MOTHERS' QUEST FOR JOB PROTECTION: BUILDING THE NEST OR BREAKING THE GLASS CEILING? EVIDENCE USING SPANISH LONGITUDINAL DATA*

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Abstract

Previous research has found that temporary contracts delay marriage and fertility in Spain. Using newly released administrative data we study the motivations behind the fertility delay that is associated with job protection. We find that during the five years after the birth of the first child mothers in protected jobs promote less and their wages grow less (16 per cent) compared to mothers that had a fixed-term contract at the time of childbirth. The poor after-birth outcomes of mothers in protected jobs contrasts with their better performance before birth, with wages growing more rapidly than those of other women and other mothers. We provide evidence that a permanent contract acts as insurance against the negative wage effects of motherhood, but at the price of less wage growth. We also find that mothers that had a permanent contract at childbirth reduce their working time more, forgo opportunities of promotion outside the firm and have a lower return to each additional year of experience compared to mothers with a temporary contract. Our interpretation of these results is that job protection helps mothers conciliate work and family responsibilities rather than to achieve professional success.

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1 Introduction

Spain has one of the lowest fertility rates worldwide and is a country where women have their first child at a relatively late age (see Figure 1). Previous research has found that temporary contracts are one of the reasons why women in Spain delay marriage and fertility, since female workers prefer to wait and have a protected job before entering motherhood (Ahn and Mira (2001), Gutierrez-Domenech (2008), de la Rica and Iza (2005), García Ferreira and Villanueva (2007)). For example, 87% of women in our sample enter the labor market with a temporary contract and it takes them an average of two and a half years of working experience before they get a permanent contract.

INSERT FIGURE 1 HERE

That women postpone fertility because they want to get a protected job can be related to research showing that high returns to labor market experience causes a delay in the timing of marriage and births (Guner (2002)). In Spain, the accumulation of experience produces not only monetary returns but also the prospect of job protection.

But what does job protection bring to a mother's career? Does it bring more job stability, more opportunities for professional advancement or simply more possibilities to conciliate work and family? These questions are important in general but even more important in labor markets such as Spain's where the earnings and employment gap between men and women is still high, and the possibilities to conciliate work and family are often small. Although the past literature has studied the relationship between the type of contract and transitions to motherhood, the question of what are the effects of the type of contract on the labor market career of mothers is largely unexplored. In this paper, we try to fill a gap in the literature and study the effect of permanent and temporary contracts on various labor market outcomes of mothers compared to childless women. The results we obtain allow us to make inferences about the motivations behind the fertility delay that is associated with job protection.

We explore two types of motivations. First, in line with the family gap literature and glass ceiling theories, we analyze whether women that had a permanent contract at childbirth are more successful professionally after childbirth than mothers with a temporary contract. To study this issue, we exploit the richness of our dataset and analyze in detail the relation between the type of contract, motherhood and wages over the life cycle, both before and

after motherhood. We don't find evidence of a positive wage effect of permanent contracts. Quite to the contrary, we find that mothers under a permanent contract face a wage penalty as large, or even larger, than mothers under temporary contracts. In particular, we find that five years after the birth of the first child the wages of mothers that had a permanent contract at childbirth grew 16 per cent less than those of mothers with a temporary contract. And this is so, even taking into consideration the fact that mothers under a permanent contract lose less experience after childbirth than mothers under a fixed-term contract.

We then look for alternative explanations more in line with a work-family conciliation and insurance story. We find that a permanent contract insures mothers against the negative wage effects of motherhood, but at the price of less wage growth. Considering a six-years interval (from one year before to five years after the birth of the first child) we decompose the lower growth of the earnings of mothers with a permanent contract in four components. 32 per cent of this difference is due to the fact that mothers with permanent contracts have a lower return to accumulated experience. One interpretation of this result is that mothers choose jobs with less wage growth but with more possibilities to conciliate work and family responsibilities. Another 18% per cent of the difference in earnings is due to the different effect of job turnover on the wages of mothers with temporary and permanent contracts. Mothers with permanent contracts change job less often and whereas job turnover increases the wages of mothers with temporary contracts, a change of employer lowers the earnings of mothers with permanent contracts. This suggests that mothers under permanent contracts forgo the possibility of promotion outside the firm in exchange for job security and an environment favorable to work-family conciliation. Finally, a 30 per cent of the difference in the growth of wages is explained by the higher incidence of part-time employment among mothers with permanent contracts compared to other mothers, which again indicates that mothers with a permanent contract take advantage of the leeway granted by job protection to work fewer hours and conciliate work and family responsibilities.

Although the paper focuses on the labor market career of mothers compared to childless women, we also take a look at the link between the gender gap in pay and the family gap in pay. We show that the gender gap grows with age and that much of this variation has to do with parenthood. Our results regarding the association between the type of contract and the family gap imply a weak role for the type of contract in tackling the problem of the difference in earnings between men and women over the life cycle.

The rest of the paper is organized as follows. In section 2 we discuss the theoretical relationship between the family gap in pay and the type of contract. Rather than developing a

full-fledged model, we discuss this in an intuitive way. In section 3 we describe the dataset. In section 4, we explain the estimation strategy in the context of two frequent problems in the family gap literature: the heterogeneity and selection biases. We discuss in this section the advantages as well as the limitations of our dataset in dealing with these two types of problems. Section 5 deals with the connection between the gender gap and the family gap in pay. In section 6 we show estimates of the family gap in pay across different types of contract. In section 7 we analyze the reasons for the different family gap across types of contract. In section 8 we study the insurance effect of permanent contracts, and section 9 summarizes our conclusions.

2 The theoretical relationship between the family gap in pay and the type of contract

There are many reasons why women with children might earn less than other women, even after controlling for observable and unobservable characteristics prior to the birth. Next, we review the explanations given by the literature and we discuss in an intuitive way the relationship between these motivations and the type of contract of mothers at childbirth.

General human capital accumulation: labor market experience and part-time work

The literature has stressed the importance of differences on labor market experience between mothers and childless women (i.e. general human capital) to justify the family gap. Mothers could earn less than childless women if they experience higher periods of inactivity or if they decide to exchange a full time job by a part time one. Notice that whereas switching to a part time job will in general be voluntary, inactivity might be voluntary (if the mother applies for maternity leave or any other type of leave of absence to take care of her children) or involuntary (as a result of an unwanted dismissal).

Regarding voluntary inactivity, the Spanish regulation allows some flexibility to mothers beyond the standard maternity leave of 16 weeks.[1] For example, until the baby has nine months, the mother has the right to take one hour per day for breastfeeding, and there is the possibility of concentrating these hours to expand the maternity leave 15 days approximately. Also, after the period of maternity leave, the mother is entitled to a leave of absence of a

[1] The first 6 weeks after the child birth are compulsory for the mother but the other 10 can be used by either parent. Traditionally, there was an additional parental leave of 2 days. From 2007 it increased to 15 days independent of maternity leave. Although the law also allows for these weeks of leave to be taken before giving birth, few women take the maternity leave before the child delivery since it is not difficult to obtain a sick leave from a doctor determining that there is a risk of the pregnancy. Sick leave is paid with the 100% of the base salary.

maximum of 3 years[2] and before the end of the first year off, she has the right to come back to the same job. After that date, the employer can readmit the mother in a different job, but maintaining the previous occupational level.

Even though the legal framework of voluntary inactivity is independent of the type of contract, we would expect a higher incidence of voluntary periods of inactivity in the case of mothers with a permanent contract than with a temporary contract. The reason is that to the extent employers dislike the flexibility allowed by these regulations they can always break the labor relation at a very low cost in the case of a temporary contract (waiting until the extinction of the contract or paying 8 days per year worked), whereas in the case of a permanent contract dismissal costs are very high (45 days per year worked in the firm[3]), and therefore the mother will have more scope to exercise her rights without fearing being fired.

The 2006 Law of Equal Opportunities establishes that mothers with children under the age of six with and with more than two years in the firm are entitled to a reduction of the working time between one eight and one half of the duration of their usual working day, with the corresponding decrease in the salary. The incidence of part-time employment in Spain is very low and many observers have argued that tight labor markets and employers' low preference for this type of contracts are responsible for this. In this context, job protection would in principle increase the incidence of part-time employment among mothers and against the will of employers, which would lower the wages of mothers with a permanent contract relative to a fixed-term contract.[4]

Regarding spells of involuntary inactivity, mothers holding a permanent contract reduce their probability of a job dismissal because of the abovementioned higher firing costs and therefore we would expect mothers holding a temporary contract to suffer a bigger loss of experience due to involuntary quits. Furthermore, some researchers have argued that maternity increases the opportunity cost of search time (Ejmaes and Kunze (2001)), which could lead to worse matches after an involuntary quit. This factor should be of more

[2] The temporary suspension of the job could be extended two additional years, if the worker has at least 1 year of tenure in the firm, but in that case the worker only keeps the right to be readmitted when there is a vacancy available and most of the time it is difficult to verify that there is one vacancy equal to the previous job.

[3] This is the case unless there are underlying objective economic reasons that unable the firm to keep a relevant number of labor positions, or unless it is proven that there are motivations independent to the parenthood to justify the dismissal.

[4] Although we have to take into account that a reduction in the salary earned due to a reduction in the working time carries automatically an equivalent reduction in the severance payment in the case of dismissal and therefore a reduction in the level of job protection.

importance in the case of workers in unprotected jobs reinforcing their loss of human capital after a dismissal.

On top of the accumulation of general human capital, Waldfogel (1998) has stressed that the family gap remains even when the empirical analysis considers both experience and part time jobs. We could generally name this fraction of the family gap as the "unexplained family gap". The literature usually classifies in three groups the reasons underlying the "unexplained family gap": (i) differences in the level of job specific human capital, (ii) differences in opportunity costs affecting the rate of voluntary quits, and (iii) differences in the level of extra-contractual effort exerted in the job.[5]

Firm-specific human capital

Waldfogel (1998) has stressed that additionally to the loss of general human capital during the period of inactivity there could be a loss of firm-specific human capital if there is an involuntary break of a good match at the time of the birth of the child.

In this context, as it was mentioned before, a permanent contract should reduce the negative impact of motherhood since it reduces the probability of job dismissals, contributing to the mothers' accumulation of firm-specific human capital. Furthermore, mothers taking a leave of absence to take care of children will be able to return to the original employer with more probability if they have a permanent contract than otherwise, and therefore a permanent contract will also in this case reinforce the accumulation of firm-specific human capital.

Voluntary quits

The protection conferred by permanent contracts increases the opportunity cost of voluntary quits. Note that under Spanish laws the protection of a permanent contract increases with tenure at the rate of one and a half months of gross salary per year worked in the firm. Therefore, mothers in protected jobs could forgo opportunities for professional advancement outside the firm in exchange for security and a family-friendly working environment. In this case, permanent contracts would increase the family gap of mothers relative to fixed-term contracts.

[5] Another explanation is labor market discrimination. However, this is an explanation more frequently seen in the case of the literature that studies the gender wage gap. In the case of the family gap in pay, it would be difficult to find reasons for employers to discriminate more, or less, against mothers compared to childless women.

Differences in effort

As far as differences in effort, Becker (1991) suggested that parenthood might decrease the effort exerted by mothers in the job because they are busy taking care of family responsibilities. For example, mothers might be less willing to work extra-time in their jobs and might be less prone to accept changes in schedules or business trips. This lower effort can be extra-contractual, i.e., related to the typical agency problem, or explicitly considered in the contract. For example, mothers might prefer to work in jobs or for companies with less possibilities for promotion but that instead offer a better environment for the conciliation of work and family responsibilities (for instance, some jobs in the public administration). As far as extra-contractual effort, recall the abovementioned severe dismissal costs for permanent contract holders. Moreover, notice that most dismissals ending in court in Spain are declared irregular dismissals because judges often cannot determine whether the worker was or was not underperforming in the job. Hence, if decreasing effort is easier to do when workers hold permanent contracts then mothers seeking to conciliate work and family responsibilities might take advantage of this leeway to a larger extent than mothers under fixed-term contracts. In that case, and assuming that wages reflect workers' productivity at all times,[6] the family gap for mothers under permanent contracts would be higher than for mothers under temporary contracts.

