created a separate variable for French public employees. French women have a significantly higher hazard to second births that public employees elsewhere (a combined hazard of 1.842). In column (4) a family receiving unemployment benefits seven months ago has a lower hazard to a second birth, whereas a family receiving family allowances has a faster transition to a second child (regardless of whether income is included).

As noted before, job stability has become a crucial issue for workers during periods of high unemployment in Europe in the last twenty years. Changes in the types of contracts available, particularly for the young, accompanied the rising levels of unemployment and further increased economic uncertainty. In 1984, for example, as a response to deteriorating economic conditions and to stimulate new employment, the Spanish government introduced important changes in labor law that allowed non-permanent contracts for new hires. Figure 1.3 presents quarterly data on the percentage of female workers holding temporary contracts in Spain, from around 5% in 1984 to over 35% in less than 10 years, to show the dimension of these changes. Similarly, especially in Italy, employers subcontracted the services of self-employed workers, who were *de facto* working full time in the firm, as a means to reduce non-wage costs, such as social security contributions. The emergence of unstable and short-term contracts increased uncertainty for young couples. In columns (5) and (6) I include some characteristics of the couple's work contracts to control for whether the contract is permanent and whether it is shorter than a year. Women with non-permanent contracts have a significantly slower transition to a second child. When the length of the contract is also included, only those women with very fragile labor arrangements have a low hazard. The coefficient, however, is not significant, potentially due to some multicollinearity of both variables. As for the spouse, only when both measures are included, non-permanent contracts work in a positive fashion, whereas very unstable contracts slow down second-time fatherhood. It would be interesting to analyze whether these are two different groups of workers (in sectors, remuneration and/or education terms). Coefficients, however, are not significant. Finally, column (7) controls whether the household owns its home in each period. Home ownership is not equally popular across European countries. Southerners tend choose property against rent in larger proportions. Increasing housing costs, coupled with the uncertainty in labor markets, has fuelled the delay in household formation of young European, particularly in the South. Even though the coefficient has no causal interpretation, it is interesting to observe that it is positive and significant. This is a potential indication that once financial matters are settled and uncertainty is lower, couples may time the first two children closer, after having postponed the first birth for long.

To see whether some of those labor market variables are more relevant for some countries, I estimate the same model in column (1) in Table 2.1 (a) with country-specific interactive for different variables. In Table 2.2 two of such models are presented with and without country dummies respectively: columns (1) and (2), for public sector employment (lagged 7 months), and, in columns (3) and (4), for part-time employment (lagged 7-months). Results in column (1) indicate that women who work in the public sector in Belgium, France and Ireland and those whose spouse is a public employee in Spain and the Netherlands transit much faster to a second child than the average women in the sample. Note that in (1), all women are compared together whereas, in (2), the effect of public employment is analyzed within countries. Not surprisingly, more coefficients turned out significant when women are compared to their compatriots. The coefficient for women is significant for Southern countries -Spain, Italy and Portugal- and, particularly large for France and Austria. Not surprisingly, women with spouses working in the public sector transit faster to second births in Southern Europe than their fellow nationals. Overall, female labor market participation is lower in Southern Europe and families have higher dependency on spouse's earnings. High and sticky unemployment has affected predominantly young cohorts in Southern Europe. Public sector jobs entail tenure and lower earnings uncertainty. These positions are viewed as guarantees to be able to get a mortgage or undertake big investments such as children. An Italian woman whose spouse is working in the public sector does not transit to a second birth faster than the average European, in (1), but it does strongly as compared with other Italian women, in (2). As for Spain, the coefficient and its significance increase in (2) as compared to (1).

In separate estimates, not included here, I use the broader sector definition that comprises educators, health and social workers as well as public employees. In addition to countries in column (2), interestingly this coefficient is high and now significant for the Netherlands, smaller for France, larger for Italy and Austria and not significant in Belgium. As for spouse's employment in this broad sector, coefficients increase both in size and significance for Spain and Italy compared to the public sector alone. Many of these services, though privately provided, are regulated by the public sector and their employees enjoy similar benefits as those from public jobs and even relatively larger incomes (for example, in the health industry). The fact that the Dutch public sector is not too large and has the lowest percentage of female workers (with the exception of the German and Austrian central governments) among

European countries (see Appendix A and B) but, that women constitute an overwhelming majority among educators, health and social workers is a likely explanation of the change in the coefficient with respect to public sector alone.

Similarly, in columns (3) and (4), I interact part-time employment (7-month lagged) with country. Among men, the coefficient was only significant for the UK and given the small sample available for each country I decided not to include the results. Since part-time is available on demand and very extended in the Netherlands, working as a part-timer is not significant in (4), but it is very significant in (3). Within countries the coefficient is significant and high for Spain, France and Sweden. However, a Spanish women working part-time does not transit significantly faster than an average European women in (3). Part-time jobs are scarce in Spain and fewer women enjoy secure permanent contracts or public sector jobs. Part-time positions are penalized by higher employer costs. Those women who bargain or search for those few positions are likely to be more committed to motherhood. As a result, women either drop of the labor force after the first child or return immediately to full-time positions (Adam 1996).

I have also run the first model in Table 2.1 (a) separately for each country and found some idiosyncratic features presented in Table 2.3. A first interesting observation from the results is that a highly educated spouse matters the most for Southern Europe. Again the interpretation of those results is similar to that of spouse's public sector employment in Table 2.2. Highly educated men can provide better and more stable income to families that depend relatively more on spouse's income and are more sensitive to job-uncertainty than other countries.[11] While in France the relation is U-shaped; among Britons, transition to a second child is homogenous across educational groups. Second, having experienced a long term unemployment spell is negative for all countries except the UK, where surprisingly the coefficient is positive and significant. A different type of welfare system and higher rates of teenage pregnancy may account for that result. In Italy and, particularly, in Spain the effect is sizable and significant. Finally, coefficients on public sector employment confirm results in Tables 2.1 and 2.2. Most interestingly, in France, where the public sector has expanded during

[11] See Ahn and Mira (2001) and Adsera (2002) for an analysis of men employment and education on transitions to birth in Spain.

the last years and has hired a higher proportion of young workers than other European countries, the coefficient of the overall size of the public employment as a percentage of total employment (lagged one year) also enters significantly in the estimates.

5.3 Third Births

Table 2.4 presents Cox estimates of transition to third birth. Age at first birth decreases the hazard to a third birth, whereas having had two boys or two girls previously strongly and significantly increases it. There is no significant difference between marriage and union in the transition to third birth. The fact that consensual unions are less common in Southern Europe may partly account for this.

In Table 2.4, women's education is not significant under 10% in columns (1)-(3) though coefficients indicate a slight U-shape, as that found in the first part of the paper, that is significant when women are compared only to their fellow nationals in (4). The coefficient of a spouse’s college education is large and highly significant in all cases.

Women's employment status again plays a relevant role. Simulations of column (1) in Table 2.4 are presented in Figure 2.2. The estimated hazard for women either in public sector or part-time is equal to those inactive and for those who are part-timers in the public sector is a 33% larger. The coefficient on working status is negative but only significant when work income is not included. The coefficient on public employment is significantly larger when work income is included. Thus, for similarly paid jobs, stability of public sector employment is relevant. The negative effect of long-term unemployment spells continues to show significantly on the transition to third birth. Spouse's self-employment enters positive. Work income for women enters with the expected sign but it is not significant for men. Family allowances are positive and significant.

As for country aggregates, female unemployment is significant and negative in absence of country fixed-effects, government employment is positive but only significant with country fixed effects. Log income per capita is positive and strongly significant in (1)-(3). Thus, in richer countries, women transit faster to third births (and, as a result, end up having more

children). This result confirms that found in Table 1.3 when only individuals born 1963 and after were included in the sample.

