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DETERMINANTS OF EMPLOYMENT DECISIONS AFTER THE FIRST CHILDBIRTH IN SPAIN

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RESUMEN

El objetivo del presente trabajo de investigación es analizar los determinantes de las decisiones de participación laboral (entradas y salidas en la ocupación) de las madres primerizas en España. Para alcanzar este objetivo se ha explotado la Encuesta de Fecundidad, Familia y Valores 2006. La estrategia empírica ha consistido en distintos modelos de probabilidad en tiempo discreto con control por la heterogeneidad inobservada. Los resultados muestran, por un lado, que la educación, la experiencia laboral previa y no tener pareja aumentan la probabilidad de re-(entrar) en la ocupación y disminuye la probabilidad de abandonar la ocupación después del nacimiento del primer hijo en comparación con las mujeres menos educadas, sin experiencia laboral previa y aquellas que conviven en pareja. Por otro lado, el estado civil de las mujeres no influye en las decisiones laborales después del nacimiento del primer hijo y las mujeres de cohortes más recientes registran más (re-)incorporaciones laborales que el resto de mujeres. Sin embargo, no se observan diferencias a través de las cohortes de nacimiento en las transiciones desde la ocupación. Por último, las circunstancias que rodean al nacimiento del primer hijo no parecen influir en las decisiones laborales de las madres primerizas.

Palabras clave: Madres, transiciones hacia/desde el empleo.

Indicadores JEL: J22.

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ABSTRACT

The aim of this paper is to analyse the determinants of employment decisions (namely, entry and exit from employment) of first-time mothers in Spain. To carry out the analysis, we use the Fertility, Family and Values Survey of 2006. The econometric technique deployed consists in discrete-time duration models with control for frailty. The results indicate, among other things, that education, previous work experience and living without a partner increase the likelihood of (re-)entering employment and decrease the likelihood of leaving employment after the first child than their low-educated, non-experienced and partnered counterparts. Differences in employment decisions after the first birth are not significant across marital status among partnered mothers. Women in recent cohorts register more (re-)employment transitions than the rest. However, no differences were observed in the transits out of employment across cohorts. Finally, the circumstances around childbirth do not seem to influence employment decisions of first-time mothers.

Keywords: Mothers, transitions to/from employment.

JEL Codes: J22.

1. INTRODUCTION

In recent decades there has been a significant change in the role of women in Western societies, which among many other things, has meant a greater access of women to all levels of education and training. This trend also holds for Spain: 41.5 per cent of women aged 25 to 34 had upper secondary or tertiary education attainment in 1992, and 63.8 per cent in 2006, ten percentage points above their male counterparts (Eurostat).

Increasing the educational attainment of women has led to fundamental changes in attitudes to work and motherhood, so that women try to combine both roles, as workers and mothers, and to develop fulfilling work and family careers. But this process is not without its tensions: employment and parenting involve competing uses of women's time. Moreover, long career interruptions due to childbearing may be very costly in terms of forgone and even future wages, due to a depreciation of job-specific human capital (Mills, Rindfuss, McDonald and te Velde, 2011). Because of the often considerable opportunity costs of childbearing may women postpone their first birth until they gain a stable position in the labour market. The likelihood of remaining at work or resuming employment after childbirth will depend both on the opportunity costs of childbearing and the compatibility of the available jobs with family life. In fact, the presence of young children is found to be one of the most important variables in women's employment decisions.

The aim of this paper is studying transitions to and from employment after the first childbirth in Spain. To carry out the analysis, we use the Fertility, Family and Values Survey of 2006 (FFVS-2006 hereinafter) launched by the Centre for Sociological Research (CIS) in 2006. The analytical strategy is a discrete-time duration model, based on Prentice and Gloeckler (1978) model incorporating a gamma mixture distribution to summarize unobserved individual heterogeneity, as proposed by Meyer (1990). Although there have been precedents in the study of employment transitions after motherhood in Spain (examples are Alba and Álvarez-Llorente, 2004; Gutiérrez-Domènech, 2005a; Gutiérrez-Domènech, 2005b), our main contribution to the literature consists in the testing of the role of characteristics of the birth and pregnancy on the transitions into and from employment after childbirth.

The FFVS-2006 has a great analytical utility, providing comprehensive information on the behaviour of women from different birth cohorts about their whole employment and family trajectories up to the date of the interview. We will observe a sample of Spanish women at the same period of their life cycle, that is the first ten years after the birth of their first child. Our main results indicate that highly educated women, those with some previous work experience and women who do not live with a partner are more likely to enter and less likely to leave employment after the birth of their first child. However, the variables relating to pregnancy and the circumstances around the first birth are not significant in explaining employment decisions after the first maternity.

The article goes as follows. Section 2 displays the relevant empirical literature on the issue and the main hypotheses to be tested. Section 3 presents the database and a detailed descriptive analysis of the sample. Section 4 briefly describes the methodology and discusses the main results obtained in the econometric estimations. Section 5 summarizes our main findings and concludes.

2. LITERATURE REVIEW AND MAIN HYPOTHESES

Much of empirical economic literature about employment decisions is supported by the *New Economics of the Family* theoretical framework, initially developed by Gary Becker in the 1960's and has subsequently extended (Becker, 1993). According to this theory, the members of the family allocate their time between paid employment (which funds the purchase of market goods needed to produce domestic goods) and the production of domestic goods. Each family member will specialize in that activity where she has the greatest comparative advantage, namely, greater efficiency or productivity and lower opportunity cost. Hence, women specialize in domestic production, on which they also have biological advantages (at birth and early parenting), and men, who obtain higher salaries, offer more hours in the market and invest more in human capital in order to get a higher reward (i.e. wages) in the labour market.