Summarizing, according to the theories above, the effect of permanent contracts on the accumulation of general human capital by mothers is ambiguous. Since we can control for the level of human capital we can test empirically the direction of the effect. Regarding the other components of the family gap, the loss of firm-specific human capital due to job dismissals should make the "unexplained family gap" higher for temporary workers, whereas extra-contractual effort and a lower incidence of voluntary quits should make it higher for permanent workers.

3 Data

The data we use in this paper comes from the administrative records of the Spanish Social Security, more precisely the 2006 wave of the Spanish Continuous Sample of Working Histories (CSWH) ("Muestra Contínua de Vidas Laborales"). This dataset is formed by a 4% random sample of all individuals who have had an affiliation with the Spanish Social Security during

[6] For example, employers could pay less to mothers exerting low effort by promoting them less often.

2006. The dataset gives current and historical information of all relationships that an individual had with the Social Security since 1980 and until 2006. We use the sample of employees, i.e., we exclude from the analysis self-employed individuals.

The dataset is made of survivors, that is, individuals not affiliated with the Social Security in 2006 are excluded from the sample, even if they had a relationship with the Social Security in the past.[7] The data provides information about the type of the relationship with the Social Security, i.e., whether the individual is working or receiving benefits such as unemployment insurance or pension benefits. For individuals that are working, we have information about the job, such as the type of contract (temporary or permanent), the length of the relationship with the employer, industry of employment (defined at the three-digits Spanish classification code or NACE), full-time or part-time status, category of job or occupation and monthly earnings. Although not reported, other variables such as working experience and tenure can be easily calculated. Reported earnings suffer from right censoring and we have eliminated from the analysis all individuals that had their earnings capped at least once during their working history (7.5% of total).[8] Finally, the dataset provides socio-demographic information of the individuals, including gender, age, nationality, place of residence, education, number of household members and date of birth of each member of the household.[9]

The CSWH compares well with other datasets frequently used in studies of the Spanish labor market, such as the Spanish Labor Force Survey (LFS). Table 1 shows some descriptive statistics by age group comparing the CSWH and the LFS. In general, the distribution of individuals by the type of contract, permanent (fijo)[10] or temporary, and by full-time status is very similar in the two datasets and across age groups. Considering the more aggregated results, we can see that two-thirds of the working population holds a fijo contract and only 11 per cent of workers have a part-time job. Also, the incidence of part-time employment is very difference across gender groups, being much higher in the case of women than for men (20.8 per cent versus 5.3 per cent).

INSERT TABLE 1 HERE

[7] The Social Security has followed individuals, even if they stopped a relationship with the Social Security, only since 2004.

[8] We have computed the main results of the paper including observations with top coded income and we did not find any difference with the results we report here.

[9] Most socio-demographic variables come from the Spanish Municipal Registry of Inhabitants (Padrón Municipal de Habitantes), a subset of which has been matched with the Social Security records.

[10] In this paper we will use the terms *permanent* contract and *fijo* contract as synonyms. We will also use the terms *temporary* contract and *fixed-term* contract as synonyms.

The CSWH shows information of each and every job (labor relation) that an individual reported to the Social Security in a given year. 26.4 per cent of the individuals in the dataset hold more than one job in a given year (the average of the number of jobs per individual and year is 1.53) and therefore we had to define a 'main job' for each individual and year in the sample. To do this, we follow a ranking based approach where we use the type of contract and the days employed in a given job during the calendar year to rank order labor relations. More precisely, if an individual has more than one job in a given year we take as her main job that one with a fijo contract, and in the case of multiple jobs with the same type of contract, the one for which the individual worked the largest number of days in a given year.[11]

Ours is the first study that uses the CSWH to analyze the earnings of mothers in Spain. Previous studies of the same topic have used other data sets (Ahn and Mira (2001) used the 1991 Spanish Socio-demographic Survey, Gutiérrez-Domenech (2002) used the 1995 Family and Fertility Survey and de la Rica and Iza (2005) used the European Community Household Panel). The CSWH has both pros and cons compared to these other datasets. The obvious advantage is that it follows individuals for a very long period of time (since 1980 and until 2006), which allows us to analyze the career profile of mothers before and after childbirth in ways that would not be possible with the other datasets. A clear disadvantage of the CSWH is the lack of information on spouse's income. This issue invalidates the treatment of marital status and the couple's level of income. An additional and probably more problematic issue has to do with the possibility of selection bias since, as we mentioned before, the CSWH excludes non-participants. We discuss the issue of selection bias and heterogeneity bias more in detail in the next section.

For most of the analysis we use a restricted sample of women younger than forty in 2006 and living in households of five or fewer members. The reason for focusing on young women is that the CSWH does not say how many children a woman has and we had to calculate this variable using information on the number of household members and date of birth of each one in year 2006, which implies that we had to limit the analysis to women with children living in the same household.[12] Besides, the CSWH does not say anything about the relationship between household members. We were therefore concerned about the possibility that an adult and a child lived in the same household but were not parent and child; an event which

[11] This approach is similar to the one used by the Spanish Statistics National Institute (INE) to define the worker's main job in the Labor Force Survey.

[12] The CSWH was matched with the Spanish Municipal Registry of Inhabitants in 2006 and therefore we have information about the number and age of household members as of 2006 only.

probability increases with the size of the household. Instead of deciding ad hoc on the age and the household size limits, we applied the methodology that we use to identify children in the CSWH to a different dataset: Census data. The advantage of doing this is that the Census dataset has information on the number of children and on the relationship between household members, and so we were able to compare the results of applying our methodology with the real figures as reported in the Census. The results are shown in Table 13 in the Appendix. As can be seen in Panel A in the Table (columns 1 and 2), the percent of households were the actual number of children coincides with the calculated figure is above 95 in the case of households of five or fewer members, but that percentage falls rapidly as the number of household members increases beyond 5. The table also shows that of the two possible errors, our methodology produces mainly the error type 1, that is, our methodology identifies an individual as an offspring when in fact this is not the case. Panel B in the Table, indicates that the percentage of correct matches increases with the age of the mother until forty and then starts declining. The rate of failures is particularly high for very young mothers, those who have children before the age of 20. Fortunately, this is a very small group of mothers, representing 1.32 per cent of all mothers in our sample.

For the group of mothers, we also restrict the analysis to women observed working some time before and after giving birth to the first child. In the case of childless women, we ask that these women were at least 36 years of age in 2006 and had had no children until then. The reason for imposing a minimum age restriction is to avoid the situation where a woman has no children in 2006 but becomes a mother after 2006, when we don't observe her. We think that this minimum age restriction helps getting rid of this problem since only three percent of women have her first child after the age of 35 in our sample (see Table 2 below). Finally, for most of the analysis we restrict the sample to the years 1996-2006 due to the fact that information on the type of contract in the CSWH is reasonably complete only since 1996.

All these restrictions lead to the sample described in Table 2, with 29,108 women, of which 16,979 (58.3%) have at least one child during the sample period (1996-2006) and are observed working some time before and after having the first child. Childless women are observed an average of 6.84 years each and mothers are in the sample an average of 7.05 years each. This gives a total of 202,033 individual*year observations. Childless women are older on average, which is due to the minimum age restriction in 2006. Interestingly, Table 2 indicates that the percentage of mothers working under a permanent contract (fijo) increases significantly from less than 60 per cent two years before giving birth to the first child to more than 68 per cent one year after that. Also, the incidence of full-time employment among women falls with

motherhood, from more than 80 per cent two years before birth to 74.6 per cent one year after childbirth. Other interesting statistics from Table 2 are that more than 77 per cent of mothers in our sample have only one child (1.23 children on average), most of them have their first child between the ages of 25 and 35, and mothers have slightly lower levels of education than childless women.

INSERT TABLE 2 HERE

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4 Estimation strategy and the selection and heterogeneity bias

In this section we briefly discuss our estimation strategy, a difference in differences specification, and how this strategy is able to deal with two common problems in the empirical literature of the family gap: the selection and heterogeneity bias.

A frequent problem in studies of the wage process of female workers is that a large percentage of women don't work and we only observe wages of market participants. In the case of the family gap literature, this problem is exacerbated by the fact that the participation decision of women with and without children might be different (Gutiérrez (2005)). Indeed, Table 3, which shows information from the Labor Force Survey, indicates that mothers with and without children behave very differently in terms of inactivity and compared to males.

INSERT TABLE 3 HERE

An additional problem arises if mothers and childless women differ in terms of unobserved individual characteristics, which in turn could be correlated with the decision to have a child. In this section we discuss the problem of non-participants (selection bias) and the problem of heterogeneity bias in the context of the data we use in our study. All in all, we will argue that the longitudinal nature of the CSWH makes of this dataset a good one to deal with the problem of heterogeneity bias and that selection bias will be a problem only under rather strict assumptions about the effect of motherhood on wages.

To illustrate this, consider the following wage equation:

$$\ln w_{i,t} = \alpha_0 + \alpha_1 X_{i,t} + \alpha_{2i} Child_{i,t} + \eta_i + \varepsilon_{i,t}$$

Where the wage of individual *i* at time *t* depends on the vector of individual observable characteristics (X_{it}), family status ($Child_{it}$) and an individual unobserved component (η_i). Our coefficient of interest, representing the family gap in pay, is α_2. The equation above presents two problems to the econometrician. First, to the extent the individual fixed effect η_i is correlated with the decision to have a child, our coefficient of interest will be estimated with a bias, the so-called heterogeneity bias. Intuitively, suppose that some women have less professional ambition than others (a negative η_i) and that because of this these women earn lower wages. If in turn, these women a more prone to become mothers, then the estimated α_2 will capture both the effect of children on wages and the effect of η_i. A second problem when estimating the equation above is if α_2 is individual-specific, even after controlling for observable characteristics. If non-participants have a different α_2 than market participants, then the estimated coefficient is not representative of the whole population (the so-called selection bias). Note, however, that non-participation is a problem *only* under the assumption that α_2 is heterogeneous and correlated with the participation decision, i.e., that the α_2 of participants is different from the α_2 of non-participants . Furthermore, given that the focus of our paper is a comparison of the family gap for mothers with a permanent and a temporary contract, for non-participation to be a problem, we need not only that α_2 be heterogeneous and correlated with the participation decision but also that the individual-specific component of α_2 be correlated with the type of contract. To make this point clearer, consider the equation of participants, whose wage is higher than their reservation wage:

$$E\left(\ln w_{i,t} \mid \ln w_{i,t} > \ln w^{R}{}_{i,t}\right)$$

Taking differences between mothers and childless women:

$$\begin{aligned}
&E\left(\ln w_{i,t} \mid X, Child, \ln w_{i,t} > \ln w^{R}{}_{i,t}(mother)\right) - \\
&E\left(\ln w_{i,t} \mid X, \ln w_{i,t} > \ln w^{R}{}_{i,t}(childless)\right) = \\
&= E(\eta_i + \alpha_{2i} \mid X, Child, \ln w_{i,t} > \ln w^{R}{}_{i,t}(mother)) - \\
&E(\eta_i \mid X, \ln w_{i,t} > \ln w^{R}{}_{i,t}(childless))
\end{aligned}$$

A traditional approach to the heterogeneity bias is to consider a difference in differences framework where the difference of wages of mothers before and after childbirth is compared

to the rate of wage growth of childless women. Note that one needs longitudinal data to implement a difference in differences estimator like this, where individuals are followed for a period of time and in particular mothers are observed both before and after giving birth to the child:

$$E\left(\Delta \ln w_{i,t} \mid X, Child, \ln w_{i,t} > \ln w^{R}{}_{i,t}(mother)\right) -$$
$$E\left(\Delta \ln w_{i,t} \mid X, \ln w_{i,t} > \ln w^{R}{}_{i,t}(childless)\right) = E\left(\alpha_{2i} \mid X, \ln w_{i,t} > \ln w^{R}{}_{i,t}(childless)\right)$$

This specification is that it removes the individual fixed effect, η_i, and this solves the problem of heterogeneity bias. Note that this individual fixed effect can be related not only to the level of wages but also to the rate of wage growth. That is, it is possible that individuals differ not in terms of the level of labor earnings but in terms of the rate at which their wages grow over time, even after controlling for observable characteristics. Suppose, for example, that only mothers who were doing very well in terms of wage growth decide to remain in the labor market after having a child. Since we have information of their wage growth before and after having the child, and if the idiosyncratic component in terms of wage growth is constant over time, then every change in the rate of growth after childbirth will be capturing a genuine effect of having a child.

