

Woman and mother: double employment penalty?

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Woman and mother: double employment penalty?

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Abstract

This paper analyzes how females and males modify their labor situation after having a child to reconcile work and family life in Spain. The analysis aims to examine whether the heterogeneity in parents' employment is explained by gender differences or by differences concerning sociodemographic characteristics, educational and occupational attainment, among others. Using 2019 data from the Spanish Labour Force Survey (SLFS), estimation focus on the differences by gender of four different outcomes: being employed, being part-time worker, having a temporary contract, and working less than 35 hours per week. We improve the national perspective by applying the same approach to the Spanish regions and changing the temporal perspective to a pre-crisis year like 2007. Changes in the employment patterns related to the arrival of children are only present on the females' labor supply, also anticipated by changes when they get into a couple of relationships.

Keywords: female employment, gender gaps, gender inequality, parenthood.

1 Introduction

In the last decades, women have moved towards greater participation in the labor markets. Thus the *feminization* of the labor force is a stylized fact that characterizes all the OECD economies. However, there still exist differences among women and men related to lower female participation rate¹. There are some countries where this gap is narrower, getting very close to a one-to-one female to male employment rate, but this type of gender inequality persists in most countries.

Women participate more actively in the labor market due to changes in preferences, increasing opportunity costs, and changes in socio-demographic characteristics such as higher educational attainment. Thus, the gender employment gap has reduced in favor of women's participation. However, more women at work do not necessarily imply a more egalitarian situation in terms of wages, hours worked, and labor stability.

Another fact related to the process of female incorporation to the labor market is that, while their participation rates increase, fertility rates have declined in most developed countries [1]. In Spain, among other Southern European countries, low participation and low fertility rates coexist together in the economy, highlighting that fiscal policies need to be improved to allow women to work and have children. This negative relation between fertility and labor supply is a cause of concern among those European countries where both rates are lower than the rest, which is the case of Spain, Italy, and Greece. Since working generations finance with their work the pensions benefits of the previous ones, the sustainability of the pension system, which will cover theirs, depends on a new working generation: their children.

We have focused the analysis on the differences in the labor market situation among women and men. However, we have also considered if there exist differences among them depending on their household situation (if they live with their parents, with flatmates or they live with a couple) and on their fertility situation (if they have or not children).

1.1 Research hypothesis and motivation

This master thesis seeks to assess and quantify the factors that are driving the actual highly gendered employment patterns that have been proved to be necessary in order to determine empirically social and labor market policies. As we will focus on the labor market outcomes of females and males separately, we have several questions that we would like to answer along with this paper: how many individuals are employed, what type of jobs do they have, do these employment patterns differ if they are females and mothers

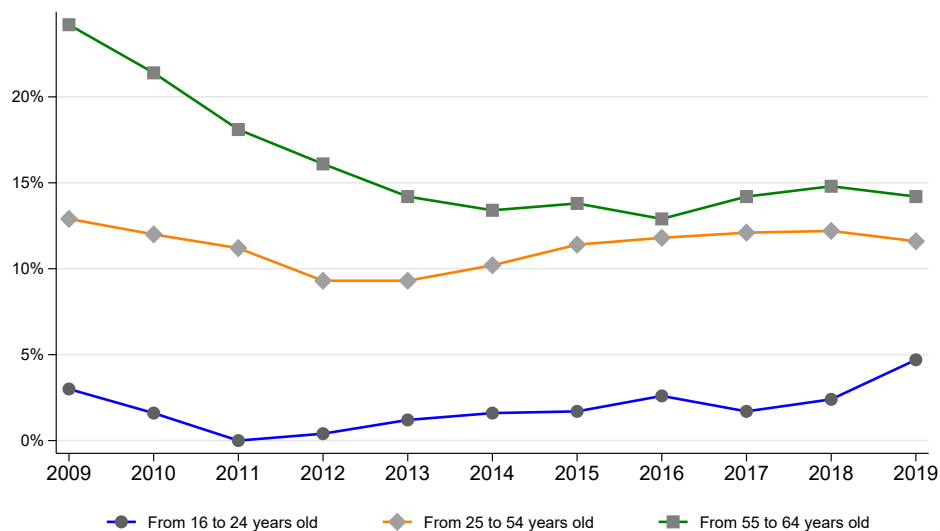
¹Estimated by the International Labour Organization (ILOSTAT database) as the percentage of female population above 15 years old.

or males and fathers and, if it would be the case, the magnitude of such differences.

The aim of this master thesis is twofold: First, we test whether there are differences in terms of the labor situation, type of contract, work schedules and, hours worked between females and males in Spain, comparing females and males that have no family commitments. Second, if those differences exist, to what extent they are due to maternity or paternity compering among couples with and without children. In this case, we will analyze if the adults' employment patterns change with the arrival of children and, thus, we can evaluate if the adjustment is symmetric by gender.