6. Further Research and Policy Implications

To study how both the individual labor market attachment and the aggregate labor market performance affect the timing of births among European women I have used the first seven waves from the ECHP 1994-2000. In the first part I have focused on aggregate market conditions. Among main findings, education slows down transition to first birth but speeds it for second birth. Those with the highest and lowest educational levels transit to third births the fastest. Female unemployment has a negative impact, stronger after the mid-eighties, in transitions to all parities. Maternity benefits boost transitions to first and second births. Large government employment has a positive impact on first births while part-time availability is crucial for second and third birth transitions. In the second part, individual labor market attachment is found to vary significantly among women with that transit to second and third births at different speeds. Women's public sector and/or part-time employment provide stability and flexibility, and, as a result, increase hazard to second and third births. Long-term unemployment spells have lasting negative effect on women's childbearing history. Spouse's education and job stability (either through public sector and/or stable contracts) are critical in Spain and Italy.

Research can be furthered in different potential directions. First, taking a closer look on who are the self-employed men and people with unstable contracts in each country should shed light on their effect on the timing of births. Second, a multilevel analysis could be conducted where individual would constitute a first level and both regional and country data would be at a second level. That could give us a better way to analyze cross-country differences of each type of employment.

Finally, several policy implications stem from the paper. Flexibility and stability seem to be the key factors in timing of fertility. As participation rates across OECD countries converge to the highest levels, women would enter the labor force and only in those countries where institutions reduce the uncertainties connected with childbearing, work and family will be

compatible. Southern European countries, with laws penalizing part-time employment need to rethink about the long-term consequences -in terms of demographic changes[12] and constraints to couple's fertility preferences- of those policies.

[12] The decrease in the number of children per women, combined with longer life expectancy, has had a tremendous impact in the age-pyramid of OECD countries (Lee 2003).

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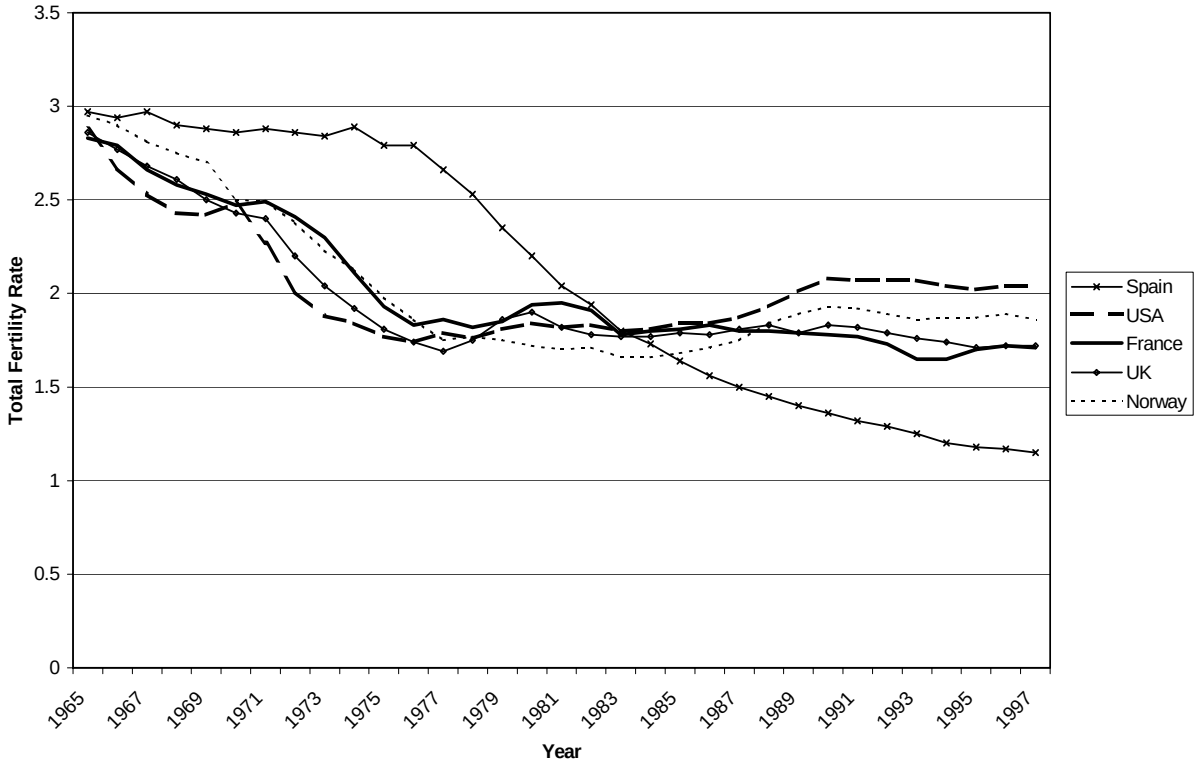
Figure 1. Total Fertility Rate across OECD Countries