Note also, that although the problem of selection bias persists if α_{2i} is correlated with the participation decision of mothers, the comparison of the family gap between mothers with temporary and permanent contracts will be unbiased if the selection bias is the same across groups of mothers, i.e.:

$$E\left(\alpha_{2i} \mid X, Fijo, \ln w_{i,t} > \ln w^{R}{}_{i,t}(childless)\right) - E\left(\alpha_{2i} \mid X, Fijo, \ln w_{i,t} < \ln w^{R}{}_{i,t}(childless)\right) =$$
$$E\left(\alpha_{2i} \mid X, Temp, \ln w_{i,t} > \ln w^{R}{}_{i,t}(childless)\right) - E\left(\alpha_{2i} \mid X, Temp, \ln w_{i,t} < \ln w^{R}{}_{i,t}(childless)\right)$$

Whether selection bias is the same or different across groups of mothers with different labor contracts is a question that unfortunately we cannot answer with our data. Studies of the family gap that have looked at selectivity bias tend to conclude that spouse's income is the best predictor of the participation decision of mothers. A priori there is nothing to suggest that α_{2i} (the wage effect of motherhood) will be correlated with the level of spouse's income, and therefore we would expect our results not to be affected by selection bias. Yet, if this were not the case, then our results would not generalize to the whole population. In other words, we would be estimating a treatment on the treated effect, applicable to those who stay in the market and have a particular type of contract.

5 The connection between the gender gap and the family gap in pay

Over the years, many studies have looked at the magnitude of the gender gap in pay in Spain. Due to the lack of good information on wages until recently, researchers have used a variety of indirect sources to estimate the magnitude of the gap in earnings between female and male workers. Most studies conclude with an estimated wage difference that varies between the 20% and 30% (Table 4). Some studies (Peinado (1988), Hernández (1995), Moreno et al (1996)) break the differential into two components: one that is due to differences in the level of human capital of men and women and a residual effect, normally interpreted as discrimination. This latter component appears to be the most important one, suggesting that differences in human capital between males and females do not explain much of the gender gap.

Two of those data sources allow for a longitudinal analysis of the gender gap: the Wage Structure Survey (waves 1995 and 2002) and the seven waves of the European Community Household Panel (ECHP: 1994-2001). We have computed the gap in earnings between men and women using the Wage Structure Survey and the ECHP and the results are shown in the bottom panel of Table 4. The first column in the table shows the mean difference in earnings between male and female workers, whereas the second column displays the wage gap from Mincer regressions that control for education and age. The gender gap is between 25% and 30%, with no clear time trend, although in the case of the ECHP data it varies significantly from year to year.

INSERT TABLE 4 HERE

We now look at the age profile of the gender gap using the CSWH. Panels a and b in Figure 2 plot the wage earnings profile of the cohort of males and females born in 1964. In the figure, we follow these individuals from the age of 22 until they are 42 years old. Remarkably, the gender gap stays around 15-20% until the age of 30 and then starts growing with age, reaching almost 40% at the age of 42.

INSERT FIGURE 2 HERE

Considering that on average women have their first child around the age of 30[13], one would expect that an important part of the increase in the wage differential over the life cycle is related to parenthood. Indeed, this is what is shown in panels c and d in Figure 2. Panel c displays the age earnings profiles of men, childless women and mothers whereas panel d displays the gender gap, the relative earnings of men and childless women and of men relative to mothers. In panel d, both the gender gap and the relative earnings of men and mothers grow with age, but the earnings of men relative to childless women are relatively flat, suggesting that most of the age variation of the gender gap is due to parenthood. In order to explore this in more detail we look at the Oaxaca-Blinder decomposition of the gender gap, considering differences by age, educational attainment and parenthood. The results are shown in Table 5.

INSERT TABLE 5 HERE

Table 5 shows that the gender gap after controlling for education and year effects increases with age. It is 18% for workers between the ages of 25 and 29; 21% for workers between the ages of 30-34, and 30% for workers between the ages of 35-40. The third row shows the family gap for females. This gap decreases with age (it's 11 log points for women between the ages of 25 and 29 and only 4.4 log points in the case of the oldest group of women). One possible explanation is that there is a premium to delay the birth of the child or that there is a recovery in earnings some years after childbirth. Another possible explanation is that the cross-sectional results are affected by heterogeneity bias and that younger mothers had lower earnings before having children. The results of Panel (b) suggest that this is indeed the case. In panel b we control for individual fixed-effects and even though the child coefficient falls with age as before, the magnitude of the decrease if much lower, especially after the age of 30.

In relation to the difference between fathers and mothers, in the second row of the table, young fathers are the only ones having a slightly negative penalty for parenthood. This penalty disappears and actually becomes positive for older fathers. The fifth row in the table shows the percentage of the gender gap explained by the family gap. In the context of the Oaxaca-Blinder decomposition that we use here, this contribution is the result of combining two components: (i) the different impact that children have on the wages of men and women (fourth row in the

[13] In the CSWH, the mean age at birth of the first child is 29.31.

table), and (ii) the percent of individuals in the sample with children. As can be seen in the table, the contribution of the family gap to the gender gap grows with age. For example, it goes from 7.1% of the gender gap for individuals aged 25-29 to 26.5% for individuals aged 35-40. This is not surprising since at older ages the percentage of individuals with children will be larger. Besides, the gender difference in the child coefficient also grows with age, from 1.3 to 8.1, reflecting the positive correlation between children and wages in the case of fathers but negative in the case of mothers. In the case of the specification that controls for individual fixed effects (panel b), although the magnitude of the effects is smaller, the pattern just described persists, i.e., an important part of the increase in the gender wage gap over the life cycle is related to parenthood.

6 Estimates of the family gap in pay by type of contract

In this section we present the results of our econometric analysis of the relationship between the family gap in pay and the type of contract. To motivate this, and consistent with the findings of other studies, Figure 3 shows that the probability of holding a permanent contract increases around childbirth. The figure displays the probability of holding a permanent contract for two groups of women, those without children (light grey flat trend) and those with children (darker trend). These are average probabilities controlling for age, education and year and therefore, the difference between the light and darker trends reflects the effect of motherhood on the probability of holding a permanent contract once these variables are controlled for. As can be seen in the figure, mothers present an abrupt increase in the probability of being under a fijo contract at the year of the birth of the first child. The difference between mothers and childless women gets smaller with the number of years after childbirth as childless women's probability of a fijo contract converges to that of mothers.[14]

INSERT FIGURE 3 HERE

It is in the context of this pattern where we want to test whether a permanent contract (fijo) is able to protect mothers against the negative effects of having a child. To do this, we compare the family gap in pay for two groups of mothers, those with a permanent contract one year before birth against those that had a temporary contract before childbirth. A first

[14] In the figure, the trend for childless women is flat since we are controlling for age and the horizontal axes variable does not change for childless women.

look at this is given by panels e and f in Figure 2. In the figure, individuals have either type of contract, a permanent or a temporary contract, at the age of 30. Comparing panel e and f, mothers' lag behind other women in both cases but for different reasons. In the case of mothers with a permanent contract at the age of 30, their wages start from a higher level and converge to those of childless women. Instead, in the case of mothers with a temporary contract, their wages start at the same level as childless women but grow less rapidly thereafter.

We turn next to the econometric results. As it was discussed before, we work with a differences specification in order to correct any bias due to individual heterogeneity in the level of labor earnings. We also use the wage growth some years before having had a child to check individual heterogeneity in the growth of labor earnings.

We are then interested in the effects of children on the rate of growth of labor earnings rather than on the level of earnings.[15] A first look at the family gap is given in Table 6, where we show estimates of what we call the 'raw' family gap, i.e., the table displays estimates of the full-effect of having children. We start by fitting earnings equations of the following form:

$$\Delta \ln w_i = \alpha_0 + \alpha_1 \cdot \Delta X_i + \alpha_2 \cdot X_i + \alpha_3 \cdot CHILD_i + \varepsilon_i$$

Where $\Delta \ln w_i$ is the j-years change in real labor income from the main job for individual i; ΔX_i is the j-years change in observable characteristics, such as the level of experience, full-time status or the type of contract; X_i are controls for the levels of these characteristics, and $CHILD_i$ is a dummy variable that takes value 1 for women that had a child during the time interval for which differences are calculated. Although we focus on a six-years difference (j=6), we also test some of our baseline specifications using a three-years (j=3) and a nine-years (j=9) difference model. In the case of a six-years specification we take as the initial wage of mothers, their labor earnings one year before giving birth to her first child and calculate the difference between this and the wage five years after giving birth. In the case of the three-years difference we take the wage one year before and two years after giving birth and so on. All specifications include year dummies and age (or experience) dummies to control for time effects and for the non-linearity of the age and experience-earnings profile. For this analysis we use the sample of mothers that had only one child during the sample period, and therefore

[15] Indeed, the effect will be a mixture of two things, a potential drop in the wage level and a decrease in the wage growth. If the first effect was the most important one the effect would vanish across time, whereas if the second one is more important the effect will remain.

our results can be understood as showing the effect on having a child, rather than the wage effects of motherhood in general.

In columns 1, 5 and 2 we show the family gap two years, five years and eight years after giving birth, respectively. We can see that the family gap grows with the number of years since birth, from 16.6 log points two years after birth to 19.8 log points eight years after birth. There is no evidence, therefore, of a recovery in relative earnings several years after childbirth, a result that is different from that of studies of other countries that have found a recovery phase (Ejrnaes and Kunze (2001)). That the negative wage effects of children are permanent is an important result. If mothers lag behind other women permanently then having the first child late in life reduces the lifetime costs of motherhood.

INSERT TABLE 6 HERE

In column 6 of Table 6 we are interested in the role of part-time status to explain the six-years difference of yearly earnings. Here we control for Δjornada, a dummy variable taking value 0 if the length of the work day five years after birth was the same as one year before childbirth; takes value 1 if status was part-time initially and full-time five years after birth, and takes value -1 otherwise. We also control for full-time status at t-6 (jornadat-6) to consider the possibility of different wage growth rates for full-time and part-time workers. Controlling for full-time status explains 47 per cent of the raw family gap, which now falls to 9.2 log points. In our sample, more than 15 per cent of mothers change from full-time to part-time employment in the five years after the birth of the first child (against 6.5 per cent in the case of childless women). The fact that women turn to part-time jobs in large numbers after giving birth to their first child is the single most important explanation for the family gap found in the data.

In Table 6, we look also at the family gap across two groups of mothers, young mothers – who had their first child before the age of 28 – and old mothers – who had their first child after the age of 28. In columns 3 and 4 (7 and 8) we show the results without controlling for full-time status. Overall, the results of this analysis indicate that once we control for education and age the negative wage effects of having a child are independent of the age of entry into motherhood. This result is similar to Buckles (2008) that explains 90% of the wage premium of delaying parenthood with those variables.

We turn now to the results in Table 7, were we look at the effect of the type of contract on the family gap. We start with column 2, where we include a control for the type of contract

(fijo or fixed-term) at t-6. The coefficient on this variable indicates that women with a fijo contract at t-6 experience less wage growth than those with a temporary contract (6.4 per cent lower growth). This result is important in order to understand the findings that follow. Also, since the incidence of permanent contracts among mothers is higher than among childless women, controlling for the type of contract helps explain some of the family gap, but not much.

