

Abstract

This paper investigates whether there exists an employment penalty from motherhood in Spain. In particular, we are interested in transitions from employment to non-employment and downward occupational mobility. Results show that Spanish women experience significant transitions from employment to non-employment after first birth and these shifts are strongly linked to pre-birth job features and education. We find that around 40% of Spanish women who were at work one year before childbearing are not in employment one year after. Our analysis reveals that one third of them are unemployed nine months later. Longer follow-up shows that most of those who exit from employment remain out of work permanently. We find that fixed-term contracts (i.e. labour market uncertainty) impacts negatively on the likelihood of re-entry. On the other hand, accumulated human capital (experience and higher level of education) increases the probability of staying at work. There is evidence of differences between cohorts. Whereas in young cohorts exit is exclusively linked to childbearing, in old cohorts leaving employment is already initiated at marriage. For those Spanish women returning to work after confinement, downward occupational mobility is not common due to the lack of part-time jobs.

JEL Classification: I20, J13, J18, J20

Key words: employment transitions, fixed-term contracts, motherhood, education

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Employment Penalty After Motherhood In Spain

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1 Motivation

The career transition that mothers experience after childbearing is one of the interesting questions to investigate if one is concerned about the relationship between family circumstances and female labour force participation.

The career transition after a first birth may be of different types. For instance, women who used to work before the birth may become either unemployed or inactive after it. These women have experienced a radical career transformation. They move from employment to non-employment (we define this as *Career Break Job-Penalty*). Women may also experience *Downward Occupational Mobility*. That is, even if a woman remains employed, she may end up in an occupation that is below the one held before the birth in terms of quality, payment and responsibility. *Downward Occupational Mobility* has been linked to motherhood in Britain (Newell and Joshi (1986) and Dex, Joshi, McCulloch and Macran (1996)). There are several potential reasons why this may happen, both on the supply and the demand side. On the one hand, mothers may be willing to take jobs that involve fewer responsibilities so as to be able to take care of their children. On the other hand, employers may be reluctant to hire mothers for high profile positions since they think that their family role may absorb their energy and interfere with their productivity. Employers may also think that the skills of mothers deteriorate when they are on maternity leave. Furthermore, in some countries, women return to part-time jobs after childbearing and, for whatever reason, these part-time jobs tend to be more concentrated in low qualified occupations.¹

Although there are some studies about employment transitions and *Downward Occupational Mobility* after motherhood in Europe, especially in the UK (see Section 2), few analysis have been done on this topic for the Spanish case. We are aware of one piece of research by Adam (1996a) that uses the Spanish Household and Expenditure Survey (ECPF) for the period 1985–1990 to study married women’s labour force transitions. Our analysis looks not only at employment *vs.* non-employment but also at the existence of *Downward Occupational Mobility*, which has not been studied for Spain yet. We use two different data sources (Section 3) that allow us to study the impact of cohorts effects, time and labour market uncertainty evolution. This is important since the society, labour market institutions and the jobless rate have changed considerably over this period. Our data base has richer information about women.² However, its greatest weakness is that there are no income covariates.

Our contribution is to fill in this gap by studying the existence of the two types of job penalty in Spain: *Career Break Job-Penalty* and *Downward Occupational Mobility*. The first step is to explore the sample with some descriptive statistics to check if there are indeed career transitions. We would like to know the circumstances (e.g. education, region, occupation and experience) under which transitions are more likely to happen. This involves the use of an econometric model such as a probit or logit, which will enable

¹This may be a supply phenomenon from the mother’s side.

²Adam (1996b) points out in her paper the shortcoming of ECPF, which is the lack of female’s education, experience and regions.

us to study the probability that a woman returns to employment in a particular period of time after a first birth, controlling for her observable characteristics.

The paper is organised as follows: in Section 2, we review the related literature. Section 3 explains our data sources. In Section 4 we describe two main patterns: *Career Break Job-Penalty* and *Downward Occupational Mobility*. We use two different datasets as complementary ways of looking at these issues. We next focus on our model in Section 5. The aim is to analyse the probability of returning to employment after motherhood, given females' observed characteristics and labour market conditions. We select those mothers who were at work before the birth and we look at which social, skills, economical and other features influence the likelihood of re-entry. We then conclude in Section 6.

2 Related Literature

Downward Occupational Mobility through breaks in employment (in particular linked to childbearing) has mainly been studied in the UK. Most studies point out that the length of time spent not working prior to re-entry and taking part-time jobs are the principal reasons for *Downward Occupational Mobility*. For example, Newell and Joshi (1986) focus on British women born in 1946 to study occupational downgrading after childbearing. Although some recent mothers had not completed the transition back to paid work at the interview date,³ they observe that three out of ten of the completed transitions experienced downward mobility. They argue that mothers who move to part-time work have higher risk of downward mobility compared to full-time returners. The same result is found by Perry (1988) who concludes that working part-time after birth increases the likelihood of downward occupational mobility, being the more contributing factor. Another paper for Britain by Dex et al. (1996) uses the 1958 National Child Development Study cohort to model employment transitions around childbearing. They find that education is the main factor that secures women's job continuity after motherhood. Contrary to what the authors expected, delaying motherhood helps high-educated women to remain at work but it is not essential. As noted in Section 1, there are no studies for Spain on *Downward Occupational Mobility*. Part of our contribution is to fill in this gap.

The withdrawal of women from work (*Career Break Job-Penalty*) has been studied by several authors. For US, Desai and Waite (1991) test if the occupational sex composition⁴ determines the likelihood that recent mothers are employed. They find that the probability of being employed after childbearing depends mainly on those occupational characteristics that raise the opportunity cost of being in the labour force, independently of sex composition. They also distinguish between women with high and low work commitment depending on their answer to the question if they plan to work at age 35. As expected, they find that those who said yes had a greater probability to remain at work after motherhood. However, women with low commitment were more responsive to financial pressures and worked when they had to.

³Mothers are 32 years old at the interview date.

⁴They call female occupations those with a majority of women in the market.

Wetzels (1999) analyses and compares labour force behaviour around motherhood in Germany, Great Britain, the Netherlands and Sweden. She links the speed of the return to work to both sociological factors and the role of the market *vs.* state. The latter would place Great Britain as the more market-dependent and Sweden as the more state-dependent. She indeed finds a crucial relationship between the timing of re-entry into employment and country-specific policies. Ondrich, Spiess and Yang (1996) study the return to work after childbirth in Germany using a hazard approach. They focus on the legal parental leave period and the post-parental leave. Their results show that once the protection expires, mothers with strong labour force attachment (measured by years of experience and pre-birth full-time contracts) are more likely to return.

There are several studies of Sweden. For instance, Rösen and Sunström (1996) study mother's employment transitions around birth in Sweden and Norway. They use a hazard approach to analyse the entry into employment after birth, with special focus on the effect of parental leave policies. Albrecht, Edin, Sunström and Vroman (1999) estimate the effects of different types of time career interruptions on wages by gender. They test if the human capital depreciation is the main cause for wage drops. Since they find that parental leave is not negative for female's whereas it is for male's, they propose signaling as an alternative explanation. Bernhardt (1986) analyses women's home attachment at first birth, using a logistic model for three educational groups. She concludes that the likelihood of being at home 12 months after confinement is significantly affected by education, marital status, early labour-force withdrawal and duration of the union. Furthermore, the paper shows that low educated women have become over time closer to other educational groups in terms of home attachment. Bernhardt (1988) writes about the increasing tendency to reduce working hours among one-child mothers, particularly among women with a low level of education. Part-time work has become the 'combination strategy' (family and work) for both women who previously would have selected the 'home strategy' and for those who would have taken the 'career strategy', as the author defines it.

Similar results are developed in Ellingsaeter and Ronsen (1996) and Kravdal (1992) for Norway. In the 80s, Norwegian labour force participation rates for mothers with the youngest child under 3 years increased substantially from 47% to 69%. This increase was accompanied by a rise in part-time work, partly thanks to the state, which is a good creator of part-time jobs.

Fewer research has been done in Southern Europe. A study by Saurel-Cubizolles, Romito, Escribà-Agüir, Lelong, Pons and Ancel (1999) describes the return to work after childbirth in France, Italy and Spain, and its relationship to their different maternity leave policies. Their results show that the percentage of women coming back to work within a year after the birth is around 80% in both France and Italy. The proportion is lower in Spain⁵ (53%). The gap of post-birth leave was related to each country's policies. For example, Italian women returned to work later, which they say is due to their longer post-birth maternity leave. Because of the latter statement, their surveys consider women on

⁵Their study is based on urban and rural areas around Valencia city in 1992. Thus, their sample refers to a specific region and period and it is not directly comparable to ours, since we look at the national level.

maternity leave as not working. This is different from our Spanish survey, which accounts women on maternity leave as working. We would also like to point out that their work can not be generalised to the whole Spain since their sample only covers the Valencian region.

More important is the work by Adam (1996a). The author focuses on married women's labour force transitions and concludes that children are the main reason for mothers' abandoning the labour force. Contrary, children do not raise the likelihood of re-entry, their husbands' employment insecurity being the principal cause of return. As mentioned in Section 1, her study is based on another data source with distinct methodology and aims. We are able to study longer periods with more explanatory variables at the cost of non-income information. We believe that this is relevant since there has been important changes in society and labour markets (rise of unemployment and fixed-term contracts).

3 Data and Covariates

In order to provide a more comprehensive analysis of the employment behaviour of women around first birth we exploit three complementary datasets: 'Family and Fertility Survey' (FFS), 'Encuesta de Población Activa' (EPA) and 'European Community Household Panel' (ECHP). We next explain how the use of all of them compensates in part for their individual deficiencies.

The FFS allows us to develop an interesting analysis of the factors that determine the likelihood of returning to work after first birth. However, although the FFS is rich in demographic and social variables, it lacks precise information about some labour market characteristics. For example, it does not specify tenure or type of contract (permanent *vs.* fixed-term). Since our focus is to explore how pre-birth job and personal features affect post-birth labour force status, we would like to have a complement to the FFS that incorporates these covariates into our study. In order to do this task we use the EPA, which is the Spanish Labour Force Survey, from 1987 to 1996. The EPA contains broad information on labour market characteristics and it is available with panel structure since 1987. Individuals are followed for six quarters with interviews every three months, which means that we can build up a woman's history for a year and a half. Limitations of the FFS and the EPA make it desirable to combine both of them in order to explore females post-birth employment transitions. On one hand, the FFS allows us to construct long life histories, and it contains social and partners' education variables. However, some details on job features are missing. On the other hand, the EPA has further labour market variables but it lacks long histories and social covariates. By using both surveys, we are able to describe more accurately which are the patterns that surround female's job penalty after childbearing. We undertake two different analyses and we complement results. Unfortunately, a shortcoming is that neither the FFS nor the EPA contain income and wage data, which could be an interesting explanatory factor. This is when the role of the ECHP arises. We use this survey in order to classify our occupations.

3.1 FFS

The data comes from the Spanish Family and Fertility Survey, a data set collected by the ‘Centro de Investigaciones Sociológicas’ (CIS) between June and November of 1995. The structure of the questionnaire was originally produced by the United Nations.