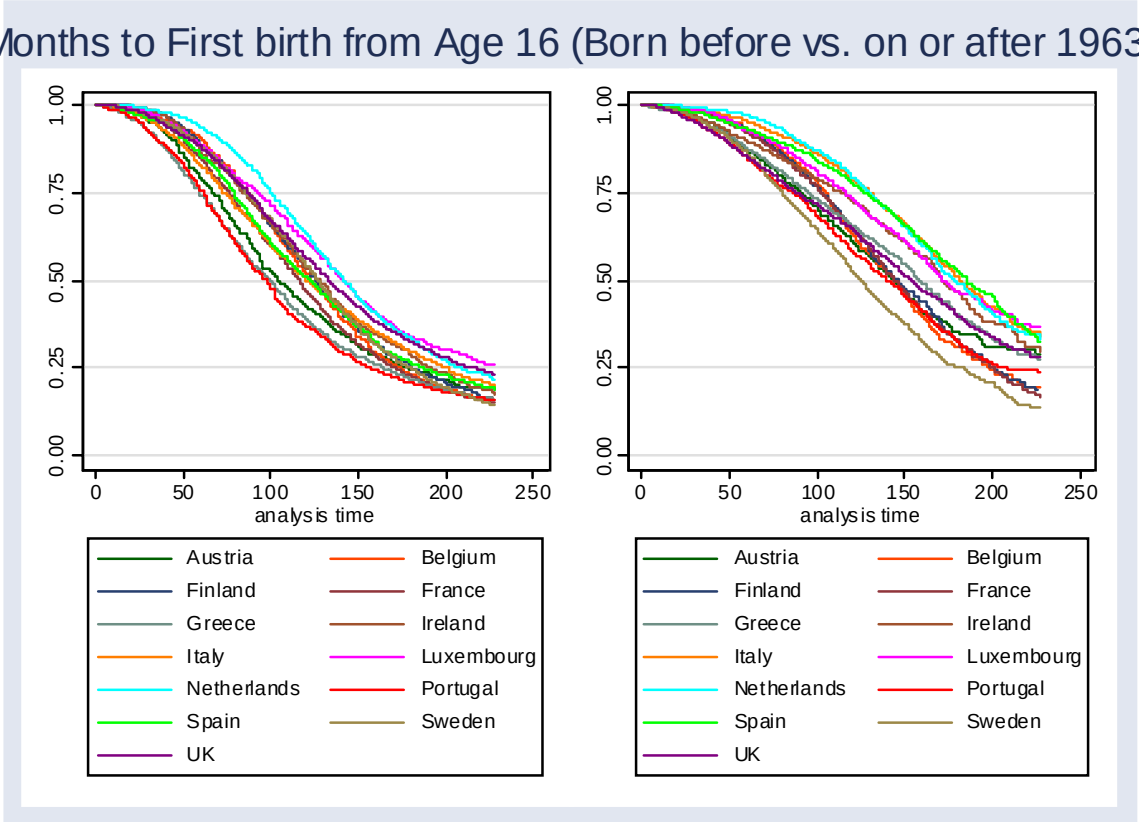


Fig 1.2

Fig 1.3 Spain: Unemployment and Fixed-Term Contracts

Fig. 1.3 Unemployment and Fixed-Term Contracts in Spain, 1972-1997

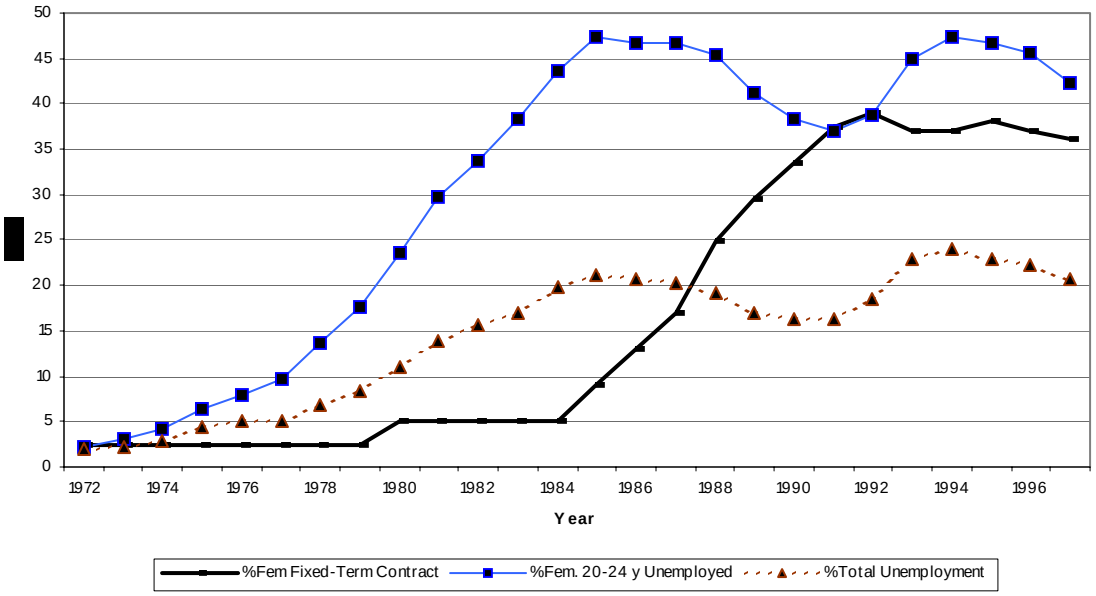
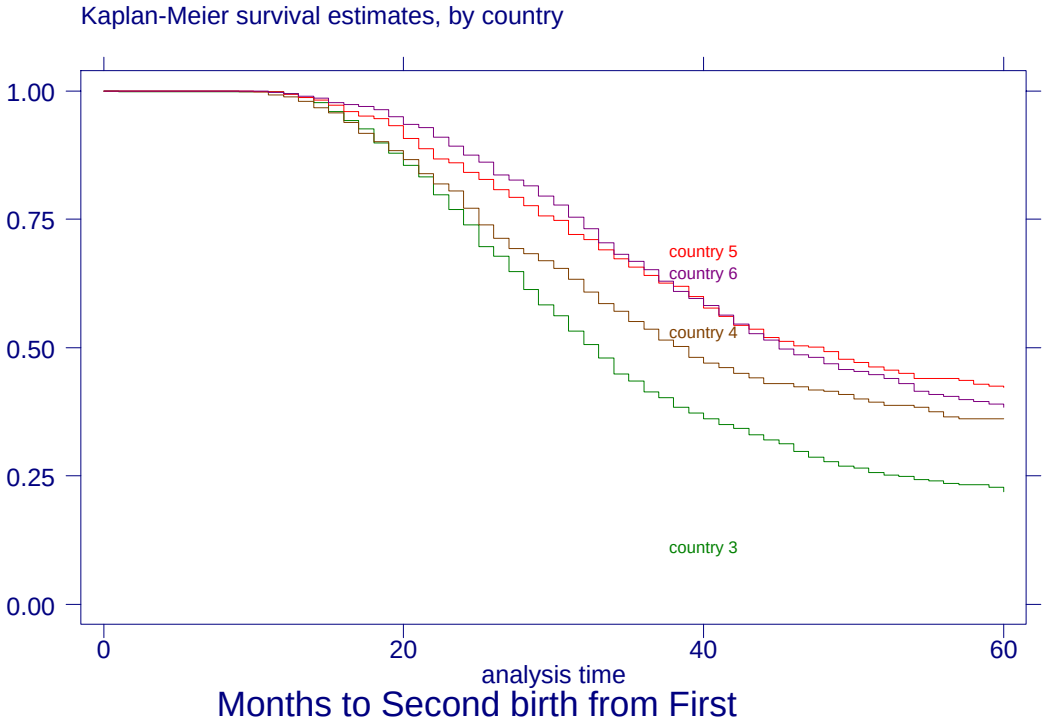
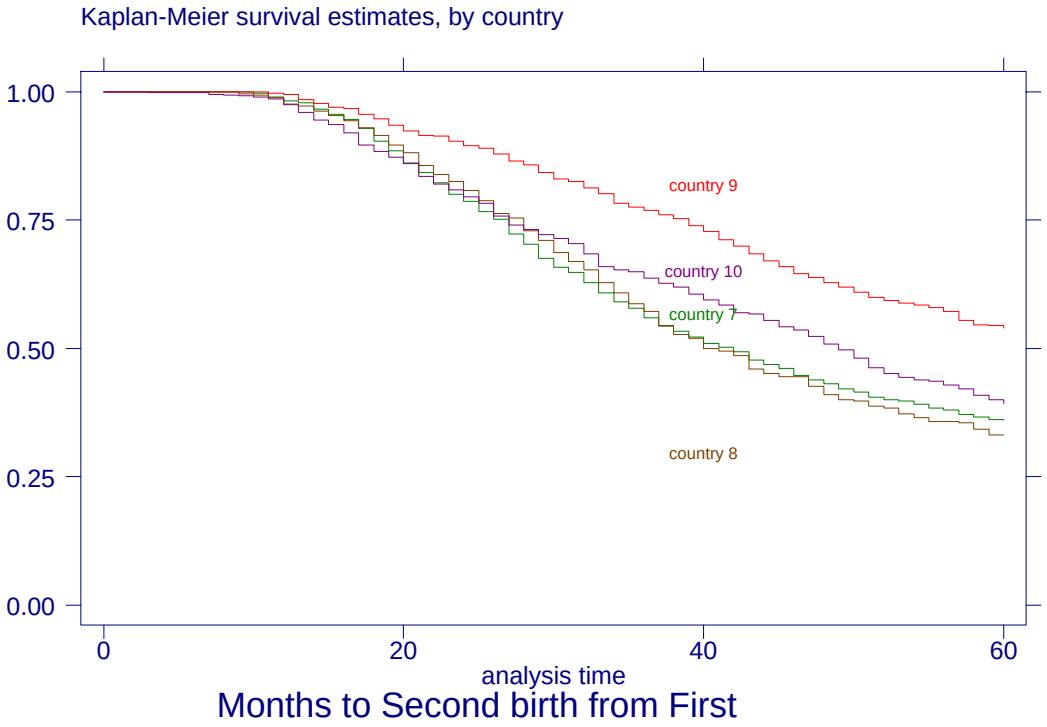


Figure 2.1


Kaplan-Meier survival estimates, by country
1.00
0.75
0.50
0.25
0.00
country 5
country 6
country 4
country 3
0
20
40
60
analysis time
Months to Second birth from First


Kaplan-Meier survival estimates, by country
1.00
0.75
0.50
0.25
0.00
country 9
country 10
country 7
country 8
0
20
40
60
analysis time
Months to Second birth from First

