

Job Penalty after Motherhood: a Spanish Case in a European Context *

Maria Gutiérrez-Domènech
LSE and CEP

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Abstract

Our objective is to study the existence of job penalty of motherhood. We are interested in career transitions from employment to non-employment. In this context, we compare the Spanish case with Belgium, West Germany, Italy and Sweden. We also look at downward occupational mobility for Spain. 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. Results show that Spanish women experience significant transitions from employment to non-employment and these are strongly linked to pre-birth job features and education. We find that Spain is the country with the highest rate of exit from the labour market after childbearing. Downward occupational mobility is less frequent in Spain due to the lack of part-time jobs.

JEL Classification: I20, J13, J18, J20

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1 Motivation

The career transition that mothers experience after a birth 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. 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. Moving backwards in the employment history has been linked to motherhood in Britain (Newell and Joshi 1986, Dex, Joshi, McCulloch et al. 1996). There are several potential reasons why this may happen. On one hand, mothers may be willing to supply labour that involves fewer responsibilities as long as they can 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 occupations¹.

Our objective is to study the existence of a job penalty in Spain. The first step is to explore the sample with some descriptive statistics to check if there are indeed career transitions. In this context, we compare the Spanish case with Belgium, Germany, Italy and Sweden. We would like to know the circumstances (E.g. education, region, occupation and experience) under which transitions are more likely to happen. This involves developing an econometric model such as a probit or logit. This will enable us to study the probability that a woman returns to the labour market in a particular period of time after a first birth, controlling for her features. It also makes it possible to analyse the factors that contribute positively or negatively to the chance of experiencing downward occupational mobility.

2 Related Literature

The withdrawal of women from work has been studied by several authors. (Desai and Waite 1991) test if the occupational sex composition² 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

¹Of course, this may be a supply-side phenomenon.

²They call female occupations those with majority of women in the market.

low commitment were more responsive to financial pressures and worked when they had to.

(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 date³, 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. Another paper for Britain (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.

An study by (Saurel-Cubizolles, Romito et al. 1999) describes the return to work after childbirth in France, Italy and Spain, and how this is related 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 Spain (53%). The gap of post-birth leave was related to each country's policies. For example, Italians' 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 maternity leave as not working. This is different from our Spanish survey, which accounts women on maternity leave as working.

(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.

There are several studies of Sweden. For instance, (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. The same author, (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, Krøvdal 1992) for Norway. In the 80's, Norwegian labour force participation rates for mothers with the youngest child under 3 years increased substantially from 47% to 69%. This increase was accompanied

³Mothers are 32 years old at the interview date.

by a rise in part-time, partly thanks to the state, which is a good creator of part-time jobs.

3 Data and Covariates

3.1 Spain

3.1.1 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 women aged between 18 and 49 years old. The size of the sample was initially 8008 interviews in order to achieve 4000. That is, since it is a sample without replacement, individuals are oversampled in order to eliminate the non-respondents. They estimated a response rate of 50%. From the 8008 interviews, they completed 4021. 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.

3.1.2 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 (European Community Household Panel). The purpose is to find a classification of categories in jobs for that ECHP sample⁴, 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 dummies⁵. 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

⁴The sample consists of employed women between 16 and 49 years old since this is my FFS' women age range.

⁵The survey follows the ISCO occupations' classification.

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 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 *Good*, the second stage will be *Average*, the third *Low* and the bottom positions, *Very Low*.

3.1.3 EPA

FFS allows us to develop an interesting analysis of the factors that determine the likelihood of returning to work after first birth. However, although FFS is rich in demographic and social variables, it lacks of precise information about some labour market characteristics. For example, it does not specify tenure or type of contract (permanent vs. fix-term position). 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 FFS that incorporates these covariates into our study.

In order to do this task we use "Encuesta de Poblacin Activa" (EPA), which is the Spanish Labour Force Survey, from 1987 to 1996. 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 FFS and EPA make it desirable to combine both of them in order to explore females post-birth employment transitions. On one hand, 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, 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 females job penalty after childbearing. Unfortunately, notice that neither FFS nor EPA contain income and wage data, which could be an interesting explanatory factor.

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.

3.2 FFS: Belgium, Germany, Italy and Sweden

We obtained FFS directly from the United Nations. We have FFS project number 93, approved by the FFS commission.

3.2.1 Belgium: Flemish and Brussels capital region⁶

Belgian data were collected in the Flemish and Brussels capital region between 1991 and 1992. In the Flemish region there are two independent samples, with approximately 3000 women and 2000 men of Belgian nationality born between 1951 and 1970. In the Brussels capital region, the sample is formed by eight groups of 400 individuals born in 1951-1970: French speaking Belgians (400 men and 400 women), Dutch speaking Belgians (400 men and 400 women), other Europeans (400 men and 400 women), Moroccans (400 women) and Turks (400 women).

3.2.2 West Germany

The survey file contains information on 5036 persons (2024 men and 3012 women) born between 1952 and 1972, aged 20-39 on 1st January 1992. Interviewing took place in 1992.

3.2.3 Italy

The target population was women and men aged 20-49. The interviews were carried out between November 1995 and January 1996. There were 4824 women interviewed and 1206 men.

3.2.4 Sweden

The Swedish Family Survey conducted in 1992/93 consists of eight cohorts: women born in 1949, 1954, 1959, 1964 and 1969; men born in 1949, 1959 and 1964. The interviews took place at the end of 1992 and at the beginning of 1993. A total of 4229 women and 2177 men were included in the sample, altogether 3318 women and 1666 men were interviewed.

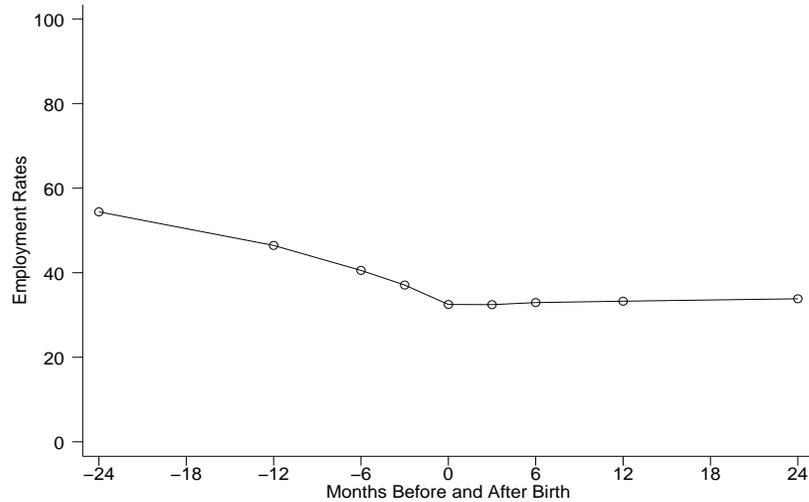
4 Descriptive Statistics: the Spanish Case

4.1 FFS

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*

⁶From now on, any time we talk about Belgium we only refer to the Flemish and Brussels capital regions.

Figure 1: Employment Rates Before and After 1st Birth



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 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 birth⁷.

Figure 1⁸ shows mother’s employment rates at different periods of time surrounding the first birth, starting two years before and finishing two years after. This graph confirms that there exists an important job-career 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 childbearing. The employment rate after birth seems to stabilize at around 35%. In fact, the employment rate 10 years after the first birth⁹ 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 (this would not be captured by Figure 1). Data demonstrates that rather than women returning slowly to work, mothers who left work at birth are not returning at all (the employment rates remain flat). Therefore, there is evidence of the so-called *Career Break Job-Penalty* (total abandonment of the employment history). We would like to know if employment rates around motherhood differ across cohorts. In Figure 2 we compare employment rates close

⁷Note 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 .

⁸Employment 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.

⁹This employment rate is not shown in the graph but has been calculated.