However, in recent decades this initial argument has been challenged since women have intensified their investment in education, which has often meant a rise in the relative price of women's time in the labour market and a higher opportunity cost of

domestic work. Changes in values and preferences have also taken place and have meant later union and family formation and smaller family sizes. In this context, women have intensified their participation in the labour market and reduced the time devoted to the production of domestic goods (childbearing being one of the most prominent ones). The role of the education attainment on labour market participation patterns is very well documented in many western societies (Chiuri, 2000; Grimm and Bonneuil, 2001; Álvarez-Llorente, 2002; Del Boca, 2002; Bratti, 2003; De la Rica and Ferrero, 2003; Bratti, Del Bono y Vuri, 2005; Del Boca, and Vuri, 2007; Gregg, Gutiérrez-Domènech and Waldfogel, 2007; Emery and Ferrer, 2009; Hotchkiss, Pitts and Walker, 2011). Namely, women with higher educational attainment show a greater attachment to the labour market, which means more persistence in economic activity around pregnancy and earlier re-entries into employment after childbirth.

Prior experience in the labour market is another way of human capital and it contributes to keep women in employment around childbirths or to help them to resume work after an interruption. Alba and Álvarez-Llorente (2004) and Gutiérrez-Domènech (2005b) show that accumulated work experience up to childbirth increases considerably the likelihood of returning to work.

Besides the educational attainment and prior work experience, age may also influence labour market decisions. The positive relationship between female age and the level of employment is confirmed in Chiuri (2000), Grimm and Bonneuil (2001), Del Boca, Pascua and Pronzato (2005) and Del Boca and Vuri (2007). Other authors, such as Del Boca (2002) find a negative relationship between age and employment. We expect women to increase their likelihood to enter employment with age, but at a decreasing rate. Age could reflect potential labour market experience and the expected salary, which would define the shadow price of leisure and domestic work. But as their biological age comes to an end, women become more likely to have children and to need time for childcare and domestic activities. Hence, we expect less and less positive effect of age on keeping women in employment.

The birth cohort is also influential, since it is a proxy of the evolution of structural factors that affect family and labour market decisions: examples are values, which become more liberal and equalitarian as regards gender roles, policies which tend to address family-friendly measures amongst employers and availability of jobs in the

tertiary sector and, particularly, in the public sector, that are particularly suitable for potential mothers. Other structural factors that contribute to a delay in motherhood are the spread of both unemployment and temporary contracts. They imply frequent transitions in and, particularly, out of employment around childbearing. On the other hand, some women, particularly those with mid and low education, tend to take advantage of non-employment spells to rise their children. Sometimes resuming their careers is really difficult. Bloemen and Kalwij (2001) confirm that women from younger cohorts transit into employment more often (also once children are present) and Adam (1996) show that the cohort effect seems to be stronger in reducing the exit probability.

Women take into account the situation of their families in their employment decisions. In particular, their household income is a crucial drive of labour market participation, and it can be proxied by the presence of a partner and even the type of union or partnership. We expect married or cohabiting women to be more likely to leave employment after their first childbirth given the potential availability of income from their partners, than women who do not live with a partner (Gutiérrez-Domènech (2005a) and Hotchkiss et al., 2011). Besides, cohabiting women could be more likely to get a job after the first childbirth than married women. This may be due to two different reasons: first, the perception that the mother's income is more protected by law if the couple is married, which enhances wives to opt for domestic rather than market work; secondly, cohabitation is more spread in women from more recent cohorts, where employment is more common as well.

The family of origin and situations around childless and youth may define labour market participation during adulthood. One example of such an early influence may be whether the parents of the interviewee got separated at some point. We expect women whose parents had separated in the past to be less likely to leave employment and more likely to resume it since they are more conscious about the risk of a breakdown and may therefore perceive a greater need for financial independence in case of a marriage breakdown.

Additionally, the conditions of the local labour market influence women's employment decisions and shape their job opportunities. In particular, in regions with more employment opportunities for women there should be more (re-)entries in

employment or/and fewer exits from employment. That is why we expect women living in regions with production structures oriented towards female employment, for example through employment in the service sector such as Eastern regions in Spain, to have stronger links with the labour market. Álvarez-Llorente (2002) shows that female labour market participation tends to be higher in the Eastern regions of Spain and lower in the Central regions of Spain.

At the same time, the favorable economic cycle should contribute, *ceteris paribus*, to female employment. If the economic cycle points at a reduced availability of jobs, female employment decreases (either in the form of less (re-)entries or more exits). The negative effect of high unemployment rates on female employment has been corroborated by Arellano and Bover (1995), Dex, Joshi, Macran and Mcculloch (1998), Alba Álvarez-Llorente (2004), Del Boca et al. (2005), Bratti et al. (2005), Del Boca and Vuri (2007).

When analyzing employment decisions after the first maternity the circumstances around the birth may be important. However, empirical evidence on employment decisions amongst mothers has not, to the best of our knowledge, taken such circumstances into account. This paper incorporates for the first time variables relating to pregnancy and characteristics of the first birth in the estimation of transitions to and from employment. The first variable is the age at which the first birth took place. The postponement of the first birth may indicate a deliberate decision to build a professional career before motherhood, and late mothers are expected to be more work committed, career oriented and therefore less likely to leave employment after birth and more likely to resume their careers after birth. The second variable indicates whether the woman had at least one abortion before the first birth, which has no clear expected impact on transitions to employment but it is interesting as a control variable since it may act as a proxy for difficulties experienced during earlier pregnancies or even for the desire/need to postpone the first birth. Third, we will add a variable indicating whether the first child was premature. We expect that women whose first child was born prematurely are less likely (re-)enter employment and more likely to leave their jobs due to the more intensive care needed by a premature baby. The fourth variable related to the childbirth is the season where the first child was born. We expect that if the child was born in a season of high economic activity and labour demand, the mother can (re-

)entry employment earlier. Besides, if she does not get a job soon, it may be even more difficult for her to get a job later on.