In columns 3 to 5 we show the results of estimating equations of the following type:

$$\Delta \ln w_i = \alpha_0 + \alpha_1 \cdot \Delta X_i + \alpha_2 \cdot X_i^{t-6} + \alpha_3 \cdot CHILD_i * FIJO_i^{t-6} + \alpha_4 \cdot CHILD_i * TEMP_i^{t-6} + \varepsilon_i$$

Where, $CHILD_i * FIJO_i^{t-6}$ ($CHILD_i * TEMP_i^{t-6}$) is a dummy variable for giving birth to a child during the six-years interval interacted with having a fijo (temporary) contract one year before giving birth (at t-6). The coefficients of interest are α_3 and α_4. According to the results in column 3, mothers that had a fijo contract one year before birth experience a family gap twice as large as mothers with a temporary contract at t-6. Rather than protecting mothers against the negative effects of having children, fijo contracts worsen their situation. However, part of this is the result of the fact that the wages of women with a fijo contract grow less rapidly than those of women with temporary contracts, regardless of having a child or not. In columns 4 to 6 we control also for the type of contract at t-6 for childless women (FIJOt-6), and therefore the coefficients α_3 and α_4 show now the effect of children on wages of mothers compared to other women with the same type of contract. The results in columns 4 and 5 indicate that, post childbirth, the raw family gap for mothers with a fijo contract is the same as that of mothers with a temporary contract. In either case, mothers lag behind other women with the same type of contract by approximately 8.5 log points.

INSERT TABLE 7 HERE

As it was mentioned in section 2, the lower wage growth for mothers might be due to idiosyncratic differences in the rate of wage growth before giving birth. Column 1 shows the wage growth for mothers before giving birth. It is clear from the analysis that if anything, mothers behave better in terms of wage growth than childless females, a pattern that is consistent with panel c in Figure 2 and with the findings of previous studies (Ariza and Ujidos (2007)). Moreover, mothers with fijo contract behave better than childless women with fijo contract, whereas mothers with temporary contract do not present statistical differences with

their counterparts. This would mean that females that stay in the labor force and had a permanent contract before having a child experience a higher wage growth penalty than females that stay in the labor force and had a temporary contract. Combining the results of columns 1 and 4, the family gap of mothers with a permanent contract is larger than the family gap of mothers with a temporary contract. That is, compared to the rate of growth of earnings before birth and of childless women, mothers with a permanent contract suffer a loss of 11.7% (8.4+3.3 log points) five years after childbirth whereas mothers with a temporary contract lose only 8.4% (8.5-0.1 log points).

7 Understanding the differences in the family gap in pay by type of contract

In this section we look at the determinants of the difference in the family gap of mothers with a temporary and a permanent contract (12.3 log points difference, according to column 1 in Table 9). In doing this we explore some possible explanations in line with the theoretical discussion of Section 2. Our starting point is Table 8. The table shows the correlation coefficients between the type of contract and some measures of time at work and time with children. Data comes from the Spanish sample of the 2000 European Community Household Panel (ECHP) and we use for the analysis women with children under the age of twelve[16] that were working full time as salaried workers. The table shows a clear and interesting pattern. First, mothers that work longer hours spend less time with their children. Second, mothers with a permanent contract work less hours, spend more time with their children, and have a higher degree of satisfaction with their work schedule compared to mothers with a temporary contract. The table suggests that mothers with a permanent contract conciliate work and family better than mothers with a fixed-term contract. In the rest of the section we look more in detail at this issue making use of the CSWH data.

INSERT TABLE 8 HERE

We turn now to the results in Table 9 and 10. In column 2 of Table 9 we show the results of a model that controls for part-time work and its change, the change of experience, change of

[16] The reason for this particular age threshold is that in the ECHP women were asked whether they had children under the age of twelve. In the ECHP there are no fertility questions and therefore the family status of women has to be inferred with questions of this type.

employer and change of occupation. Controlling for these variables reduces the difference in the rate of growth of earnings between mothers with and without a permanent contract to a half of its previous value. The family gap of mothers with a temporary contract is now not significantly different from zero. The coefficients of the variables for the change of occupation and change of employer indicate that a change of employer and of occupation are on average associated to an increase in earnings (promotion by switching to higher level occupations and by switching firm). A look at Table 10 helps understand why once we control for these variables the difference in the family gap between the two types of contract falls a half of its previous value. The most noticeable difference is in the incidence of part-time jobs and its change. According to column 1 in the table, mothers with a permanent contract switch to part-time jobs much more often than mothers with temporary contracts (10.26 per cent versus 1.24 per cent). Furthermore, according to columns 4 to 7 in the table, mothers with a permanent contract change occupation and change firm less often than mothers with a temporary contract. For example, five years after the birth of the first child, 81 per cent of mothers with a temporary contract had changed company, against only 44 per cent in the case of mothers with a permanent contract. In the case of a change of occupation, whereas it is true that mothers under permanent contracts switch to managerial type of jobs less often than other mothers (column 5 in Table 10), the former demote less (column 6 in Table 10), suggesting a protective effect of permanent contracts. In regards to the level of experience and its change, mothers with a permanent contract not only lose less experience than other mothers (0.82 years lost versus 2.66) but when they stop working they return to the original employer with a higher probability, which should favor the accumulation of firm-specific human capital. Although mothers with a permanent contract accumulate more experience than other mothers, we don't know whether the returns to each year of additional experience are the same or not across groups. Recall from section 2 that if mothers exert less effort in the job in order to take care of their children (or if they choose to work for firms with flatter earnings profiles but a better environment for work-family conciliation), then their wages could suffer as a consequence of this, which would show up in our results as a lower return to accumulated experience. In column 3 of Table 9 we allow for the coefficient of the change of experience to vary across groups of women. Interestingly, women under permanent contracts have a lower return to experience (even after controlling for the level of experience, industry and occupation dummies), and the difference is higher in the case of mothers compared to childless women (for the group of mothers, the return to each additional year of experience is 4.7 if they hold a permanent contract and 2.6 otherwise). This difference in the rate of return

to accumulated experience is an important element behind the worse performance of wages of mothers with permanent contracts, as will become clear later.

INSERT TABLE 9 HERE

In columns 4 and 5 of Table 9 we allow for different coefficients of the change of employer and change of occupation variables. Recall from section 2, that one of the reasons the family gap could be bigger in the case of mothers with permanent contracts is if in order maintain the security offered by these contracts, mothers in protected jobs reduce voluntary quits and forgo opportunities for advancement outside the firm (as suggested by Table 10). Although we cannot know whether a job change has been voluntary or involuntary, we can figure this out by looking at the wage effect of job turnover, since one would expect a positive wage effect in the case of voluntary quits and a negative one if the change of employer was involuntary and caused by dismissal. The four coefficients of interest in column 4 show an interesting pattern. Regardless of parenthood, the wage effect of job turnover is less positive for women with a fijo contract compared to other women, and the difference between permanent and temporary contracts is larger in the case of mothers (10 log points versus 3 log points difference). This result is more surprising considering that women under fixed-term contracts probably experience many more involuntary quits than women in protected jobs and suggests that women in protected jobs, especially mothers, forgo opportunities for improvement outside the firm in order to keep a match that offers security.

INSERT TABLE 10 HERE

In column 5 of table 7 we look at the rate at which women go up or down the occupational hierarchy and the effect of this on wages. The return to each occupation change of mothers with a fijo contract is much bigger compared to mothers with a temporary contract (21 versus 3 log points). This is probably the result of the lower incidence of demotions in the case of mothers in protected jobs. Also, column 7 in Table 10 shows that when mothers' occupation improves this happens mainly inside the firm. Instead, mothers with a fixed-term contract that switch to a better occupation do it through a change of employer with much more frequency.

Note also, that the difference in the rate of job turnover with a change of occupation is not that large in the case of childless women.

We turn now to table 11. In that table we show the results of a decomposition exercise using the previous controls. We implement a Oxaca-Blinder decomposition of the difference in wage growth between mothers with a permanent and a temporary contract. The raw difference in the growth of earnings during the six years that go from one year before and five years after childbirth is of 15.9 log points, in favor of mothers with temporary contracts. We then break this difference in four components. The most important one is the difference in the returns to experience, which, after netting out the effect of the change in accumulated experience, accounts for 32% of the lower wage growth of mothers in protected jobs. The differences in the returns to a change in occupation work in favor of mothers with a permanent contract, but have a very minor impact on earnings due to the fact that only a small percentage of women change the level of occupation during the six-years interval (less than 5%, according to the numbers in table 10). More important are the differences in the return to a change of employer, which explains 18% of the lower rate of wage growth of mothers with permanent contracts. Finally, the higher tendency to switch to part-time jobs after childbirth among mothers with permanent contracts explains 30% of their lower growth in earnings compared to other mothers. Finally, the table indicates that a 21% of the difference in earnings growth is still unexplained.

INSERT TABLE 11 HERE

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8 The insurance effect of permanent contracts

In section 7 we have seen some evidence indicative of an insurance effect of permanent contracts. For example, we have seen that mothers under permanent contracts lose fewer years of experience and downgrade occupation less often than other mothers. In this section, we study more in detail this insurance aspect. Even though the results up to now suggest that mothers might choose to work in protected jobs in order to conciliate work and family responsibilities (e.g., they switch to part-time and take a leave of absence more often than other mothers), another reason for delaying fertility could be the hope that a permanent contract will act as insure against the negative wage effects of motherhood. As it happens with other types of insurance, this does not mean that average wage growth will be higher, quite to

the contrary, the benefit of that insurance might come at the price of stagnant wages. This intuition is the one we want to explore in this section. To do this, we look at three aspects of the career profile of working mothers and women without children: job turnover, wage boosts and wage drops. We define a wage boost as simply a positive real wage increase from one year to the next year worked, and a wage drop as a negative real wage change from year to year. For wage boosts and drops we make no distinction of employer and so these can occur within a stable relationship with the employer or as a consequence of a change of job. We define job turnover as a change of employer from one year to the next year worked.

INSERT FIGURE 4 HERE

We take a first look at these measures in Figure 4, which plots the economic effect of the coefficients of years before and after child birth in regressions that control for the type of contract at childbirth, or at age 28 in the case of childless women (fijo or temporary), and that include age dummies and education dummies. Mothers have only one child during the sample period and women in the sample work full-time all years. This last restriction is imposed so that the wage boosts and drops are not due to changes in the full-time status of workers. For figures in the top panel (change of employer), we fit probit models that have as the dependent variable EMPCHNGE, which takes value 1 if the employer at t is different from the employer the previous year worked. For the rest of the figures, we run OLS median regressions that have as dependent variable the positive (or negative) change in real income from the previous year worked.[17] The light-flat lines in the graphs display the median value for childless women and therefore, the difference between these flat trends and the darker lines can be understood as the difference in values between mothers with and without children, after controlling for observable characteristics. There can be then a difference in terms of the average level between the two groups of women but also that difference can vary with the number of years before or after the birth of the first child.

The figure has two possible readings. One can read the figure horizontally, that is comparing women with a fijo and with a temporary contract, or one can look at the difference between childless women and mothers within each panel. Reading the figure horizontally, the message is clear: women with a fijo contract change employer less often, have fewer wage

[17] Note that in some cases a woman may stop working and then return to work some time after that. In this case, we compare the employer and the wage at t with the employer and the wage during the previous year worked, even if that year is not the previous calendar year

boosts and fewer wage drops than women with a temporary contract. This result is not surprising. A fijo contract acts as a kind of insurance against negative labor outcomes, which leads to a flattening of the earnings profile. The comparison of women with and without children reveals other interesting patterns. First, we can see that a fijo contract has the same effect on mothers than on childless women, i.e., mothers that have a fijo contract change jobs less often, have fewer wage boosts but also fewer wage drops than mothers with a temporary contract. In other words, the insurance element of a fijo contract is independent of the family status of the individual, and hence, confirming the results in Table 9, there is nothing about the type of contract that is mother-specific. A closer look at the figure reveals however some differences between the before and the after childbirth effects. First, mothers with a temporary contract at childbirth change employer more often than childless women after giving birth, a result that we don't have in the case of mothers with a fijo contract.[18]

To the extent some of these transitions result in periods of inactivity, then mothers with temporary contracts would suffer a loss in accumulated experience much larger than other mothers, confirming the regression results in Table 9. Also, mothers tend to suffer wage drops more often than other women, especially in the years after childbirth and in the case of mothers with a temporary contract. The intensity of wage boosts of mothers after childbirth is practically identical to that of childless women (most coefficients of the dummy variables in the regressions were not significantly different from zero), but before childbirth the wages of mothers with a fijo contract experience more boosts than other women, which seems to explain the better performance of mothers before childbirth present in the data.