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

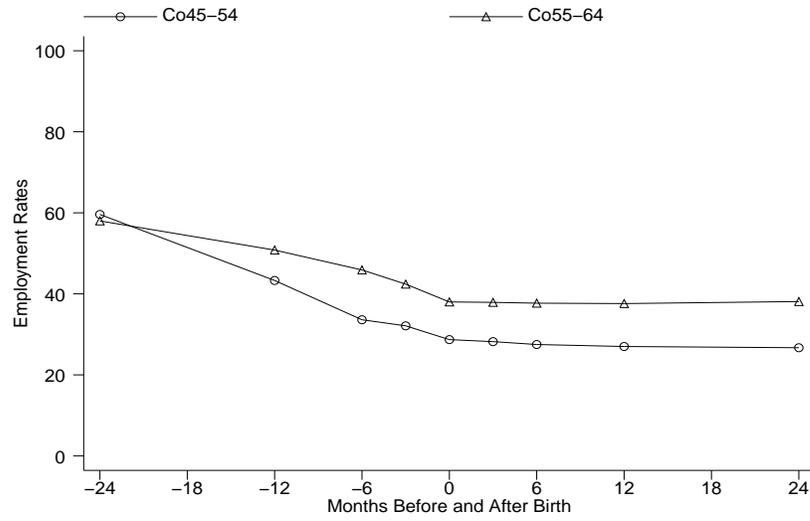


Figure 3: Employment Rates Around Motherhood: Cohort Comparison

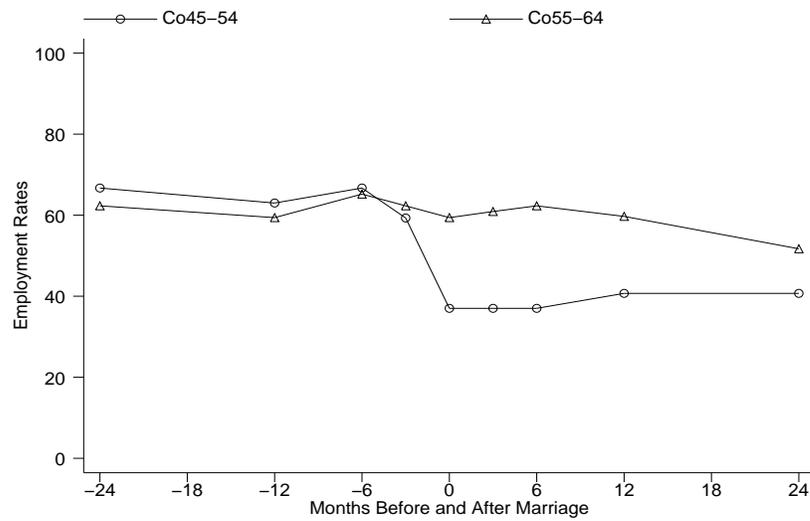
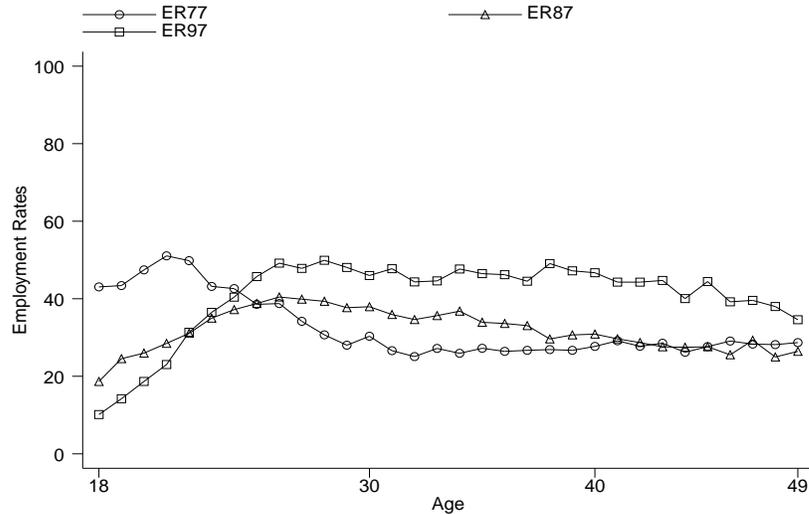


Figure 4: Evolution of Employment Rates By Age



to birth for cohorts 45-54 and 55-64. Although both groups share approximately the same level two years before the birth (59.6% for women born between 45-54 and 58.0% for those born between 55-64), they converge to 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 45-54. The proportion is about 66% for cohort 55-64. 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 45-54 and 55-64 in order to check for generational changes. This is done in Figure 3¹⁰. Employment rates move from 66.7% two years pre-marriage to 40.7% two years post-marriage for women born between 45-54. Rates decline from 62.3% to 51.7% for women born between 55-64. This is evidence that the negative impact of marriage on female employment rates (i.e. traditional society) diminish in younger cohorts. 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.

The aim of Figure 4 is to provide further information of the evolution of female’s em-

¹⁰We must point out that the sample size for the construction of this graph is rather small: 27 individuals for the cohort 45-54 and 69 for cohort 55-66.

ployment rates in Spain¹¹. 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 about 50%) and they remain fairly constant after. Thus, Figure 4 shows that the pattern of employment rates by age (which also reflects family formation) is changing over time.

As discussed before, *downward occupational mobility* (so *Downward Job-Penalty*) 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 upper or lower in the occupational ladder). Similarly, 5.1% of women who are employed 3 months prior the birth and 24 months later have modified their occupational status. This percentage increases to 16.4% among those women who held 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, 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 1 has to be interpreted as follows: the percentage of female 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 censored¹². That is, 'not working After' means that the individual did not have any job after motherhood up to the last month we observe him. Similarly, we compare pre and post-birth job position by looking at the first job after confinement¹³. 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 *Good* 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 insignifi-

¹¹The source of this graph is the Spanish Labour Force (EPA).

¹²Both younger cohorts and older first child mothers are censored earlier because of the structure of our data.

¹³This 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 hold at first job after birth as the level to compare with pre-birth job category.

Table 1: Change in Occupational Status Before and After First Birth

<i>1st Job After</i>	<i>Occupational Status 12 months Before</i>				
	Not Working	Good	Average	Low	Very Low
Not Working ¹	96.50%	8.77%	28.82%	40.46%	52.54%
Good	0.30%	91.23%	0.00%	0.00%	0.00%
Average	0.20%	0.00%	70.31%	0.33%	0.00%
Low	1.80%	0.00%	0.44%	58.55%	0.85%
Very Low	1.20%	0.00%	0.44%	0.66%	46.61%
Total Number	999	57	229	304	236

¹Not working at the interview. However, 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

cant¹⁴. For instance, 0.66% women initially classified as *Low* moved down towards *Very Low*. 0.88% in the *Average* level also declined in position. This does not mean, however, that there is no *Downward 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 probably find a greater movement between job levels. Unfortunately, the data base does not contain wage information, which would be the best strategy to build up an occupational ladder and would allow us to analyse the wage penalty (Bardasi and Gornick 2000). Several studies for British samples (Newell and Joshi 1986, Dex 1987, McRae 1991, Callender, Millward et al. 1996) found *Downward Job-Penalty* caused mainly by the movement into part-time work after childbirth. Thus, there seems to be evidence for *Downward Job-Penalty* due to transitions to part-time jobs, despite the fact that many part-time jobs positions are offered at high levels in Britain¹⁵. In our study, *Downward Job-Penalty* is less of an issue and this may be due to the scarcity of part-time jobs in Spain. 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 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 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

¹⁴Although not reported, the same pattern is observed within the 28 ISCO levels.

¹⁵We 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 2: Change in Occupational Status Before and After First Birth. Cohort 45-60.

<i>1st Job After</i>	<i>Occupational Status 12 months Before</i>				
	Not Working	Good	Average	Low	Very Low
Not Working	97.12%	6.45%	21.97%	40.12%	50.83%
Good	0.18%	93.55%	0.00%	0.00%	0.00%
Average	0.00%	0.00%	77.27%	0.60%	0.00%
Low	1.44%	0.00%	0.44%	58.68%	0.83%
Very Low	1.26%	0.00%	0.76%	0.60%	48.33%
Total Number	555	31	132	167	120

option, which is part-time.

As already mentioned, Table 1 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. 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, I have constructed Table 2, where only individuals who had the first child potentially a long time ago (cohort 45-60) are considered. The results in Table 2 are very similar to Table 1, which confirms the high proportion of drops in working status among mothers¹⁶.

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 3 represents the monthly average of the gap between birth and first job for different groups. 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 7.49 months. On the other hand, women who did not work before but did after the confinement have an average gap of 62.94 months. This number is calculated for those women who came back to work during the period we observe them. It has already pointed out 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 3 shows unequivocally that women at higher positions return to work (on average) much faster. Female previously at *Good* job category have a mean of 0.63. That is, most of them probably remain at the same job after the birth with plenty of gaps being zero. On the other hand, those female initially at *Very Low* position, who did come back to job, required an average of 10.88 months. One might question how it is possible such a low

¹⁶Note, however, that these women are the oldest of the whole sample 45-77 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.