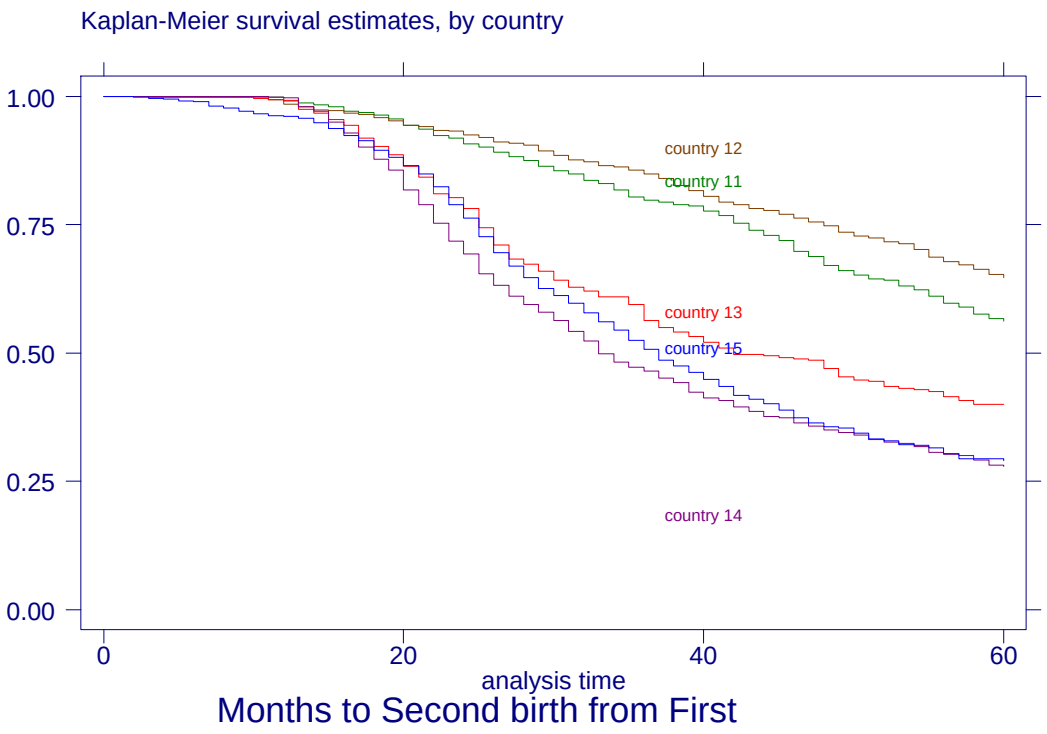


Figure 2.2 Woman Employment and Hazard to Births

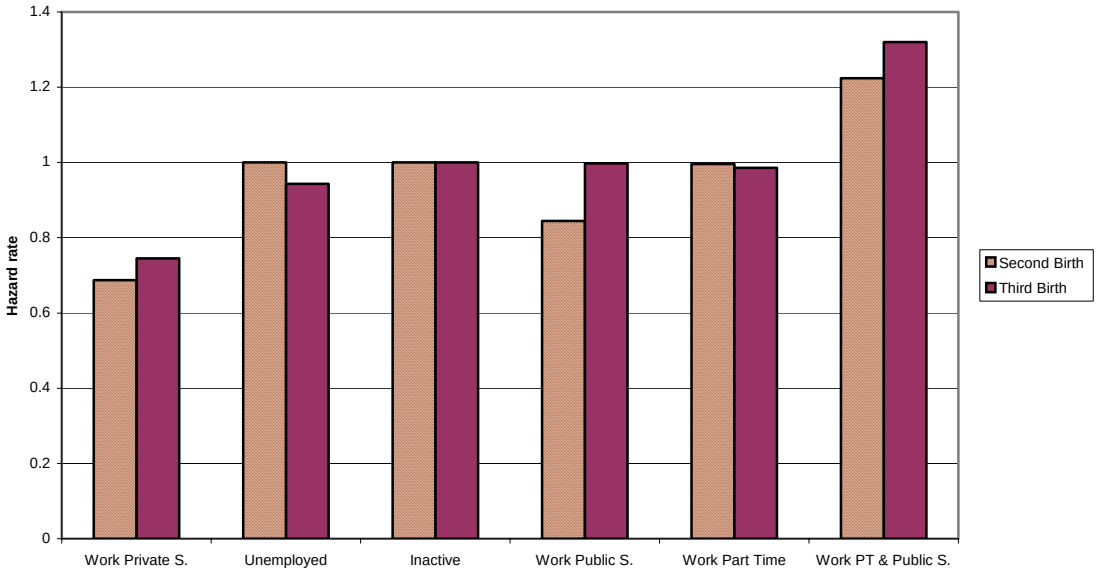


Figure 2.3 Hazard to Second Birth: Sector of woman's employment and Part Time availability in the sector last year

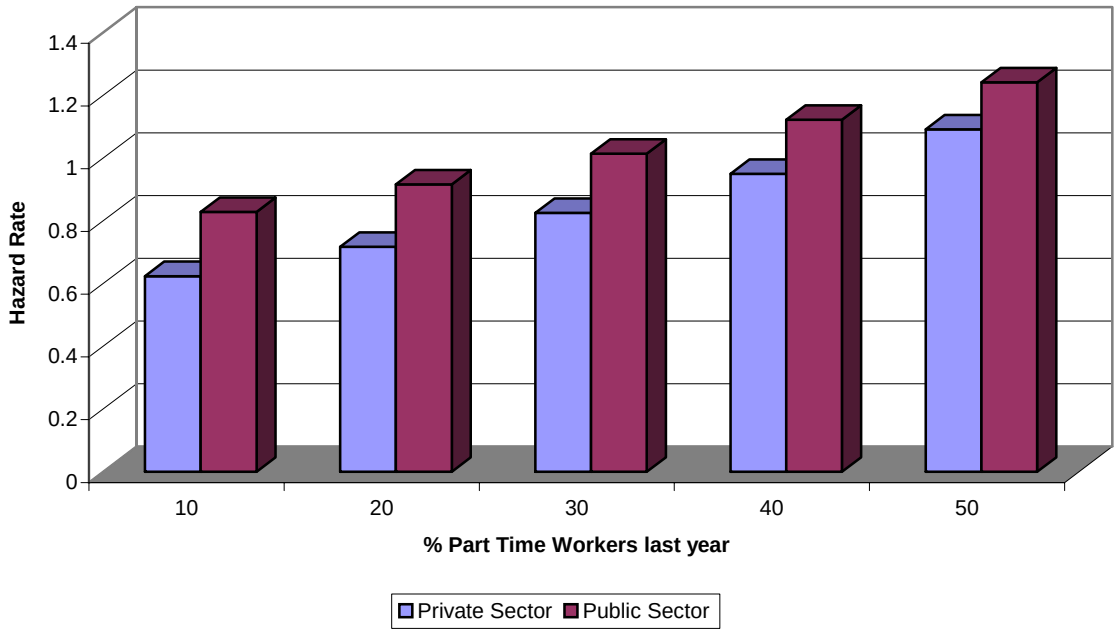


Table 1 Ideal number of children in OECD Countries

Country	WOMEN			MEN		
	25-34	35-44	45-54	25-34	35-44	45-54
Europe						
AUT	2.1	2.2	2.1	2.2	2.2	2.2
E.GER	1.9	1.9	1.9	2.1	1.9	2.0
GER	2.1	2.3	2.2	2.2	2.2	2.2
IRE	2.7	3.0	3.0	2.6	3.0	3.3
ITA	2.2	2.2	2.3	2.2	2.2	2.2
NTH	2.6	2.7	2.8	2.4	2.4	2.4
NW	2.6	2.6	2.7	2.6	2.7	2.5
SP	2.3	2.3	2.4	2.3	2.1	2.3
SWE	2.6	2.4	2.5	2.4	2.3	2.5
UK	2.3	2.2	2.2	2.3	2.3	2.1
Non-Europe						
AUS	2.4	2.6	2.4	2.4	2.5	2.5
CN	2.4	2.5	2.6	2.5	2.5	2.4
JP	2.6	2.8	2.9	2.5	2.7	2.6
NZ	2.5	2.4	2.6	2.4	2.8	2.6
US	2.5	2.3	2.3	2.4	2.4	2.5
Europe	2.34	2.38	2.41	2.33	2.33	2.37
Non-Europe	2.48	2.52	2.56	2.44	2.58	2.52
OECD	2.39	2.43	2.46	2.37	2.41	2.42

Source: Author calculations from ISSP 1994.