Spain is one of the developed countries where the process of female incorporation into the labor market has taken place most recently. This rising female employment rate has a positive effect reducing the gender employment gap² that is remarkably lower in the youngest cohort, even though it has not yet been eliminated anywhere, as we can observe in **Figure 1**. We can see a decreasing tendency years after the economic crisis and until 2013 among the different age-groups. This was mainly due to a decrease in males' employment rate, given that construction, which was the economic sector hardest hit by the Great Recession, is considered as a *male-dominated* industry. In the case of Spain, the incorporation of women into the labor market has transformed the economy from a model based on the segregation of tasks by gender towards a *dual-income household* model [8]. Indeed, this mass incorporation of women into the workforce increased the female's labor force participation rate up to 51.8% in 2019. Nevertheless, higher female employment rates have been unable to remove the actual gender gap in labor force participation.

Figure 1: Evolution of gender gaps in employment levels in Spain by age groups



Source: *Spanish Labor Force Survey (SLFS) - Own elaboration in Stata 14.0*

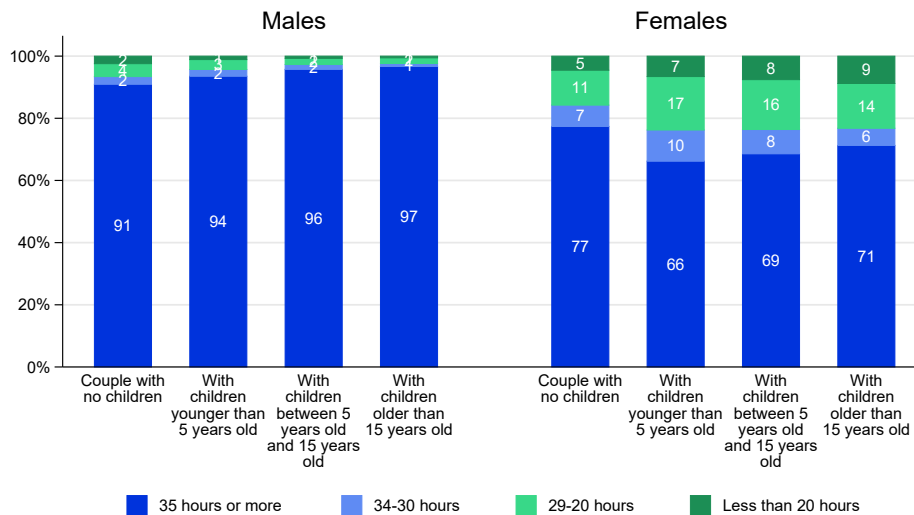
²Difference in employment rates between men and women.

Besides of the gender differences in employment, we also look for the existence of child penalties³, in terms of the type of contract, work schedules and hours worked, and if childbirth still ends up paid by women.

1.2 Motherhood and labor market

Following childbirth, many families adopt gendered strategies to conciliate family and work responsibilities [21]. It has been documented that with the arrival of a child, mother and father increase their hours worked (*paid* and *unpaid*⁴). But the reallocation of time is not identical among both parents as Rapoport *et al.* (2011) [23] and Rizavi and Sofer (2010) [24] pointed out. Men typically increase the time they devote to *paid* work, while women decrease their paid working time or even exit the labor market [4], which implies an increase in the *unpaid* work. These differences in the supply of hours of work can be due to different preferences about work and home (in terms of division of household work and child care activities). Nevertheless, it would be hard to claim that the Spanish employment gap is due to women’s preferences when gaps in other European countries are so much lower. Those disparities in hours worked among couples are consistent with the Spanish evidence, as we can observe in **Figure 2**.

Figure 2: Children and weekly hours worked by gender



Source: *Spanish Labor Force Survey (SLFS) - Own elaboration in Stata 14.0*

It is striking that being a mother is closely related to a decrease in the hours worked,

³Defined by Kleven *et al.* (2018) as the percentage by which women fall behind men due to children.

⁴Anxo *et al.* (2011) defined as time devoted to *unpaid* work, full range of care activities chores related with household work.

which is not the case when males become fathers. Undoubtedly, female employment patterns differ from their males counterparts, depending on their life cycle stage.

We are not trying to explain causal relationships during this paper because that is not our primary purpose. We will establish the current situation in terms of gender inequality in the Spanish labor market, and we will analyze which factors are driving those differences. This contribution could help to rank the priorities and to use them in order to reduce the employment rate gap, the hours worked gap, and the work schemes differences that could be responsible for the central issue in gender inequality: the gender wage gap. Although it has been reached some convergence on the hourly salaries, women still have not reached men in terms of the number of hours worked, which is an essential factor in employment patterns.

This paper is organized as follows. **Section 2** presents related literature. **Section 3** describes the database and the methodology used to run the analysis. **Section 4** shows some descriptive findings and a brief analysis on job segregation. We present estimation results in **Section 5** and last but not least, we analyze in **Section 6** same dimensions but with two different perspectives and **Section 7** sums up and concludes.