Table 3: Average Monthly Returning Gap to Working Status

<i>Occupational Status Before</i>	<i>n</i>	<i>Average Monthly Return Gap</i>
Not Working	293	62.94
<i>Good</i>	56	0.63
<i>Average</i>	196	5.14
Working	226	8.10
<i>Low</i>	165	10.88
<i>Total</i>	643	7.49
TOTAL	936	24.85

average gap if female have the right of maternity leave. Note 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. This gives again evidence of the high opportunity cost and job attachment that women in high-profile jobs experience, 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 4 represents the job status after birth by age of motherhood¹⁷. Again we face censoring among recent mothers at interview. In order to avoid possible misleading results from the tabulation, we have limited our sample to those women who belong to cohort 45-60. It is worth mentioning that we also tabulated the whole sample and the percentages were practically the same. Table 4 shows that those women who enter motherhood when teenagers 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 *Good* or *Average* 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 status¹⁸.

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

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

¹⁸Note that pre-birth status of working has been shown to influence significantly the post-birth status in Table 1.

Table 4: Occupational Status After First Birth By Age at Motherhood

<i>Occupational Status After</i>	<i>Age at First Birth</i>			
	Less 20	20-24	25-29	Over 30
Not Working	81.69	74.08	59.58	67.52
Good	0.00	0.97	4.46	11.11
Average	4.23	7.16	14.96	13.68
Low	8.45	9.09	15.22	6.84
Very Low	5.63	8.70	5.77	0.85
Total Number	71	517	381	117

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, although this may be due to the coarseness of the data. 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 have worked before the confinement, which may be causing the result that teenager mothers are less likely to work after the birth.

There are, however, several aspects that are not captured in this type of tabulation. For example, the possibility of a second birth close to the first one, which obviously may cause a delay in the return to work. Thus, it is important to develop a methodology who allows us to study these issues by controlling for individual characteristics. The phenomenon of job penalty will be further analysed in the next sections through limited dependent variable estimation.

4.2 EPA

In 3.1.3 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.

In our EPA sample, the proportion of women who are at work between six and nine months before their first child (quarter 1) 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 2, 37.8% at quarter 3, 33.8% at quarter 4, 32.4% at quarter 5 and 32.5% at quarter 6. 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 then¹⁹.

Tabulations show that pre-birth employment determines significantly post-birth labour force status. 64.6% of women who were employed at first quarter were employed at quarter six. In FFS, around 60% of women who worked one year before the birth worked one year after, which seems in line with the EPA output. (Saurel-Cubizolles et al. 1999) find that 53% of women returned to work within the first year following the birth, which is lower than our result. However, the sample from our survey is at national level, whereas (Saurel-Cubizolles et al. 1999) based their study 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. 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. For example, as expected, a pre-birth job in the public sector 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. Tenure at work is also 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 pre-birth permanent contract are at work in quarter 6, whereas 49.7% is the equivalent percentage for those with a fix-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. Tabulations show that marital status does not significantly affect transitions from employment to employment. Education level is, however, a key factor. 89.2% of women with post-graduate education degree are employed at quarter 6, the percentage being much lower for their counterparts with low education.

Following the same criterion as in the FFS, we rank occupations to see if there are movements between categories after childbearing. As we had observed with the FFS analysis, the data do not show a significant pattern with transitions either upwards or downwards. This means that we are not able to capture *Downward Job-Penalty* through downwards occupation transitions²⁰. Data from EPA confirm the explanation that we used for the non-*Downward Job-Penalty* in FFS, which was based on the non-existence of transitions from full-time jobs to part-time jobs²¹. 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

¹⁹Maternity 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.

²⁰As already discussed, if we had had information about wages, we could have studied wage penalty, which is a more accurate measure of transitions towards a lower position after motherhood.

²¹See 4.1 for further explanation.

type of job.

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.

5 Model

5.1 Probit Estimation with FFS

Our purpose is to determine how the job profile of a woman before her first birth affects her 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 (784).

The main tool we use is the Latent Variable Model for Binary Variables²². 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 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 $E^* = x\beta + \epsilon$,

²²We base our model description on (Long 1997).

$$Pr(E = 1|x) = Pr(E^* > 0|x) = Pr(x\beta + \epsilon > 0|x) = Pr(\epsilon > -x\beta|x)^{23}.$$

We assume that our errors follow a normal distribution with $E(\epsilon|x) = 0$, which result 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-first-birth, we estimate a monthly probit²⁴ 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 motherhood²⁵. 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 .

The explanatory variables²⁶ are the following: region dummies, being religious, education, cohort, partner's education, monthly working experience since 15 years old, national proportion of temporary contracts, being pregnant, age, age square, number of children, and a dummy for the occupation hold one year before the birth. The latter variable has been classified initially in the descriptive statistics into four categories *Good*, *Average*, *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 (*Good* and

²³We take the threshold τ as zero. There is no loss of generality here because the threshold is absorbed into the constant term.

²⁴We assume that the errors are normally distributed.

²⁵We analyse post-birth labour force status up to 120 months after the confinement.

²⁶Full description of the variables in Table 18.

Average) into one (*HIGH*) and the two lowest levels (*Low* and *Very Low*) into one (*LOW*).

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* and our time dummies²⁷. We also interact *E3GrPo* 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 (time-varying). Other reference covariates are: she is from the East, religious and from cohort 45-50²⁸. 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 5²⁹ 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 (prHLOcu) 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 prHLEdu in the graph) return to work after 1st birth. Up to four years, the advantage of being under category *E3GrPo* decreases slightly with time,

²⁷Results are in Table 22 in Appendix B.

²⁸The latter variables are not necessary related to women more attached to the labour force as skills certainly do.

²⁹prBenchM is the profile for the benchmark individual with characteristics as explained in the text. prHLEdu 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. prHLOcu 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. prHLEO 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

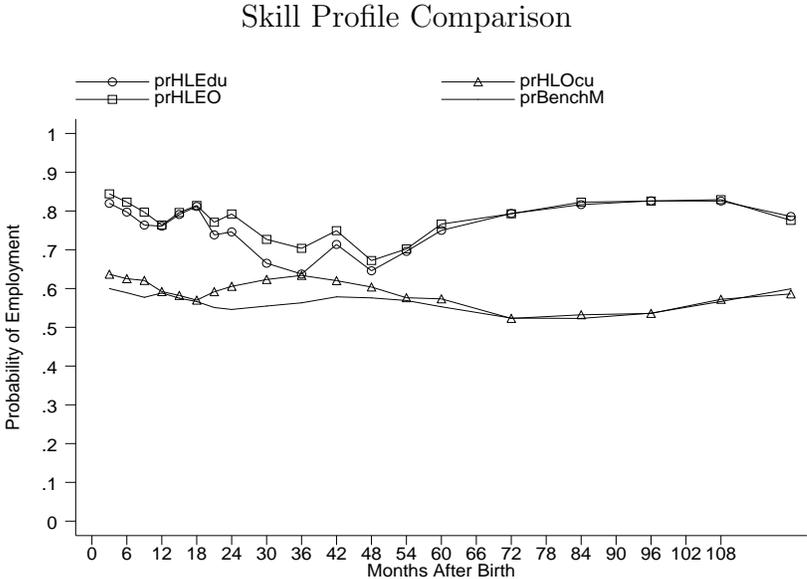
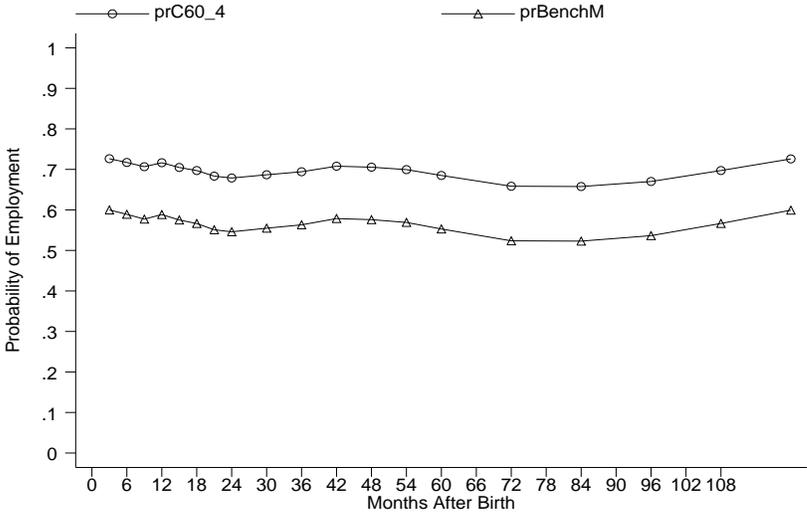


Figure 6: Monthly Probability of being Employed after 1st Birth. Cohort Comparison



maybe due to the fact that this group tend to compress first and second child³⁰ 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 (prHLEo). 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 60-64 with the benchmark (45-49). We see that later cohorts have greater chances to return to work after childbearing, *ceteris paribus*.