Table 1.1 (a) Transition to First Birth from Age 16 (1969-2001)

	(1)	(2)	(3)	(4)	(5)
	All	All	All	Born 1963+	All
Individual					
Foreigner	1.223	1.200	1.208	1.411	1.139
	(6.69)	(6.07)	(6.28)	(8.60)	(4.18)
Non Eu	0.941	0.952	0.949	0.853	0.982
	(-1.45)	(-1.17)	(-1.23)	(-2.78)	(-0.43)
Tertiary Ed.	0.691	0.695	0.687	0.643	0.674
	(-22.92)	(-22.50)	(-23.11)	(-18.95)	(-23.80)
Less Up Second.	1.485	1.492	1.491	1.632	1.571
	(27.26)	(27.58)	(27.48)	(23.04)	(30.18)
Country					
Log Income p.c.95 ppp	0.543	0.565	0.666	0.365	0.539
	(-13.06)	(-13.49)	(-8.31)	(-14.92)	(-4.36)
Maternity Wks x rep rate	1.007	1.005	1.002	1.000	1.013
	(6.35)	(3.95)	(1.76)	(-0.03)	(4.54)
% Self-emp.	1.0004	1.003	1.007	0.99	0.997
	(0.51)	(3.70)	(7.00)	(-8.27)	(-0.66)
% Gov emp	1.021	1.024	1.018	1.038	0.966
	(11.15)	(12.78)	(9.14)	(13.91)	(-7.09)
Male Unemp (t-1)	0.987			0.984	
	(-7.12)			(-6.57)	
Fem.Unemp. (t-1)		1.013	0.990		0.990
		(4.43)	(-6.07)		(-4.16)
Fem.Unemp. (t-1)x 1985-01		0.968			
		(-10.49)			
Female Activity Rate			1.008		0.986
			(6.10)		(-5.20)
Dummies	yr	yr	yr	yr	yr ctry
subjects	50,789	50,789	50,789	34,880	50,789
failures	24,994	24,994	24,994	11,723	24,994
Log Likelihood	-246123	-246024	-246062	-110088	-245747

Note: Estimated hazard rates. T-statistics in parentheses

Table 1.1 (b) Transition to First Birth from Age 16 (1980-2001)

	(1)	(2)	(3)
	All	Born 1963+	All
Individual			
Foreigner	1.197	1.307	1.179
	(5.69)	(6.51)	(5.11)
Non Eu	0.948	0.904	0.953
	(-1.21)	(-1.74)	(-1.09)
Tertiary Ed.	0.723	0.649	0.699
	(-18.99)	(-18.28)	(-20.69)
Less Up Second.	1.462	1.721	1.505
	(23.86)	(25.14)	(25.18)
Country			
Log Income p.c.95 ppp	0.697	0.620	0.664
	(-5.77)	(-5.09)	(-2.31)
Maternity Wks x rep rate	0.999	0.991	1.011
	(-0.56)	(-4.72)	(3.29)
% Self-emp.	1.002	1.001	0.981
	(1.36)	(0.62)	(-2.86)
% Gov emp	1.018	1.033	0.966
	(8.44)	(11.34)	(-6.02)
Male Unemp (t-1)	1.017	1.047	1.019
	(4.62)	(9.51)	(2.51)
Fem.Unemp. (t-1)	0.977	0.955	0.978
	(-9.51)	(-11.98)	(-4.31)
Female Activity Rate	1.000	0.996	0.968
	(0.18)	(-0.97)	(-5.65)
% Part time	0.959	0.924	0.995
	(-4.92)	(-6.01)	(-0.34)
% Part time x Fem. Activity	1.001	1.001	1.001
	(3.70)	(5.04)	(2.00)
Dummies	yr	yr	yr ctry
subjects	47,352	34,787	47,352
failures	21,557	11,630	21,557
Log Likelihood	-208781	-108931	-208530

Note: Estimated hazard rates. T-statistics in parentheses

Table 1.1 (c) Simulated proportion of childless women according to varying country economic conditions.

	Female Unemployment Rate						
		5%			15%		25%
%Gov.Emp.	15%	20%	30%	15%	20%	30%	15%
All							
By Age 25	0.699	0.676	0.626	0.753	0.733	0.691	0.799
By Age 30	0.377	0.344	0.280	0.462	0.430	0.365	0.542
By Age 35	0.208	0.179	0.129	0.288	0.257	0.198	0.374
Born 1963+							
By Age 25	0.709	0.667	0.570	0.804	0.774	0.700	0.871
By Age 30	0.352	0.292	0.181	0.516	0.459	0.339	0.658
By Age 35	0.156	0.112	0.048	0.308	0.250	0.146	0.475

	Female Labor Force Participation			
	50%		70%	
% Part time	7%	20%	7%	20%
By Age 25	0.709	0.754	0.688	0.704
By Age 30	0.392	0.464	0.361	0.384
By Age 35	0.221	0.291	0.194	0.214

Note: Simulations from results in columns (1) and (2) in Table 1.1 (b). Variables, unless specified, are set at the mean.

Table 1.2 (a) Transition to Second Birth from First Birth

	(1)	(2)	(3)	(4)
	All	All	Born 1963+	All
Individual				
Age First Birth	0.996	0.994	1.019	0.995
	(-1.76)	(-2.74)	(4.82)	(-2.24)
First Boy	0.994	0.989	1.001	0.991
	(-0.37)	(-0.68)	(0.05)	(-0.58)
Foreigner	0.916	0.984	0.957	0.942
	(-2.36)	(-0.42)	(-0.78)	(-1.54)
Non Eu	1.061	0.991	1.006	1.025
	(1.15)	(-0.17)	(0.08)	(0.48)
Tertiary Ed.	1.150	1.129	1.056	1.104
	(6.78)	(5.79)	(1.67)	(4.65)
Less Up Second.	0.983	0.958	0.942	0.994
	(-0.92)	(-2.26)	(-2.00)	(-0.29)
Country				
Log Income p.c.95 ppp	0.540	0.618	1.078	0.360
	(-9.83)	(-6.24)	(0.53)	(-4.61)
Maternity Wks x rep rate	1.016	1.020	1.013	0.995
	(10.96)	(12.68)	(5.45)	(-1.28)
% Self-emp.	0.982	0.991	1.003	0.992
	(-13.95)	(-4.99)	(0.82)	(-0.93)
% Gov emp	0.991	0.993	0.993	0.996
	(-3.64)	(-2.66)	(-1.69)	(-0.60)
Male Unemp (t-1)		1.015	1.006	1.024
		(3.67)	(0.88)	(2.74)
Fem.Unemp. (t-1)	0.978	0.978	0.997	0.979
	(-11.11)	(-7.58)	(-0.52)	(-3.37)
Female Activity Rate	0.984	0.986	1.008	1.006
	(-9.75)	(-4.57)	(1.30)	(0.78)
% Part time		1.039	1.053	1.031
		(3.79)	(2.66)	(1.60)
% Part time x Fem. Activity		1.000	0.9995	1.000
		(-1.58)	(-1.48)	(-1.10)
Period	1969-01	1980-01	1980-01	1980-01
Dummies	yr	yr	yr	yr ctry
subjects	24,979	23,811	11,746	23,811
failures	16,661	15,493	6,380	15,493
Log Likelihood	-155425	-142993	-53844.5	-142825

Note: Estimated hazard rates. T-statistics in parentheses

Table 1.2 (b) Simulated proportion of women with only one child according to varying country economic conditions.