The sample is built at the national level with individuals aged between 18 and 49 years old. The number of valid interviews was 4021 for women and 1991 for men, obtained with a percentage of responses of 83.6% and 77% respectively. They questioned women in the 17 regions (‘Comunidades Autónomas’) in proportion to the population. Each individual responds to the survey at a particular moment of time. Then, she is asked to give information about her past. That is, the poll asks every woman to build up her history. For instance, the dates of her marriage, first cohabitation, sequence of jobs (starting and ending date of her job for up to 30 different employments), calendar of children born and sequence of schooling (up to 10 different courses). In consequence, since it is a retrospective survey there will be errors coming from the individuals’ lack of memory. For our estimation analysis we select those women who had a first birth and were at work one year before confinement (834 individuals).⁶

3.2 ECHP

The analysis of a child-birth job penalty requires the construction of an occupational ladder. One criterion to establish the occupation ranking would be through ordering the workers’ wages in the sample. Unluckily, we do not have this information in our FFS dataset and it is necessary to search for an alternative approach. In order to construct a proxy for occupation ranking in our study, we use the wave 1994–95 of the data set ECHP, which contains wages. The purpose is to find a classification of categories in jobs for that ECHP sample,⁷ and apply the same rule for our FFS sample. The construction of the ranking is done as follows. We first estimate a logarithmic wage equation on age, square of age, and occupation dummies.⁸ Then, we use the coefficients of this estimation to order the different jobs into four categories. The first and highest position in terms of wages is formed by the following occupations: legislators, senior officials and corporate managers, physical, mathematical, engineering science, life science, health, teaching and other professionals. The next group are: teaching and other associate professionals, office clerks and customer services clerks, metal, machinery and related trades workers, precision, handicraft, printing and related trades workers. The third category is formed by physical, engineering science, life science and health associate professionals, general managers, personal and protective services workers, models, salespersons and demonstrators, extraction and building trades workers, other craft and related trade workers, stationary-plant and related operators, machine operators and assemblers, drivers and mobile-plant operators. The lowest position on the occupation ladder is occupied by market-oriented skilled agricultural and fishery workers, subsistence agricultural and fishery workers, sales

⁶1960 had at least one birth after discarding those women with missing information in their birth and employment calendar.

⁷The sample consists of employed women between 16 and 49 years old since this is our FFS’ women age range.

⁸The survey follows the ISCO occupations’ classification.

and services elementary occupations, agricultural, fishery and related labourers, workers in mining, construction, manufacturing and transport.

From now on, the highest level in the occupational ladder will be called *High*, the second stage will be *Moderate*, the third *Low* and the bottom positions, *Very Low*.

3.3 EPA

For the EPA analysis, we have constructed our sample in the following way. We take females who are between 16 and 49 years old. We pool interviews from 1987 to 1996. Then, we select those women who had a birth between the third and fourth quarter in their sequence of interviews. The reason why we only consider birth transitions in the middle of the observed history is that we would like to have labour force status information for at least six months before the birth and at least six months after. In fact, what is observed at quarter one will imply employment characteristics between six and nine months before the birth, without being able to be more precise on that. The same is true for post-birth labour force status. The total number of women in our sample who had a birth between the third and fourth quarter are 2016. Among them, 722 had their first birth.

4 Descriptive Statistics

We have already introduced the possibility of two types of job penalty: the complete abandonment of job career after a first birth (either inactive or unemployed) and the movement towards a lower rung of the occupational ladder (but remaining in the labour force). We define the former as *Career Break Job-Penalty* and the latter as the *Downward Occupation Mobility Job-Penalty*.

4.1 Career Break Job-Penalty

First of all, we would like to see how frequent is what could be considered as the *Career Break Job-Penalty*. In our FFS sample, among those women who had at least one child, 25.7% never worked before the first birth. Many of these women were quite young, which means that they might either have been unemployed or studying. The average age of motherhood in the group of women who had never held a paid job is 22.3, compared to 24.7 for those who had worked before the birth.⁹

Figure 1 shows mother's employment rates at different periods of time surrounding the first birth, starting two years before and finishing two years after.¹⁰ This graph confirms

⁹Note that this average is computed for those women who already had a child. This biases the number downwards. The purpose of these numbers is not to show the average age of motherhood, but to see the differences in age of motherhood coming from pre-birth employment status.

¹⁰Employment rates are computed taking into account censoring. For example, there are some women not observed two years after the birth. Thus, they have been subtracted from the total number of mothers in order to compute the rates.

Figure 1: Employment Rates Before and After 1st Birth

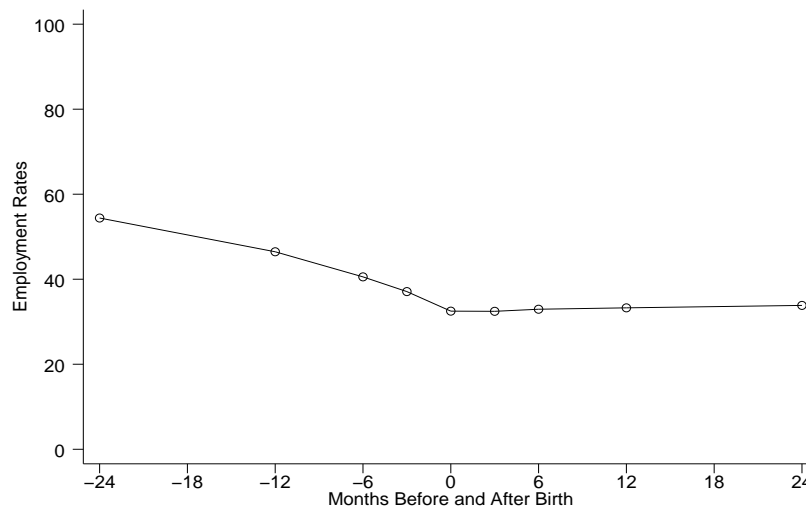


Table 1: Staying-on-rates at Work of Employed Women One Year Before 1st Birth

<i>Survey</i>	<i>EPA</i> ¹	<i>FFS</i>		
<i>Months After Birth</i>	<i>6-9</i>	<i>12</i>	<i>24</i>	<i>60</i>
<i>%</i>	64	60	59	56
<i>n observations</i>	308	1125	1077	906

¹Conditioned of Employment 6–9 Months Before 1st Birth.

that there exists an important *Career Break Job-Penalty* of having a child. Employment rates fall drastically from 56.8% twenty-four months before the birth to 33.0% after. Therefore, there are a large number of women who do not return to paid work after child-bearing. In our EPA¹¹ sample, the proportion of women who are at work between six and nine months before their first child (quarter one) is 42.7%. This result is analogous to the one we had in our FFS’s statistics (see Figure 1). Employment rates are 41.4% at quarter two, 37.8% at quarter three, 33.8% at quarter four, 32.4% at quarter five and 32.5% at quarter six. The EPA survey accounts women in maternity leave as being employed. This means that we could observe dropping from the labour force a quarter after the birth. The reason is that some women might stop working just after their maternity leave period expires and considered as employed till then.¹²

Table 1 shows the staying-on rates of those women who were employed one year before 1st

¹¹In Section 3 we explained the gain of complementing the FFS analysis of job penalty with the EPA. This survey contains more detailed information on pre-birth job characteristics (e.g. tenure, type of contract or sector are not present in the FFS) and disentangles unemployment from inactivity. However, the period of observation after motherhood is limited to 6–9 months.

¹²Maternity leave in Spain lasts for 16 weeks. Women must take at least 6 weeks after the delivery, and no duration is mandatory before the birth.

Table 2: EPA Staying-on-rates at Work of Employed Women 6–9 Months Before 1st Birth By Characteristics

<i>Characteristics</i>		<i>%</i>
<i>Public Sector</i>	<i>Yes</i>	85
	<i>No</i>	60
<i>Tenure</i>	<i>>12 Months</i>	65
	<i><12 Months</i>	41
<i>Type of Contract</i>	<i>Permanent</i>	78
	<i>Fixed-Term</i>	50
<i>Daily Hours</i>	<i>Full-time</i>	67
	<i>Part-time</i>	45
<i>Education Level</i>	<i>Graduate</i>	87
	<i>Non-Graduate</i>	57

birth: 64.6% of women who were employed at first quarter were employed at quarter six. In the FFS, around 60% of women who worked one year before the birth worked one year after, which seems in line with the EPA output. Only 8.7% of non-employed women in the first quarter were employed in the last one. The advantage of EPA is that we are able to disentangle transitions to unemployment from inactivity. In our sample, we observe that among those women who were employed at first quarter, 11% are unemployed at quarter six and 24.4% are inactive. Therefore, there is a significant proportion of women that experience unemployment after childbearing. Furthermore, the job characteristics of women who were working before motherhood play an important role in the chances these women will be employed after. This information is summarised in Table 2.

For example, tenure at work is a positive determinant of returning to job: 41.2% of women who said to have been in their pre-birth job for less than 12 months stayed at work. The percentage is 64.6% for tenure more than 12 months. As expected, 77.9% of those mothers with a pre-birth permanent contract are at work in quarter 6, whereas 49.7% is the equivalent percentage for those with a fixed-term contract. Pre-birth fulltime jobs also contribute positively to the likelihood of being employed, with percentages 45% and 67% for part-time and full-time respectively. A pre-birth job in the public sector also increases enormously the proportion of women who are post-birth employed: 84.8% women previously in the public sector are working after childbearing whereas the rate is 59.8% for those who were not. Tabulations show that marital status does not significantly affect staying-on-rates. Education level is, however, a key factor. 87.2% of women with a graduate education degree are employed at quarter 6, the percentage being much lower for non-graduates.

The employment rate after birth seems to stabilize at around 35%. In fact, the employment rate 10 years after the first birth calculated from our FFS sample is 34.3%. This excludes the possibility that women are coming back to work in large numbers after a break of two years or more. Data demonstrates that rather than women returning slowly to work, mothers who left work at birth are not returning at all (the employment

Figure 2: Employment Rates Before and After 1st Birth: Cohort Comparison



Figure 3: Employment Rates Around Marriage: Cohort Comparison



rates remain flat). Therefore, there is evidence of the so-called *Career Break Job-Penalty* (total abandonment of the employment history). This is in line with the paper by Adam (1996b),¹³ which finds that Spanish mothers tend to withdraw from the labour force after childbearing and are likely to remain outside. Interestingly, her results show that those women whose husbands' are unemployed return to the labour force with greater probability.

We would like to know if employment rates around motherhood differ across cohorts. In Figure 2 we compare employment rates close to birth for cohorts 1945–54 and 1955–64. Although both groups share approximately the same level two years before the birth

¹³The author uses the Spanish Household and Expenditure Survey (ECPF) from 1985 to 1990.

Table 3: FFS Staying-on-rates at Work By Cohort

	<i>After Marriage</i> ¹		<i>After 1st Birth</i>	
<i>Cohorts</i>	<i>1945-54</i>	<i>1955-64</i>	<i>1945-54</i>	<i>1955-64</i>
<i>%</i>	59	84	56	66

¹Sample size very small.