In Table 5 we have the marginal effects for the probit estimation of employment after 1st child³¹. We focus on cohorts 1945-1969. 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 5 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 motherhood³². 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. Husband's education also has a positive effect on returning to work, at tertiary levels. There is a strong relationship between couple's education. In fact, when the women's education is removed from the estimation, we find that the effect of male's education on probabilities of post-birth employment are much greater since they are picking up the effect of female's education.

Social characteristics also have an impact on women's withdrawal from the labour force. Religion affects negatively the probability of 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 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 1945-1949. Results indicate that younger generations are more likely to return to job after confinement. For instance, being from cohort 1965-1969 increases the probability to come back to work by

³⁰There is some evidence that single-child-mothers with graduates or post-graduates degrees tend to have a second child relatively fast (Gutiérrez-Domènech 2001).

³¹Note that time dummies (120, one for each month after the birth up to 10 years) are not represented in the table.

³²The omitted category is E1, which is the lowest level.

Table 5: Probability of employment after first birth: following 120 months (Probits' Marginal Effects)

<i>Model</i>	<i>Probit up to 10 years After 1st Birth</i>	
<i>Coefficient</i>	<i>dF/dx</i>	<i>Std. Error</i>
<i>Temporary</i>	-0.0027*	0.0006
<i>Experience</i>	0.0043*	0.0003
<i>OcHIGH</i>	0.027*	0.012
<i>AgeAt1C</i>	-0.026*	0.013
<i>AgeAt1C2</i>	-0.0012*	0.0002
<i>AgeAt1stJob</i>	0.047*	0.0028
<i>E2</i>	0.062*	0.012
<i>E3Voc</i>	0.19*	0.020
<i>E3GrPo</i>	0.18*	0.022
<i>E2H</i>	-0.11*	0.016
<i>E3VocH</i>	0.036	0.031
<i>E3GrPoH</i>	0.058*	0.022
<i>Religious</i>	-0.044*	0.014
<i>NW</i>	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>Cohort50-54</i>	-0.013	0.018
<i>Cohort55-59</i>	0.087*	0.018
<i>Cohort60-64</i>	0.13*	0.024
<i>Cohort65-69</i>	0.061**	0.033
<i>Log likelihood</i>	-7015.5	
<i>N observations</i>	11366	

*Significant at 5% level

**Significant at 10% level

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 this 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 group³³.

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 a probit taken only first birth transitions and then, we estimate a similar model for all parities. Second, we focus on labour force participation. We estimate a probit where the dependent variable is one if the individual is either employed or unemployed and zero if inactive. Third, we take 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.

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 1 if an individual is employed at quarter 6 and 0 otherwise. Some explanatory variables³⁴ refer to job features at quarter 1: *Employer* is a dummy that takes value one if the a 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*³⁵; *Nationality* takes value one if she is Spanish; *Married*; regional dummies *NW*, *NE*, *C*, *E*, *Canaries* and *S*, being the latter the omitted

³³Tables for the separate cohort estimation are not reported at the paper. However, they are available for the interested lector by request.

³⁴Description of the variables in Table 19.

³⁵The omitted category is the lowest level.

Table 6: Probability of employment after first birth and after all type of births (Probits-Marginal Effects)

<i>Model</i>	<i>After 1st Birth</i>		<i>After any order Birth</i>	
	<i>dF/dx</i>	<i>Std. Error</i>	<i>dF/dx</i>	<i>Std. Error</i>
<i>Employer</i>	0.029	0.095	0.15*	0.042
<i>Public</i>	0.18*	0.072	0.18*	3.56
<i>Permanent</i>	0.19*	0.072	0.20*	0.048
<i>Fulltime</i>	0.17**	0.091	0.058	0.055
<i>Tenure</i>	0.0020*	0.0008	0.001*	0.0004
<i>OcHIGH</i>	0.15*	0.067	0.078**	0.043
<i>Age</i>	0.004	0.061	0.011	0.031
<i>Age square</i>	0.0001	0.001	-0.0006	0.0005
<i>E2</i>	-0.065	0.072	-0.13*	0.044
<i>E3Voc</i>	-0.16	0.12	-0.11	0.095
<i>E3GrPo</i>	0.098	0.01	0.031	0.068
<i>Nationality</i>	-0.053	0.26	-0.046	0.16
<i>Married</i>	-0.21*	0.064	-0.15*	0.046
<i>NW</i>	0.19*	0.077	0.21*	0.039
<i>NE</i>	0.18**	0.078	0.11**	0.054
<i>CMadrid</i>	0.15	0.12	0.17**	0.066
<i>C</i>	0.15**	0.079	0.055	0.054
<i>E</i>	0.15**	0.07	0.095**	0.049
<i>Canaries</i>	0.19	0.14	0.08	0.082
<i>Year91-93</i>	0.12**	0.068	0.051	0.043
<i>Year94-96</i>	0.11	0.069	0.057	0.044
<i>Parity</i>			0.016	0.022
<i>Log likelihood</i>	-155.1		-328.5	
<i>N observations</i>	308		683	

*Significant at 5% level

**Significant at 10% level

category; temporal dummies *Year88-90*, *Year91-93* and *Year94-96* with the former as the reference level. In the model with high order births we include *Parity* as a covariate as well.

Table 6 summarises the marginal effects for the probit estimation of employment between six and nine months after 1st child and after any order birth. 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 18% 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-birth employment by 19%. 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 job has also a positive impact on post-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 much more likely to come back to work. There is also evidence that pre-birth characteristics affect not only to the chances to return to work after first child, but also after any order birth. 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 countries³⁶, being married reduces the chances to return to work after first and any other birth.

We next analyse the factors that determine the probability to be in the labour force after motherhood, either employed or unemployed. In Table 7 we observe that the probability of being active after 1st birth depend positively and significantly on the occupation level and on a full-time contract. It depends negatively on marriage. When we look at all birth orders we find that previously employers, public sector workers, tenure, permanent contracts and the level of occupation impact positively on the likelihood to be in the labour force after birth. Marriage affects negatively.

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 8. 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 any order birth, pre-employers and pre-public sector employees have greater chances to be employed after motherhood. Both married and occupational level are not significant.

These three analysis suggest that tenure and permanent contract influence post-first-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, not only for first birth but for any-order birth.

³⁶Self-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.

Table 7: Probability of being at the labour force after first birth and after all type of births (ProbitsMarginal Effects)

<i>Model</i>	<i>After 1st Birth</i>		<i>After any order Birth</i>	
	<i>dF/dx</i>	<i>Std. Error</i>	<i>dF/dx</i>	<i>Std. Error</i>
<i>Employer</i>	-0.013	0.084	0.082*	0.035
<i>Public</i>	0.099	0.058	0.13*	0.034
<i>Permanent</i>	0.042	0.060	0.081*	0.040
<i>Fulltime</i>	0.18*	0.086	0.042	0.045
<i>Tenure</i>	0.0010	0.00061	0.001*	0.0003
<i>OcHIGH</i>	0.18*	0.052	0.11**	0.035
<i>Age</i>	-0.020	0.054	-0.0071	0.026
<i>Age square</i>	0.0005	0.00091	0.0002	0.0004
<i>E2</i>	-0.033	0.058	-0.090*	0.037
<i>E3Voc</i>	-0.098	0.11	-0.030	0.063
<i>E3GrPo</i>	-0.007	0.094	-0.030	0.063
<i>Nationality</i>	0.17	0.29	-0.046	0.16
<i>Married</i>	-0.18*	0.039	-0.14*	0.030
<i>NW</i>	0.18*	0.045	0.18*	0.024
<i>NE</i>	0.098	0.061	0.065	0.042
<i>CMadrid</i>	0.10	0.086	0.17**	0.066
<i>C</i>	0.061	0.065	0.038	0.042
<i>E</i>	0.076	0.062	0.061	0.039
<i>Canaries</i>	0.02	0.17	0.0027	0.075
<i>Year91-93</i>	0.037	0.056	0.028	0.035
<i>Year94-96</i>	0.095	0.052	0.047	0.035
<i>Parity</i>			-0.0016	0.018
<i>Log likelihood</i>	-136.9		-296.0	
<i>N observations</i>	308		683	

*Significant at 5% level

**Significant at 10% level

Table 8: Probability of being employed vs. unemployed after first birth and after all type of births (ProbitsMarginal Effects)