INSERT TABLE 12 HERE

In Table 12, we look at the 'insurance' effect of fijo contracts in the context of quantile regressions of the family gap. If a fijo contract insures mothers against the negative outcomes associated to motherhood, then we should see a more positive effect of this type of contracts in the case of low wage-growth groups. Similarly, if the price of such insurance is less wage growth when the market conditions are favorable, then we should see a more negative effect

[18] In all panels, the probability of a change of employer at year 0 (the year of the birth of the first child) is significantly lower than in any other year. This can be due to two things. First, one would expect mothers not to quit their jobs voluntarily precisely the year of the birth of their first child. Second, under Spanish law, dismissals while the woman is pregnant are illegal per se and there is no possibility of overcoming this prohibition by compensating the worker with a severance payment.

of this type of contracts in the case of high wage-growth groups. Panel A in the table looks at the magnitude of the family gap across different quantiles of the wage-growth distribution. We are interested here in a raw measure of the family gap, controlling for full-time status (and its change), the level of education, year and age. The family gap is U-shaped, larger in the case of the highest wage-growth group, the 90th percentile (14.9 log points), and the lowest wage-growth group, the 10th percentile (9.4 log points). One interpretation of this result is that a family gap exists because of two reasons: first, mothers promote less than childless women, especially in high wage growth industries or occupations – a reinterpretation of the glass ceiling hypothesis in the context of motherhood. Second, mothers are at a higher risk of demotion than other women when market conditions are less favorable. Panel B in the table, shows the results of introducing in the regressions an interaction term of the type of contract one year before childbirth. As we move from high to low wage-growth groups, the wage penalty for mothers with a fijo contract declines, in absolute terms, and that of mothers with a temporary contract increases. In other words, mothers with a fijo contract suffer a negative difference at the 90th percentile (the difference is 18.9 log points in favor of mothers with a temporary contract) but a positive one at the 10th percentile (the difference is 8.7 log points in favor of mothers with a fijo contract). Note, that the analysis in Panel B does not control for the type of contract of childless women and hence it is possible that some of the change in the effect of fijo contracts shown in the panel is simply due to the fact that wages of women with fijo contracts grow less rapidly than those of other women at the 90th percentile and the other way around at the 10th percentile: a general rather than a mother-specific effect. This is indeed what Panel C shows, where the coefficient of FIJOt-6 is very large and negative at the 90th percentile (-.234), but positive at the 10th percentile (.122). In that panel, the comparison between mothers with and without a fijo contract is the opposite as before, with mothers under fijo suffering a lower family gap than mothers with a temp contract at the 90th percentile, but a higher one at the 10th percentile. However, considering the general effect of holding a fijo contract, it is still true that mothers with fijo suffer from a negative FIJO premium at the 90th percentile (-19.1 log points) but a positive one at the 10th percentile (10.8 log points).

A fijo contract acts as insurance for any type of woman, with and without children. However, the results of Table 12 suggest that this insurance effect is particularly beneficial to the group of mothers. For example, one could interpret the difference of the fijo coefficients of the 90^{th} and the 10^{th} percentiles as the 'net' price of the insurance, that is, the gain (10^{th} percentile) minus the loss (90^{th} percentile). Panel C in the table indicates a 'net' price of the

insurance of 11.8% (23.4-12.2=11.2 log points) in the case of childless women and of only 8.6% (19.1-10.8=8.3 log points) in the case of mothers.

Conclusions

In this paper we have studied the effect of permanent and fixed-term contracts on the wages of mothers and the motivations behind the fertility delay that is associated with job protection. We have found that mothers in protected jobs lag behind other women and other mothers in terms wage growth, but that job protection provides insurance and helps mothers conciliate work and family responsibilities.

The importance of understanding the motivations behind the behavior of mothers has to do with the increasing number of policies implemented in Spain in recent years that aim at the equalization of opportunities between males and females and at the conciliation of work and family (e.g., the Law of Equal Opportunities/2006, the Law of Conciliation of Work and Family/1999). These laws often assume that the problem is either the discrimination against working mothers or the difficulty to conciliate work and family but the emphasis is not clear. For example, the Spanish Law of Equal Opportunities of 2006 provides simultaneously rules for female quotas on the managerial positions of particular companies and incentives to part-time employment. There is nothing in that Law about the need to rationalize Spanish working schedules, despite evidence and frequent debates in private forums and in the media about the negative effects of long working hours in Spanish labor productivity and work-family conciliation. Our results imply an important role for policies to help mothers conciliate work and family responsibilities. Moreover, understanding the effect of having a permanent contract on the family gap in pay is certainly important in the actual context of ongoing proposals, such as 'flexicurity', to reform the labor market institutions of European countries, and in particular those that relate to the costs of hiring and firing workers.

The results of our study also relate to the literature that studies the international differences in the family gap in pay. Some studies have found evidence that the wage difference between mothers and childless women is particularly large in Southern European countries (Davies and Pierre (2005), Dupuy and Fernández (2007)) and have blamed for this the dual nature of those labor markets, with jobs that offer no rights and no protection to working mothers coexisting with other jobs in which the employee is highly protected. Our results contradict the intuition that job protection reduces the family gap, but indicate that eliminating job protection would reduce the possibilities of work-life conciliation.

Our study has focused on the labor market outcomes of working mothers due to data limitations. We have found that job protection helps participants conciliate work and family. However, one could view the decision not to participate as an extreme solution to the work-family conciliation problem. In this sense, we think that an important research topic is the effect of permanent and fixed-term contracts on the decision to participate of women with children.

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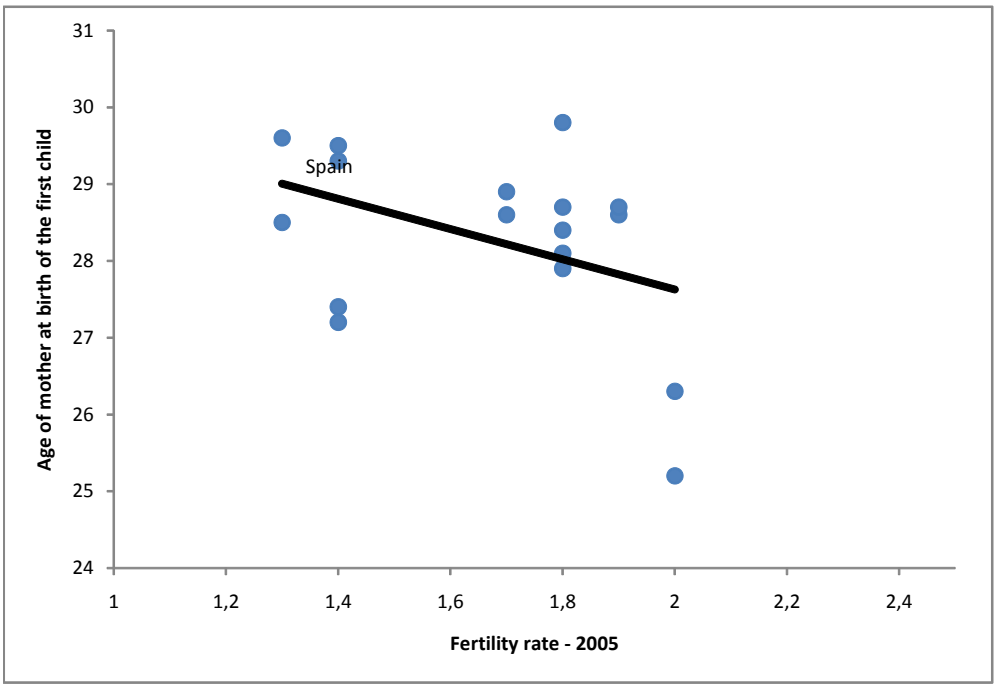
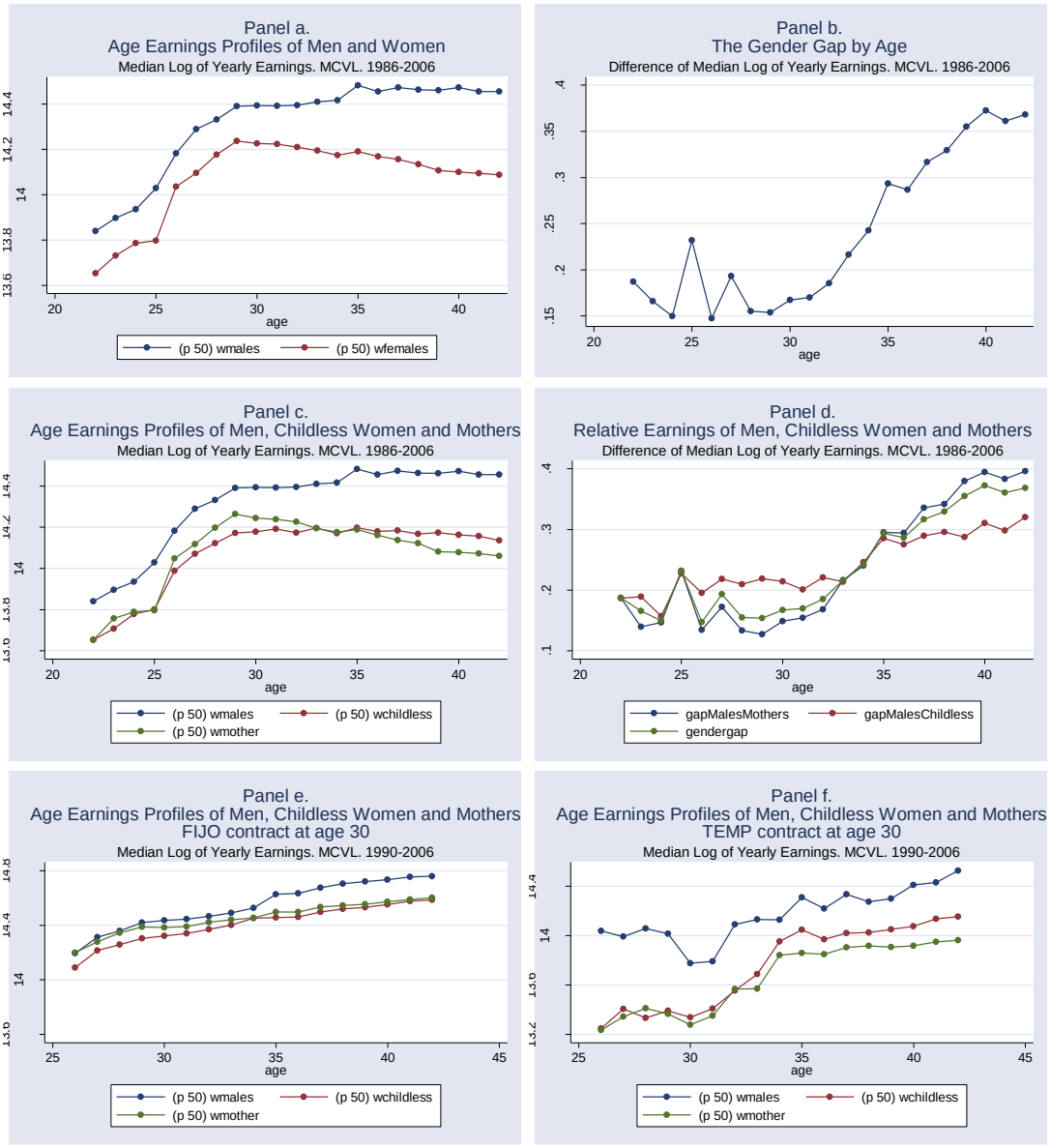
Figures and Tables

Figure 1. Age of Mother at the Birth of the First Child and Fertility Rate.