Finally, labour market decisions of first-time mothers may be as well related with the way in which they see paid employment. The data-set at hand includes a proxy for work commitment, which has been captured by the answer to the following question: "would you still work if you ever won the lottery?" A positive reply may be understood as a proxy for "work commitment" and would allow us to identify "career-oriented" women in a similar fashion as in Hakim[2] (2003) when testing the Preference Theory Approach. We expect women reporting that they would not work if they won the lottery to be less likely to access or resume and more likely to leave employment than work-committed women.

3. DATABASE AND SAMPLE

The FFVS-2006 is a retrospective study, which allows to reconstruct and analyse all transitions into employment, partnership and childbirths and from employment throughout the life cycle and up to the date of the interview of women from diverse birth cohorts, different socioeconomic backgrounds and personal characteristics. The target population was made up of all women over the age of 15 living in Spain in 2006.

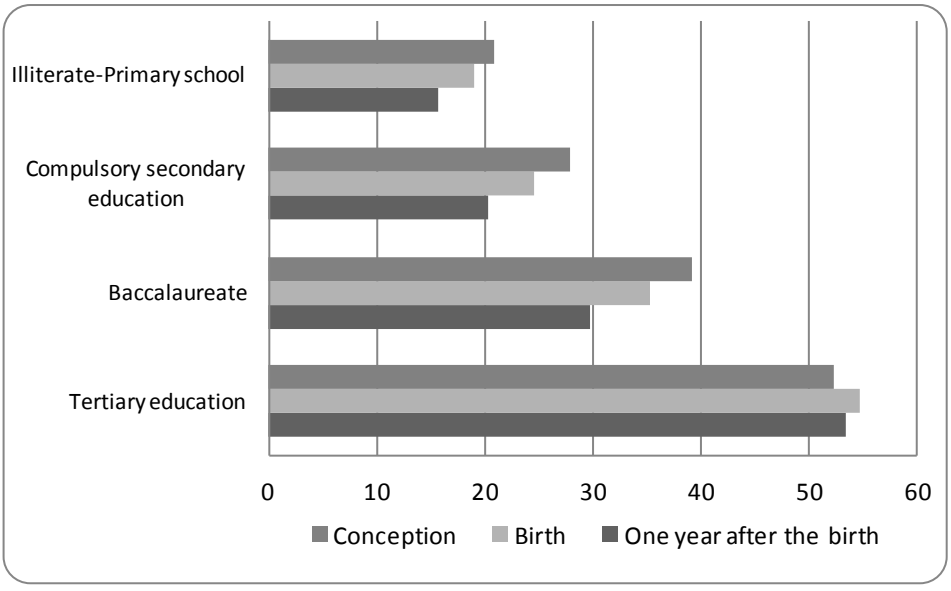
The sample under study has been selected using the following criteria: from the initial full sample (9,737 women), we have selected those who were born between 1961 and 1980[3] and who had at least one child (1,848 women). At a later stage we have dropped those cases which register some kind of error or inconsistency in questions about key dates in their lives (which eliminates 11.9 per cent of women in the sample) because we may not perform the duration analysis with missing information about the moment of birth or the moment of employment transitions around births.

[2] In Hakim (2003) "work commitment" is identified when interviewees stated that they would continue with paid work in the absence of economic need.

[3] We have adopted this decision in order to allow those women belonging to the most recent cohorts (1976-1980) in the sample to complete their studies before the date of the interview. In Spain pregnancies amongst students are very unlikely. With this sample selection, the youngest interviewee is 25 years old by 2005.

The employment decisions of women have changed over time and the increasing educational attainment is one of the driving factors of this change. We can observe the influence of education attainment (which has four categories: illiterate-primary school, compulsory secondary education, baccalaureate and tertiary education) on employment decisions around the first childbirth in Figure 1. More educated women, who are usually found in more recent cohorts, register a higher employment rate before, during and after their first birth. At the time of the first birth employment rates among women with tertiary education (54.7 per cent) almost tripled those in illiterate women or women with primary school (19.1 per cent). In addition, women with tertiary education have stronger connections with the labour market and persist more in employment after the first maternity than women with lower education. This could be due to greater indirect or opportunity costs of abandoning employment (either temporarily or permanently), since they can access better-paid jobs. However, this apparent difference may be driven by the composition of the sample and multivariate analysis will be needed to disentangle whether differences are statistically significant. Illiterate women and women with primary school also show greater persistence in the labour market one year after the first birth than women with baccalaureate, although this behavior can respond to the need to remain in work for economic reasons. In any case, initial (before the birth takes place) employment rates for these low educated women are rather low.

FIGURE 1: Employment rates by education attaintment around the first childbirth (cohorts 1961-1980)



Source: Fertility, Family and Values Survey of 2006, CIS

Figure 1 shows employment rates around the first childbirth, but no real transitions into and from employment. They can be found in detail in Table 1, which summarizes two transition matrices showing the percentage of women employed at the time of conception (birth) who are no longer employed at birth date (one year after birth) and, conversely, the percentage of women who are not employed at the time of conception and are employed around the birth date (one year after birth). Results are shown by educational attainment and birth cohort as this can reflect the evolution in labour force participation patterns as well as values, institutions and policies over the last decades.