Time since first birth	**Female Unemployment Rate**						
		5%			15%		25%
%Gov.Emp.	15%	20%	30%	15%	20%	30%	15%
5 years	.312	.324	.348	.395	.407	.431	.477
8 years	.186	.196	.217	.261	.273	.296	.343

Time since first birth	**Female Labor Force Participation**					
	40%		50%		70%	
% Part time	7%	20%	7%	20%	7%	20%
All						
5 years	0.321	0.197	0.380	0.262	0.496	0.405
8 years	0.194	0.095	0.247	0.145	0.362	0.270
Born 1963+						
5 years	0.466	0.310	0.449	0.314	0.414	0.323
8 years	0.307	0.163	0.289	0.166	0.255	0.174

Time since first birth	**Maternity Leave (Weeks x Replacement Rate)**		
	16	20	40
All			
5 years	0.391	0.363	0.224
8 years	0.258	0.231	0.115
Born 1963+			
5 years	0.402	0.383	0.286
8 years	0.245	0.226	0.144

Note: Simulations from results in columns (2) and (3) in Table 1.2 (a). Variables, unless specified, are set at the mean.

Table 1.3 (a) Transition to Third Birth from Second Birth

	(1)	(2)	(3)	(4)
	All	All	Born 1963+	All
Individual				
Age First Birth	0.932	0.933	0.92	0.991
	(-14.75)	(-14.36)	(-7.38)	(-14.59)
Two Boys	1.225	1.221	1.216	1.220
	(6.11)	(5.89)	(3.18)	(5.92)
Two Girls	1.221	1.226	1.269	1.222
	(5.78)	(5.8)	(3.75)	(5.67)
Months 1^{st} to 2^{nd}	0.990	0.990	0.993	0.999
	(-18.27)	(-18.3)	(-6.85)	(-17.14)
Foreigner	1.072	1.052	0.819	1.301
	(1.07)	(0.76)	(-1.64)	(-0.02)
Non Eu	1.217	1.240	1.430	1.007
	(2.24)	(2.41)	(2.35)	(2.91)
Tertiary Ed.	1.240	1.242	1.168	1.149
	(5.56)	(5.53)	(2.21)	(5.40)
Less Up Second.	1.099	1.141	1.102	0.960
	(2.85)	(3.9)	(1.54)	(4.01)
Country				
Log Income p.c.95 ppp	0.515	1.0493	3.115	0.989
	(-5.48)	(0.34)	(3.68)	(-0.09)
Maternity Wks x rep rate	1.000	0.993	0.983	1.238
	(0.10)	(-2.7)	(-3.34)	(1.66)
% Self-emp.	0.966	0.982	0.998	0.982
	(-14.02)	(-5.81)	(-0.21)	(-2.75)
% Gov emp	1.001	1.0038	0.998	1.001
	(0.33)	(0.9)	(-0.20)	(-1.57)
Male Unemp (t-1)		1.081	1.090	0.996
		(10.92)	(6.46)	(0.46)
Fem.Unemp. (t-1)	0.982	0.946	0.963	0.967
	(-4.58)	(-10.3)	(-3.09)	(-0.3)
Female Activity Rate	0.984	1.005	1.044	0.572
	(-9.75)	(0.96)	(3.40)	(-1.25)
% Part time		1.077	1.184	1.000
		4.19)	(4.11)	(0.04)
% Part time x Fem. Activity		0.998	0.997	0.984
		(-4.84)	(-4.10)	(0.68)
Period	1972-01	1980-01	1980-01	1980-01
Dummies	yr	yr	yr	yr ctry

subjects	16,281	16,088	6,091	16,088
failures	5,145	4,952	1,508	4,952
Log Likelihood	-46698.6	-44696	-11814	-44567.6

Note: Estimated hazard rates. T-statistics in parentheses

Table 1.3 (b) Simulated proportion of women with only two children according to varying country economic conditions.

Time since first birth	Female Unemployment Rate		
	5%	15%	25%
5 years	.658	.787	.872
8 years	.550	.710	.822

Time since first birth	Female Labor Force Participation					
	40%		50%		70%	
% Part time	7%	20%	7%	20%	7%	20%
All						
5 years	0.705	0.650	0.717	0.712	0.740	0.809
8 years	0.607	0.540	0.622	0.615	0.650	0.739
Born 1963+						
5 years	0.824	0.654	0.781	0.683	0.668	0.736
8 years	0.742	0.517	0.683	0.556	0.537	0.624

Time since first birth	Maternity Leave (Weeks x Replacement Rate)		
	16	20	40
5 years	.740	.746	.776
8 years	.650	.658	.696

Note: Simulations from results in columns (2) and (3) in Table 1.3 (a). Variables, unless specified, are set at the mean.

Table 2.1 (a) Time to Second Birth: Monthly Activity Status from 92.

	(1)	(2)	(3)	(4)
Foreign	0.881	0.843	0.936	0.923
	(-1.56)	(-1.81)	(-0.82)	(-0.96)
Non Eu	1.028	1.142	0.953	0.969
	(0.25)	(1.00)	(-0.43)	(-0.28)
Age First Birth	0.963	0.955	0.962	0.961
	(-9.44)	(-9.54)	(-9.55)	(-9.76)
First Boy	1.003	0.969	1.004	0.998
	(0.10)	(-0.79)	(0.12)	(-0.05)
Married	1.791	1.535	1.804	1.935
	(9.53)	(6.55)	(9.64)	(10.48)
Living in couple	1.178	0.951	1.224	1.413
	(2.08)	(-0.32)	(2.54)	(3.71)
Wom. Tertiary Ed.	1.309	1.431	1.297	1.192
	(5.70)	(6.55)	(5.49)	(3.58)
Wom. Up Second. Ed.	1.152	1.128	1.140	1.089
	(3.48)	(2.62)	(3.20)	(2.04)
Sp. Tertiary Ed.	1.418	1.306	1.410	1.286
	(7.42)	(4.89)	(7.31)	(5.21)
Sp. Up Second.Ed.	1.124	1.072	1.110	1.045
	(2.86)	(1.50)	(2.55)	(1.05)
W.working (t-7)	0.687	0.771	0.542	0.727
	(-7.76)	(-3.98)	(-9.22)	(-6.50)
W.Unemp (t-7)	1.013	0.989	1.000	0.993
	(0.22)	(-0.18)	(0.00)	(-0.12)
Sp.working(t-7)	0.986	1.039	0.972	1.043
	(-0.28)	(0.52)	(-0.56)	(0.82)
Sp. Unemp (t-7)	0.857	1.036	0.856	0.883
	(-1.84)	(0.33)	(-1.87)	(-1.46)
W. ever Unemp +1yr	0.767	0.767	0.775	0.846
	(-5.02)	(-4.74)	(-4.79)	(-3.09)
Sp.ever Unemp +1yr	1.068	0.994	1.060	1.136
	(1.14)	(-0.10)	(1.01)	(2.12)
W.Public Sec (t-7)	1.229	1.319	1.380	1.220
	(3.82)	(4.53)	(3.82)	(3.690
Sp.Public Sec (t-7)	1.079	1.084	1.083	1.122
	(1.46)	(1.45)	(1.52)	(2.17)
W.Self. Emp (t-7)	1.075	0.969	1.081	1.128
	(0.78)	(-0.31)	(0.81)	(1.27)
Sp.Self.Emp (t-7)	1.185	1.259	1.198	1.262
	(3.21)	(3.96)	(3.43)	(4.30)
W.Part T (t-7)	1.450	1.345		1.267
	(6.71)	(4.70)		(4.12)
W.Pub. S. (t-7) x % PT in Pub			2.753	

S. (t-12)				
			(4.50)	
W.Private. S. (t-7) x % PT in Private S. (t-12)			4.057	
			(7.34)	
Sp.Part T (t-7)	1.180	1.280	1.137	1.080
	(1.04)	(1.54)	(0.80)	(0.47)
Work Income woman (t-7)		1.000		
		(-3.85)		
Work Income spouse (t-7)		1.000		
		(4.09)		
Fem. Unem (t-12)	0.983	0.989	0.985	0.963
	(-5.18)	(-3.22)	(-4.59)	(-2.49)
% Gov Employ (t-12)	1.002	0.991	1.008	0.998
	(0.44)	(-1.63)	(1.70)	(-0.09)
Maternity Benefit (t-12)	1.022	1.019	1.021	0.997
	(8.36)	(5.21)	(7.99)	(-0.60)
Log Income per capita (t-12)	1.521	1.649	1.372	0.389
	(4.39)	(4.69)	(3.20)	(-2.40)
Country dummies	No	No	No	Yes
Subjects	8041	6488	8041	8041
Failures	3362	2540	3362	3362
Log Likelihood	-27145.1	-19597.1	-27135	-27032.4

Table 2.1 (b) Simulated proportion of women who did not have a second child according to their working status after the birth of the first child.