<i>Model</i>	<i>After 1st Birth</i>		<i>After any order Birth</i>	
<i>Coefficient</i>	<i>dF/dx</i>	<i>Std. Error</i>	<i>dF/dx</i>	<i>Std. Error</i>
<i>Employer</i>	-0.021	0.043	0.048*	0.018
<i>Public</i>	0.061	0.036	0.046**	0.0324
<i>Permanent</i>	0.10*	0.057	0.11*	0.035
<i>Fulltime</i>	0.0034	0.049	0.0070	0.029
<i>Tenure</i>	0.0014*	0.00057	0.0060*	0.00023
<i>OcHIGH</i>	0.018	0.043	-0.010	0.025
<i>Age</i>	0.0049	0.032	0.0087	0.015
<i>Age square</i>	-0.00011	0.00054	-0.00013	0.0002
<i>E2</i>	-0.054	0.049	-0.043	0.027
<i>E3Voc</i>	-0.112	0.11	-0.053	0.065
<i>E3GrPo</i>	0.068	0.040	0.048	0.025
<i>Nationality</i> ¹				
<i>Married</i>	-0.018	0.042	-0.015	0.027
<i>NW</i>	0.031	0.043	0.030	0.024
<i>NE</i>	0.071	0.034	0.036	0.025
<i>CMadrid</i>	0.042	0.051	0.044	0.030
<i>C</i>	0.067	0.032	0.014	0.028
<i>E</i>	0.043	0.042	0.017	0.025
<i>Canaries</i> ²			0.055	0.019
<i>Year91-93</i>	0.037	0.056	0.016	0.023
<i>Year94-96</i>	0.095	0.052	0.009	0.024
<i>Parity</i>			0.014	0.012
<i>Log likelihood</i>	-136.9		-296.0	
<i>N observations</i>	308		683	

*Significant at 5% level

**Significant at 10% level

¹Nationality=1 predicts success perfectly (dropped)

²Canaries=0 predicts success perfectly (dropped)

6 Country comparison: Belgium, West Germany, Italy, Spain and Sweden

We have noticed in 4.1 that, in Spain, women's employment rates diminish substantially around childbearing and that they do not recover. We would like to verify if this happens to other countries or if, on the contrary, this is only a Spanish case. We compare Spain with Belgium, West Germany, Italy and Sweden since these economies are characterised by well-known different policy regimes³⁷. They also differ in labour market opportunities and flexibility.

Table 9: Maternity leave and benefits¹: 1975-1997

<i>Countries</i>	<i>Duration of leave</i> ²				<i>Cash benefits</i> ³			
	1975	1985	1990	1997	1975	1985	1990	1997
Belgium	14	14	14	15	60	80	80	77
Germany	14	14	14	14	100	100	100	100
Italy	22	22	22	22	80	80	80	80
Spain	12	14	16	16	75	75	75	100
Sweden	30	51	51	64	90	70	71	62

¹Source: (Gauthier 2000, Moss and Deven 1990)

²Duration of the leave in weeks

³Cash benefits as a percentage of regular wages

Table 10: Childcare leave² schemes in 1999

<i>Countries</i>	<i>Duration</i> ²	<i>Cash Benefits</i> ³	<i>Flexibility</i>
Belgium	3	37%	Up to the child's fourth birthday
Germany	36*	24%	Immediately after paid maternity leave
Italy	6	30%	Up to the child's ninth birthday
Spain	36*	Unpaid	Immediately after paid maternity leave
Sweden	15	66%	Up to the child's eighth birthday

¹Source: (Gauthier 2000)

²Duration in months

³Cash benefits as % of wage

*Duration includes the post-birth period covered by the maternity leave

³⁷Cohorts for these countries are fairly comparable. We have women born between 1951 and 1970 in Belgium, from 1952 to 1972 in West Germany, between 1946 and 1975 in Italy, 1945 to 1977 in Spain and 1949 to 1969 in Sweden.

Table 11: Children in public funded childcare¹ in 1993

<i>Countries</i>	<i>Under age of 3</i>	<i>Age 3 to school age</i>
Belgium	30%	95%
Germany ²	5%	65%
Italy	6%	97%
Spain	5%	84%
Sweden	33%	79%

¹Source: (Gauthier 2000, Moss and Deven 1990, Tietze and Cryer 1999)

²Data from 1988

We summarise in Table 9 the main characteristics of maternity/parental leave³⁸ and benefits in these countries. We also provide information on childcare leave³⁹ in Table 10. These data is a subset of that used by (Gauthier 2000). Besides maternity and childcare leave, countries differ substantially concerning daycare provision. For example, (Moss and Deven 1990) report that 31% of one-year-old children with working mothers were in the collective daycare system in France, whereas less than 10% are in Italy or Spain. Table 11 shows that indeed Spain, Italy and Germany are the countries with less public funded childcare⁴⁰. In (Gauthier 2000), the author summarises public policies affecting fertility and families in the 15 EU members. She finds that across all family types, cash support for family tends to be low in Portugal, Spain and the UK. Furthermore, she points out that these cash trends over time are relatively stable, except for some increase in Belgium, Denmark, Germany and Luxembourg. Finally, flexible arrangements provided by firms is another way to facilitate the combination work and family. Table 12 summarizes data on flexible working arrangements in enterprises as it appears in (OECD 2001). Italy and Spain own the lowest percentage of employees reporting that they work flexi-time. In Figure 7⁴¹ we represent female's employment rates around motherhood from Belgium, West Germany, Spain and Sweden. We can notice immediately how dissimilar they are, not only in their starting point (24 months before the birth) but also in their evolution. Belgian⁴² future 1st child mothers' employment rates are about 80% two years before confinement and experience a slight decline around birth. Belgian employment rates stay at about 67.5% two years after motherhood. In ten years time, when the procreation process is likely to be over, they still have an employment rate of 65.2%. Thus, the exit

³⁸The term maternity/parental leave refers to paid leave during the period immediately prior and after childbirth.

³⁹Childcare leave refers to optional extended leave after maternity/parental leave.

⁴⁰Although this might be partly endogenously driven, we believe that it provides evidence for differences in public funded childcare.

⁴¹We summarise labour market characteristics for women with and without children in 1998 in 20. We also tabulate activity rates by marital status in 1991 and 1995 (21). The purpose is to see if our results are in line with national statistics. However, note that this data do not coincide with our time horizon (approximately 1965-1995).

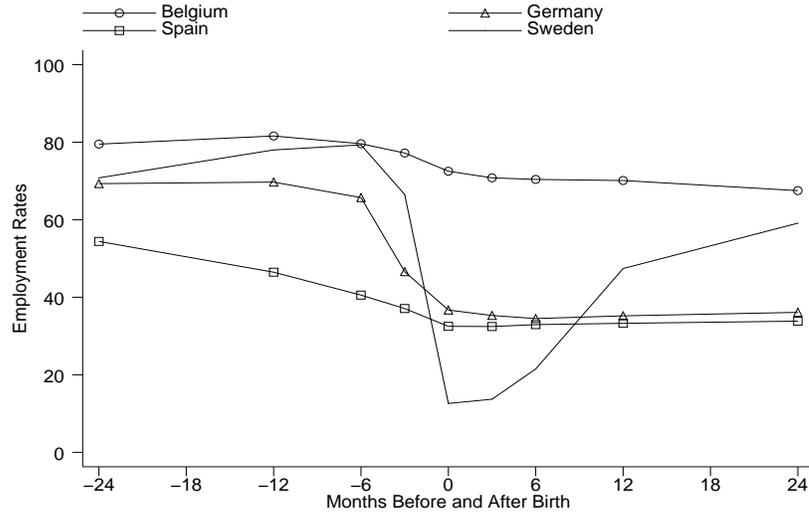
⁴²Belgian data was only collected in the Flemish and Brussels regions. Thus, it does not take into account the Walloon area. We would expect employment rates to be lower if this region was also included in the survey.