Table 1 shows that 7.1 per cent of women working at the time of conception leave employment when the first child is born and 19.8 per cent of women are no longer employed one year later. The percentage of women leaving employment after maternity is greater in women with lower educational attainment. The reduction in the employment rate between the date of birth and one year after the birth is 12.5 percentage points for women with tertiary education, while it reaches almost 30 percentage points for women with compulsory secondary education. Table 1 also shows that 6 per cent of women who are not employed at the time of conception enter work during pregnancy and the first year after birth and this percentage is higher in women with a higher educational attainment.

TABLE 1: Employment transitions around the birth of the first child (cohorts 1961-1980)

		Conception → Birth		Birth → One year after birth	
		% of women who stop working	% of women entering work	% of women who stop working	% of women entering work
Birth cohort	1961-1965	8.83	4.40	17.58	3.99
	1966-1970	5.68	5.02	18.73	7.48
	1971-1975	6.07	9.76	20.14	8.91
	1976-1980	9.90	4.55	28.87	8.82
Total		*7.14*	*5.72*	*19.83*	*6.73*
Educational attainment	Illiterate- primary school	9.86	5.15	23.94	5.15
	Compulsory secondary education	9.58	5.50	29.07	4.71
	Baccalaureate	7.81	3.82	20.73	7.35
	Tertiary education	4.58	9.05	12.47	11.06

Source: Fertility, Family and Values Survey of 2006, CIS

The sample under study in the multivariate analysis results of excluding as well observations of women who do not provide all the necessary information in the multivariate models. The final sample is made by 1,628 women, of which 696 were not working the year before the first childbirth and 932 were in employment one year before their first birth. Among the non-employed, 35.78 per cent get a job before their child is eleven years old. Among the employed, 39.48 per cent give up work during the first ten years after their first birth.

The mean values of all variables included in the multivariate models are presented in Table A.1 of the Appendix. The samples of women who were employed and those who were not in employment at the time of their first childbirth are somehow different. This should be taken into account when interpreting the results of the econometric models. Employed interviewees at the moment of childbirth are slightly older, have a higher educational attainment, live more often in cohabitation, in regions where the unemployment rate is lower, are more present in the Eastern regions and less in the South and are postpone their first birth more than women who were not working when their first child was born.

4. METHODOLOGY AND RESULTS

4.1. Methodology

In order to analyse employment decisions of first-time mothers, and since the event of interest is observable in a discrete time interval (annual), we propose a discrete-time proportional-hazard duration model which enables control for time-varying covariates. Precisely, we deploy the technique proposed by Prentice and Gloeckler (1978) adapted by Meyer (1990) in order to control for unobserved heterogeneity or frailty. Stephen Jenkins implemented this model into a STATA routine (*pgmhaz8*). The technical aspects of this model may be found in Jenkins (1997).

In the model of (re-) entry into employment for non-employed first-time mothers the dependent variable takes the value 1 when first-time non-working mother transits into paid work. In the model of exit from employment the dependent variable takes the

value 1 when the first-time working mother leaves employment before the time of censorship[4].

The X_{ij} vector of explanatory variables in all the specifications includes personal characteristics (age, age squared, birth cohort, educational attainment, whether the parents ever got separated, work experience prior to the childbirth and work commitment), partnership status (single, married or cohabiting) and circumstances around pregnancy and birth (age at the moment of the first birth, previous abortion(s), premature child and season in which the first birth took place). In order to control for differences across regions and the influence of the economic cycle, we include three new variables in the empirical analysis: area of residence[5], regional rate of female unemployment and job creation.

4.2. Results

The results of the multivariate analysis may be found in Table 2. Instead of the coefficients the hazard ratios will be shown to facilitate interpretation of results. Hazard ratio values above 1 indicate a greater probability of the event of interest compared to the reference category in each case. We have conducted four specifications, which differ only in the inclusion of variable about the pregnancy and childbirth.

The probability of accessing employment does not depend on the interviewees' age, whereas the probability of leaving employment does respond to age. Namely, it increases with age, but at a decreasing pace, as shown by the value below 1 of the hazard ratio in the squared age variable. In addition, women born in more recent cohorts have a higher probability of (re-)entering employment after the first maternity. This result is in line with Bloemen and Kalwij (2001). The probability of getting a job increases by a factor of 1.7 and 1.5, respectively, in cohorts 1966-1970 and 1971-1975 and more than doubles in the case of women in more recent cohorts (1976-1980)

[4] Censorship takes place ten years after the birth or, exceptionally, at the moment of the interview, whichever is first.

[5] The country has been divided into four large regions: East (Aragon, Balearic Islands, Catalonia and Valencia), Centre (Castilla y Leon, Castilla-La Mancha and Madrid), South (Andalusia, Canary Islands, Extremadura and Murcia) and North (Asturias, Cantabria, Galicia, Navarra, Basque Country and La Rioja).

compared with women from earlier cohorts (1961-1965). However, no significant differences are found across cohorts in the transition from employment after the first maternity.