Time since first birth	Long Term Unemployment spell after 1989	
	Yes	No
5 years	.515	.421
8 years	.387	.291

Time since first birth	Labor market status since first birth				
	Inactive	Full time private sector	Part time private sector	Full time public sector	Part time public sector
5 years	.403	.535	.404	.464	.328
8 years	.273	.410	.274	.334	.204

Time since first birth	Proportion of part time within sector of employment in country					
	Private Sector			Public sector		
	10%	20%	50%	10%	20%	50%
5 years	.565	.518	.368	.467	.432	.321
8 years	.442	.391	.239	.338	.301	.196

Note: Simulations from results in columns (1) and (3) in Table 2.1(a) All variables, unless specified, are set at the mean.

Table 2.1 (c) Time to Second Birth: Monthly Activity Status from 92. Additional variables.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
W.Public Sec (t-7)	1.291		1.229	1.303	1.327	1.326	1.318
	(4.30)		(3.09)	(4.33)	(4.61)	(4.59)	(4.51)
Sp.Public Sec (t-7)	1.090		1.087	1.105	1.083	1.084	1.084
	(1.55)		(1.40)	(1.79)	(1.43)	(1.44)	(1.44)
W.Part T (t-7)	1.438	1.326	1.327	1.316	1.347	1.347	1.345
	(6.10)	(4.45)	(4.46)	(4.37)	(4.70)	(4.71)	(4.69)
Sp.Part T (t-7)	1.223	1.264	1.289	1.285	1.278	1.261	1.290
	(1.25)	(1.47)	(1.58)	(1.54)	(1.53)	(1.44)	(1.60)
W.Self. Emp (t-7)	1.126	0.947	0.966	0.983	0.979	0.979	0.955
	(1.24)	(-0.54)	(-0.34)	(-0.17)	(-0.21)	(-0.21)	(-0.45)
Sp.Self.Emp (t-7)	1.214	1.249	1.266	1.289	1.260	1.264	1.250
	(3.54)	(3.84)	(4.05)	(4.37)	(3.94)	(3.99)	(3.83)
W. Wage Income (t-7)		1.000	1.000	0.999	1.000	1.000	1.000
		(-3.63)	(-3.83)	(-4.22)	(-4.06)	(-4.10)	(-4.00)
Sp. Wage Income (t-7)		1.000	1.000	1.000	1.000	1.000	1.000
		(4.13)	(3.97)	(3.71)	(4.11)	(3.99)	(3.85)
Household Income (t-7)	1.000						
	(-5.26)						
W..Educ, SocServ, Pub S.		1.206					
		(3.12)					
Sp..Educ, SocServ, Pub S.		1.093					
		(1.43)					
W.Pub.Sect (t-7)*France			1.499				
			(3.27)				
Sp.Pub.Sect (t-7)*France			1.019				
			(0.13)				
Unemp. Benefits (t-7)				0.900			
				(-2.65)			
Family Allowances (t-7)				1.684			
				(11.43)			
W.No Permanent Cont (t-7)					0.848	1.076	
					(-2.44)	(0.44)	
Sp.No Permanent					1.005	1.258	

Cont (t-7)							
					(0.09)	(1.51)	
W. Contract less 1yr.(t-7)						0.767	
						(-1.52)	
Sp. Contract less 1yr.(t-7)						0.788	
						(-1.51)	
Owns Home (t-7)							1.149
							(3.08)
Subjects	7098	6488	6488	6488	6488	6488	6488
Failures	2672	2540	2540	2540	2540	2540	2540
Log Likelihood	-20877.9	-19602.2	-19592.4	-19530.1	-19594.1	-19592	-19592.4

Note: Education, previous birth history, work, unemployment, part time, self employment, female unemployment, size of government sector maternity benefits and income per capita also included. Robust standard errors adjusted on individuals.

Table 2.2. Transition to Second Birth. Monthly Activity Status from 92. Interactive Variables by country

Interactive	**(1)**	**(2)**	**(3)**	**(4)**
	Public Sector	**Public Sector**	**Part Time**	**Part Time**
Women:				
Netherlands	1.299	1.110	1.456	0.987
	(1.69)	(0.66)	(3.54)	(-0.10)
Belgium	1.884	1.506	1.792	1.269
	(3.55)	(2.22)	(3.82)	(1.38)
Lux.	1.257	1.605	0.923	1.163
	(0.83)	(1.63)	(-0.16)	(0.30)
France	1.865	1.710	1.789	1.490
	(5.37)	(4.48)	(4.62)	(3.03)
UK	0.956	0.941	1.143	0.992
	(-0.26)	(-0.34)	(0.74)	(-0.04)
Ireland	2.105	1.522	2.080	1.274
	(3.42)	(2.02)	(4.06)	(1.25)
Italy	0.998	1.353	0.626	0.799
	(-0.01)	(1.73)	(-2.04)	(-0.95)
Greece	0.967	0.910	1.292	1.121
	(-0.15)	(-0.41)	(0.78)	(0.34)
Spain	1.247	1.466	1.400	1.542
	(1.16)	(1.97)	(1.29)	(1.69)
Portugal	0.895	1.448	0.814	1.296
	(-0.53)	(1.64)	(-0.59)	(0.71)
Austria	1.534	1.797	0.826	0.796
	(1.78)	(2.34)	(-0.83)	(-0.91)
Finland	1.296	1.092	1.522	1.321
	(1.40)	(0.47)	(1.41)	(0.92)
Sweden	0.984	0.902	3.315	3.378
	(-0.03)	(-0.21)	(2.43)	(2.57)
Spouse:				
Netherlands	1.440	1.211		
	(2.33)	(1.20)		
Belgium	1.269	1.101		
	(1.05)	(0.44)		
Lux.	0.676	0.885		
	(-1.72)	(-0.51)		
France	1.100	0.983		
	(0.69)	(-0.12)		
UK	1.268	1.220		
	(1.29)	(1.08)		
Ireland	1.103	0.860		
	(0.38)	(-0.64)		

Italy	1.040	1.449		
	(0.31)	(2.64)		
Greece	1.326	1.231		
	(1.59)	(1.13)		
Spain	1.434	1.652		
	(2.30)	(3.07)		
Portugal	0.616	0.938		
	(-2.03)	(-0.25)		
Austria	1.088	1.256		
	(0.40)	(1.00)		
Finland	0.945	0.831		
	(-0.27)	(-0.88)		
Sweden	1.036	0.995		
	(0.06)	(-0.01)		
Country Dummies	no	yes	no	yes
Subjects	6488	6488	6488	6488
Failures	2540	2540	2540	2540
Log Likelihood	-19564.5	-19484.7	-19575.3	-19492.9

Note: Estimates of hazard ratios of interactive variables (Public Sector (7 month lag)*Country) and similar. Education, previous birth history, work, unemployment, part time, self employment, length of contract, individual and spouse income, local unemployment, size of government sector, maternity benefits, and income per capita also included. Robust standard errors adjusted on individuals.