2 Literature review

Women have not reached the same situation than males' neither in the labor markets nor at home. Although the labor participation rates among females have increased, the distribution between females and males of hours dedicated to household and domestic work is negatively correlated with females actively participating in the labor market. Also, married women are less likely to work than cohabiting and unpartnered ones. Cohabitation is an intermediate status between marriage and single-hood that affects the decision to work and the choice of whether or not having children [9].

Also, when we take into account the presence of children in the household, gender inequality in terms of employment widens. The “*double shift*” period is known as that time where women are entering into the labor market at the same time that is carrying out household tasks, both negative relative as we have just mentioned.

The literature on analyzing the changes in the female employment patterns after childbirth is widespread in labor economics. Although women are employed before having children, the participation of mothers of preschool children continues to be markedly lower than that of childless women [25]. The early literature on female labor supply has identified the childbirth as a significant event for the prospects of the mother's labor-market career [26].

Another brunch of literature in this topic has focused on the role of human capital in

explaining gender gaps, which is based on human capital theory [5]. This theory highlights a robust positive effect of education on preventing reducing females hours worked or even abandoning the labor market after childbirth. Based on this theory, education would give women the prestige and the professional status to get better labor opportunities. It is a fact that the gender employment gap is reduced when we compare high educated individuals, but it only reduces, not eliminate it. This is because more educated individuals face higher opportunity costs of nonworking. In particular, the gender gap is reduced only in terms of women’s employment rates. However, women still participate more through part-time jobs even when both individuals have tertiary education (See **Figure A.2**).

We will base our study on the role of parenthood in explaining gender gaps. This literature has aroused interest in the last decade. Recent papers have found that the difference in earnings between men and women, which is called gender inequality in earnings, is explained almost 80% by the arrival of children. Kleven *et al.* (2018) [15] shows that, even today, children create a gender pay gap around 20%. In this paper, we will not analyze child penalties in earnings per se but, we do analyze the factors that drive those differences in hours worked, which, as we have mentioned before, are responsible for almost all the remaining gender inequality in earnings.

Another important factor that can be associated with these differences is the *occupational sex segregation*, which has been recognized by the International Labour Office (ILO) as a form of discrimination. The literature on *occupational sex segregation* studies the types, causes, and consequences of the separation of men and women into different occupations where females’ are highly related to lower pay and worse working conditions. Training and promotion opportunities are unequally offered to women and men due to sex segregation, and this affects the remuneration from work, which increases the pay differentials. As Anker, Melkas, and Korten (2003) [3] state, this is one of the most insidious aspects of gender inequality in the labor market. They determine some crucial factors that cause occupational gender-based segregation: social norms and stereotypical perceptions regarding men and women, family life, family responsibilities, and work-life; education and vocational training; taxation and social security; the structure of the labor market and, discrimination at entry and in work. In most cases, these are the obstacles that women will find during their careers.

Even though economies are reaching narrower gaps in the labor markets, gender is still a relevant factor in individuals’ labor supply. The importance of roles, norms, and culture in traditional behaviors such as work interruptions and the number of hours worked after childbirth is proved. Women combine employment with home responsibilities to a much larger extent than their males partners [10]. Indeed, gender roles in families with children remain conservative in all countries. Kleven *et al.* (2018) [14] shows that the vast majority

of people asked in the International Social Survey Program (ISSP) in 2002 were in favor of *stay at home mums* after the childbirth to take care of children and against of the idea of the same mother working full-time. They found evidence of *intergenerational transmission* of child penalties, which means labor supply changes around childbirth for women relative to men are transmitted through generations from parents to daughters but not sons. This means that a girl belonging to a family with a more traditional labor division will imply a double child penalty: in the current labor supply of the mother and on the future labor supply when she becomes a mother.

To close this section, we want to mention that gender discrimination happens when women and men share the same characteristics, but they obtain different outputs. This paper will test the existence of this type of discrimination in the Spanish labor market.

3 Data and methodology

3.1 Description of the data

The empirical analysis presented in this research is based on cross-sectional micro-data from the Spanish Labor Force Survey (henceforth SLFS, for its initials in Spanish), which its target population is people living in private households.

The SLFS database provides the most representative information of the Spanish population. It is compiled quarterly, by collecting information from almost 65,000 households that are interviewed for six consecutive quarters with approximately 180,000 people in the sample. It contains demographic characteristics (region of residence, age, marital status, relationship with the members of the household, gender, educational level, household information such as relationships with the rest of the household members, etc.), employment characteristics (current status, type of contract, work schedule, weekly hours worked, etc.), and fertility characteristics (number of children, demographic characteristics of children, etc.)

We use the SLFS from the second quarter of 2019 for the following reasons:

- The second quarter is less volatile in terms of employment.
- The most recent SLFS data we can use to apply this approach is data from the year 2019. The labor market of the second quarter of 2020 is affected by the COVID-19 situation, which could pervert our results based mainly on factors related to the employment level.