A higher educational attainment contributes to an increase in the likelihood of accessing employment and reduces the likelihood of leaving employment after the first maternity, in line with most of the literature, such as Álvarez-Llorente (2002) and De la Rica and Ferrero (2003) for the Spanish case. Namely, the probability of (re) employment more than doubles for women with tertiary education compared with women with (either complete or incomplete) primary school attainment. At the same time, the probability of leaving employment decreases to about one fourth for women with tertiary education compared with women who only have up to primary education. These results would support our initial hypothesis stemming from the human capital approach since they could be due to the fact that highly educated women have a greater opportunity cost of not working because they can access better jobs with higher wages in the market. Additional explanations to this result lie in the fact that many women, particularly highly educated ones, self-select into occupations and employers where there is a relatively high work-family life balance. This is particularly the case in the public sector, where employment contracts are more stable than in the private sector and working conditions regarding working times are usually more family-friendly.

No significant differences are noted between children of separated and non-separated parents as regards transitions either to or from employment.

Previous experience in the labour market is very relevant: the probability of getting a job more than doubles for women with 1 to 3 years of work experience and is multiplied by 1.5 for women with more than 3 years of work experience compared to women without previous work experience at all. Furthermore, more experienced women are less likely to leave employment after their first maternity, confirming the results previously obtained by Alba and Álvarez-Llorente (2004) and Gutiérrez-Domenech (2005b).

Additionally, women who show a low level of work commitment (those who report that would not work in the event of winning the lottery) are less likely to transit into employment during the first ten years after the first childbirth. This variable is

nevertheless not significant in the transition out of paid employment after the first maternity.

As expected, the presence of a partner and the kind of partnership is also very relevant in employment decisions of mothers. Women who do not live with a partner at the moment of first childbirth have the greatest likelihood of getting a job after the birth while the probability of leaving employment decreases by 0.66 for unpartnered women at that moment compared with married women. This result confirms the greater need, among single mothers, of income to raise their children, as showed Gutiérrez-Domènech (2005a) and Hotchkiss et al. (2011). No significant differences are found between married and cohabiting mothers as regards entries and exits from employment. This latter result is somehow puzzling, since we expected cohabiting mothers to register an intermediate pattern of behavior between single and married mothers.

As regards the local labor market conditions, the results show that the probability of leaving employment is greater for women living in the East compared with women living in the North of the country. The better job opportunities in the East and the greater seasonality in the productive activities of the region can encourage women living in this area to temporarily leave employment after the first maternity and return later on. This result differs from results obtained by Álvarez-Llorente (2002), which shows that female labour market participation tends to be higher in the Eastern regions of Spain.

Unemployment rates define reduced opportunities in the labour market and are related to a higher likelihood to (involuntarily) leave employment. However, they do not seem to be relevant when explaining the likelihood of (re-) employment after the first maternity. These results do not confirm the ones obtained by Arellano and Bover (1995) and Alba Álvarez-Llorente (2004) for Spain, but it may well be the case that the reaction of employment transitions to unemployment rates has changed for the new cohorts and the period those studies did not cover.

As regards the results for variables related to the circumstances around the first pregnancy and birth, firstly, the age at which the first birth took place, does not influence strongly (re-)entry into employment once unobserved heterogeneity is controlled for, but it does actually increase this likelihood before control for frailty

(results not shown). This result is in line with Gutiérrez-Domènech (2005a). At the same time, women who become mothers at later ages are more likely to leave employment after the first birth. However, the results must be interpreted with caution as they are significant at 10% and not very robust to different specifications. The latter result is not consistent with our expectations but, once the educational attainment is controlled for, which could account for voluntary postponement of fertility for the sake of a stable position in the labour market, late age at first birth may no longer be a signal of consolidated careers. Secondly, previous abortions do not influence employment decisions after childbirth. Thirdly, the dummy variable indicating whether the first child was premature is not significant in the models. Fourthly, employment decisions seem to be independent of the season when the birth takes place.

Finally, unobserved heterogeneity is not significant in any of the specifications of entry into employment, but it is relevant in specifications of exit from employment. This suggests that the variables included in the former specifications capture much of the heterogeneity, whereas there are relevant factors not explicitly included in the second set of models that influence the decision of leaving employment after the first maternity.

TABLE 2: Employment decisions after the first childbirth. Discrete-time duration models by control for unobserved heterogeneity (*pgmhaz8*). Hazard ratio

		(Re-)entry into employment				Exit from employment			
		Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Age	Age	0.822	0.827	0.822	0.977	1.545**	1.555**	1.536**	1.327
		(0.105)	(0.107)	(0.105)	(0.148)	(0.264)	(0.267)	(0.263)	(0.271)
Age squared	Age^2	1.003	1.003	1.003	1.000	0.992***	0.992***	0.992***	0.994*
		(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Birth cohort (*ref.* Cohort 1961-1965)	Cohort 1966-1970	1.698***	1.731***	1.707***	1.719***	0.974	0.980	0.974	0.993
		(0.297)	(0.312)	(0.301)	(0.310)	(0.209)	(0.212)	(0.210)	(0.198)
	Cohort 1971-1975	1.479*	1.477*	1.464*	1.468*	1.028	1.010	1.013	1.046
		(0.336)	(0.343)	(0.332)	(0.335)	(0.255)	(0.253)	(0.252)	(0.244)
	Cohort 1976-1980	2.120***	2.172***	2.110***	2.137***	1.708	1.617	1.683	1.823*
		(0.584)	(0.617)	(0.586)	(0.605)	(0.627)	(0.601)	(0.618)	(0.630)
Education attainment (*ref.* Illiterate-Primary school)	Compulsory secondary education	1.472	1.473	1.460	1.492	0.780	0.750	0.755	0.753
		(0.376)	(0.383)	(0.372)	(0.392)	(0.267)	(0.260)	(0.259)	(0.235)
	Baccalaureate	1.785**	1.761**	1.785**	1.798**	0.522*	0.500*	0.504*	0.531*
		(0.481)	(0.483)	(0.483)	(0.498)	(0.188)	(0.182)	(0.181)	(0.175)
	Tertiary education	2.355***	2.302***	2.332***	2.399***	0.270***	0.258***	0.261***	0.276***
		(0.659)	(0.658)	(0.658)	(0.726)	(0.099)	(0.095)	(0.095)	(0.093)
Work experience before first birth (*ref.* No previous work experience)	Up to 3 years	2.952***	2.996***	2.909***	2.984***				
		(0.653)	(0.670)	(0.646)	(0.792)	*Ref.*	*Ref.*	*Ref.*	*Ref.*
	More than 3 years	1.487*	1.498*	1.471*	1.510*	0.421***	0.411***	0.423***	0.444***
		(0.304)	(0.314)	(0.302)	(0.322)	(0.113)	(0.112)	(0.114)	(0.110)
Separated parents (*ref.* No)	Yes	0.627	0.622	0.635	0.658	1.408	1.486	1.442	1.504
		(0.193)	(0.195)	(0.195)	(0.210)	(0.485)	(0.516)	(0.495)	(0.479)