Source: UNECE Statistical Division Database, compiled from national and international (EUROSTAT, UN Statistics Division Demographic Yearbook, WHO European health for all database and UNICEF TransMONEE). The total fertility rate is the average number of children that would be born alive per woman if all women lived to the end of their childbearing years and bore children according to the age-specific fertility rates of a given year. Countries are: Austria, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States.

Figure 2. The Gender Gap and the Family Gap by Age. Real Earnings. MCVL



Notes: Yearly earnings are annualized earnings from main job in the calendar year. Panels a and b: individuals that worked during 2005 or 2006. Panels c to f: sample consists of individuals aged 26 in 1990, aged 27 in 1991, etc., but individuals can be different each year. Mothers are all individuals that had at least one child in the sample period. Childless women are women with no children the last year in sample and older than 36 the last year in sample. Panels e and f: FIJO (TEMP) means that the individual had a permanent (temporary) contract the year when income is observed.

Table 1. Descriptive Statistics by Age group. CSWH versus Labor Force Survey (LFS). Year=2006

		TYPE OF CONTRACT**		FULL-TIME/PART-TIME STATUS**	
	Percent (LFS)	FIJO (LFS) (%)	TEMP (LFS) (%)	FULL-TIME (LFS)* (%)	PART-TIME (LFS)* (%)
All ages		68.97 (66.74)	31.03 (33.26)	88.35 (87.89)	11.65 (12.11)
16-19	3.00 (2.19)	21.35 (22.13)	78.65 (77.87)	81.57 (74.17)	18.43 (25.83)
20-24	10.73 (9.49)	45.17 (37.62)	54.83 (62.38)	83.12 (80.55)	16.88 (19.45)
25-54	77.45 (79.41)	71.05 (69.31)	28.95 (30.69)	89.35 (88.86)	10.65 (11.14)
55 and older	8.82 (8.92)	81.01 (85.85)	18.99 (14.15)	85.71 (88.93)	14.29 (11.07)
Total	100.00				
Males		68.55 (66.04)	31.45 (33.96)	94.70 (95.75)	5.30 (4.25)
16-19		19.42	80.58	88.15	11.85
20-24		42.63	57.37	89.74	10.26
25-54		70.79	29.21	96.11	3.89
55 and older		79.85	20.15	89.50	10.50
Total					
Females		69.59 (65.36)	30.41 (34.64)	79.13 (75.97)	20.87 (24.03)
16-19		25.51	74.49	67.44	32.56
20-24		48.49	51.51	74.48	25.52
25-54		71.39	28.61	80.02	19.98
55 and older		83.72	16.28	76.83	23.17
Total					

*For all employed workers (self-employed and employees)
**Data weighted by days worked during calendar year (iweight=daysworked/365)

Table 2. Descriptive Statistics of sample used in the analysis. Women with and without children.

CHILDLESS WOMEN		MOTHERS	
Total individuals	12,029	**Total individuals**	16,979
Total observations	82,307	**Total observations**	119,726
Mean age	33.85	**Mean age**	28.86
Mean age in 2006	38.45	**Mean age in 2006**	33.53
% with FIJO in 2006	64.63	**% with FIJO two years before birth of first child**	57.98
		% with FIJO one year after birth of first child	68.46
% full-time in 2006	80.66	**% full-time two years before birth of first child**	80.78
		% full-time one year after birth of first child	74.63
		Mean age at birth of first child	29.31
		Mean age at birth of first child – with FIJO contract at childbirth	30.05
		Mean age at birth of first child – with TEMP contract at childbirth	27.88
		Age first child < 25 (%)	15.82
		Age first child > 35 (%)	3.94
		Number of children as of 2006 (mean)	1.23
		With only one child (%)	77.66
% with college degree or more	16.17	**% with college degree or more**	13.14
Accumulated experience (mean # years)	5.83	**Accumulated experience at birth of first child (mean # years)**	5.91
		Accumulated experience at birth of first child – with FIJO contract at childbirth	7.09
		Accumulated experience at birth of first child – with TEMP contract at childbirth	3.65

Table 3. labor status by gender, marital status and parenthood (Labor Force Survey)

Males 35 years old in the 2nd quarter of 2006					
	Total	Marital Status and children			
		Single		Married/Separated/Divorced	
		Without children	With children	Without children	With children
Permanent contract	52.67	47.59	31.15	57.53	56.39
Fix term contract	20.36	21.86	34.43	17.12	18.91
Self-employed	17.38	11.58	16.39	19.18	20.1
Unemployed	5.34	7.72	9.84	5.48	3.58
No-participant	4.25	11.25	8.2	0.68	1.02
Full time	96.8	94.05	96	97.08	98.04
Observations		311	61	146	587
Percentage		28.14%	5.52%	13.21%	53.12%
Females 35 years old in the 2nd quarter of 2006					
	Total	Marital Status and children			
		Single		Married/Separated/Divorced	
		Without children	With children	Without children	With children
Permanent contract	33.6	41.29	33.33	49.57	29.2
Fix term contract	19.63	25.87	30.16	26.09	16.17
Self-employed	9.25	10.45	3.17	8.7	9.52
Unemployed	6.81	5.97	9.52	6.96	6.78
No-participant	30.72	16.42	23.81	8.7	38.33
Full time	74.3	87.18	73.81	86.6	66.75
Observations		201	63	115	767
Percentage		17.54%	5.50%	10.03%	66.93%
Source: Labour Force Survey 2007. 2nd quarter					

Table 4. Gender gap and family gap in different sources.

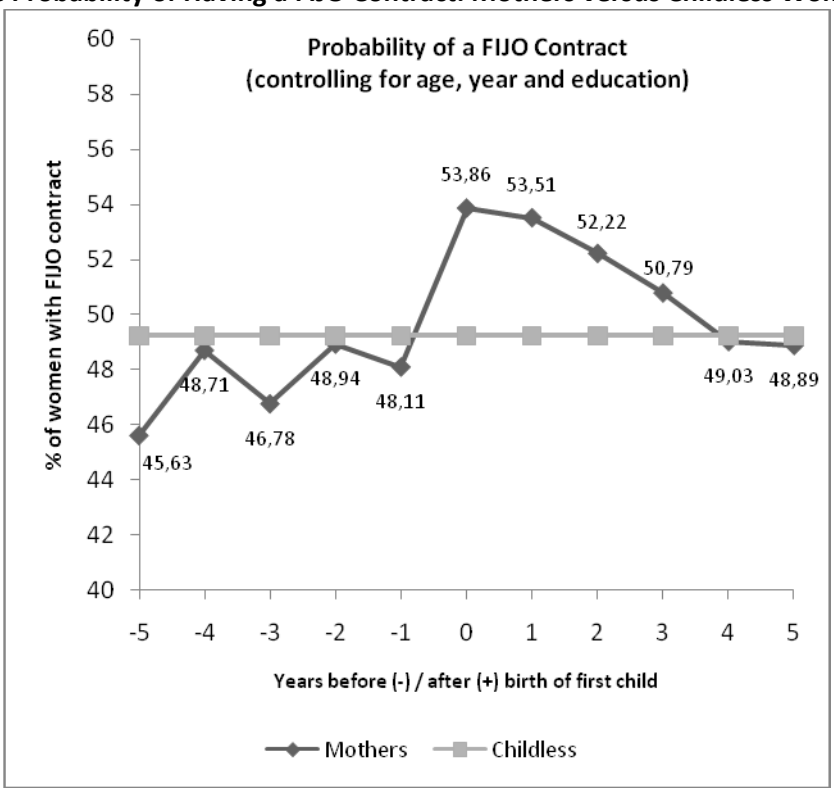
Author	Source	Gender Gap	Gender Gap controlling for characteristics	Family Gap controlling for characteristics (dep. Var. is ln(hourly wages))
Peinado (1988)	Survey of services and automobile sector	30%		
De la Rica and Ugidos (1995)	Survey of self-conscience, biography and social stauts (1991)	13%-22%		
Hernández (1995)	Wage discrimination 1988	18%		
	Survey of self-conscience, biography and social stauts (1991)	21%		
	Living and Working Conditions (1995)	45%		
Moreno and others (1996)	Family expenditure survey (1990/1991)	30%		
Durán (1997)	Employment, salary and pensions from fiscal authorities (1994)	28%		
Carrasco and Mayordomo (1997)	Salary in industry and services 1990-1995	27%-30%		
Davies and Pierre (2005)	European Community Household Panel (1994-1999)			5%-6%
Molina and Montuenga (2008)	European Community Household Panel (1994-2001)			6%-9%
Own computations				
WAGE STRUCTURE SURVEY				
1995	Wage Structure Survey 1995	30%	22%	
2002	Wage Structure Survey 2002	29.42%	26%	
EUROPEAN COMMUNITY HOUSEHOLD PANEL				
1994	European Community Household Panel	29.15%	26.76%	
1995	European Community Household Panel	27.54%	23.83%	
1996	European Community Household Panel	30.60%	26.74%	
1997	European Community Household Panel	23.15%	19.36%	
1998	European Community Household Panel	24.96%	22.81%	
1999	European Community Household Panel	23.24%	23.01%	
2000	European Community Household Panel	32.10%	33.54%	
2001	European Community Household Panel	30.87%	31.73%	

Table 5. The Gender Gap and the Parenthood Effect: Oaxaca Blinder Decompositions of Log Real Yearly Earnings.

	PANEL A. OLS CROSS-SECTIONAL RESULTS					
	ALL INDIVIDUALS			INDIVIDUALS WITH FIJO CONTRACT		
	25-29 years old	30-34 years old	35-40 years old	25-29 years old	30-34 years old	35-40 years old
Gender Gap (Discrimination component)	**18.2**	**21.5**	**30.5**	**19.1**	**19.7**	**26.0**
CHILD-coefficient: MEN	-.025***	.005	.032***	-.044***	-.001	.025***
CHILD-coefficient: WOMEN	-.110***	-.073***	-.044***	-.121***	-.070***	-.039***
Component due to differences in the CHILD-coefficient	**1.3**	**4.0**	**8.1**	**1.1**	**3.3**	**6.5**
% of gender gap explained by differences in child coefficient	**7.1%**	**18.6%**	**26.5%**	**5.7%**	**16.7%**	**25.0%**
N. Obs.	495,945	274,376	197,816	241,853	163,777	128,521
	PANEL B. FIXED-EFFECTS MODEL					
	ALL INDIVIDUALS			INDIVIDUALS WITH FIJO CONTRACT		
Gender Gap (Discrimination component)	**17.1**	**17.4**	**24.0**	**16.8**	**15.5**	**20.5**
CHILD-coefficient: MEN	-.035***	-.003	.001	-.032***	.001	.002
CHILD-coefficient: WOMEN	-.091***	-.052***	-.039***	-.076***	-.047***	-.032***
Component due to differences in the CHILD-coefficient	**0.8**	**2.4**	**4.1**	**0.6**	**2.3**	**3.3**
% of gender gap explained by differences in child coefficient	**4.6%**	**13.7%**	**17.0%**	**3.5%**	**14.8%**	**16.1%**
N. Obs.	413,900	232,473	148,936	215,645	147,392	108,109

*** Significant at the 1% level. ** Significant at the 5% level. * Significant at the 10% level. In the Fixed-effects specification, individuals are present for a minimum of five years in the data. CHILD-variable indicates the number of children in the current year, and takes values from 0 to 4. All regressions include year dummies, age dummies and controls for the level of education. A positive number indicates an advantage to males. The gender gap is the log points difference in yearly earnings between men and women that cannot be explained by differences in observable characteristics and that is due to either differences in the coefficients or in the intercept ('discrimination' component).

Figure 3. The Probability of Having a FIJO Contract. Mothers versus Childless Women.



Note: sample selection criteria: mothers that had only one child during sample period. Mothers with valid income and contract information one year before giving birth to the first child and five years after child birth. Observations with income variable not top-coded in any of the years used to calculate the six-years difference. Childless women are women with no children the last year in sample and older than 36 the last year in sample. The values for Mothers are the result of applying the coefficients of dummy variables for the number of years after/before childbirth birth in a probit regression of the probability of holding a FIJO contract against age, education and years before/after childbirth (dprobit, therefore coefficients are the change in the probability from a change in the dummy variable).