- Also, we have taken into account that the paternity leave weeks were increased by law from 5 to 8 weeks in the second quarter of 2019. We have developed the same analysis using 2018 data to check the robustness of the results. However, we do not find significant differences in the analysis and then, we proceed to analyze the second quarter of 2019.

As we have already mentioned, we will focus the analysis on the possible differences between females and males in terms of labor situation from two different perspectives. In this paper, we will concentrate on two different life statuses, which are candidates to be the underlying reason for changing the employment patterns. On the one hand, that moment when the individual decides to live with her or his couple and, on the other hand, when both individuals decide to have a child. An important remark is that we will test whether the decision of having a child is taken jointly among partners, but its labor consequences are paid more by one side of the couple.

To analyze if there exists any relationship between cohabitating and having children on the individual's labor situation, we divide the sample into two: Singles and couples with no children, and couples with and without children.

3.1.1 Sub-sample 1: Singles and childless couples

The first sub-sample is used to test whether exists any gender difference among those singles and those couples with no children in terms of labor status. It consists of those females with ages that range from 16 to 40 years old and until 45 years old in the case of males. We establish women's maximum age of 40 years old only for fertile age reasons. As our primary goal is to analyze if the employment patterns differ by gender and also if they change when the arrival of children, we restrict their maximum age to ensure that, if the individual has children, they live with them. So, in this sample, we will deal with young individuals, which has to be taken into account when we analyze, for example, the type of contracts (indefinite/temporary) or the work schedule (part-time/full-time) because they will be closely related to the age. As we compare individuals with the same characteristics, we will be able to check our gender inequality hypothesis.

3.1.2 Sub-sample 2: Couples with and without children

In this sub-sample, we have included all those individuals who live with their partners and those who have children living with them in the same household. We have restricted the children's age up to 30 years old. The reason is that, as we would like to test if having children is associated to a lower level of employment and/or less stable labor conditions (such as more presence in part-time or temporary jobs, and lower level of hours worked),

we need to impose the assumption that children require time and more time dedicated to child care implies less working time. Thus, we assume that daughters or sons above 30 years old will not need parents' time.

For each analysis, we will focus on one specific quarter of a year and different eligible populations, depending on its fertility situation and its region of residence, according to the aim of the study. Our contribution and main novelty of this study is to evaluate those differences among females and males that live together so we can test if the labor adjustment when they become parents is asymmetric.

To be able to include each individual in one of the two sub-samples, first we must classify them into seven categories, as we can observe in **Table 1**.

Table 1: Classification of the individuals within the target population.

	Gender		Total
	Male	Female	
Singles living with their parents	7,977	4,778	12,755
Singles living with others	736	448	1,184
Singles (One-person family)	1,632	769	2,401
Couples with no children	2,451	2,077	4,528
With children younger than 5 years old	4,855	4,838	9,693
With children between 5 years old and 15 years old	7,709	7,887	15,596
With children older than 15 years old	6,504	7,622	14,126
Total	31,864	28,419	60,283

The target population for the whole sample, not taking into account the division in sub-samples, are individuals during the working-age span of 16 to 60 years old. Another characteristic that both sub-samples shares is that we only take into account those heterosexual couples because, as we have already mentioned, we need to compare if those employment differences are affected by gender⁵. Another restriction that the sample has to fulfill is that students cannot be included if they belong to the inactive population so, we only include all those individuals that are studying at the same time that works. In this way, we can avoid the inactivity associated with students. After excluding those cases, the final selected sample size covers 60,283 individuals. After weighting the sample, those observations represent 19,103,994 individuals for the second quarter of 2019.

We find that there are remarkable differences between the number of females and males in categories such as *Singles living with their parents*, *Singles living with others* and

⁵It would be interesting to test differences comparing those women into a heterosexual relationship with those into a same-sex one, but this is not the aim of this paper. Also, the number of observations is not enough to run those estimations.

Singles (One-person family). After exploring those differences, we have concluded that first, it is due to the five years old difference between females and males. Secondly, we have removed all those students that were also inactive, who were more females than males. Finally, there are more females with children but do not cohabit with their partners, so we cannot include them in any category: they are singles mothers⁶. Besides, we find that the *Singles living with others* group can be underrepresented because, in most cases, the candidates to be in this type of household are students. The SLFS is based on census data⁷ so, students living on sharing flats are not included in this sample unless they would change their residence while they are studying in a different place than the regular one, which is an unlikely situation.

3.2 Methodology

Once we have presented the Spanish labor market situation in the second quarter of 2019 and, after finding the differences by gender within both sub-samples, we can proceed to quantify those relations. Although our approach is not longitudinal it is based on cross-sectional data, we can identify the differences in the employment patterns by gender. We use multivariate analyzes to look at those gender differences by estimating binary choice models for a number of job attributes. We estimate probit models for the probabilities of being employed, working part-time, holding a temporary contract and, working less than 35 hours per week, controlling for several individuals, household, and job characteristics. However, we also estimate the probability of being employed using a multinomial probit model where the dependent variable takes three possible outcomes: being employed, being unemployed, and being inactive. We conclude that it only helps to understand where do those women go when they are not employed, which is to the inactive population.