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Source: Fertility, Family and Values Survey of 2006 (CIS)

TABLE 2: Employment decisions after the first childbirth. Discrete-time duration models by control for unobserved heterogeneity (*pgmhaz8*). Hazard ratio (*continued*)

		(Re-)entry into employment				Exit from employment			
		Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Type of partnership (*ref.* Marriage)	Cohabitation	1.174	1.196	1.170	1.134	0.721	0.710	0.722	0.701
		(0.314)	(0.329)	(0.315)	(0.306)	(0.205)	(0.204)	(0.206)	(0.185)
	No partner	1.959**	1.947**	1.939**	1.982**	0.347**	0.349**	0.353**	0.344***
		(0.517)	(0.522)	(0.514)	(0.529)	(0.150)	(0.152)	(0.153)	(0.142)
	No answer	1.653**	1.722**	1.673**	1.698**	0.797	0.793	0.795	0.778
		(0.406)	(0.437)	(0.415)	(0.446)	(0.212)	(0.214)	(0.212)	(0.195)
Area of residence (*ref.* North)	East	1.219	1.220	1.224	1.274	1.543*	1.582*	1.568*	1.524*
		(0.257)	(0.265)	(0.260)	(0.272)	(0.360)	(0.371)	(0.366)	(0.329)
	Centre	1.326	1.317	1.336	1.455*	1.128	1.136	1.127	1.096
		(0.288)	(0.293)	(0.291)	(0.327)	(0.300)	(0.305)	(0.300)	(0.271)
	South	0.755	0.757	0.777	0.784	1.022	1.028	1.012	0.982
		(0.155)	(0.159)	(0.160)	(0.162)	(0.273)	(0.276)	(0.271)	(0.245)
Labour market conditions	Regional unemployment rate	0.988	0.987	0.988	0.989	1.016*	1.016*	1.016*	1.015*
		(0.008)	(0.008)	(0.008)	(0.008)	(0.010)	(0.010)	(0.010)	(0.009)
	Job creation rate	1.014	1.013	1.014	1.014	1.012	1.012	1.012	1.011
		(0.010)	(0.010)	(0.010)	(0.010)	(0.009)	(0.010)	(0.009)	(0.009)
If the woman won the lottery (*ref.* She would work)	She would not work	0.643***	0.636***	0.641***	0.632***	1.243	1.246	1.244	1.235
		(0.097)	(0.099)	(0.097)	(0.097)	(0.215)	(0.216)	(0.215)	(0.197)
	No answer	1.366	1.375	1.402	1.354	1.570	1.677	1.580	1.521
		(0.478)	(0.496)	(0.494)	(0.478)	(0.818)	(0.880)	(0.823)	(0.732)
Age at the moment of the first birth (*ref.* Less than 20 years old)	Between 20 and 24 years old	0.727				1.798			
		(0.239)				(0.978)			
	Between 25 and 29 years old	0.560				2.209			
		(0.262)				(-1.417)			
	More than 29 years old	0.999				3.506*			
		(0.588)				(-2.577)			
Previous abortion(s) (*ref.* No abortions)	At least one abortion		0.847				1.170		
			(0.170)				(0.348)		
	No answer		0.888				1.921		
			(0.184)				(-1.051)		

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Source: Fertility, Family and Values Survey of 2006 (CIS)

TABLE 2: Employment decisions after the first childbirth. Discrete-time duration models by control for unobserved heterogeneity (*pgmhaz8*). Hazard ratio (*continued*)

		(Re-)entry into employment				Exit from employment			
		Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Her first child was premature (*ref.* No)	Yes			1.106				0.888	
				(0.291)				(0.268)	
	No answer			0.499				1.536	
				(0.309)				(0.820)	
Season in which the first birth took place (*ref.* Winter)	Spring				0.858				1.229
					(0.178)				(0.315)
	Summer				1.082				1.024
					(0.487)				(0.247)
	Autumn				0.718				1.069
					(0.203)				(0.265)
	No answer				0.458				1.036
					(0.348)				(0.609)
Constant		0.991	0.864	0.904	0.099	0.001***	0.001***	0.001**	0.008*
		(-1.892)	(-1.654)	(-1.715)	(0.217)	(0.003)	(0.003)	(0.004)	(0.024)
Unobserved heterogeneity Gamma var, exp (ln_varg)		0.455	0.588	0.491	0.493	2.234***	2.273***	2.243***	1.720**
		(0.320)	(0.328)	(0.320)	(0.452)	(0.338)	(0.342)	(0.338)	(0.416)
Number of observations		4,794	4,794	4,794	4,794	4,606	4,606	4,606	4,606
Number of individuals		696	696	696	696	932	932	932	932
Log-likelihood		-916.7	-915.8	-916.3	-913.4	-1,153	-1,153	-1,153	-1,152