Table 6. Differences Model: The Raw Family Gap in Pay.

			6-YEARS DIFFERENCE (from 1 year before to 5 years after birth)					
	3-YEARS DIFF. (from 1 year before to 2 years after birth)	9-YEARS DIFF. (from 1 year before to 8 years after birth)	YOUNG mothers (Age of birth of first child<=28)	OLD mothers (Age of birth of first child>28)	ALL MOTHERS		YOUNG mothers (Age of birth of first child<=28)	OLD mothers (Age of birth of first child>28)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Coeff (SE)	Coeff (SE)	Coeff (SE)	Coeff (SE)	Coeff (SE)	Coeff (SE)	Coeff (SE)	Coeff (SE)
Δexp								
Δjornada						.626*** (.010)	.624*** (.010)	.622*** (.010)
Jornada at t-6 (takes 1 if full-time, 0 otherwise)						-.086*** (.010)	-.087*** (.011)	-.089*** (.011)
EDUC: Secondary	.042*** (.005)	.143*** (.019)	.087*** (.009)	.087*** (.009)	.086*** (.009)	.077*** (.008)	.076*** (.008)	.079*** (.008)
EDUC: More than secondary	.071*** (.007)	.261*** (.028)	.155*** (.013)	.150*** (.013)	.150*** (.013)	.129*** (.011)	.133*** (.011)	.130*** (.011)
Mothers	**-.166*** (.009)**	**-.198*** (.046)**	**-.164*** (.035)**	**-.177*** (.021)**	**-.174*** (.018)**	**-.092*** (.016)**	**-.098*** (.031)**	**-.090*** (.019)**
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES
Age dummies	YES	YES	YES	YES	YES	YES	YES	YES
Exp dummies	NO	NO	NO	NO	NO	NO	NO	NO
Industry dummies	NO	NO	NO	NO	NO	NO	NO	NO
Occupation dummies	NO	NO	NO	NO	NO	NO	NO	NO
R2	8.12	28.87	18.18	18.15	17.62	37.73	38.09	37.86
N. Obs. Childless	40,299	5,365	19,321	19,321	19,321	19,321	19,321	19,321
N. Obs. Mothers	5,756	313	925	773	1,698	1,698	925	773
N. Indiv. Childless	9,054	3,413	6,625	6,625	6,625	6,625	6,625	6,625
N. Indiv. Mothers	5,756	313	925	773	1,698	1,698	925	773

*Note – Robust standard errors. ***Significant 1%. * Significant 5%. *Significant 10%. Mothers have only one child during the sample period. Dependent variable: ΔLN_Yearly_Earnings is the change of the log of real annualized income from main job between the year of the birth of the first child and t years after. Δjornada takes value 0 if status at t was the same as one year before childbirth; takes value 1 if status was part-time initially and full-time in t, and takes value -1 otherwise. EDUC are dummy variables for the level of education. Δexp is the change in actual experience from one year before childbirth to year t. Occupation dummies take values according to the variable 'grupo de cotización' in the MCVL. Industry dummies are 206 dummy variables for 3-digits industry levels.*

Table 7. Differences Model: The Raw Family Gap in Pay by Type of Contract.

	BEFORE BIRTH (FROM 7 YEARS BEFORE TO 1 YEAR BEFORE BIRTH)	AFTER BIRTH (FROM 1 YEAR BEFORE TO 5 YEARS AFTER BIRTH)			
	(1)	(2)	(3)	(4)	(5)
	Coeff (SE)	Coeff (SE)	Coeff (SE)	Coeff (SE)	Coeff (SE)
Δjornada	.595*** (.010)	.627*** (.010)	.626*** (.010)	.627*** (.010)	.597*** (.010)
Jornada at t-6 (takes 1 if full-time, 0 otherwise)	-.099*** (.011)	-.064*** (.011)	-.085*** (.010)	-.064*** (.011)	-.102*** (.011)
EDUC: Secondary	.076*** (.008)	.076*** (.008)	.077*** (.008)	.076*** (.008)	.018** (.009)
EDUC: More than secondary	.139*** (.011)	.124*** (.011)	.129*** (.011)	.124*** (.011)	.028** (.013)
Mothers		**-.084*** (.016)**			
Mothers with FIJO one year before birth of first child	**.033* (.020)**		**-.114*** (.019)**	**-.084*** (.019)**	**-.082*** (.019)**
Mothers with TEMP one year before birth of first child	**-.001 (.027)**		**-.058*** (.023)**	**-.085*** (.023)**	**-.074*** (.023)**
FIJO contract at t-6 [1]	-.002 (.008)	-.062*** (.007)		-.062*** (.008)	-.039*** (.010)
Δcontract					.034*** (.009)
Year dummies	YES	YES	YES	YES	YES
Age dummies	YES	YES	YES	YES	YES
Exp dummies	NO	NO	NO	NO	NO
Industry dummies	NO	NO	NO	NO	YES
Occupation dummies	NO	NO	NO	NO	YES
R2	39.00	37.92	37.74	37.92	39.28
N. Obs. Childless	19,321	19,321	19,321	19,321	19,321
N. Obs. Mothers	2,513	1,698	1,698	1,698	1,698
N. Indiv. Childless	6,625	6,625	6,625	6,625	6,625
N. Indiv. Mothers	2,513	1,698	1,698	1,698	1,698

[1]: In the 'before' analysis in column1, this is a dummy variable that takes value 1 if the individual had a FIJO contract at the end of the six-years period.

*Note – Robust standard errors. ***Significant 1%. * Significant 5%. *Significant 10%. Mothers have only one child during the sample period. Dependent variable: ΔLN_Yearly_Earnings is the change of the log of real annualized income from main job between the year of the birth of the first child and five years after. CHANGE OF EMPLOYER is a dummy that takes value 1 if the employer at t-6 was different that at t. FIJO contract is a dummy variable taking value 1 if the individual had a permanent contract one year before childbirth. Children*FIJO takes value 1 for mothers under a FIJO contract at childbirth and zero otherwise. Δjornada takes value 0 if status at t was the same as one year before childbirth; takes value 1 if status was part-time initially and full-time in t, and takes value -1 otherwise. EDUC are dummy variables for the level of education. Δexp is the change in actual experience from one year before childbirth to year t.*

Table 8. Correlation coefficients. ECHP. 2000

	Hours worked	Hours with children	Satisfaction with work schedule	FIJO contract
Hours worked	1.00			
Hours with children	-.11***	1.00		
Satisfaction with work Schedule	-.40***	.07**	1.00	
FIJO contract	-.09***	.09***	.16***	1.00

*** Significant at 1%; *** Significant at 5%; * Significant at 10%

Note. Sample consists of full-time working mothers with children under the age of 12. Data comes from the European Community Household Panel (ECHP), 2000 extended wave. Number of observations is 1,022. HOURS WORKED is the number of hours worked in the main job the week previous to the interview. HOURS WITH CHILDREN is the usual number of hours per week with their children. SATISFACTION with work schedule is an index variable than ranges from 1 (lowest degree of satisfaction) to 6 (highest degree of satisfaction). FIJO contract is a dummy variable taking value 1 if the contract type of the main job was permanent.

Table 9. Six-Years Differences Model: Understanding Differences in the Family Gap in Pay by Type of Contract.

	AFTER BIRTH (FROM 1 YEAR BEFORE TO 5 YEARS AFTER BIRTH)				
	(1)	(2)	(3)	(4)	(5)
	Coeff (SE)	Coeff (SE)	Coeff (SE)	Coeff (SE)	Coeff (SE)
Δexp		.046*** (.005)			
Change of occupation		.184*** (.014)			
Change of employer		.062*** (.008)			
Change of experience CHILDLESS with TEMP			.041*** (.004)	.048*** (.005)	.047*** (.005)
Change of experience CHILDLESS with FIJO			.034*** (.004)	.046*** (.005)	.045*** (.005)
Change of experience MOTHERS with TEMP			.047*** (.006)	.052*** (.008)	.051*** (.008)
Change of experience MOTHERS with FIJO			.026*** (.005)	.043*** (.006)	.041*** (.006)
Change of occupation CHILDLESS with TEMP					.195*** (.017)
Change of occupation CHILDLESS with FIJO					.167*** (.023)
Change of occupation MOTHERS with TEMP					.032 (.077)
Change of occupation MOTHERS with FIJO					.215*** (.095)
Change of employer CHILDLESS with TEMP				.090*** (.012)	.078*** (.012)
Change of employer CHILDLESS with FIJO				.060*** (.011)	.052*** (.011)
Change of employer MOTHERS with TEMP				.096*** (.029)	.092*** (.030)
Change of employer MOTHERS with FIJO				-.004 (.033)	-.011 (.033)
Δjornada		.584*** (.010)	.591*** (.010)	.584*** (.010)	.584*** (.010)
Jornada at t-6 (takes 1 if full-time, 0 otherwise)		-.109*** (.011)	-.104*** (.011)	-.108*** (.011)	-.109*** (.011)
EDUC: Secondary	.019* (.010)	.011 (.008)	.004 (.009)	.005 (.009)	.010 (.008)
EDUC: More than secondary	.041*** (.015)	.012 (.013)	.003 (.013)	.001 (.013)	.012 (.013)
Mothers with FIJO one year before birth of first child	**-.210*** (.022)**	**-.049*** (.018)**			
Mothers with TEMP one year before birth of first child	**-.087*** (.027)**	**.024 (.018)**			
FIJO contract at t-6 [1]		-.020* (.012)			
Δcontract		.006 (.009)			
Year dummies	YES	YES	YES	YES	YES
Age dummies	YES	YES	YES	YES	YES
Exp dummies	NO	NO	YES	YES	YES
Industry dummies	YES	YES	YES	YES	YES
Occupation dummies	YES	YES	YES	YES	YES
R2	19.50	40.57	39.92	40.13	40.59
N. Obs. Childless	19,321	19,321	19,321	19,321	19,321
N. Obs. Mothers	1,698	1,698	1,698	1,698	1,698
N. Indiv. Childless	6,625	6,625	6,625	6,625	6,625
N. Indiv. Mothers	1,698	1,698	1,698	1,698	1,698

[1]: In the 'before' analysis in column1, this is a dummy variable that takes value 1 if the individual had a FIJO contract at the end of the six-years period.

*Note – Robust standard errors. ***Significant 1%. * Significant 5%. *Significant 10%. Mothers have only one child during the sample period. Dependent variable: ΔLN_Yearly_Earnings is the change of the log of real annualized income from main job between the year of the birth of the first child and five years after. CHANGE OF EMPLOYER is a dummy that takes value 1 if the employer at t-6 was different that at t. ΔOccupation is a dummy variable that takes value 1 if the individual changed from blue collar to white collar, -1 if the individual changed from white collar to blue collar and zero otherwise. FIJO contract is a dummy variable taking value 1 if the individual had a permanent contract one year before childbirth. Children*FIJO takes value 1 for mothers under a FIJO contract at childbirth and zero otherwise. Δjornada takes value 0 if status at t was the same as one year before childbirth; takes value 1 if status was part-time initially and full-time in t, and takes value -1 otherwise. EDUC are dummy variables for the level of education. Δexp is the change in actual experience from one year before childbirth to year t.*

Table 10. Six-Years Differences Model: Inactivity, change of occupation, change of employer and probability of returning to the same employer after period of inactivity.