Using Maximum Likelihood to fit the estimation of the probit models,

$$p_i = \begin{cases} Pr(y_i = 1|\mathbf{x}_i) & \text{if } y_i=1 \text{ is observed} \\ Pr(y_i = 0|\mathbf{x}_i = 1) = 1 - Pr(y_i = 1|\mathbf{x}_i) & \text{if } y_i=0 \text{ is observed,} \end{cases} \quad (1)$$

where

$$Pr(y_i = 1|\mathbf{x}_i) = F(\mathbf{x}_i'\beta) \quad (2)$$

and F is the normal *cdf* for the probit model

⁶Specifically, there are 5224 single parents in the sample of which 3899 are single mothers.

⁷The SLFS survey proceeds as two-stage sampling units: Primary sampling units (PSU) compounded by census sections and, Secondary sampling units (SSU) which is composed by residential dwellings.

$$F(\epsilon) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\epsilon} e^{-\frac{t^2}{2}} dt$$

Since binary regressions models are not linear, we cannot interpret directly the coefficients obtained from the estimations because they will not describe the relation between a variable and the outcome probability. We decide to show the results through discrete changes, which in our case means how much changes the predicted probability by changes from 0 to 1 for dummy variables, holding all the covariates constant, which can be also called *marginal effects*⁸, and that is define as:

$$\frac{\Delta Pr(y_i = 1|\mathbf{x}_i)}{\Delta x_{k,i}} = Pr(y_i = 1|\mathbf{x}_i, x_{k,i} = 1) - Pr(y_i = 1|\mathbf{x}_i, x_{k,i} = 0) \quad (3)$$

Below, we proceed to detail the estimations:

- **Being employed:** We will estimate this probability separately for both subsamples. We included here as *employed* all those self-employed, entrepreneurs and employees. We will control for gender, the interaction of gender and couple, and also, the interaction of gender and children⁹, and the vector of socio-demographic covariates includes nationality, age group, level of education and, the region of residence.

$$Pr(Employed_i = 1) = F(\beta_0 + \beta_1 Female_i + \beta_2 Couple_i + \beta_3 Female_i \cdot Couple_i + \alpha' \mathbf{Socio-demographic}_i) \quad (4)$$

$$Pr(Employed_i = 1) = F(\beta_0 + \beta_1 Female_i + \beta_2 Children_i + \beta_3 Female_i \cdot Children_i + \alpha' \mathbf{Socio-demographic}_i) \quad (5)$$

We must say something about the variables included in the equations. In particular, it is very likely that the individual's decision to participate in the labor market is influenced by the individual's probability of being in the labor market and by her or his personal characteristics. The sets of variables included in the first equation, which estimates the probability of being employed, reflect individual characteristics such as age, nationality, educational attainment, and information concerning child status.

Following Heckman [12], we will apply a two-step estimation procedure to control for the non-random probability of working. We use this type of double hurdle model

⁸We are referring to *marginal effect* to the discrete change instead of the common use of partial change.

⁹Couple means that the individuals are cohabiting with her/his partner and children means that the individual is mother or father. We will not take into account children's years old in these regressions because we have restricted the age up to 30 years old.

because we assume that some of the covariates that affect the probability of working under the job attributes we want to analyze could have also affected the probability of being employed. Thus, we are running two models to estimate each labor output. The first model corresponds to the first step of Heckman and, it will be a choice or selection model, estimated using **Equation (2)**. This will take into account how individuals select (positively or negatively) into employment, called *sample selection*. From this estimation, we will use the prediction of the probability of being *salaried worker*¹⁰, which will be incorporated into the second model as an independent variable.

$$\begin{aligned} Pr(\text{Salaried worker}_i = 1) = F(\beta_0 + \beta_1 \text{Female}_i + \beta_2 \text{Children}_i + \beta_3 \text{Female}_i \cdot \text{Children}_i \\ + \alpha' \text{Socio-demographic}_i) \end{aligned} \quad (6)$$

The second model will estimate the probability of working part-time, holding a temporary contract, and working less than 35 hours per week, including the predicted probability of being employed. Following this procedure, we correct the estimation for sample selection, based on Heckman's two-step consistent estimator. This sample correction takes care of the fact that working part-time or with a temporary contract, for example, differs across educational and occupational groups. With the significant differences in employment rates among educated individuals, the results of those outcomes could be distorted if we have not taken into account the apparent heterogeneity of the labor supply by gender and by personal status (*unpartnered individuals* versus *partnered ones* and, *childless individuals* versus *those with children*).