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Source: Fertility, Family and Values Survey of 2006 (CIS)

5. CONCLUSIONS

The aim of this paper has been analysing the determinants of employment decisions (namely, entry and exit from employment) of first-time mothers in Spain. The data used draw from the 2006 Fertility, Family and Values Survey. Our empirical strategy consists on discrete-time hazard models with frailty. In the presence of personal, family and context variables we have confirmed that the most important factors in the transitions into and from employment around the first childbirth are the education attainment and prior work experience. The more qualified women and those with some previous work experience (re-)enter employment more frequently after first maternity.

Differences in employment decisions after the first birth are not significant across marital status among partnered mothers. Unpartnered women at the moment of their first birth are more likely to access employment later on, because generally face more financial pressure to work than married or cohabiting women, that differences between married and cohabiting women are not significant[6]. Our models also include some new variables relating to characteristics of the pregnancy and birth, none of which have found to be significant in explaining the likelihood of (re-)entry into employment after the first childbirth.

When analyzing the probability of leaving employment after the first birth in a subsample of employed women, it was confirmed that more qualified and experienced women have a lower risk of leaving employment as a result of maternity. This may mean that, for these women, work and family are more compatible than for less qualified and less experienced mothers. In addition, they also have a higher opportunity cost of work, not only by the current salary they can earn in the labour market, but also by the present value of their future income losses due to depreciation of human capital. Literature on fertility decisions shows that highly educated women tend to postpone their first births until they have a stable position in the labour market. Precisely because of this they are as well more likely to remain in the labour market after the birth. And as

[6] It is worth mentioning that there are significant differences as regards fertility decisions amongst married and cohabiting women. Namely, cohabiting mothers delay maternity more than married ones. But once fertility decisions have been made, the type of partnership has no relevant impact on labour market transitions around the birth.

regards the particular circumstances around the pregnancy, they have not shown significance in explaining the risk of leaving paid employment.

To sum up, human capital (measured through educational attainment and work experience) is a key driver of employment decisions among mothers: it may also be related with professional positions and jobs in the public sector or certain activities and professions where it is easier to reconcile work and family responsibilities and to keep their jobs after maternity. Therefore, the human capital is an important factor of integration of women in the labour market in Spain, where female employment rates are low compared to other European countries. Availability of alternative income in the household is also crucial, which is confirmed by employment effects of the presence of a partner. The economic cycle and the productive structure of the region are necessarily shaping employment opportunities as well, while the circumstances around the birth do not seem to be relevant.

Finally, it is interesting to note that, on equal terms, there are increasing employment transits from non-employment among mothers. Women in more recent cohorts register more (re-)employment transitions than the rest. However, something must be wrong in the labour market and in the management of child care in Spain, when no differences were observed in the transits out of employment across cohorts, that is, from more recent cohorts should have a significantly lower probability of leaving employment after childbirth, even after control for educational attainment and previous work experience, and this is not the case. This result confirms that, once these variables are taken into account, there seems to be, *de facto*, no relevant evolution with respect to reconciliation between work and family life amongst Spanish women. In the last few decades this could be due to the lack of protected leave which forces women to quit their job, to the low childcare availability or to less favorable attitude toward women's work in Spain (Pronzato, 2009). Policymakers should carefully pay attention to results like the ones reported here.

REFERENCES

ADAM, P. (1996). "Mothers in an insider– outsider economy: the puzzle of Spain", *Journal of Population Economics*, 9, pp. 301– 323.

ÁLVAREZ-LLORENTE, G. (2002). "Decisiones de Fecundidad y Participación Laboral de la Mujer en España, *Investigaciones Económicas*, 26, 1, pp. 187-218.

ALBA, A. AND ÁLVAREZ-LLORENTE, G. (2004). "Actividad Laboral de la Mujer en torno al Nacimiento de un Hijo", *Investigaciones Económicas*, 28, 3, pp. 429-460.

BECKER, G.S. (1960). *An Economic Analysis of Fertility*. Universities National Bureau Committee for Economic Research (Ed.), Demographic and Economic Change in Developed Countries. Princeton University Press, Princenton, NJ, 209-231.

BECKER, G.S. (1993). *A Treatise on the Family*. Harvard Univ. Press, MA, USA.

BOVER, O. AND ARELLANO, M. (1995). "Female Labour Force Participation in the 1980s: The Case of Spain", *Investigaciones Ecónomicas*, XIX, 2, pp. 171-194.

BLOEMEN, H. AND KALWIJ, A.S. (2001). "Female Labor Market Transitions and the Timing of Births: A Simultaneous Analysis of the Effects of Schooling", *Labour Economic*s, 8, 5, pp. 593-620.

BRATTI, M. (2003). "Labour Force Participation and Marital Fertility of Italian Women: The Role of Education", *Journal of Population Economics*, 16, 3, pp. 525-554.

BRATTI, M., DEL BONO, E. AND VURI, D. (2005). "New Mother's Labour Force Participation in Italy: The Role of Job Characteristics", *Labour*, 19, S1, pp. 79-121.

CHIURI, M.C. (2000). "Quality and Demand of Child Care and Female Labour Supply in Italy", *Labour*, 14, 1, pp. 97-118.