Table 2.3. Time to Second Birth. Monthly Activity Status from 1992. Country regression

	France	**UK**	**Italy**	**Spain**
Education				
Wom. Tertiary Ed.	1.195	1.093	0.994	1.382
	(1.12)	(0.75)	(-0.02)	(1.66)
Wom. Up Second. Ed.	1.224	0.972	0.995	0.914
	(1.48)	(-0.22)	(-0.04)	(-0.54)
Sp. Tertiary Ed.	1.183	1.103	1.413	1.640
	(1.09)	(0.83)	(1.62)	(2.86)
Sp. Up Second.Ed.	0.673	0.994	1.106	0.876
	(-2.95)	(-0.04)	(0.79)	(-0.75)
Long Term Unemp.				
W. ever Unemp +1yr	0.810	1.553	0.812	0.756
	(-1.36)	(2.11)	(-1.65)	(-1.76)
Public Sector				
W.Public Sec (t-7)	1.540	1.122	1.335	1.254
	(3.02)	(0.58)	(1.36)	(0.73)
Sp.Public Sec (t-7)	1.093	1.315	1.383	1.693
	(0.58)	(1.57)	(1.98)	(2.59)
% Gov Employ (t-12)	1.847	1.085	1.053	0.619
	(1.62)	(1.07)	(0.25)	(-0.94)
Subjects	733	877	935	695
Failures	321	377	303	219
Log Likelihood	-1781.18	-2184.07	-1780.3	-1183.24

Note: Estimates include all independent variables in Table 2.1.

Table 2.4. Time to Third Birth: Monthly Activity Status from 92.

	(1)	(2)	(3)	(4)
Foreign	0.851	0.745	0.796	0.942
	(-1.11)	(-1.69)	(-1.31)	(-0.40)
Non Eu	1.345	1.335	1.353	1.318
	(1.55)	(1.23)	(1.31)	(1.41)
Age First Birth	0.915	0.915	0.918	0.913
	(-10.03)	(-8.33)	(-8.15)	(-10.1)
Two Boys	1.312	1.303	1.294	1.327
	(3.63)	(3.08)	(3.01)	(3.79)
Two Girls	1.335	1.425	1.431	1.378
	(4.02)	(4.36)	(4.41)	(4.47)
Months 1^{st} to 2^{nd} child	0.988	0.985	0.986	0.989
	(-8.23)	(-8.04)	(-7.66)	(-7.51)
Married	1.112	0.920	1.021	1.142
	(0.98)	(-0.73)	(0.18)	(1.23)
Living in couple	1.378	1.540	1.284	1.194
	(2.21)	(1.31)	(0.77)	(1.08)
Wom. Tertiary Ed.	1.042	1.167	1.097	0.962
	(0.47)	(1.53)	(0.92)	(-0.44)
Wom. Up Second. Ed.	0.892	0.920	0.903	0.854
	(-1.55)	(-1.04)	(-1.27)	(-2.11)
Sp. Tertiary Ed.	1.406	1.373	1.321	1.369
	(4.05)	(3.29)	(2.90)	(3.73)
Sp. Up Second.Ed.	1.080	1.036	1.030	1.071
	(1.06)	(0.43)	(0.37)	(0.92)
W.working (t-7)	0.745	0.850	0.872	0.727
	(-3.15)	(-1.37)	(-1.13)	(-3.39)
W.Unemp (t-7)	0.943	0.937	0.967	0.867
	(-0.59)	(-0.61)	(-0.32)	(-1.42)
Sp.working(t-7)	0.946	1.079	1.099	0.947
	(-0.62)	(0.59)	(0.73)	(-0.59)
Sp. Unemp (t-7)	1.150	1.295	1.202	1.039
	(1.02)	(1.54)	(1.06)	(0.27)
W. ever Unemp +1yr	0.792	0.816	0.810	0.869
	(-2.37)	(-1.96)	(-2.02)	(-1.41)
Sp.ever Unemp +1yr	1.199	1.188	1.183	1.186
	(1.83)	(1.61)	(1.56)	(1.66)
W.Public Sec (t-7)	1.339	1.504	1.515	1.339
	(2.87)	(3.57)	(3.61)	(2.89)
Sp.Public Sec (t-7)	0.984	0.978	1.029	1.026
	(-0.17)	(-0.22)	(0.28)	(0.26)
W.Part T (t-7)	1.323	1.241	1.186	1.200
	(2.67)	(1.86)	(1.45)	(1.72)

Sp.Part T (t-7)	0.984	0.937	0.915	0.870
	(-0.06)	(-0.24)	(-0.33)	(-0.54)
W.Self. Emp (t-7)	1.044	0.951	0.958	1.181
	(0.24)	(-0.27)	(-0.23)	(0.94)
Sp.Self.Emp (t-7)	1.281	1.168	1.246	1.359
	(2.68)	(1.46)	(2.07)	(3.35)
Work Income woman (t-7)		0.999	0.999	
		(-2.42)	(-2.86)	
Work Income spouse (t-7)		0.999	0.999	
		(-1.53)	(-1.00)	
Own home (t-7)	1.062	1.133		1.033
	(0.87)	(1.58)		(0.45)
Unemp.Benefit (t-7)			0.993	
			(-0.10)	
Family Allowance (t-7)			1.973	
			(7.96)	
Fem. Unem (t-12)	0.982	0.980	0.998	0.983
	(-2.84)	(-2.98)	(-0.24)	(-0.60)
% Gov Employ (t-12)	1.012	1.011	1.001	1.069
	(1.48)	(1.20)	(0.13)	(2.42)
Maternity leave (t-12)	0.999	1.002	0.997	0.997
	(-0.16)	(0.27)	(-0.53)	(-0.30)
Log Income per capita (t-12)	2.586	3.217	3.910	1.970
	(5.65)	(6.22)	(6.79)	(0.93)
Country dummies	No	No	No	Yes
Subjects	6463	5571	5571	6463
Failures	1075	838	838	1075
Log Likelihood	-8624.81	-6417.46	-6380.93	-8560.71

Appendix A. Shares of (1) Public Employment and (2) Part Time Employment over Total Employment in 1994 and (3) Part Time over Total Female Employment 1998 (%)

	Public Sector	Part Time/Total	Part Time/Fem.
Austria	22.5	11.1	22.8
Belgium	19.0	13.6	32.2
Denmark	30.2	21.6	25.4
Finland	23.3	8.7	13.0
France	24.6	15.6	25.0
Germany	15.5	16.3	32.4
Greece	12.2	4.8	15.4
Ireland	13.3	12.1	31.2
Italy	17.9	6.4	22.4
Luxembourg	10.8	8.0	29.6
Netherlands	12.0	37.4	54.8
Norway	31.2	21.1	35.9
Portugal	18.4	7.5	15.8
Spain	15.5	7.5	16.6
Sweden	32.1	24.3	22.0
United Kingdom	14.2	24.1	41.2

Source: *OECD Labour Force statistics*, OECD (Paris), various issues.

APPENDIX B. Employment Ratio by Gender and by Age Group in the Public Sector.

	% Female [a]	% Under 30[b]	% Under 40[b]
Austria			
Central Government	36	13.6	44.8
Finland			
Central Government	45.8	13.71	40.94
Total	60.9	N.A.	N.A.
France			
Central Government	48.9	16.8 [a]	43.5 [a]
Total	58.5	20.7 [a]	47.7 [a]
Germany			
Central Government	21.2	28.6	53.2
Total	50.2	14.1	39.4
Greece			
Central Government	39.3	3.0	24
Total	49.8	N.A.	N.A.
Ireland			
Central Government	50	N.A.	N.A.
Italy			
Total	50.1	N.A.	N.A.
Netherlands			
Central Government	30.5	12.0	43.9
Total	34.5	13.9	38.9
Norway			
State	44	13.35	40.34
Portugal			
Central Government [c]	59.4	14.6	46.1
Sweden			
Central Government	44.6	11.0	33.7
United States			
Federal Government	44.4	4.74	25.92
Total	55.8	N.A.	N.A.

Source: OECD Public Management Service, 2001. a) Data are 1998; b) Data 1999 or 2000; c) Data 1996