(59.6% for women born between 1945–54 and 58.0% for those born between 1955–64), they converge to a rather different level two years after. Employment rates 24 months after childbearing are 26.7% and 38.1% respectively. This shows that the negative impact of family formation on female’s employment has diminished in younger generations. We can also calculate the proportion of women who were at work one year before the birth and still are two years after. We find that approximately 56% of women who were employed before are employed after in cohort 1945–54. The proportion is about 66% for cohort 1955–64. Thus, transitions from employment to non-employment are reduced in younger generations. Note that employment rates initiate their decline some time before the birth, which is probably caused by women abandoning their work at marriage. In order to disentangle the effect of birth on employment from the effect of marriage, we need a control group. We look at employment rates around marriage for those women without children. Pooling all cohorts we calculate employment rates close to marriage for those childless women. The rate of employment for this control group is 64.3% 24 months before marriage and 58.0% 24 months after. Therefore, there is a significant drop in employment caused by the fact of getting married. We similarly compute these rates for cohorts 1945–54 and 1955–64 in order to check for generational changes. This is done in Figure 3.¹⁴ Employment rates move from 66.7% two years pre-marriage to 40.7% two years post-marriage for women born between 1945–54. Rates decline from 62.3% to 51.7% for women born between 1955–64. This is evidence that the negative impact of marriage on female employment rates (i.e. traditional society) diminish in younger cohorts. Notice that the decline is more sharp at marriage itself among women born between 1945–54. Therefore, the rate of exit from the labour market around first child is shown to be stronger caused by the birth itself in later generations. In Table 3 we summarise the staying-on rates after marriage¹⁵ and first birth by cohort.

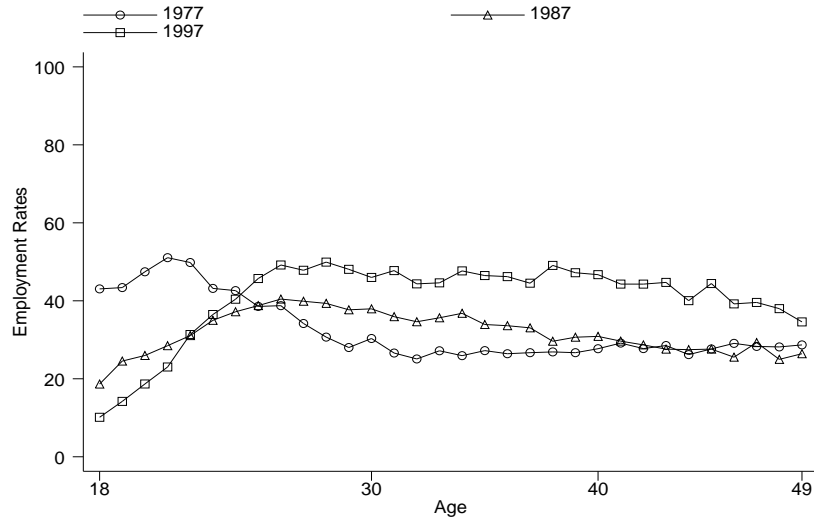
The aim of Figure 4 is to provide further information of the evolution of female’s employment rates in Spain.¹⁶ It represents female employment rates by age in 1977, 1987 and 1997. In the former year, we observe that female’s employment rates in their early 20s is about 50% and they decline considerably afterwards. The shape for 1987 is rather different, with an uprising trend up to the age of 27 (at about 40%) and a slight decline afterwards. Finally, in 1997, employment rates increase sharply up to the late 20s (at

¹⁴We must point out that the sample size for the construction of this graph is very small: 27 individuals for the cohort 1945–54 and 69 for cohort 1955–66.

¹⁵This is done for a control group of women who are married without children.

¹⁶The source of this graph is the Spanish Labour Force (EPA).

Figure 4: Evolution of Employment Rates By Age



about 50%) and they remain fairly constant afterwards. Thus, Figure 4 shows that the pattern of employment rates by age (which also reflects family formation and education) is changing over time. The increase of women’s education explains the rising trend up to the age of about 28 years in cross sections 1987 and 1997. In 1977, however, women were employed fairly young and left their jobs once they started their own family.

Another interesting question is how long it takes for women to come back to the labour market after a first birth, conditional on their returning. Table 4 represents the monthly average of the gap between birth and first job for different groups for those women who returned within five years. Those women who did not break their job history and worked continuously after the birth are accounted with return gaps equal to zero. Data shows that the mean in returning to work for those women who were working one year before the birth is 0.52 months. On the other hand, women who did not work before but did after the confinement have an average gap of 19.69 months. This number is calculated for those women who came back to work during the period of five years, which means that some women might start working after the interview and, consequently, they are not accounted in the computation. This censoring causes an underestimation of the average gap. Despite this fact, Table 4 shows unequivocally that women at higher positions return to work (on average) faster. Female previously at *High* job category have zero mean. That is, all of them remain employed after the birth. Those females initially at *Very Low* position, who did come back to a job in five years, required an average of 1.23 months. One might question how it is possible for such a low average gap if females have the right of maternity leave. Note that we are conditioning on returning within five years and that a woman can be under maternity leave and be employed simultaneously. That is, being under maternity leave is not equivalent to not working. In fact, maternity leave is accounted as being employed in the Spanish Statistics. Table 4 shows that those women who were employed before motherhood who work at any time within five years did not experience hardly any non-employment gap. This is particularly true for pre-birth high

Table 4: Average Monthly Returning Gap to Working Status for those who Return in Five Years

<i>Occupational Status Before</i>	<i>n</i>	<i>Average Monthly Return Gap</i>
Not Working	270	19.69
<i>High</i>	55	0.00
<i>Moderate</i>	228	0.20
Working <i>Low</i>	283	0.41
<i>Very Low</i>	188	1.23
<i>Total</i>	754	0.52
TOTAL	1150	7.13

occupation women since they have higher opportunity cost and job attachment compared to their low-profile jobs counterparts. They are also more likely to be able to pay for childcare and have better working conditions.

Age of motherhood has been related to the concern of women returning to the labour market after a birth. It is appealing to investigate which is the range of age at first child that experience greater transitions from employment to employment and to which category. Table 5 represents the job status after 5 years of birth by age of motherhood.¹⁷ Again we face censoring among recent mothers at interview. Thus, in these tabulations we omit those women who had their first birth less than five years before the interview's date. Table 5 shows that those women who enter motherhood before 25 years old are more likely to remain not working after the birth. Only those who marry after 25 have a significant return to occupations located in positions *High* or *Moderate* in the occupational ladder. Age of motherhood is strongly linked to the pre-birth status of working. In our sample, 68% of women who had a first child before their 20s did not work one year before, compared to 48% among those women who gave birth at age greater than 25. Thus, age at motherhood matters in the post-birth job status partly due to its effect on pre-birth job status.¹⁸

4.2 Downward Occupational Mobility Job-Penalty

As discussed before, *Downward Occupational Mobility* is another type of job penalty linked to childbearing. Descriptive statistics seem to predict that this type of career cost is less pronounced in the Spanish sample. For example, among women who were employed 3 months before and 12 months after the confinement, only 2.3% change occupation (at this point we do not specify if higher or lower on the occupational ladder). Similarly, 5.1% of women who are employed 3 months prior to the birth and 24 months later have modified their occupational status. This percentage increases to 16.4% among those women who held a paid job 3 months before and 10 years after. As expected, the proportion of changes rises through time. If we are able to show that most of the transitions are downwards,

¹⁷Age of motherhood is classified into four groups: less than 20 years, between 20 and 24, 25–29 and 30 or more.

¹⁸Note that pre-birth status of working has been shown to influence significantly the post-birth status in Table 6.

Table 5: Occupational Status After 1st Birth By Age at Motherhood (%)

<i>Occupational Status 5 Years After Birth</i>	<i>Age at 1st Birth</i>			
	<i>-20</i>	<i>20-24</i>	<i>25-29</i>	<i>30+</i>
Not Working	68.5	69.9	63.9	59.3
Working at Good Level	1.1	1.3	4.0	5.3
Working at Average Level	4.0	6.9	11.4	17.7
Working at Low Level	13.1	12.9	14.6	13.3
Working at Very Low Level	13.3	9.0	6.1	4.4
Total Number	276	982	624	113

we might be able to relate *Downward Occupational Mobility* to childbearing. Obviously, transitions in occupation only enable us to pick up part of the job career penalty (the one that implies changing from one occupation to another inferior, with 28 different ISCO choices). However, women may have experienced downward mobility within an occupation. That is, it might be that a woman remains in an occupation defined as ‘legislators and senior officials’ but instead of being a judge she is only a lawyer. Unfortunately, we are not able to distinguish with our data different positions within the same occupation, which may be the most important fraction of job penalty.

Table 6 has to be interpreted as follows: the percentage of females who were in a particular job status before the birth and are in any of the job status after the confinement. Note that this table follows individuals up to when they are censored.¹⁹ That is, ‘Not Working After’ means that the individual did not have any job after motherhood up to the last month we observe her. Similarly, we compare pre and post-birth job position by looking at the first job after confinement.²⁰ For example, 52.54% employed women in the *Very Low* category are not currently working. 46.61% of women previously working in the *Very Low* level remained in the same category in their first job after the birth. Finally, 0.85% of those *Very Low* women turned out to be working in a higher level after the birth. The main information in this table is that the lower your job category before the confinement, the more likely you are to leave the labour market (note that *High* have an abandonment rate of 8.8% compared to 52.5% in *Very Low*). The table also provides evidence that the movement between categories among women who remain working is insignificant.²¹ For instance, 0.66% women initially classified as *Low* moved down towards *Very Low*. 0.88% in the *Moderate* level also declined in position. This does not mean, however, that there is no *Downward Occupational Mobility Job-Penalty*. What it implies is that there is no evidence of such effect with the precision of our data. If we had a more accurate method to classify each individual’s occupation, we would expect to find

¹⁹Both younger cohorts and later first child mothers are censored earlier because of the structure of our data.

²⁰This is different from Figure 1, where we follow up to 24 months. Despite the fact data show that late returners is not a typical pattern, we want to allow for the possibility to return after any number of months. This is why we take the occupation held at first job after birth as the level to compare with pre-birth job category.

²¹Although not reported, the same pattern is observed within the 28 ISCO levels.

Table 6: Change in Occupational Status Before and After 1st Birth (%). Cohort 1945–77.

1 st Job After ¹	Occupational Status 12 months Before				
	Not Working	Working			
		High	Moderate	Low	Very Low
Not Working	96.5	8.8	28.8	40.5	50.5
Good	0.3	91.2	0.0	0.0	0.0
Average	0.2	0.0	70.3	0.3	0.0
Low	1.8	0.0	0.5	58.5	0.9
Very Low	1.2	0.0	0.4	0.7	46.6
Total Number	999	57	229	304	236

¹Not working at the interview. Note that these women might come back to work some time after the period of the interview, especially if they had recently entered into motherhood. This information is not known (censored) and we are only able to state that these individuals have not come back to the labour force yet. We observe some women longer than others with a maximum of 30 years after the birth.

a greater movement between job levels. Several studies for British samples (Newell and Joshi (1986), Dex (1987), McRae (1991) and Callender, Millward, Lissenburgh and Forth (1996)) have found *Downward Occupational Mobility Job-Penalty* caused mainly by the movement into part-time work after childbirth.