- **Working with a temporary contract:** We estimate the likelihood of working with a temporary contract only for the second sub-sample, dividing them in two (*Childless couples and couples with children*). This model is controlled by all the characteristics mentioned above and also for some related to their **job attributes** like occupational category, sector of activity, and the probability of being a salaried worker.

$$\begin{aligned} Pr(\text{Temporary contract}_i = 1) = F(\beta_0 + \beta_1 \text{Female}_i + \beta_2 \text{Children}_i + \\ \beta_3 \text{Female}_i \cdot \text{Children}_i + \beta_4 \widehat{Pr}(\text{Salaried worker}_i = 1) + \alpha' \text{Socio-demographic}_i + \\ \gamma' \text{Job attributes}_i) \end{aligned} \quad (7)$$

- **Working part-time:** We estimate the probability of having a part-time job as we have just done in **Equation (7)** but, in this case, we also control for the type of

¹⁰We do not include the estimated probability of being employed due to the structure of the SLFS survey. They obtain the information related to work schedules, type of contract and, hours worked from salaried workers only.

contract. We estimate this labor outcome among couples to obtain the relation of having children and working part-time.

$$\begin{aligned} Pr(\textit{Working part-time}_i = 1) = F(\beta_0 + \beta_1\textit{Female}_i + \beta_2\textit{Children}_i + \\ \beta_3\textit{Female}_i \cdot \textit{Children}_i + \beta_4\widehat{Pr}(\textit{Salaried worker}_i = 1) + \beta_5\textit{Type of contract}_i + \\ \alpha'\textit{Socio-demographic}_i + \gamma'\textit{Job attributes}_i) \end{aligned} \quad (8)$$

- **Working less than 35 hours per week:** We choose to control for the same characteristics that we use to estimate the probability of working part-time, focusing on those individuals within *Childless couples and couples with children* categories.

$$\begin{aligned} Pr(\textit{Working less than 35 hours/week}_i = 1) = F(\beta_0 + \beta_1\textit{Female}_i + \beta_2\textit{Children}_i + \\ \beta_3\textit{Female}_i \cdot \textit{Children}_i + \beta_4\widehat{Pr}(\textit{Salaried worker}_i = 1) + \\ \beta_5\textit{Type of contract}_i + \alpha'\textit{Socio-demographic}_i + \gamma'\textit{Job attributes}_i) \end{aligned} \quad (9)$$

Regarding the estimations of the probability of having a temporary contract, working part-time, and working less than 35 weekly hours, other explanatory variables are also included in the empirical estimation, such type of contract, occupational level, and sector of activity. Besides, some regional dummies have been included to capture location changes concerning our four dependent variables. Despite their low explanatory power, they have been included in the final estimation.

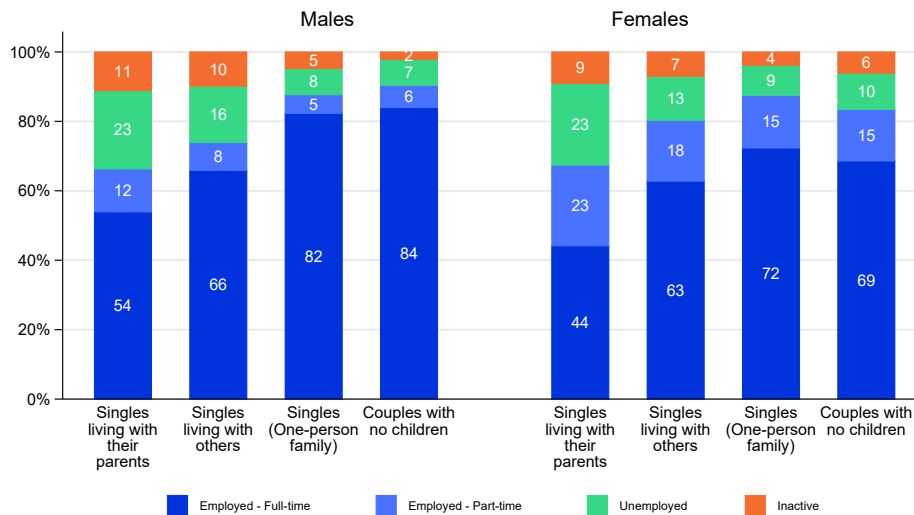
4 Descriptive findings

This section presents some of the main findings that describe the Spanish labor market situation from a gender perspective. As a European country, Spain participates in the current convergence of employment rates between males and females with the others OECD members. Nevertheless, gender inequality in terms of the level of employment is still present.

As we can observe in **Figure 3**, when individuals have not yet emancipated, their level of employment is low and highly related to partial time jobs which can result due to demand market restrictions (for example, labor experience) or supply preferences, since maybe young individuals want to earn less because they have no expenses and they prefer having free time. Women are more associated with part-time jobs since the beginning of their labor careers. Once emancipation occurs, and both individuals move towards more economic independence, they participate more in the labor market. Until cohabitation, we cannot observe gender gaps in the employment rates among individuals, although there

are gender differences related to part-time jobs. On the contrary, women participate more than men, and also they show lower levels of inactivity with the absence of family commitments.