Table 12: Indicators of family-friendly and relevant flexible working arrangements in enterprises¹, 1995-1996

<i>Countries</i>	<i>Employer provision for child day-care</i>	<i>% of employees reporting they work flexi-time</i>	<i>% of women part-time on a voluntary basis</i>
Belgium	14%	26%	21%
Germany	16%	33%	27%
Italy	5%	19%	11%
Spain	8%	20%	8%
Sweden	1%	32%	20%

¹Source: (OECD 2001)

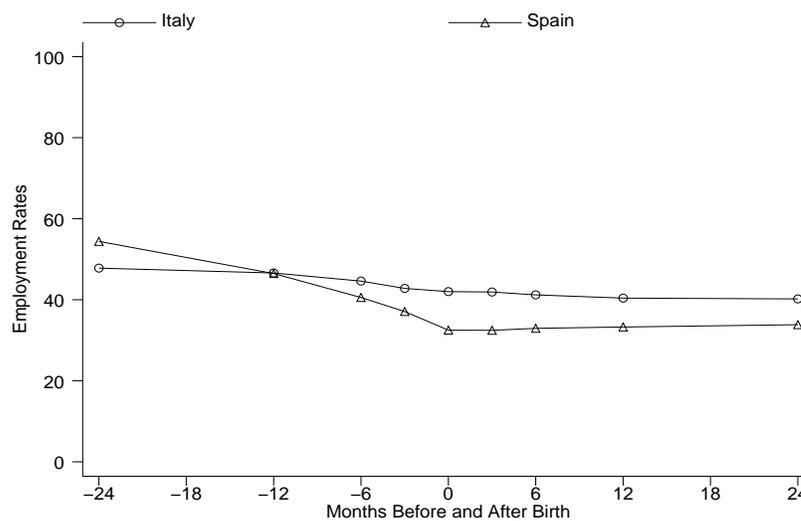
Figure 7: Employment Rates Before and After 1st Birth: Country comparison



rate from the labour market appears to be small. Swedish women experience a huge drop around birth. This is due to the fact that Swedish women are classed as non-employed when they are on maternity leave. This is not the case in the other countries, where women on leave are accounted as employed. The picture shows the impact of parental leave on labour force and how Swedish mother recover their pre-birth levels. Actually, data show that ten years after the first child is born, 73.6% women in Sweden are at work. Thus, once the procreation process is finished, most of them are back in the labour market. German employment rates around childbearing fall considerably from 69.7% to 36.1%. Thus, Spanish and German mothers are the group who experience the greatest drop in post-birth employment rates. After 10 years⁴³, their rate is 34% and 40% respectively. We have to point out that German mothers are entitled to long and partly paid childcare leave, which is optional after full paid maternity leave. This could explain their low employment rates after motherhood.

⁴³Note that in this period of time, further births are possible.

Figure 8: Employment Rates Before and After 1st Birth: Italy vs. Spain



We would like to know if the Spanish shape is typical of other South-European countries too, with more similarities in their labour markets and social life. Figure 8 confirms that indeed Spain is closer to Italy than to Belgium or Sweden. Italian mothers' employment rates decrease from around 51% to 40% and they remain at 42% after ten years. However, the decline in Spain is more significant since it starts at higher employment rates and ends up at lower levels.

Figure 10 in Appendix C represents employment rates around birth by country and cohort. The larger cohort difference appears to be in Spain, which rate of exit from employment around childbearing has significantly diminished. Curiously, in Germany and Belgium, the profile of the two cohorts is very similar with actually slightly higher employment rates for older generations. This is probably due to the increase of unemployment in the 80s, when cohorts 58-64⁴⁴ were at age of motherhood. Note that this increase of unemployment happens in Italy and Spain as well. However, their young cohorts experience greater employment rates after childbearing compared to their older counterparts. This suggests that the change in social patterns towards higher participation offsets the negative impact of unemployment in both Spain and Italy.

We next compare transitions in the labour market after motherhood. We take female's labour force status 12 months before the birth and 24 months after since we want to ensure that we do not capture job protection policies in between. Those individuals not observed in the two periods are censored. We define four types of people: e-e means employed at both times, e-ne defines those employed before but not after confinement, ne-e for movements from non-employment to employment and ne-ne for those non-employed either before nor after the birth. Note that non-employment accounts for home work and unemployment. This is important to interpret the meaning of the transitions. That is,

⁴⁴Young Cohort for the comparison in Belgium and Germany.

in countries and cohorts with high female unemployment rates, part of the transitions to non-employment are related not only to home oriented women but also to unemployed mothers. For example, we would expect that shifts e-ne become more due to unemployment compared to housewifely in later cohorts in Spain.

Table 13: Female’s Unemployment rates¹: 1975-1995

	<i>Female Unemployment Rates</i>				
<i>Countries</i>	1975	1980	1985	1990	1995
Belgium	7.5	13.8	18.9	12.5	14.0
Germany	5.4	5.2	10.4	8.4	9.2
Italy	6.3	10.8	17.7	15.0	15.2
Spain ²	4.8 ³	10.2	25.7	24.2	30.9
Sweden ³	2.0	2.3	2.9	1.6	6.9

¹Source: Eurostat *Employment and Unemployment*

²Source for Spain: INEBase

³Data from 1976 in Spain

⁴Source for Sweden: Statistiska Centralbyrån (Sweden)

Table 13 shows that indeed Spanish women have the greatest unemployment rates and therefore, they are a priori more likely to have transitions to non-employment linked to unemployment rather than home activities, compare to the other countries⁴⁵.

Table 14: Country comparison Transitions Employment vs. Non-Employment around 1st child (from 1 year pre-birth to 2 years post-birth¹)

<i>Country</i>	<i>n</i>	e-e ²	e-ne	ne-e	ne-ne
<i>Belgium</i>	1756	62.7%	18.1%	4.8%	14.4%
<i>West Germany</i>	1222	31.5%	37.2%	4.7%	26.6%
<i>Italy</i>	2658	35.6%	12.1%	5.5%	47.9%
<i>Spain</i>	2297	27.6%	19.3%	5.4%	47.8%
<i>Sweden</i>	2063	51.1%	26.8%	8.2%	13.9%

¹Excluding censoring

²e means Employment and ne means Non-Employment

In Table 14 we observe transitions in and out the labour market around childbearing. In Belgium, 62.7% of first-birth mothers remain employed, which is the greatest rate. As expected, Spain has the lowest with only 27.6% women staying at work. 51.1% of Swedish women do not leave employment, which is consistent with the result of 46.7% found by

⁴⁵This is a point of view and it is not proved with data since we do not disentangle unemployment and inactivity .

Table 15: Country comparison Transitions Employment vs. Non-Employment around 1st child (from 1 year pre-birth to 5 years post-birth¹)

<i>Country</i>	<i>n</i>	e-e ²	e-ne	ne-e	ne-ne
<i>Belgium</i>	1411	58.2%	21.2%	7.4%	13.2%
<i>West Germany</i>	957	31.6%	35.8%	7.2%	25.4%
<i>Italy</i>	2337	32.7%	14.2%	9.5%	43.6%
<i>Spain</i>	1987	25.4%	20.2%	7.4%	47.0%
<i>Sweden</i>	1710	53.3%	24.0%	10.1%	12.6%

¹Excluding censoring

²e means Employment and ne means Non-Employment

(Wetzels 1999)⁴⁶. West Germany and Italy have rates of staying at work of 31.5% and 35.6% respectively. Transitions from employment to non-employment are greater in Sweden, where 26.8% mothers moved from state, and in West Germany, with 37.2%. These results are similar to those found by (Wetzels 1999). She estimates with other data sources transitions of 29.3% for Sweden and 41.9% for West Germany (GSOEP 1983-1992). Many of these women are on maternity leave and accounted in Sweden as non-employed. The same seems to be the case for childcare leave in Germany. In the other countries, we observe that Spain has 19.3% women experiencing transitions to non-employment, Belgium 18.1% and Italy 12.1%. Table 14 suggests that around half of mothers are out of work not only 12 months before the birth but also 24 months after in Italy and Spain. In Belgium and Sweden, women have higher employment rates 12 months before maternity. Although there are significant shifts to non-employment from previous employed women, the percentage of mothers out of work in both pre and post-birth is only about 13%. Germany is somewhere in between since 26.6% women do not work neither before the birth nor after it.

We calculate the proportion dropping out of work. We find that 78% of Belgian mothers who worked 12 months before confinement are also employed 24 months after. The percentages are 46%, 75%, 59% and 66% for West Germany, Italy, Spain and Sweden respectively. The paper by (Saurel-Cubizolles et al. 1999), which is focused on data from the mid-nineties, finds that 78% of recent mothers have come back to work in Italy when the baby is one year old. For West Germany and Sweden, (Wetzels 1999) obtains a return rate of 44% and 61% respectively. Although she selects women who were employed three months before confinement (we take a criterion of one year), her results are in line with ours. Since there is the possibility of childcare leave (especially in Sweden and Germany), we look also at transitions from one year pre-birth to five years post-birth in Table 15. However, note that this implies women with more children, which makes more difficult to interpret. We calculate the staying-on work rates in these six years horizon, which are 73%, 47%, 70%, 56% and 69% for Belgium, West Germany, Italy, Spain and Sweden respectively. Note that the returning rates to work after first birth has slightly risen in Sweden, compared to the transitions we had with our previous three years horizon.

⁴⁶She looks at shifts between 3 months pre-birth and 24 months after.

This confirms that Swedish women make use of their leaves but come back to work afterwards. This also suggests that more children do not affect falls from employment. The percentages for Belgium, Italy and Spain diminish around three percentage points. West Germany staying-on rates remain fairly constant.