DE LA RICA, S. AND FERRERO, M.D. (2003). "The Effect of Fertility on Labour Force Participation: The Spanish Evidence", *Spanish Economic Review*, 5, 2, pp. 153-172.

DEL BOCA, D. (2002). "The Effect of Child Care and Part Time Opportunities on Participation and Fertility Decisions in Italy", *Journal of Population Economics*, 15, 3, pp. 549-573.

DEL BOCA, D., PASCUA, S. AND PRONZATO, C. (2005). "Fertility and Employment in Italy, France and the UK", *Labour*, 19, S1, pp. 51-77.

DEL BOCA, D. AND VURI, R.M. (2007). "The Mismatch between Employment and Child Care in Italy: The Impact of Rationing", *Journal of Population Economics*, 20, 4, pp. 805-832.

DEX, S., JOSHI, H., MACRAN, S. AND MCCULLOCH, A. (1998). "Women's Employment Transitions around Child Bearing", *Oxford Bulletin of Economics and Statistics*, 60, 1, pp. 79-98.

EMERY, J.C.H. AND FERRER, A. (2009). "Marriage Market Imbalances and Labour Force Participation of Canadian Women", *Review of Economics of the Household*, 7, 1, pp. 43-57.

GREGG. P., GUTIÉRREZ-DOMÈNECH, M. AND WALDFOGEL, J. (2007). "The Employment of Married Mothers in Great Britain 1974-2000", *Economica*, 74, 296, pp. 842-864.

GRIMM. M. AND BONNEUIL, N. (2001). "Labour Market Participation of French Women over the Life Cycle. 1935-1990", *European Journal of Population*, 17, 3, pp. 235-260.

GUTIÉRREZ-DOMÈNECH, M. (2005a). "Employment Transitions after Motherhood in Spain", *Labour*, 19, s1, pp. 123-148.

----- (2005b). "Employment after Motherhood: A European Comparison", *Labour Economics*, 12, 1, pp. 99-123.

HAKIM, C. (2003). "A new approach to explaining fertility patterns: Preference theory", *Population and Development Review*, 29, 3, pp. 349–374.

HOTCHKISS, J.L., PITTS, M.M, AND WALKER, M.B. (2011). "Labour Force Exit Decisions of New Mothers", *Review of Economics of the Household* 9, 3, pp. 397-414.

JENKINS, S.P. (1997). “Discrete Time Proportional Hazards Regression”, Stata Technical Bulletin STB-39, sbe17.

MEYER, R. (1990). “Unemployment Insurance and Unemployment Spells”, *Econometrica*, 58, 4, pp. 757-782.

MILLS, M. R. R. RINDFUSS, P. MCDONALD, AND E. TE VELDE (2011). “Why do people postpone parenthood? Reasons and social policy incentives”, *Human Reproduction Update*, 17, 6, pp. 848–860.

PRENTICE, R. AND GLOECKLER, L. (1978). “Regression Analysis of Grouped Survival Data with Application to Breast Cancer”, *Biometrics*, 34, 1, pp. 57-67.

PRONZATO, C. (2009). “Return to work after childbirth: Does parental leave matter in Europe?”, *Review of the Economics of the Household*, 7, 4, pp. 341-360.

APPENDIX

TABLE A.1: Mean values of the variables used in models of transitions into and from employment after childbirth

		(Re-)entry into employment	Exit from employment
Age	Age	28.26	30.66
Age squared	Age^2	823.90	962.62
Birth cohort	Cohort 1961-1965	45.93	40.14
	Cohort 1966-1970	32.58	36.43
	Cohort 1971-1975	15.06	19.26
	Cohort 1976-1980	6.42	4.17
Education attainment	Illiterate-primary school	15.06	7.36
	Compulsory secondary education	44.56	28.29
	Baccalaureate	23.28	25.14
	Tertiary education	17.10	39.21
Work experience before first birth	Without work experience	72.59	-
	Up to 3 years	11.16	13.44
	More than 3 years	16.25	86.56
Separated parents	No	93.35	94.53
	Yes	6.65	5.47
Type of partnership	Marriage	78.77	73.23
	Cohabitation	7.66	11.70
	No partner	5.13	4.86
	No answer	8.45	10.20
Area of residence	North	27.20	24.45
	East	16.44	36.21
	Centre	15.67	18.69
	South	40.70	20.65
Regional unemployment rate	Regional unemployment	31.42	23.05
Job creation rate	Variation in the number of employed	3.72	4.67
If the woman won the lottery	She would work	36.15	47.96
	She would not work	59.78	49.09
	No answer	4.07	2.95
Age at the moment of the first birth	Less than 20 years old	13.62	2.87
	Between 20 and 24 years old	40.43	20.52
	Between 25 and 29 years old	31.81	45.87
	More than 29 years old	14.14	30.74
Previous abortion(s)	No abortions	88.78	89.36
	At least one abortion	8.97	8.45
	No answer	2.25	2.19

Source: Fertility, Family and Values Survey of 2006 (CIS)

TABLE A.1: Mean values of the variables used in models of transitions into and from employment after childbirth (*continued*)

		(Re-)entry into employment	Exit from employment
Her first child was premature	No	89.24	89.67
	Yes	7.84	8.27
	No answer	2.92	2.06
Season in which the first birth took place	Winter	25.32	24.21
	Spring	25.93	20.99
	Summer	22.84	27.25
	Autumn	22.86	25.86
	No answer	3.05	1.69
Number of individuals		696	932

Source: Fertility, Family and Values Survey of 2006 (CIS)