Figure 3: Couple and labor situation by gender



Source: Spanish Labor Force Survey (Second quarter, 2019) - Own elaboration in Stata 14.0

Anxo *et al.* (2011) [4] stated that cohabitation for women of all ages means a heavy burden in terms of *unpaid* work. However, we cannot find such a negative relation between cohabitation and employment rates in our target population. In the case of women, they are 3 percentage points (p.p.) less allocated on full-time jobs compared to those females *one-person family*, but they have the same participation in part-time jobs. For males, the relationship between cohabitation and employment is not significantly higher than that of single males.

It is important to remark that part-time work schedules are a matter of women, whether they cohabit with their partner or not. There are 12.8 points more females than males declaring that they work part-time because *they do not find a full-time work*¹¹. They belong to that 59.12% who work part-time involuntary, forced by the labor market conditions. The second most declared reason, among those *singles* and *childless couples*, is *follow teaching or training courses*. Also, part-time jobs are more likely to be perceived as involuntary by women in the South than in northern Europe [7].

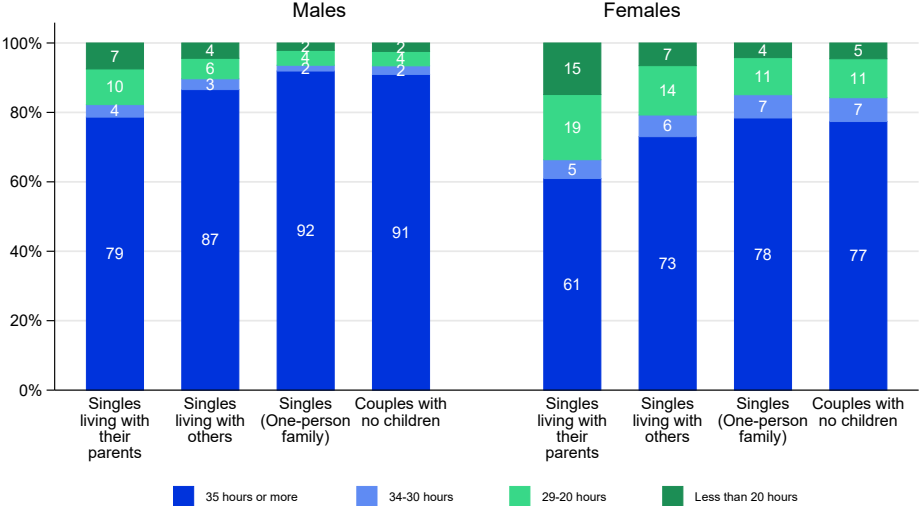
Being a woman is also associated with a lower level of hours worked¹² compared to

¹¹SLFS survey asks all those individuals who work within a part-time work scheme the reasons of having that type of working day.

¹²We have used as hours worked all those hours reported by employees that SLFS references as *hours worked by contract*. We will not be taking into account all those hours worked by self-employed, entrepreneurs, etc.

males with the same household situation. As we can observe in **Figure 4**, among those *Singles (One-person family)*, only 78% of those female employees work more than 35 hours/week whereas in the case of males they reach a 92%. Thus, we have proved the existence of a gender gap in weekly hours worked close to 14 p.p. that keeps almost unchanged when they are childless couples.

Figure 4: Couple and weekly hours worked by gender



Source: *Spanish Labor Force Survey (SLFS) - Own elaboration in Stata 14.0*

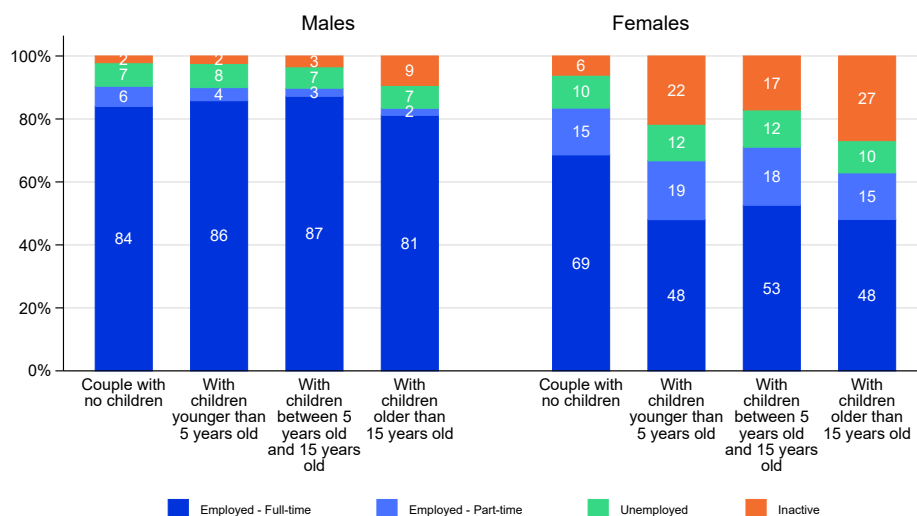
That penalty will be an obstacle in the females’ labor life because they will have to work against those differences when, perhaps, they decide to have a child, which it will be per se a penalty in their careers. This gap in hours worked will be closely related to the persistence of the gender pay gap.