Table 16: Country¹ comparison Transitions Full-time Employment vs. Part-time² Employment around 1st child (from 1 year pre-birth to 2 years post-birth)

<i>Country</i>	<i>n</i>	ef-ef ³	ef-ep	ep-ef	ep-ep
<i>Belgium</i>	992	78.9%	12.5%	1.8%	6.8%
<i>West Germany</i>	211	73.5%	5.7%	20.8%	0.0%
<i>Italy</i>	752	83%	2%	0.3%	14.7%
<i>Spain</i>	564	83%	3.2%	1.4%	12.4%
<i>Sweden</i>	1032	38.5%	49.2%	1.9%	10.4%

¹West Germany has high rate of missing information

²Part-time if work less than 35 hours per week

³ef means Full-time Employment and ep means Part-time

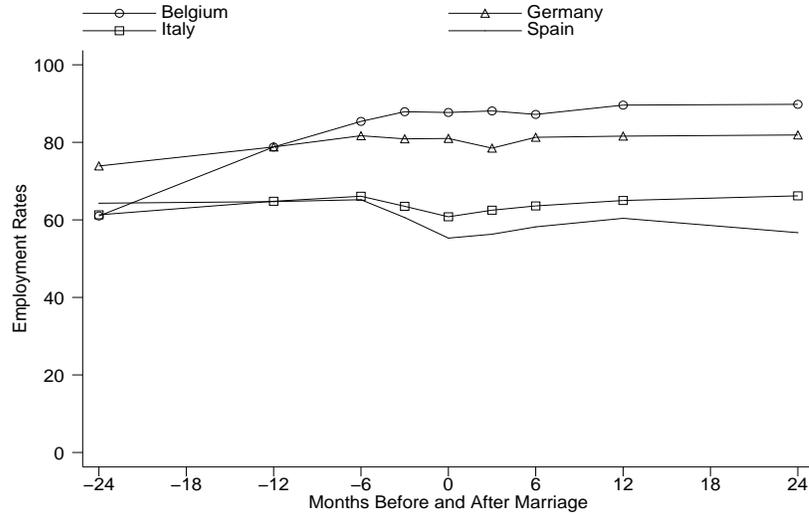
We would like to know if recent mothers choose part-time work. Table 16 shows the movements between full and part-time work among those women who remained employed. Swedish's preference for part-time work after birth is evident since about half of Swedish mothers moved from full-time to part-time job status. These shifts hardly exist in Spain and Italy, where only about 2-3% move. 12.5% of Belgian mothers became new part-time workers. Therefore, in Belgium and especially Sweden is common to move to part-time positions after motherhood. This means two things: either preferences of women are quite different across countries or flexibility and opportunity to transfer into part-time jobs is different. We think that the latter is more likely to be driving the result. Part-time does not seem to be related to motherhood in Spain and in Italy, whereas it definitely is in Belgium and Sweden. We believe that some Spanish or Italian women might opt for participation around childbearing if part-time jobs were commonly available.

6.1 Marriage Penalty or Motherhood Penalty?

We have seen that Spanish mothers employment rates initiate their decline far before the birth. The same is slightly visible for Italy. We would like to disentangle if the drop of employment rates around childbearing is caused only by the birth itself or if, on the contrary, marriage plays an important role. In order to do so, we take as a control group mothers without children and we observe their employment rates around the marriage date. In Figure 9, we compare Belgium, West Germany, Italy and Spain. We observe that Spanish recent married women experience a decline in their employment rates. Italian employment rates also drop, although they seem to recuperate to some extent. Therefore, part of the decline in employment around childbearing is explained by marriage. This shows evidence of these countries being more traditional. Note that at this stage we are pooling

all cohorts. We would expect this effect to be lower in younger generations (for the same levels of unemployment). Belgian and German employment rates are not affected by marriage. Thus, their drop in employment rates around motherhood is due to the birth itself. Note that their employment rates even rise before marriage, meaning that they complete education, they find a job and then they marry.

Figure 9: Employment Rates Before and After Marriage: Country comparison



The purpose of Table 17 is to look at transitions of employment vs. non-employment around marriage for those women who do not have any child. Clearly, Spain (followed by Italy) is the country with the highest number of cases classified as employed 12 months before the marriage and non-employed 24 months after. Among those Spanish women who were employed before marriage, 80% are at work after. These rates are 96%, 93% and 83% for Belgium, West Germany and Italy respectively.

Table 17: Country comparison Transitions Employment vs. Non-Employment around Marriage (from 1 year pre-marriage to 2 years post-marriage¹)

<i>Country</i>	<i>n</i>	<i>e-e²</i>	<i>e-ne</i>	<i>ne-e</i>	<i>ne-ne</i>
<i>Belgium</i>	285	70.9%	4.2%	18.9%	6.0%
<i>West Germany</i>	198	68.7%	7.6%	19.9%	10.1%
<i>Italy</i>	266	55.3%	12.4%	10.9%	21.4%
<i>Spain</i>	164	47.0%	18.9%	9.8%	24.3%

¹Excluding censoring

²e means Employment and ne means Non-Employment

We would like to know if there has been cohort changes in employment rates around childbearing and marriage. Figure 11 in Appendix C represents employment rates around

marriage by country and by cohort. We actually find that there exist some cohort variations but these are only noteworthy in Spain. Despite that the sample becomes rather small, there is evidence that Spanish married childless female employment rates from cohort 45-54 experience a significant decline close to marriage. The proportion of employed women six months before marriage is 66.7%, whereas the percentage is 37% afterwards. The respective rates are 65.2 and 62.3 for cohort 55-64. Thus, one would expect to have a smaller effect of marriage itself on the drop of employment around childbearing in younger generations. If we focus on employment around first birth, we also observe some cohort disparity. The employment rate of married women born 45-54 is 33.6 six months before the birth and 27.5 six months after. The rates are 45.9 and 37.7 for those born between 55 and 64. This generational evolution in employment rates around marriage is not as important for the other countries⁴⁷.

7 Conclusions

In this paper, we focus on *downward occupational mobility* and *employment transitions* after motherhood. The former is analysed for the Spanish Case. The latter issue is extended to an European context.

We find that movements across levels in the occupational ladder are rather insignificant after a first birth. This suggests three alternative outcomes: those women who remain at work do not experience downward mobility; we are not able to capture occupational mobility with the coarseness of our data; 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, Callender et al. 1996) find evidence for *Downward 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 justify our result.

Data show that there is a significant fall in the proportion of women with paid work after a first birth in Spain. 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. In both samples, around 60-63% of women who were employed before motherhood, were at work after. The gain from using EPA (despite its short-time horizon) is that it disentangles transitions to either unemployment or inactivity. Among the droppings, about 11% turned into unemployed and 24.5% 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 50's on). We expect that dropping to unemployment has become more frequent in later cohorts, characterised by high unemployment rates in Spain.

⁴⁷We are surprised about the rather small cohort variation in Italy. We would have expected a closer pattern with respect to Spain.

Spain and Germany are the countries with by far the highest decline in employment rates, even compared to Italy. If we look at two years pre and post-birth, Spanish employment rates are 56.8% and 33.0%, whereas Italian ones are 50.1% and 40.8%. Thus, a higher proportion of future Spanish mothers are at work before the birth but they decline more rapidly. Belgian employment rates are 79.5% and 67.5%. Swedish rates are 70.8% and 59.1%. It is worth pointing out that ten years after, 73.6% women in Sweden are at work (65.2% in Belgium). This implies that once the procreation process is finished, more Swedish are at work.

Our staying-on rates confirm the view that West German employed women are strongly affected by first-birth. We find that 46% of those mothers who were employed one year before the birth, are still at work two years afterwards. The proportions are 78%, 75%, 59% and 66% for Belgium, Italy, Spain and Sweden respectively. Although the staying rates are not apart in Spain and Sweden in a two-year horizon, they differ in two main issues. First, Swedish have higher pre-birth employment rates. Second, Spanish drops are permanent rather than temporary. In fact, employment rates are 34.3% in Spain ten years after confinement, compared with 73.6% in Sweden.