There seems to be evidence for *Downward Occupational Mobility Job-Penalty* due to transitions to part-time jobs, despite the fact that many part-time job positions are offered at high levels in Britain.²² In our study, *Downward Occupational Mobility Job-Penalty* is less of an issue and this may be due to the scarcity of part-time jobs in Spain (only 3% of women move from full-time pre-birth job to part-time post-birth job). Actually, we would probably face more downward occupational transitions if part-time jobs were more available. Under the latter situation, we may observe fewer individuals with *Career Break Job-Penalty* and more with *Downward Occupational Mobility Job-Penalty*. That is, a greater number of women would move from employment full-time to part-time, instead of moving from employment to non-employment and would consequently experience *Downward Occupational Mobility Job-Penalty* in their part-time jobs. Bernhardt (1988) found that there is evidence in Sweden that one-child women who before would have chosen to stay home are taking increasingly, over time, the combination family plus work option, which is part-time. Following the same criterion as in the FFS, we rank occupations in the EPA to see if there are movements between categories after childbearing. Similarly,

²²We have constructed employment tabulations by occupation level for childless and mothers aged 16–59. We have used the British GHS (General Household Survey) between 1974 and 1999. The proportion of employed childless women in part-time jobs are 18.68% for level 1, 25.15% for level 2, 49.78% for level 3 and 18.50% for level 4, level 1 being the highest category. The percentages for their mother counterparts are 52.01%, 62.40%, 77.14% and 49.30%. We observe that part-time jobs for mothers seem to be greater than for childless at all levels, and not only for those at low positions.

Table 7: Change in Occupational Status Before and After 1st Birth (%). Cohort 1945–60.

1 st Job After ¹	Occupational Status 12 months Before				
	Not Working	Working			
		High	Moderate	Low	Very Low
Not Working	97.1	6.4	22.0	40.1	50.8
Good	0.2	93.6	0.0	0.0	0.0
Average	0.0	0.0	77.1	0.6	0.0
Low	1.4	0.0	0.2	58.7	0.8
Very Low	1.3	0.0	0.7	0.6	48.4
Total Number	555	31	132	167	120

¹1st job hold in observed period.

²Note that individuals might be censored before return.

data do not show a significant pattern with transitions either upwards or downwards. This means that we are not able to capture *Downward Occupational Mobility Job-Penalty* through downwards occupation transitions.²³ Data from EPA confirm the explanation that we propose for the non-*Downward Occupational Mobility Job-Penalty* in the FFS, which is based on the non-existence of transitions from full-time jobs to part-time jobs.²⁴ At quarter one, the percentage of women at part-time jobs is 13%. At quarter six, 11.5% work part-time, which shows no increase in this type of job.

As already mentioned, Table 6 shows that there is a mass movement among mothers who were previously working towards a not working status. This phenomena is decreasing with the level of job category.²⁵ That is, women who work at the top of the occupational ladder are more likely to come back to the labour force compared to lower positions. This is due to the fact that these women are more attached to their job careers. It is important to be aware that some of recent mothers might have not come back to work yet. This would lead to an overestimation of the percentages of people who are moving towards a status of non-working after the birth. In order to check for the importance of this effect, we have constructed Table 7, where only individuals who had the first child potentially a long time ago (cohort 1945–60) are considered. The results in Table 7 are very similar to Table 6, which confirms the high proportion of drops in working status among mothers.²⁶

To summarise, data show that there is a significant fall in the proportion of women

²³If we had had information about wages, we could have studied wage drop, which is a more accurate measure of job penalty after motherhood.

²⁴See Section 4.1 for further explanation.

²⁵This result is complemented by EPA where tabulations show that 80% of women employed at *HIGH* profile jobs at quarter 1 are at work at quarter 6, whereas 52% of those who were at *LOW* are employed afterwards.

²⁶Note, however, that these women are the oldest of the whole sample 1945–77 and thus, the more 'traditional' oriented. We may have a smaller dropping out of the labour market among younger cohorts, if we would be able to observe them further in their history.

with paid work after a first birth. Moreover, this drop appears to be persistent since the employment rates do not recover after the birth. This result is at odds with the analysis done by Dex et al. (1996) using British data. They find that transitions into paid work increase with time after birth. That is, they observe that post-birth British women employment declines but it recovers as time goes on. In our Spanish sample, this recovery seems to be non-existent. Rather than a temporary exit from paid work, it looks closer to a permanent one. Data confirm the expected result that those women who were previously working in high positions have a greater chance of working after. We also find that movement across levels in the occupational ladder are rather insignificant. Finally, there is evidence that age of motherhood is an important factor to determine the chances to come back to paid work. Age at first birth is strongly linked to the fact of having worked before the confinement, which may be causing the result that teenaged mothers are less likely to work after the birth.

5 Model and Results

5.1 Probit Estimation with FFS

Our purpose is to determine how womens observed characteristics before her first birth affect a woman’s probability of working after the baby is born. In order to analyse the way *Career Break Job-Penalty* is linked to the pre-birth type of job, we have reduced our sample to those women who were at work 12 months before the birth (834).

The main tool we use is the Latent Variable Model for Binary Variables.²⁷ We observe a binary variable E_{it} , which is a woman i labour force participation at time t . This variable E_{it} can only be observed in two states: a woman is at work ($E_{it}=1$) or not ($E_{it}=0$). Nevertheless, not all women in the labour force are there with the same certainty. We suppose that there is an unobserved or so-called latent variable E_{it}^* that generates the observed E_{it} ’s. Those women who have larger values of E_{it}^* are observed as $E_{it}=1$, while those with smaller values of E_{it}^* are observed as $E_{it}=0$. The idea of a latent E_{it}^* is that there is an underlying propensity to work that generates the observed state through the following measurement equation:

$$E_{it} = \begin{cases} 1 & \text{if } E_{it}^* > \tau \\ 0 & \text{if } E_{it}^* \leq \tau \end{cases} \quad (1)$$

where τ is the *threshold*.

The latent E_{it}^* is assumed to be linearly related to the observed characteristics x_{it} by the structural model:

$$E_{it}^* = x_{it}\beta + \epsilon_{it} \quad (2)$$

Although we are not able to observe E_{it}^* , a change in E_{it}^* results in a change in what we indeed observe, namely, whether a woman is at work at that time. Some characteristics, for example, the number of children in the household, will modify the woman’s propensity to be employed as opposed to working at home. We would expect that a new birth will

²⁷We base our model description on Long (1997).

diminish the propensity to work up to a point to overcome a threshold that makes this woman decide to leave the labour force and stay at home.

Since $E=1$ when $E^* > 0$ and $E^* = x\beta + \epsilon$,

$$Pr(E = 1|x) = Pr(E^* > 0|x) = Pr(x\beta + \epsilon > 0|x) = Pr(\epsilon > -x\beta|x).^{28}$$

We assume that our errors follow a normal distribution with $E(\epsilon|x) = 0$, which results in the probit model. The normal distribution is symmetric, meaning that $Pr(E = 1|x) = Pr(\epsilon \leq x\beta|x)$. This is the cumulative density function of the error distribution evaluated at $x\beta$. Consequently,

$$Pr(E = 1|x) = \Phi(x\beta) \quad (3)$$

These models permit us to compute how different explanatory variables affect the probability that an individual belongs to a particular status (categorical dependent variable). Here, the probit estimation has the target to determine the probability of a woman with certain characteristics being at work or not. Since we are interested in the evolution of a woman's career post-1st-birth, we estimate a monthly probit²⁹ from the moment of birth onwards.

If observations are independent, the general likelihood function of a probit model is:

$$L(\beta/E, X) = \prod_{E=1} \Phi(x_i\beta) \prod_{E=0} (1 - \Phi(x_i\beta)) \quad (4)$$

E is a random variable that takes value 1 if the individual is employed and 0 otherwise. In our probit, we have the following specification:

$$L(\beta/E, X) = \prod_{E=1} \Phi(\alpha_t D_t + \sum_k \beta_k x_{kit}) \prod_{E=0} (1 - \Phi(\alpha_t D_t + \sum_k \beta_k x_{kit})) \quad (5)$$

D_t is a matrix with 120 columns, one for each month after motherhood.³⁰ For example, D_1 is a column vector that takes value 1 for each individual at the month one after birth and 0 otherwise. Similarly, D_2 takes value 1 at month 2 after confinement and 0 otherwise, and so on. x_{kit} is a vector of explanatory variable k for each individual i and time after birth t . β_k is the vector of the coefficients of the explanatory variables and α_t is the vector with the coefficients of the time effects. Note that we do not observe all individuals after first motherhood up to 120 months, which means that the contribution of each individual to the whole explanatory matrix does not have the same length. If we maximise the log-likelihood of the previous expression, we will find the estimates for β_k and α_t .

²⁸We take the threshold τ as zero. There is no loss of generality here because the threshold is absorbed into the constant term.

²⁹We assume that the errors are normally distributed.

³⁰We analyse post-birth labour force status up to 120 months after the confinement.

Table 8: Labour Market¹ and Maternity Leave² Evolution in Spain: 1975–1997

	1975	1980	1985	1990	1995
<i>Female Unemp. Rates</i>	4.8	10.2	25.7	24.2	30.9
<i>% Fixed-Term Contracts</i>	0	0	7.1	34.2	38.2
<i>Duration³ Maternity Leave</i>	12	14	16	16	16
<i>Cash Benefit⁴ Maternity Leave</i>	75	75	75	100	100

¹Source for Spain: INEBase.

²Source: Gauthier (2000) and Moss and Deven (1990).

³Duration of the leave in weeks.

⁴Cash benefits as a percentage of regular wages.

The explanatory variables³¹ are the following: region dummies, being religious, education, cohort, partner's,³² monthly working experience from 15 years old to the pre-birth job, national proportion of temporary contracts, age at first birth and its square, age at first job and a dummy for the occupation held one year before the birth. The latter variable has been classified initially in the descriptive statistics into four categories *High*, *Moderate*, *Low* and *Very Low*. However, in the estimation of the model, we reclassify the occupational ladder into two dummy variables by joining the two highest categories (*High* and *Moderate*) into one (*HIGH*) and the two lowest levels (*Low* and *Very Low*) into one (*LOW*). All explanatory variables are taken at one year pre-birth, except for the proportion of temporary contracts, which is a time-varying variable. Labour market conditions (i.e. unemployment rates and the availability of permanent contracts) and maternity leave policies³³ and benefits in these countries. We also provide information on childcare leave,³⁴ modified between the 60s and 90s. Our FFS survey allows us to explore its potential impact on re-entry since it covers an extended time horizon. We summarise the major changes in Table 8. Note that the main variation occurred in the labour market. We would also like to point out that public childcare available for children under 3 years old is very scarce in Spain. Only 5% of children in this category were under public childcare in 1993.

³¹Full description of the variables in Table 15.

³²Partner's education is a covariate that refers to the partner at the interviews date and not at the birth date. A female could have changed partner in between, which would imply that the education collected is not the father's one. However, we believe that the correlation of education between partners is expected to be high. That is, for those few who changed companion, education of the current partner should be a good proxy for the father's education. It is also possible that in 1995 the mother does not have a companion anymore because of being widowed, separated or divorced. In this situation, partner education will be missing (6% of our cases). There are two plausible solutions. First, we can discard these individuals and proceed with our estimation. Second, we can make missing values take a particular value (e.g. $EIP=1$) and create simultaneously a dummy variable that takes value one whenever partner's education is missing. We have undertaken both estimations and we have found that in any option the rest of the estimates were affected. Our results are presented in the latter alternative since we believe that it is worth keeping our sample size greater.

³³The term maternity/parental leave refers to paid leave during the period immediately prior and after childbirth.

³⁴Childcare leave refers to optional extended leave after maternity/parental leave.