	6-years period (from one year before to five years after the birth of the first child)							
	(1) Incidence of part-time employment (percentage points difference between t-1 and t+5)	(2) Number of years of lost experience	(3) % returning to the same employer after inactivity	(4) Incidence of WHITE COLLAR jobs (percentage points difference between t-1 and t+5)	(5) PROMOTIONS (per cent of individuals changing from blue collar to white collar occupations)	(6) DEMOTIONS (per cent of individuals changing from white collar to blue collar occupations)	(7) CHANGE OF EMPLOYER (% changing employer)	(8) Percentage of women that promote to a white collar within the firm
All mothers	**5.59**	**1.79**	**14.84**	**2.24**	**3.30**	**1.06**	**53.79**	**16.07**
Mothers with FIJO at childbirth	**10.36**	**0.82**	**26.17**	**1.60**	**2.59**	**0.99**	**44.02**	**38.10**
Mothers with TEMP at childbirth	**1.24**	**2.66**	**10.27**	**2.81**	**3.95**	**1.13**	**81.29**	**2.86**
Childless women	**-6.03**	**0.92**	**15.20**	**4.12**	**6.38**	**2.26**	**63.49**	**13.47**
Childless women with FIJO	**1.81**	**0.40**	**21.60**	**2.55**	**4.00**	**1.44**	**36.26**	**17.68**
Childless women with TEMP	**-14.28**	**1.46**	**12.90**	**5.77**	**8.88**	**3.11**	**72.25**	**11.48**

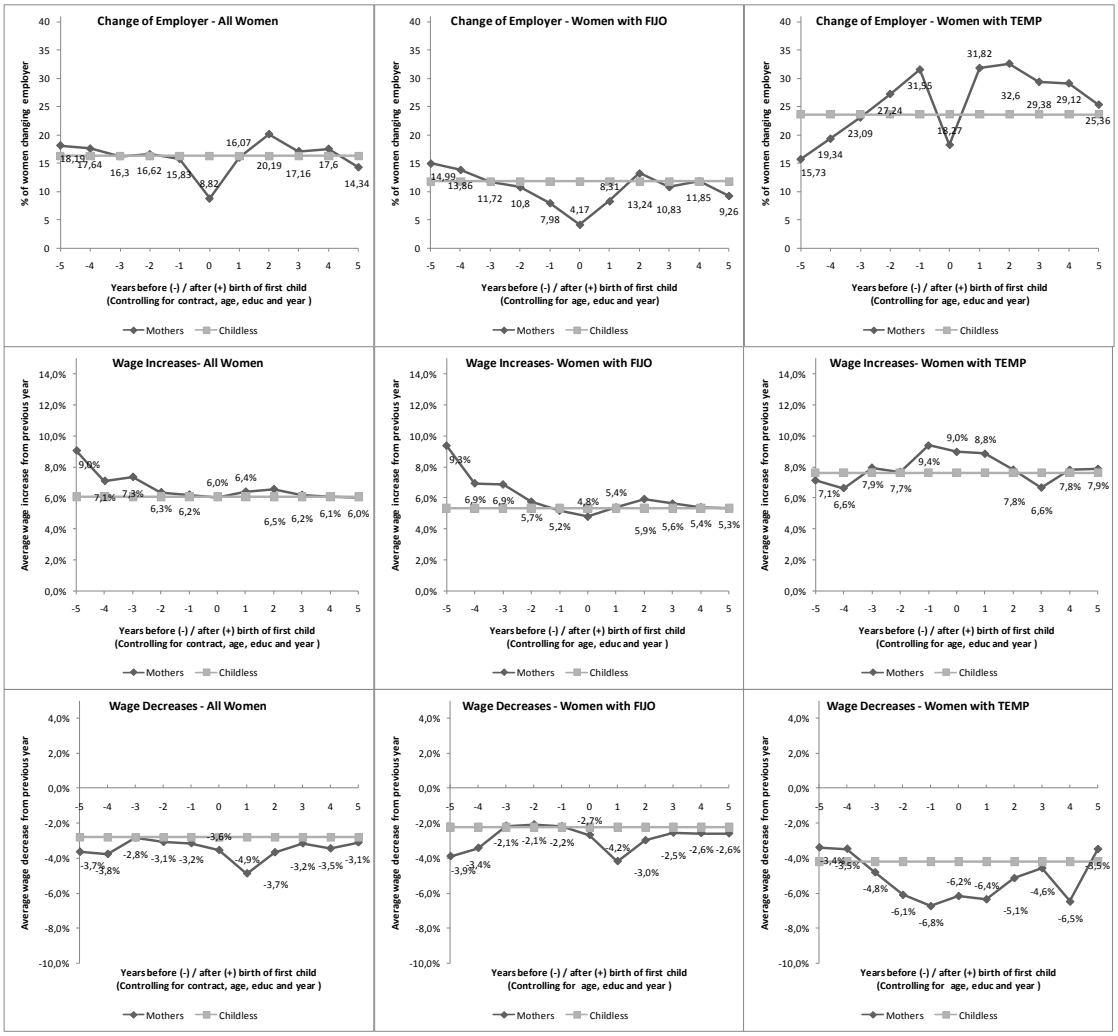
Note –Mothers have only one child during the sample period. CHANGE OF EMPLOYER is a dummy that takes value 1 if the employer at t-6 was different that at t. WHITE COLLAR is a dummy variable that takes value 1 if occupation is of a managerial type (grupo=1, 2 or 3). FIJO contract is a dummy variable taking value 1 if the individual had a permanent contract one year before childbirth.

Table 11. Six-Years difference model. Decomposing the difference in wage growth between mothers with FIJO and mothers with a TEMPORARY contract. Oaxaca Blinder Decompositions of the change in Log Real Yearly Earnings.

	Differences in the change in earnings from one year before to five years after childbirth (log points)		
	Endowment effect	**Coefficient effect**	**Overall effect (%)**
Due to differences in the change of experience	6.9	-12.0	-5.1 (32%)
Due to differences in the change of occupation	-0.2	0.4	0.2 (-1%)
Due to differences in the rate of change of employer	-0.1	-2.8	-2.9 (18%)
Due to differences in the rate of change to part-time employment	-4.9	0.2	-4.7 (30%)
Other	1.7	-7.7	-3.4 (21%)
Raw Difference in wage growth (log points difference)	**3.4**	**-19.4**	**-15.9 (100%)**

Note: a negative number indicates a lower rate of wage growth for the group of mothers with a FIJO contract at childbirth. All regressions include year dummies and dummies for the level of education and experience. The raw difference in wage growth is the log points difference in the growth of earnings during the six-years period between mothers with a fijo and a temporary contract childbirth without controlling for observable characteristics. The endowment effect measures the effect of differences in the level of the variable. The coefficient effect measures the impact of differences in the regressions coefficient of the variable.

Figure 4. Change of Employer, Wage Increases and Wage Decreases. Mothers versus Childless Women.



Note – MCVL 1996-2006. Only full-time workers. Mothers had only one child during sample period. Childless women had no children and are 36 or older the last year in the sample. The figures plot the economic effect of the coefficients of years before and after child birth in regressions that control for the type of contract at childbirth, or at age 28 in the case of childless women (FIJO or TEMP), and that include age dummies and education dummies. For figures in the top panel, the probit regression has as dependent variable the discrete variable EMPCHNGE taking value 1 if the employer at t is different from the employer at t-1. For the rest of the figures, the OLS regressions have as dependent variable the positive (or negative) change in real income from the previous year (ln(Yw)t-ln(Yw)t-1).

Table 12. Quantile Regression: The raw family gap and the type of contract at child-birth. Dep Var: ΔLn_Yearly_ Earnings.

PANEL A					
	(1) PCT=90	(2) PCT=75	(3) PCT=50	(4) PCT=25	(5) PCT=10
	Coeff (SE)	Coeff (SE)	Coeff (SE)	Coeff (SE)	Coeff (SE)
Children	**-.149*** (.031)**	**-.089*** (.018)**	**-.047*** (.009)**	**-.051*** (.010)**	**-.094*** (.023)**
Pseudo R2	22.82	19.61	14.74	13.85	17.23
N. Obs.	21,019	21,019	21,019	21,019	21,019
PANEL B. CHILDREN INTERACTED WITH THE TYPE OF CONTRACT ONE YEAR BEFORE CHILDBIRTH					
A. Children*FIJO	**-.209*** (.035)**	**-.108*** (.021)**	**-.052*** (.011)**	**-.035*** (.011)**	**-.054*** (.028)**
B. Children*TEMP	**-.020 (.044)**	**-.011 (.025)**	**-.033*** (.013)**	**-.078*** (.014)**	**-.141*** (.037)**
The FIJO premium (mothers with FIJO-mothers with TEMP) (A-B)	**-.189**	**-.097**	**-.019**	**.043**	**.087**
Pseudo R2	22.89	19.64	14.74	13.86	17.25
N. Obs.	21,019	21,019	21,019	21,019	21,019
PANEL C. CHILDREN INTERACTED WITH THE TYPE OF CONTRACT. CONTROLLING FOR CONTRACT AT T-6 FOR CHILDLESS WOMEN					
A. Children*FIJO	-.095*** (.037)	-.053*** (.018)	-.041*** (.012)	-.045*** (.011)	-.118*** (.027)
B. Children*TEMP	-.138*** (.046)	-.105*** (.022)	-.057*** (.014)	-.062*** (.014)	-.104*** (.036)
C. FIJO contract at t-6	-.234*** (.015)	-.158*** (.007)	-.047*** (.005)	.028*** (.005)	.122*** (.011)
The FIJO premium (mothers with FIJO-mothers with TEMP) (A+C-B)	**-.191**	**-.053**	**-.031**	**.045**	**.108**
Pseudo R2	24.19	20.61	14.91	13.93	17.80
N. Obs.	21,019	21,019	21,019	21,019	21,019

*Note – Robust standard errors. ***Significant 1%. * Significant 5%. *Significant 10%*

*All models include the following controls: Δjornada, jornada$_{t-6}$, dummies for the level of education, age dummies and year dummies. Mothers have only one child during the sample period. Dependent variable: ΔLN_Yearly_Earnings is the change of the log of real annualized income from main job between one year before giving birth to five years after birth. FIJO contract is a dummy variable taking value 1 if the individual had a permanent contract at year t-6. Children*FIJO takes value 1 for mothers under a FIJO contract at childbirth and zero otherwise. All differences are six-years differences. Δjornada takes value 0 if status was the same as in t-6; takes value 1 if status was part-time initially and full-time in t, and takes value -1 otherwise. EDUC are dummy variables for the level of education.*

APPENDIX

TABLE 13. Number of children. Comparison of real figures in CENSUS with calculated numbers applying CSWH methodology to Census data.

PANEL A. ACCORDING TO HOUSEHOLD SIZE								
	WOMEN AGED 16 TO 40							
			TOTAL NUMBER OF CHILDREN		MISMATCHES (ERROR TYPE)			
	(1)	(2)	(3)		(4) Type 1*		(5) Type 2*	
Number of members in household	% of households with successful matches** (all households, with and without children)	% of households with successful matches (only households with children)	Census	MCVL	#	%	#	%
1.00	100.00%	na	0	0	0	0.00%	0	0.00%
2.00	98.79%	95.10%	5,134	5,388	264	4.90%	10	0.19%
3.00	97.86%	97.72%	20,158	20,571	441	2.14%	28	0.14%
4.00	97.24%	97.16%	28,419	28,864	496	1.72%	51	0.18%
5.00	92.99%	92.74%	11,318	11,733	457	3.89%	42	0.37%
6.00	86.89%	86.42%	5,145	5,531	415	7.50%	29	0.56%
7.00	75.69%	74.02%	2,058	2,335	297	12.72%	20	0.97%
8.00	60.96%	58.35%	1,035	1,309	280	21.39%	6	0.58%
9.00	51.09%	46.38%	477	669	198	29.60%	6	1.26%

* Type 1: when individual is identified as child in MCVL but not in Census. Type 2: when individual is identified as child in Census but not in MCVL.
**Successful match: the number of children in the household according to Census is equal to the number of children in the household using MCVL methodology.

PANEL b. ACCORDING TO THE AGE OF THE MOTHER			
Age group of mother*	(1) % of households with successful matches (all households, with and without children)	(2) % of households with successful matches (all households with and without children and of 5 or fewer members)	(3) % of households with successful matches (only households with children and households with 5 or fewer members)
15-19	95.55%	96.89%	81.10%
20-24	96.53%	97.57%	89.55%
25-29	97.54%	98.49%	95.01%
30-34	97.43%	98.31%	97.08%
35-39	96.86%	97.97%	97.28%
40-44	95.75%	97.03%	96.28%
45-49	95.65%	96.68%	95.76%

* Age of the mother in 2006. NOT the age at childbirth.