We would like to know why there are such important differences among countries in terms of transitions around childbearing. Especially, the disparity between Spain and the rest. We think about three main explanations. First, part of the difference might be due to the fact that Spain is a more traditional society. We are considering cohorts 45-77 so we would not be surprised that for previous generations this was the main pattern. This is partly confirmed when we look at employment rates around marriage for childless women. Spanish rates decline significantly after marriage, especially in older cohorts. The pattern is different in Belgium and Germany, where the rates remain fairly constant for these women. This could explain also the low employment rates in Italy, compared to especially Belgium and Sweden. Second, we have statistical evidence that Spanish female unemployment rates are higher than their counterparts. We know from EPA that substantial transitions to non-employment go to unemployment. Thus, both Spain being more traditional than them and their higher unemployment might produce the difference in falls between these two countries. Third, the availability of part-time work. If women are able to select the number of hours of employment, the choice become work full-time vs. part-time vs. non-employment, instead of full-time vs. non-employment. 12.5% and 49.2% women move from full-time to part-time after the birth of a first child in Belgium and Sweden respectively. Only about 3% do in Italy and Spain. This suggests that part-time is not a freely available option in these Mediterranean countries. We claim that post-birth employment rates would be higher in Spain and Italy if mothers were offered broader flexibility to combine childcare and work through part-time.

We find that there is hardly any recovery of employment for those women who leave work after motherhood in Spain. The percentage of women who experience *Career Break Job-Penalty* is greater than in the other countries analysed. We believe that this has policy implications since by country comparison we learn that flexibility and public childcare indeed facilitates employment and motherhood simultaneously. Policies to decrease youth unemployment in Spain would definitely help.

Finally, we study which are the features that determine the likelihood to return to work for Spain⁴⁸. We look at social and pre-birth job characteristics. We find that high education is a main factor to come back to work. These are the women with highest opportunity cost to leave employment. They also earn more and are able to pay for childcare. Furthermore, they have fewer chances to become unemployed after motherhood. Our results suggest that labour market stability facilitates the return. Both pre-birth permanent contracts and public sector rise the probability of returning to work. Thus, the increase of temporary contracts in the last years has made more difficult for recent mothers to keep their jobs. This could explain part of the differences with respect to Belgium and Sweden, since these countries are known to employ women in the public sector and they offer more permanent contracts.

⁴⁸I plan to estimate probits for Belgium, West Germany, Italy and Sweden for comparison purposes. However, this part is still incomplete.

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A Labels for the variables

A.1 Probit Estimation with FFS

Table 18: FFS Variable Labels

<i>Temporary</i>	Proportion of fix-term contracts at national level
<i>Experience</i>	Accumulated number of months worked up to the birth
<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>Age1stJob</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>E1H</i>	Dummy (1 if husband's highest education is 1ary degree; omitted)
<i>E2H</i>	Dummy (1 if husband's highest education is secondary degree)
<i>E3VocH</i>	Dummy variable (1 if husband's highest education is vocational degree)
<i>E3GrPoH</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>Cohort45-49</i>	Individual is born 1945-1949 (Omitted category)
<i>Cohort50-54</i>	Individual is born 1950-1954
<i>Cohort55-59</i>	Individual is born 1955-1959
<i>Cohort60-64</i>	Individual is born 1960-1964
<i>Cohort65-69</i>	Individual is born 1965-1969
<i>Cohort70-77</i>	Individual is born 1970-1977

A.2 Probit Estimation with EPA

Table 19: 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>	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>Parity</i>	Number of children the woman has at that month
<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>Year88-90</i>	Interview done between 1988-1990 (Omitted category)
<i>Year91-93</i>	Interview done between 1991-1993
<i>Year94-96</i>	Interview done between 1994-1996

B Tables

Table 20: Labour Force Status of female aged 20-49 years by the number of children in 1998¹

	<i>LFS</i>	<i>Belgium</i>	<i>Germany</i>	<i>Italy</i>	<i>Spain</i>	<i>Sweden</i> ²
<i>0 Child</i>	<i>Employed</i>	73.0%	81.2%	66.9%	65.8%	74.1%
	<i>Unemployed</i>	8.8%	6.1%	7.9%	15.2%	6.3%
	<i>Inactive</i>	18.1%	12.7%	25.2%	18.9%	18.0%
<i>1 Child 0-2</i>	<i>Employed</i>	65.5%	47.6%	45.5%	40.2%	34.9%
	<i>Unemployed</i>	9.6%	3.0%	7.7%	12.8%	6.5%
	<i>Inactive</i>	24.9%	49.2%	46.8%	47.0%	
<i>2 Children youngest 0-2</i>	<i>Employed</i>	68.0%	43.8%	41.1%	36.5%	38.5%
	<i>Unemployed</i>	8.1%	9.4%	7%	12.3%	6.8%
	<i>Inactive</i>	23.9%	44.4%	51.8%	51.3%	
<i>3+ Children youngest 0-2</i>	<i>Employed</i>	45.6%	29.9%	29.9%	23.4%	39.3%
	<i>Unemployed</i>	8.6%	2.3%	6.4%	11.7%	4.3%
	<i>Inactive</i>	45.8%	67.8%	63.7%	64.9%	

¹Source: Eurostat. Labour Force Survey. Results 1998. Theme 3. Table 11.

²Self-constructed with 1992-92 FFS survey

Table 21: Activity rates of women aged 25-49 by Marital Status^{1,2}

<i>Year</i>	<i>Marital Status</i>	<i>Belgium</i>	<i>Germany</i>	<i>Italy</i>	<i>Spain</i>	<i>Sweden</i> ³
<i>1991</i>	<i>Single</i>	84.0%	86.2%	78.6.0%	82.7%	79.9%
	<i>Married</i>	65.1%	61.7%	51.7%	42.7%	80.7%
<i>1995</i>	<i>Single</i>	84.2%	86.1%	70.3%	82.7%	
	<i>Married</i>	69.4%	69.7%	52.0%	51.0%	

¹Source 1991: Eurostat. Labour Force Survey. Results 1991. 3C. Table 04.

²Source 1995: Eurostat. Labour Force Survey. Results 1995. 3C. Table 04.

³Source for Sweden: Self-constructed with 1992-92 FFS survey

Table 22: Probability of employment after first birth with interactions between skills and time dummies (Probits Marginal Effects)

<i>Model</i>	<i>Simultaneous Probit up to 10 years After 1st Birth</i>	
<i>Coefficient</i>	<i>dF/dx</i>	<i>Std. Error</i>
<i>Temporary</i>	-0.0026*	0.0006
<i>Experience</i>	0.0043*	0.0003
<i>OcHIGH</i>	-0.013	0.066
<i>AgeAt1C</i>	0.027	0.013
<i>AgeAt1C2</i>	-0.001	0.0002
<i>AgeAt1stJob</i>	0.047*	0.0028
<i>E2</i>	0.062*	0.012
<i>E3Voc</i>	0.19*	0.020
<i>E3GrPo</i>	0.19*	0.12
<i>E2H</i>	-0.12*	0.016
<i>E3VocH</i>	-0.035	0.031
<i>E3GrPoH</i>	0.059*	0.022
<i>Religious</i>	-0.026**	0.014
<i>NW</i>	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>Cohort50-54</i>	-0.013	0.018
<i>Cohort55-59</i>	0.087*	0.018
<i>Cohort60-64</i>	0.13*	0.024
<i>Cohort65-69</i>	0.061**	0.033
<i>Log likelihood</i>	-7008.8	
<i>N observations</i>	11366	

*Significant at 5% level

**Significant at 10% level

¹Time dummies and interactions not reported

C Graphs

Figure 10: Employment Rates Around Birth: Country and Cohort comparison

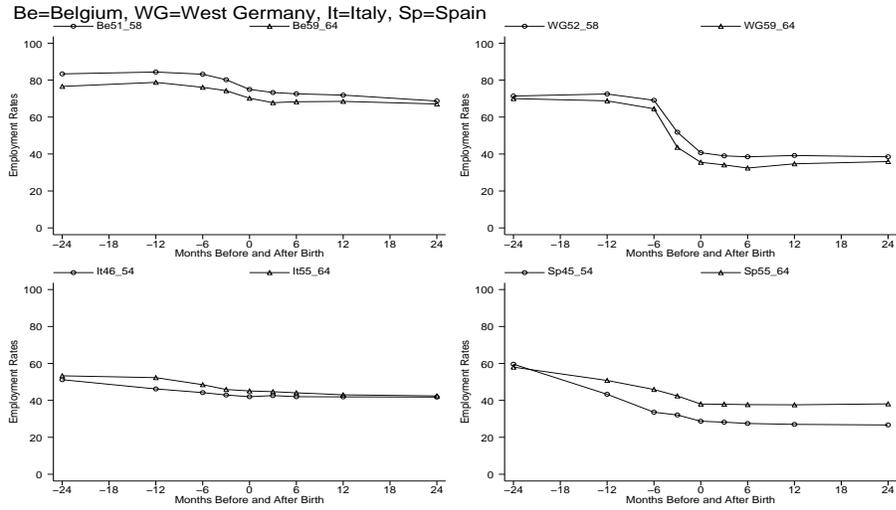


Figure 11: Employment Rates Around Marriage: Country and Cohort comparison