To facilitate the interpretation of the results, we plot the predicted probability path of being at work for different representative individuals (called *RI*). The estimated probability of being employed at each month after first birth is given by the next expression, where we substitute our selected values for $x_{kRI t}$.

$$Prob(E = 1)_{RI t} = \Phi(\hat{\alpha}_t D_t + \sum_k \hat{\beta}_k x_{kRI t}) \quad (6)$$

For this exercise, we are also interested in analysing the evolution through time of the impact of skills on employment after childbearing. We re-estimate our probit with interactions between *OcHIGH*³⁵ and our time dummies³⁶. We also interact *E3GrPo*³⁷ with these time dummies. We reduce the time dummies to $D_3, D_6, D_9, D_{12}, D_{15}, D_{18}, D_{21}, D_{24}, D_{30}, D_{36}, D_{42}, D_{48}, D_{54}, D_{60}, D_{72}, D_{84}, D_{96}, D_{108}$ and D_{120} . This means that we plot the probability of being employed at each of these post-birth periods.

The first sequence of figures take as benchmark a woman whose skills' characteristics seem to direct her towards the lowest probability of having a job at all times. This implies a female who was employed in *LOW* occupation and with lower than a secondary degree in education. Continuous variables are taken at the mean: experience at pre-birth job, age at first child and its square, age at first job and national temporary contracts (the latter is a time-varying variable). Other reference covariates are: she is from the East, religious and from cohort 1945–49.³⁸ Departing from this benchmark, we represent the predicted probability of employment (conditional on being employed 12 months before the birth) for different profile persons.

For example, Figure 5³⁹ shows how the pre-birth step in the job ladder affects the path of the probability of being employed (and hence, return to work) after the confinement. Those women who initially had a *HIGH* job position (*High Occupation Level* in the graph) have a greater probability to be employed up to five years post-birth. Between 18 and 36 post-birth months, the positive impact of *HIGH* on employment, *ceteris paribus*, is increasing. Thus, the *HIGH* group tend to return to work faster than the *LOW*. However, its favorable effect on the chances of being employed, compared to their *LOW* counterparts, elapses completely after 66 months. In Figure 5 we observe that most women with a graduate or post-graduate degree (*E3GrPo*, line *High Education Level* in the graph) return to work after 1st birth. Up to four years, the advantage of being under

³⁵Dummy variable that takes value 1 if level occupation is *HIGH* one year before birth.

³⁶Results are in Table 17 in Appendix B.

³⁷Dummy variable that takes value 1 if mother's highest education level is university degree or above.

³⁸The latter variables are not necessarily related to women more attached to the labour force as skills certainly are.

³⁹*Low EducationOccupation Level* is the profile for the benchmark individual with characteristics as explained in the text and low pre-birth job skills.

High Education Level is the profile for an individual with all characteristics equal to the benchmark, except for the fact that she has graduate/post-graduate education instead of primary education.

High Occupation Level is the profile for an individual with the benchmark's characteristics, except that she was working at a high classified occupation before the birth, instead of at a low level one.

High EducationOccupation Level is the profile for an individual with graduate/post-graduate education and high level of occupation in the employment before the birth.

Figure 5: Monthly Probability of being Employed after 1st Birth Conditional on being Employed 12 Months Before

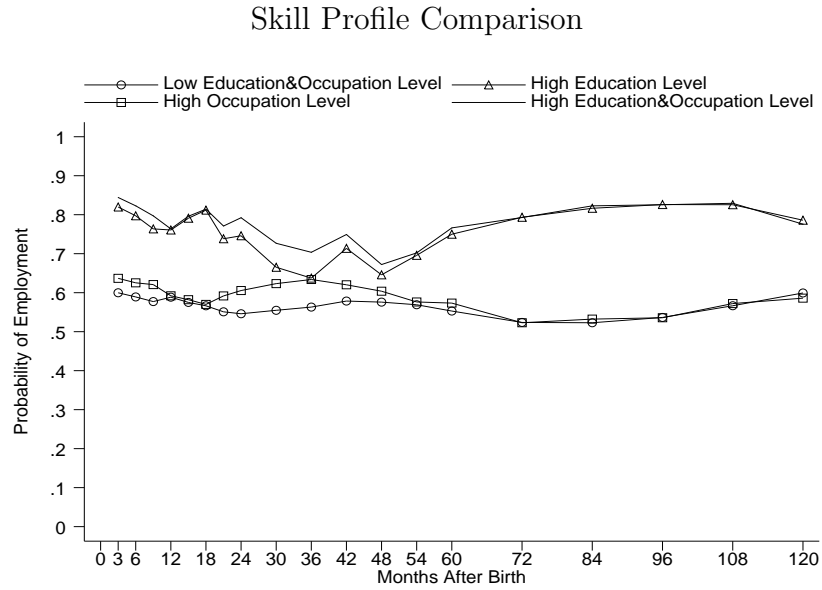
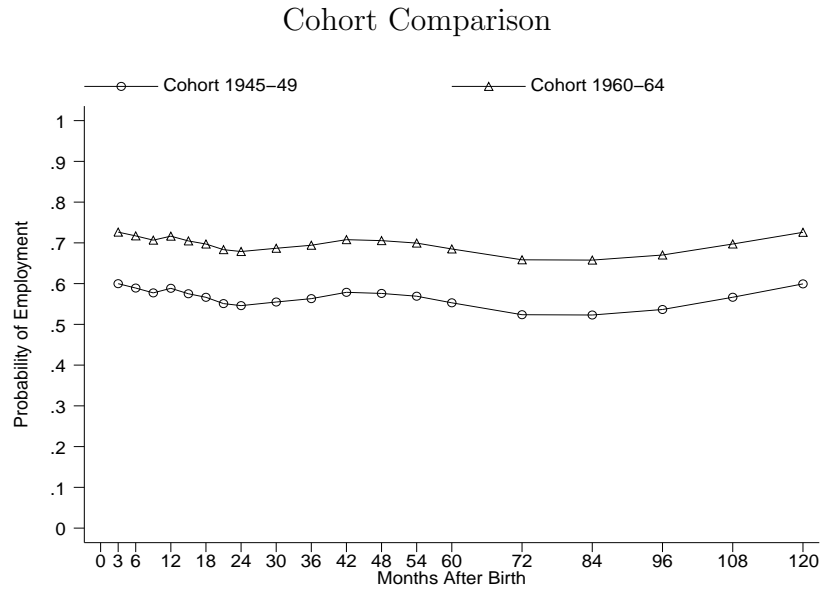


Figure 6: Monthly Probability of being Employed after 1st Birth Conditional on being Employed 12 Months Before



category *E3GrPo* decreases slightly with time, maybe due to the fact that this group tend to compress first and second child⁴⁰ and some leave employment temporarily. However, after 48 months, the employment rates of these women increase and diverge again from their counterparts. We also plot the profile for someone who had both high education and pre-birth occupational level (*High EducationOccupation Level*). To own a graduate or post-graduate degree seems to be the main determinant on the likelihood of being employed after childbearing, although a pre-birth high occupation level plays a positive role too up to five years after the birth, *ceteris paribus*. In Figure 6 we compare cohort 1960–64 with the benchmark (1945–49). We see that later cohorts have greater chances to return to work after childbearing, *ceteris paribus*.

In Table 9 we have the marginal effects for the probit estimation of employment after 1st child.⁴¹ We focus on cohorts 1945–69. Results show that uncertainty in the labour market decrease the likelihood that women will be employed after motherhood. We observe that the proportion of temporary contracts has a negative effect on female’s post-birth employment. Table 9 indicates that previous job career matters for post-confinement employment status. The more experience women accumulate before the birth, the more likely they will remain at work afterwards. Pre-birth occupation level positively affects the probability to come back to work at any time after the birth. Worker’s education is a key factor since higher education levels substantially increase the probability of working after motherhood.⁴² For example, having a university degree (undergraduate or post-graduate level) increases the probability of returning to work by 0.18 compared to somebody with only primary education. Partner’s education also has a positive effect on returning to work, at tertiary levels. There is a strong relationship between a couple’s education. In fact, when the women’s education is removed from the estimation, we find that the effect of the male’s education on probabilities of post-birth employment are much greater since they are picking up the effect of the female’s education. Curiously, those females whose partner has a secondary degree have a greater probability to be employed than those whose partner highest level is a primary degree. The reason could be that at low levels of partners education, males with only a primary degree are more likely to be unemployed, which makes females participation more necessary. This is corroborated by Adam (1996b) who finds that those women whose partners are unemployed have a greater probability of re-entry after confinement.

Social characteristics also have an impact on women’s withdrawal from the labour force. Religion affects negatively the probability or returning to work after confinement. This might be due to more traditional-oriented preferences. Estimations have also been done with a dummy for marital status (married *vs.* non-married). We find that those who were married are slightly less likely to remain at work (on the border of the 10% significant level). However, partner’s education is missing for non-married mothers, which means that we lose this information when looking at marital status. Since most women

⁴⁰There is some evidence that single-child-mothers with graduate or post-graduate degrees tend to have a second child relatively fast (Gutiérrez-Domènech (2001)).

⁴¹Note that time dummies (120, one for each month after the birth up to 10 years) are not represented in the table.

⁴²The omitted category is E1, which is the lowest level.

Table 9: Probability of Employment After 1st Birth: following 120 Months

<i>Model</i>	<i>Probit After 1st Birth: Marginal Effects</i> ¹	
<i>Coefficient</i>	<i>dF/dx</i>	<i>Std. Error</i>
<i>Temporary</i> ²	-0.0027**	0.0006
<i>Experience</i> ³	0.0043**	0.0003
<i>OcHIGH</i> ⁴	0.027**	0.012
<i>AgeAt1C</i>	0.026**	0.013
<i>AgeAt1C2</i>	-0.0012**	0.0002
<i>AgeAt1Job</i>	0.047**	0.0028
<i>Religious</i>	-0.044**	0.014
<i>E2</i> ⁵	0.062**	0.012
<i>E3Voc</i>	0.19**	0.020
<i>E3GrPo</i>	0.18**	0.022
<i>E2P</i> ⁶	-0.11**	0.016
<i>E3VocP</i>	0.036	0.031
<i>E3GrPoP</i>	0.058**	0.022
<i>NW</i> ⁷	0.040**	0.020
<i>NE</i>	-0.017	0.020
<i>CMadrid</i>	-0.075**	0.019
<i>C</i>	0.060**	0.019
<i>E</i>	-0.054**	0.014
<i>Canaries</i>	-0.050**	0.028
<i>Cohort 1950–54</i> ⁸	-0.013	0.018
<i>Cohort 1955–59</i>	0.087**	0.018
<i>Cohort 1960–64</i>	0.13**	0.024
<i>Cohort 1965–69</i>	0.061*	0.033
<i>Log likelihood</i>	-7015.5	
<i>N observations</i>	11366	

*Significant at 10% level.

**Significant at 5% level.

¹Time dummies are not reported. They are available upon request.

²Proportion of female fixed-term contracts at national level.

³Accumulated number of months worked up to the birth.

⁴Dummy (1 if high level of occupation 1 year before birth.)

⁵Female Education: Omitted category is the lowest level (*E1*).

⁶Partner Education: Omitted category is the lowest level (*E1P*).

⁷Regions: Omitted category is South (*S*).

⁸Omitted Cohort is 1945–49. Cohorts in sample from 1945 to 1969.

are married at the date of birth in our sample (97.2%), we choose a specification with only married. Furthermore, output and interpretation from the rest of the variables do not change under either case (with only married women or with all types of marital status).

Our cohort dummies take as reference category the oldest cohort 1945–49. Results indicate that younger generations are more likely to return to job after confinement. For instance, being from cohort 1965–69 increases the probability to come back to work by 0.06 compared to somebody from the omitted category. This might be related to the fact that these women have had, at the time of the interview, fewer children. Note that we only observe these women up to 1995. However, there seems to be reliable evidence that higher cohorts have greater chances to return to work, *ceteris paribus*. We have explored further the impact of cohort effects on the probability of employment after motherhood by splitting our estimations into two groups, those born between 1945–54 and those born between 1955–64. The purpose is to investigate if there are significant differences in the way our variables impact on the likelihood of being at work after childbearing. Nevertheless, we find that there are not and therefore, we only report the estimation for the pooled group.⁴³

It is well-known that both unemployment rates and fixed-term contracts have changed considerably between the 60s and 90s. Consequently, it is interesting to know how these labour market variables have had an impact on the post-1st-birth employment. As it has already been discussed, FFS allows us to explore this issue since we follow individuals of different cohorts who had births in different years. Notice, that if there are potential omitted covariates that vary through time and across regions which are correlated with other explanatory variables, our estimation for these other variables could be biased. We propose a new estimation (Table 10) where we control for the same explanatory variables as in Table 9 (except for *Temporary*), post-birth time dummies and year-regional dummies. In order to proceed with this estimation, we create year-regional dummies 120 (30 years, from 1966 to 1995) and 4 regions⁴⁴ (*N*, *SCanaries*, *C* and *EMadrid*).

In this specification, high level of pre-birth occupation is positive but not significant any more. Once time-region dummies are incorporated the effect of both cohorts and age of first child change radically. Later cohorts become less likely to return to work after confinement. Thus, once we control for those region characteristics that change through time, cohort effects disappear. The same is true with the age at first child *AgeAt1C*, which becomes insignificant. The rest of explanatory variables remain with the same interpretation as before.

In order to know which has been the role of female unemployment rates and the increase of fixed-term contracts on re-entry, we regress our year-region's probit coefficient estimates on regional unemployment rates, national proportion of fixed-term contracts, regional dummies (*N*, *C*, *EMadrid* and *SCanaries*) and a linear trend. Table 11 summarises the results. We observe that the proportion of temporary contracts impacts negatively

⁴³Tables for the separate cohort estimation are not reported at the paper. However, they are available for the interested lector by request.

⁴⁴These have been built by reclassifying our original 7 region dummies: *N* is *NE* and *NW*, *SCanaries* is *Canaries* and *S*, *C* is *C* and *EMadrid* is *E* and *CMadrid*.

Table 10: Probability of Employment After 1st Birth with Year-Region Dummies: following 120 Months

<i>Model</i>	<i>Probit After 1st Birth: Marginal Effects</i> ¹	
<i>Coefficient</i>	<i>dF/dx</i>	<i>Std. Error</i>
<i>Experience</i> ²	0.0042**	0.0003
<i>OcHIGH</i> ³	0.018	0.012
<i>AgeAt1C</i>	0.008	0.013
<i>AgeAt1C2</i>	-0.0010**	0.0002
<i>AgeAt1Job</i>	0.046**	0.0029
<i>Religious</i>	-0.044**	0.014
<i>E2</i> ⁴	0.035**	0.013
<i>E3Voc</i>	0.18**	0.020
<i>E3GrPo</i>	0.16**	0.023
<i>E2P</i> ⁵	-0.029	0.025
<i>E3VocP</i>	0.076	0.034
<i>E3GrPoP</i>	0.15**	0.027
<i>Cohort 1950–54</i> ⁶	-0.088**	0.024
<i>Cohort 1955–59</i>	-0.057*	0.031
<i>Cohort 1960–64</i>	-0.065	0.042
<i>Cohort 1965–69</i>	-0.16*	0.033
<i>Log likelihood</i>	-6905.5	
<i>N observations</i>	11355	

*Significant at 10% level.

**Significant at 5% level.

¹Time and year-regional dummies are not reported. They are available upon request.

²Accumulated number of months worked up to the birth.

³Dummy (1 if high level of occupation 1 year before birth).

⁴Education: Omitted category is *E1*.

⁵Partner Education: Omitted category is the lowest level (*E1P*).

⁶Omitted Cohort is *1945–49*. Cohorts in sample from 1945 to 1969.

on the year-region coefficients, which suggests that the rise of fixed-term contracts has reduced re-entry across time. Surprisingly, female unemployment rates is not a major determinant. That is, there is evidence that it is the rise of temporary contracts rather than the increase of unemployment which decreases the probability of employment after 1st birth in latter birth years, *ceteris paribus*.

Figures 7 and 8 in Appendix C show the predicted probability of employment after birth for this latter specification with time-skills interactions.⁴⁵ Figure 8 compares an individual in two different years. That is, we take as a benchmark someone with low skills born

⁴⁵This Graph is practically the same as the one we obtained with the estimation without Year-Region Dummies in Figure 5.

Table 11: OLS Regression of Probit Year-Region Dummies Estimates on *Unemrf*, *Temporary*, Region dummies and Linear Trend

<i>Model</i>	<i>OLS</i>	
	<i>Coefficient</i>	<i>Std.Error</i>
<i>Temporary</i> ¹	-0.008**	0.004
<i>Unemrf</i> ²	0.008	0.008
<i>N</i> ³	0.009	0.092
<i>EMadrid</i>	0.070	0.088
<i>C</i>	0.19**	0.083
<i>Linear Trend</i>	0.025**	0.013
<i>Cte</i>	-2.02**	0.900
<i>R-squared</i>	0.34	
<i>N observations</i>	109	

*Significant at 10% level.

**Significant at 5% level.

¹Proportion of female fixed-term contracts at national level.

²Female regional unemployment rates.

³Region omitted category is *SCanaries*.

between 1945 and 1949. We contrast two different years: 1966 and 1995. We observe that if a mother in cohort 1945–49 would have had the child in 1995 instead of 1966, she would have had a greater probability of employment at all times after the birth, *ceteris paribus*. Thus, there is evidence that the later the years a female gives birth, the more likely they are of being at work. Interestingly, the positive impact of years on re-entry is not a pure cohort effect but it is caused by other factors.⁴⁶ In fact, when we compare two individuals born at different cohorts in one particular year, younger cohorts appear to have, unexpectedly, a smaller probability to be employed, *ceteris paribus*. Figure 9 in Appendix C represents cohort 1945–49 versus cohort 1960–64 in 1966. In this graph we see that the younger cohort predicted probability of employment after confinement is smaller than the one for the older cohort, everything else equal.

⁴⁶We think about changes in taxation and family policies that mean that recent mothers have more incentives to return to employment in the last years. For example, going from a joint taxation to a separate one in 1989.

5.2 Probit Estimation with EPA

We would like to study in more detail the impact of pre-birth job characteristics on post-birth labour force behaviour. This is why the EPA's probit estimation plays an important role. It allows us to see the effect of tenure, type of contract, sector, self-employment and full-time pre-birth job's features on being at work after childbearing. Furthermore, we are able to disentangle transitions employment-unemployment from employment-inactivity. First, we focus on the fact of being employed *vs.* non-employed, without a distinction between inactive and unemployed. We take as a sample those women who were employed at quarter 1, that is, between six and nine months before they had a birth. We estimate the probability that they will be employed at quarter 6, that is, between six and nine months after confinement. Since paid maternity leave has expired at that time, we are sure that we do not take as employed those women who will leave employment just after their rights finish. We estimate re-entry for after first and second births. Second, we focus on labour force participation. We estimate probits where the dependent variable is one if the individual is either employed or unemployed and zero if inactive. Third, we select those individuals who were in the labour force at quarter six and we estimate a probit where the dependent variable is one if employed and zero if unemployed.⁴⁷

Our first aim is to show which job and educational characteristics contribute positively to the probability to come back to employment. Our dependent variable takes value one if an individual is employed at quarter 6 and 0 otherwise. Some explanatory variables⁴⁸ refer to job features at quarter 1: *Employer* is a dummy that takes value one if the woman was employer and zero if employee; *Public* is one if she was employed in the public sector; *Permanent* if the person had a permanent contract; *Fulltime* takes value one if she worked more than 35 hours per week; *Tenure* is the number of months she was working at that particular job; *OcHIGH* if the person was previously employed in a *HIGH* position. Other variables correspond to values at quarter 6: *Age* and *Age square*; educational dummies *E1*, *E2*, *E3Voc*, and *E3GrPo*;⁴⁹ *Nationality* takes value one if she is Spanish; *Married*; regional dummies *NW*, *NE*, *C*, *E*, *Canaries* and *S*, being the latter the omitted category; temporal dummies *Year 1988–90*, *Year 1991–93* and *Year 1994–96* with the former as the reference level.

Table 12 summarises the marginal effects for the probit estimation of employment between six and nine months after 1st and 2nd child. There is evidence that pre-birth job characteristics greatly determine the chances of returning to work after first birth. Any woman who was employed in the public sector before childbearing has a probability of returning to work after first birth 14% greater than her counterparts, *ceteris paribus*. Similar effect is related to the security of the contract since owning a pre-birth permanent position increases post-1st-birth employment by 20%. Tenure is also positive and significant. The longer you had worked in that pre-birth job, the more the chances of being employed after. Previous full-time employment also has a positive impact on post-

⁴⁷We do not use a nested probit since we believe that the process is sequential. That is, first there is the choice of being or not in the labour market and then, once you are in, there is the allocation into employment or unemployment.

⁴⁸Description of the variables in Table 16.

⁴⁹The omitted category is the lowest level.

confinement employment. Analogous results to our FFS estimation are found with respect to pre-birth high level occupation. Those women who worked at high level jobs are more likely to come back to work. There is also evidence that pre-birth characteristics affect not only the chances to return to work after first child, but also after second child. In the latter case, being an employer plays a significant positive role. If one observes the demographic characteristics, marital status appears to be the more relevant feature. Contrary to what we would expect for other countries,⁵⁰ being married reduces the chances to re-enter employment after first and second birth. Those women with a graduate or post-graduate degree are 26% more likely to re-entry into employment after first child compared to women with only a primary degree. The rate is 19% for post-2nd-birth return.

We next analyse the factors that determine the probability to be in the labour force after motherhood, either employed or unemployed. In Table 13 we observe that the probability of being active after first birth depend positively and significantly on the occupation level, tenure and on a full-time contract. It depends negatively on marriage. When we look at second birth we find that previously employers and permanent contracts impact positively on the likelihood to be in the labour force after birth, whereas marriage affects negatively. Higher levels of education raises participation after first and second birth.

Finally, we select post-birth active women and we focus on the effect of pre-birth job characteristics on the probability of being employed rather than unemployed. This is done in Table 14. The main factors to be employed are the pre-birth type of contract and tenure. Those women who had a permanent contract are more likely to be at work. Tenure also contributes positively. In looking at employment after second birth, pre-employers and pre-permanent contracted employees have greater chances to be employed after motherhood. Both married and occupational level are not significant for post-1st-birth transitions. However, marriage contributes negatively on the likelihood of being employed after second birth.

These three analyses suggest that tenure and permanent contract influence post-1st-birth employment mainly by increasing the chances of being employed among those women who are in the labour market after childbearing. On the other hand, married and occupational level affect the likelihood of being in the labour force, no matter if employed or unemployed. Being employer plays a positive and significant role on the changes of re-entry after second child. Higher levels of education play a principal role for re-entry for both after first and second child, especially by increasing the likelihood of participation.

⁵⁰Self-constructed employment rates for single mothers and married mothers for the UK (GHS) show that employment rates for married mothers are significantly higher at all years from 1979 to 1999. For example, in 1990, 60.33% married mothers are employed whereas only 39% of their single counterparts are. Also Ondrich et al. (1996) find that marriage does not affect return to work after childbirth in Germany. In the paper by Rønsen and Sunström (1996), marriage at first birth is insignificant for re-entry in Sweden but it reduces the hazard in Norway.

Table 12: Probability of Employment After 1st and 2nd Birth (Probits' Marginal Effects)

<i>Model</i>	<i>After 1st Birth</i>		<i>After 2nd Birth</i>	
	<i>dF/dx</i>	<i>Std.Error</i>	<i>dF/dx</i>	<i>Std.Error</i>
<i>Employer</i> ¹	0.076	0.090	0.23**	0.040
<i>Public</i> ²	0.14*	0.078	0.11	0.069
<i>Permanent</i> ³	0.20**	0.075	0.34**	0.074
<i>Fulltime</i> ⁴	0.17*	0.097	-0.075	0.066
<i>Tenure</i> ⁵	0.0022**	0.005	0.0005	0.0005
<i>OcHIGH</i> ⁶	0.080	0.075	0.0009	0.076
<i>Age</i>	-0.012	0.067	0.066	0.049
<i>Age square</i>	0.0004	0.001	-0.0009	0.0008
<i>Nationality</i>	-0.029	0.28	Dropped ⁷	
<i>Married</i>	-0.21**	0.040	-0.15**	0.046
<i>E2</i> ⁸	0.034	0.090	0.11	0.069
<i>E3Voc</i>	0.003	0.13	0.19*	0.041
<i>E3GrPo</i>	0.26**	0.092	0.19**	0.074
<i>NW</i> ⁹	0.23**	0.037	0.21**	0.039
<i>NE</i>	-0.014	0.10	0.11*	0.054
<i>CMadrid</i>	0.16	0.076	0.17*	0.066
<i>C</i>	0.029	0.082	0.055	0.054
<i>E</i>	0.087	0.072	0.095*	0.049
<i>Canaries</i>	0.044	0.11	0.08	0.082
<i>Year 1991–93</i> ¹⁰	-0.041	0.072	0.051	0.043
<i>Year 1994–96</i>	-0.038	0.075	0.057	0.044
<i>Log likelihood</i>	-149.4		-108.9	
<i>N observations</i>	304		275	

*Significant at 10% level.

**Significant at 5% level.

¹Dummy (1 if employer at pre-birth job; 0 employee).

²Dummy (1 if public sector at pre-birth job).

³Dummy (1 if permanent contract at pre-birth job).

⁴Dummy (1 if worked more than 35 hours at pre-birth job).

⁵Months worked at specific pre-birth job.

⁶Dummy (1 if high level occupation at pre-birth job).

⁷Nationality=1 predicts success perfectly (dropped).

⁸Female Education: Omitted category is *E1*.

⁹Regions: Omitted category is *S*.

¹⁰Years: Omitted category is *Year 1988–90*.

Table 13: Probability of Being at the Labour Force After 1st and 2nd Birth (Probits' Marginal Effects)

<i>Model</i>	<i>After 1st Birth</i>		<i>After 2nd Birth</i>	
	<i>dF/dx</i>	<i>Std.Error</i>	<i>dF/dx</i>	<i>Std.Error</i>
<i>Employer</i> ¹	-0.007	0.083	0.13**	0.033
<i>Public</i> ²	0.060	0.065	0.069	0.056
<i>Permanent</i> ³	0.054	0.061	0.20*	0.065
<i>Fulltime</i> ⁴	0.15**	0.087	-0.022	0.053
<i>Tenure</i> ⁵	0.0012*	0.00061	0.0006	0.0004
<i>OcHIGH</i> ⁶	0.098*	0.058	-0.0091	0.056
<i>Age</i>	-0.048	0.057	-0.013	0.036
<i>Age square</i>	0.0009	0.0009	0.0003	0.0006
<i>Nationality</i>	0.14	0.28	Dropped ⁷	
<i>Married</i>	-0.16**	0.041	-0.12**	0.037
<i>E2</i> ⁸	0.040	0.068	0.034	0.051
<i>E3Voc</i>	0.13*	0.057	0.11**	0.044
<i>E3GrPo</i>	0.19**	0.065	0.18**	0.045
<i>NW</i> ⁹	0.17**	0.045	0.15**	0.031
<i>NE</i>	0.092	0.061	-0.024	0.083
<i>CMadrid</i>	0.099	0.083	0.093	0.062
<i>C</i>	0.040	0.069	0.047	0.056
<i>E</i>	0.060	0.064	0.047	0.055
<i>Canaries</i>	-0.0020	0.18	-0.0052	0.091
<i>Year 1991–93</i> ¹⁰	0.038	0.055	0.0091	0.051
<i>Year 1994-96</i>	0.081	0.054	-0.0086	0.056
<i>Log likelihood</i>	-132.3		-101.9	
<i>N observations</i>	304		275	

*Significant at 10% level.

**Significant at 5% level.

¹Dummy (1 if employer at pre-birth job; 0 employee).

²Dummy (1 if public sector at pre-birth job).

³Dummy (1 if permanent contract at pre-birth job).

⁴Dummy (1 if worked more than 35 hours at pre-birth job).

⁵Months worked at specific pre-birth job.

⁶Dummy (1 if high level occupation at pre-birth job).

⁷Nationality=1 predicts success perfectly (dropped).

⁸Female Education: Omitted category is *E1*.

⁹Regions: Omitted category is *S*.

¹⁰Years: Omitted category is *Year 1988-90*.

Table 14: Probability of Being Employed *vs.* Unemployed After 1st and 2nd Birth (Probits' Marginal Effects)

<i>Model</i>	<i>After 1st Birth</i>		<i>After 2nd Birth</i>	
	<i>dF/dx</i>	<i>Std.Error</i>	<i>dF/dx</i>	<i>Std.Error</i>
<i>Employer</i> ¹	0.038	0.040	0.058**	0.025
<i>Public</i> ²	0.065	0.038	0.028	0.031
<i>Permanent</i> ³	0.12**	0.064	0.13**	0.060
<i>Fulltime</i> ⁴	0.024	0.063	-0.032	0.021
<i>Tenure</i> ⁵	0.0013**	0.00062	0.0006	0.00023
<i>OcHIGH</i> ⁶	-0.00069	0.047	0.017	0.047
<i>Age</i>	0.0033	0.037	0.035	0.022
<i>Age square</i>	-0.00005	0.00061	-0.0005	.0003
<i>Nationality</i> ⁷				
<i>Married</i>	-0.002	0.050	-0.051*	0.021
<i>E2</i> ⁸	0.036	0.060	0.054	0.033
<i>E3Voc</i>	-0.014	0.0911	Dropped ⁹	
<i>E3GrPo</i>	0.10	0.056	0.0084	0.055
<i>NW</i> ¹⁰	0.040	0.042	0.045	0.022
<i>NE</i>	0.071	0.037	-0.016	0.059
<i>CMadrid</i>	0.035	0.067	Dropped ¹¹	
<i>C</i>	0.060	0.035	-0.015	0.045
<i>E</i>	0.042	0.044	0.008	0.036
<i>Canaries</i>	Dropped ¹²		0.032	0.028
<i>Year 1991–93</i> ¹³	0.063	0.037	-0.024	0.042
<i>Year 1994–96</i>	0.011	0.042	-0.042	0.046
<i>Log likelihood</i>	68.99		-43.1	
<i>N observations</i>	224		197	

*Significant at 10% level.

**Significant at 5% level.

¹Dummy (1 if employer at pre-birth job; 0 employee).

²Dummy (1 if public sector at pre-birth job).

³Dummy (1 if permanent contract at pre-birth job).

⁴Dummy (1 if worked more than 35 hours at pre-birth job).

⁵Months worked at specific pre-birth job.

⁶Dummy (1 if high level occupation at pre-birth job).

⁷Nationality=1 predicts success perfectly (dropped).

⁸Female Education: Omitted category is *E1*.

⁹*E3Voc*=1 predicts success perfectly (dropped).

¹⁰Regions: Omitted category is *S*.

¹¹*CMadrid*=0 predicts success perfectly (dropped).

¹²*Canaries*=0 predicts success perfectly (dropped).

¹³Years: Omitted category is *Year 1988-90*.

6 Conclusions

In this paper we focus on *Career Break Job-Penalty* and *Downward Occupational Mobility Job-Penalty* after motherhood. We use two data sources (FFS and EPA) in order to develop a comprehensive analysis on the main factors that determine the re-entry after motherhood.

We find that movements across levels in the occupational ladder are rather insignificant after a first birth. That is, we find no evidence for *Downward Occupational Mobility Job-Penalty*. We propose three alternative explanations: those women who remain at work do not indeed experience downward mobility; we are not able to capture occupational mobility with the coarseness of our data; there is no *Downward Occupational Mobility Job-Penalty* because of the lack of freely available part-time jobs, which have been linked to downward mobility for some countries. For example, Newell and Joshi (1986), Dex (1987), McRae (1991) and Callender et al. (1996) find evidence for *Downward Occupational Mobility Job-Penalty* in Britain, caused mainly by women moving to part-time jobs. This is controversial since statistics show that many part-time positions are offered at high levels in Britain. If transitions to part-time jobs are really generating downward mobility, the lack of part-time jobs in Spain justifies our result.

Data show that there is a significant fall in the proportion of women with paid work after a first birth in Spain. Thus, *Career Break Job-Penalty* is found to be important for Spanish mothers. Employment rates in the FFS sample drop from 47.0% one year before confinement to 32.4% when the baby is one year old. The EPA sample confirms this result since we find that 42.7% were at work six-nine months pre-birth and 32.5% six-nine months post-birth. Moreover, there is hardly any recovery of employment for those women who leave work after motherhood since employment rates after 10 years are at about 35%. Therefore, Spanish drops are permanent rather than temporary. In both samples, around 60–63% of women who were employed one year before motherhood, were at work after one year. The gain from using EPA (despite its short-time horizon) is that it disentangles transitions to either unemployment or inactivity. Among the exits, we learn that about one third turned into unemployed and two thirds into inactive. Note that FFS covers broader cohorts (women born between 1945 and 1977), whereas EPA is based on years 1988–96 (meaning cohorts from the late 50s onwards). We expect that transitions to unemployment have become more frequent in later cohorts, characterised by high unemployment rates in Spain. That is, more transitions into non-employment are expected to be unemployment rather than inactivity for younger cohorts. Policies to decrease youth unemployment in Spain would definitely help to increase re-entry into employment.

There is evidence of differences between cohorts. Whereas in young cohorts exit is exclusively linked to childbearing, in old cohorts drop in employment is already initiated at marriage. This means that a traditional society in Spain, together with its joint taxation discouraged married women from working, independently of motherhood.

From our estimations we learn that the rise of fixed-term contracts has had a signifi-

cant negative impact on the likelihood of re-entry. This has policy implications since the government has the ability to modify the legislation and reduce this type of uncertainty. Higher levels of education play a principal role in return. These are the women with highest opportunity cost of leaving employment. They also earn more and are able to pay for childcare. Since female investment in education has increased substantially, we expect that staying-on rates in employment will continue to rise. Our results suggest that labour market stability facilitates the return. Both pre-birth permanent contracts and public sector raise the probability of returning to work. Births in later years also raise post-1st-birth employment, *ceteris paribus*. This could be caused by factors such as the changes in taxation (from joint to separated) and social issues that make it more appealing for women who had births in later years to remain employed.

Only 3% of recent mothers move from full-time to part-time jobs. We know that in other countries (e.g. Sweden and UK) these rates are much higher, which implies that the availability of part-time work in Spain is limited. If women are able to select the number of hours of employment, the choice becomes work full-time *vs.* part-time *vs.* non-employment, instead of full-time *vs.* non-employment. We claim that post-birth employment rates would be higher in Spain if mothers were offered broader flexibility to combine childcare and work through part-time. This again has implications for welfare policy, both in terms of facilitating part-time jobs and increasing the supply of childcare, either publicly provided or through tax credits.

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A Labels for the variables

A.1 Probit Estimation with FFS

Table 15: FFS Variable Labels

<i>Temporary</i>	Proportion of female fixed-term contracts at national level
<i>Experience</i>	Accumulated number of months worked up to the birth
<i>Unemrf</i>	Female regional unemployment rates
<i>OcHIGH</i>	Dummy (1 if high level occupation 1 year before birth)
<i>AgeAt1C</i>	Age at first child in years
<i>AgeAt1C2</i>	Square of age at first child
<i>AgeAt1Job</i>	Age at first job
<i>E1</i>	Dummy (1 if highest education is primary degree; omitted category)
<i>E2</i>	Dummy (1 if highest education is secondary degree)
<i>E3Voc</i>	Dummy (1 if highest education is vocational tertiary degree)
<i>E3GrPo</i>	Dummy (1 if highest education is university degree)
<i>E1P</i>	Dummy (1 if husband's highest education is primary degree; omitted)
<i>E2P</i>	Dummy (1 if husband's highest education is secondary degree)
<i>E3VocP</i>	Dummy variable (1 if husband's highest education is vocational degree)
<i>E3GrPoP</i>	Dummy (1 if husband's highest education is university degree)
<i>Religious</i>	Dummy (1 if individual's is religious)
<i>NW</i>	North-West region
<i>NE</i>	North-East region
<i>CMadrid</i>	Madrid region
<i>C</i>	Centre region
<i>E</i>	East region
<i>Canaries</i>	Canaries Islands region
<i>S</i>	South region (Omitted category)
<i>Cohort 1945-49</i>	Individual is born 1945-49 (Omitted category)
<i>Cohort 1950-54</i>	Individual is born 1950-54
<i>Cohort 1955-59</i>	Individual is born 1955-59
<i>Cohort 1960-64</i>	Individual is born 1960-64
<i>Cohort 1965-69</i>	Individual is born 1965-69
<i>Cohort 1970-77</i>	Individual is born 1970-77

A.2 Probit Estimation with EPA

Table 16: EPA Variable Labels

<i>Employer</i>	Dummy (1 if employer; 0 employee)
<i>Public</i>	Dummy (1 if she works at the public sector)
<i>Permanent</i>	Dummy (1 if permanent contract)
<i>Fulltime</i>	Dummy (1 if she worked more than 35 hours per week)
<i>Tenure</i>	Months worked in particular pre-birth job
<i>OcHIGH</i>	Dummy (1 if high level occupation 1 year before birth)
<i>Age</i>	Age in years
<i>Age square</i>	Square of age
<i>E1</i>	Dummy (1 if highest education is primary degree; omitted category)
<i>E2</i>	Dummy (1 if highest education is secondary degree)
<i>E3Voc</i>	Dummy (1 if highest education is vocational tertiary degree)
<i>E3GrPo</i>	Dummy (1 if highest education is university degree)
<i>Nationality</i>	Dummy (1 if individual's is Spanish)
<i>Married</i>	Dummy (1 if married)
<i>NW</i>	North-West region
<i>NE</i>	North-East region
<i>CMadrid</i>	Madrid region
<i>C</i>	Centre region
<i>E</i>	East region
<i>Canaries</i>	Canaries Islands region
<i>S</i>	South region (Omitted category)
<i>Year 1988–90</i>	Interview done between 1988–90 (Omitted category)
<i>Year 1991–93</i>	Interview done between 1991–93
<i>Year 1994–96</i>	Interview done between 1994–96

B Tables

Table 17: Probability of Employment After 1st Birth with Interactions between Skills and Time Dummies

<i>Model</i>	<i>Probit After 1st Birth: Marginal Effects¹</i>	
<i>Coefficient</i>	<i>dF/dx</i>	<i>Std. Error</i>
<i>Temporary</i> ²	-0.0026**	0.0006
<i>Experience</i> ³	0.0043**	0.0003
<i>OcHIGH</i> ⁴	-0.013	0.066
<i>AgeAt1C</i>	0.027	0.013
<i>AgeAt1C2</i>	-0.001	0.0002
<i>AgeAt1Job</i>	0.047**	0.0028
<i>Religious</i>	-0.026*	0.014
<i>E2</i> ⁵	0.062**	0.012
<i>E3Voc</i>	0.19**	0.020
<i>E3GrPo</i>	0.19**	0.12
<i>E2P</i> ⁶	-0.12**	0.016
<i>E3VocP</i>	-0.035	0.031
<i>E3GrPoP</i>	0.059**	0.022
<i>NW</i> ⁷	0.040**	0.020
<i>NE</i>	-0.016	0.020
<i>CMadrid</i>	-0.075**	0.019
<i>C</i>	0.060**	0.019
<i>E</i>	0.054**	0.014
<i>Canaries</i>	-0.050*	0.028
<i>Cohort 1950–54</i> ⁸	-0.013	0.018
<i>Cohort 1955–59</i>	0.087**	0.018
<i>Cohort 1960–64</i>	0.13**	0.024
<i>Cohort 1965–69</i>	0.061*	0.033
<i>Log likelihood</i>	-7008.8	
<i>N observations</i>	11366	

*Significant at 10% level.

**Significant at 5% level.

¹Time dummies and interactions not reported. They are available upon request.

²Proportion of female fix-term contracts at national level.

³Accumulated number of months worked up to the birth.

⁴Dummy (1 if high level of occupation 1 year before birth.)

⁵Female Education: Omitted category is the lowest level (*E1*).

⁶Partner Education: Omitted category is the lowest level (*E1P*).

⁷Regions: Omitted category is South (*S*).

⁸Omitted Cohort is 1945–49. Cohorts in sample from 1945 to 1969.

C Graphs

Figure 7: Monthly Probability of being Employed After 1st Birth Conditional on being Employed 12 Months Before. Year-Regional Dummies

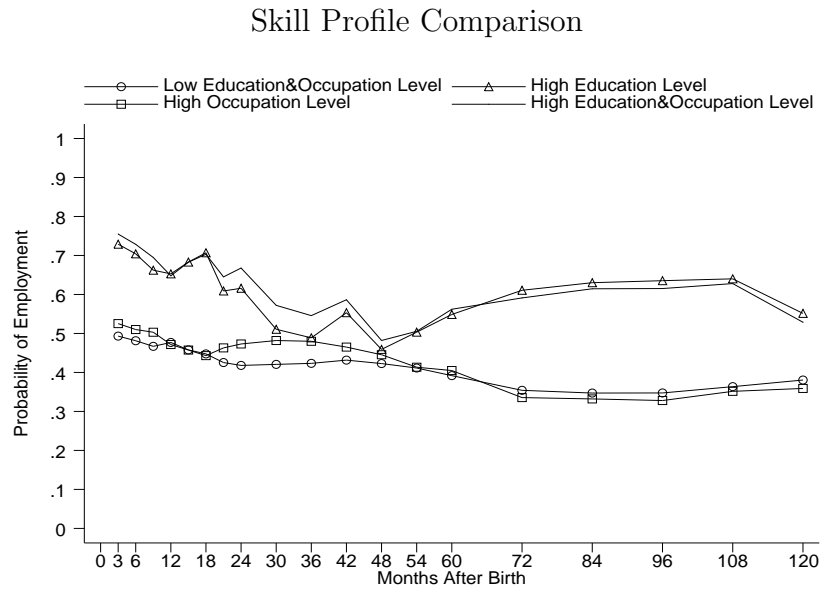


Figure 8: Monthly Probability of being Employed After 1st Birth Conditional on being Employed 12 Months Before. Year-Regional Dummies

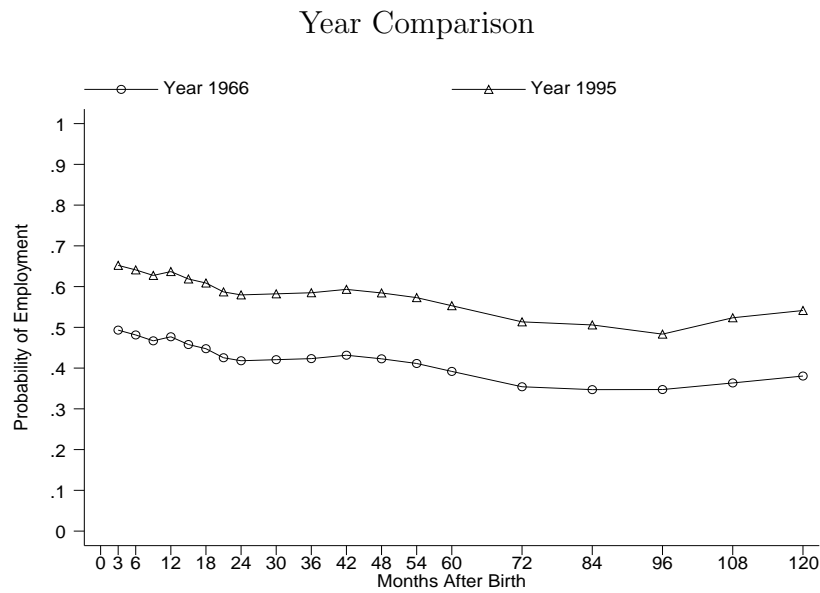
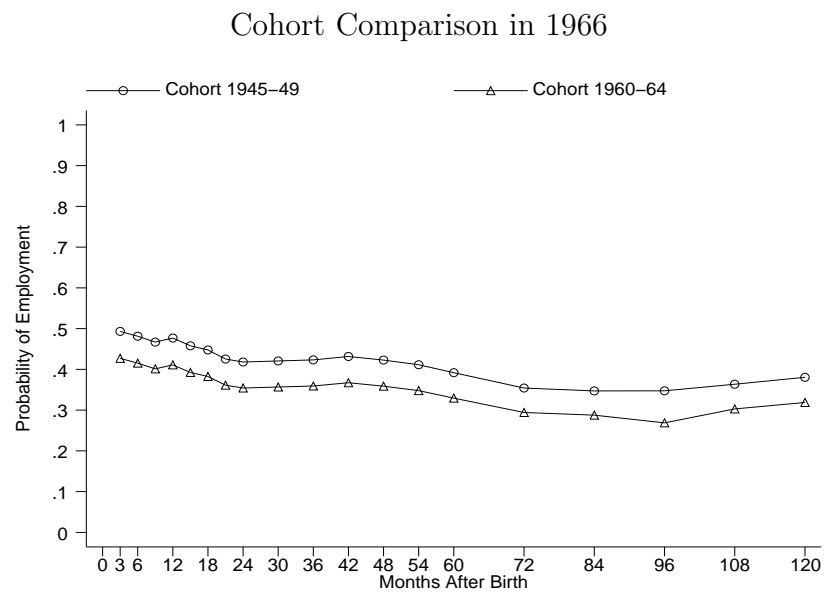


Figure 9: Monthly Probability of being Employed After 1st Birth Conditional on being Employed 12 Months Before. Year-Regional Dummies



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