We have already analyzed which are the main differences by gender depending on their household situation, from those who are not already emancipated to those that are cohabiting with their partners. However, we can also analyze what happens with those who have decided to have children. Is there any difference in their labor situation comparing to those who have not? Furthermore, do there exist gender gap among those that are already parents?

As we have mentioned, parenthood does have effects on employment levels. In the same manner, it is also proved by early literature that mothers adjust more their labor supply than their male counterparts. In this part of the section, we analyze the differences among those partnered cohabitant individuals depending on their fertility status (*childless individuals* or *parents*), again from a gender point of view.

When both individuals cohabit together, women participate 6 points less than men,

Figure 5: Children and labor situation by gender



Source: *Spanish Labor Force Survey (SLFS) - Own elaboration in Stata 14.0*

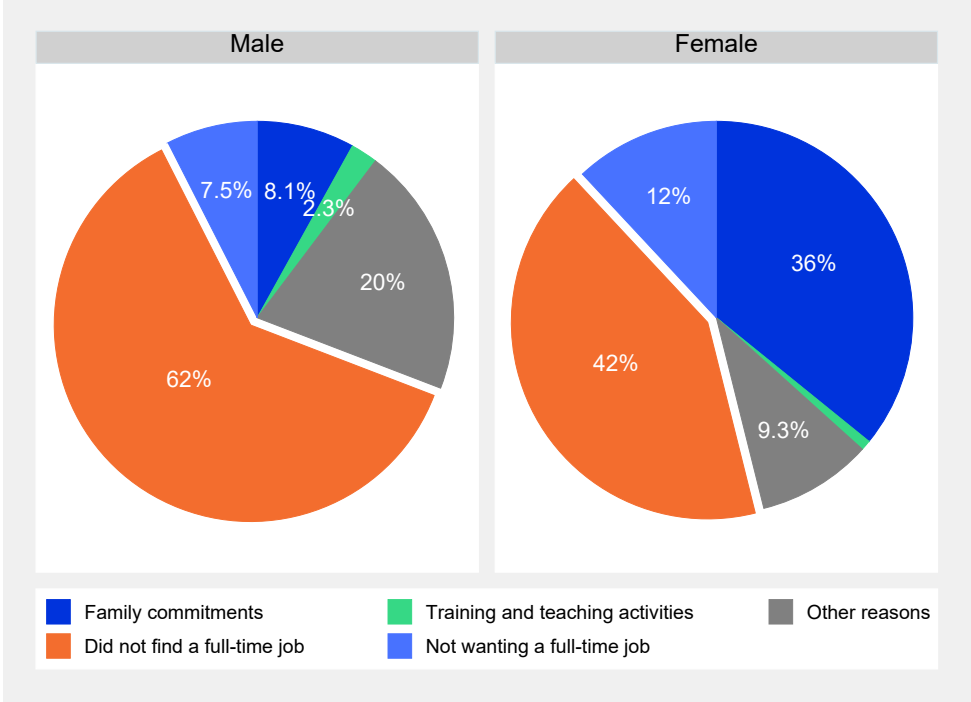
as shown in the figure above. When they are also parents, the gender employment gap becomes more extensive, from 6 to 23 points. In the case of males, having children has no relation either with drops in the labor market participation or lower employment rates. However, becoming parents means that the time must be shared among one activity more, in this case, related to *unpaid* work. For women, we also have to take into account a crucial moment that pauses their labor careers if they were workers: the childbirth. The negative relation between fertility and females labor supply was theoretically established by Becker and Lewis (1973) [6] and empirically documented by Mincer (1985) [18], among other authors. Our results are also consistent with the literature, and we find this negative relation on the SLFS data of 2019, as we can see in **Figure 4**. Those women with children participate 17 points less than those childless so, this supports the existence of a *motherhood penalty*¹³ in terms of employment level comparing to those childless women. Part-time schedules are prevalent among those women with children as an instrument to conciliate family and work. From 67% of mothers who participate in the labor market, only 72% will do it through a full-time schedule. This correlation has been changing over time, and changes in social norms related to *working mothers* and against the stereotype of *stay at home mums* have improved it.

Although the decision to have children is assumed to be equally distributed among parents, the decision of reconciliation is not. Family commitments are the main factor by

¹³Term coined by sociologists who argued that mothers are penalized, systematically, in pay, perceived competence and, benefits relative to childless women in their workplace.

which women are over-represented in part-time jobs and reduce working hours. **Figure 6** indicates that 42% of women are *involuntary* part-time workers, and 36% have declared that they are not working full-time because of *caring* activities¹⁴.

Figure 6: Reasons of holding a part-time job among couples



Source: Spanish Labor Force Survey (SLFS) - Own elaboration in Stata 14.0

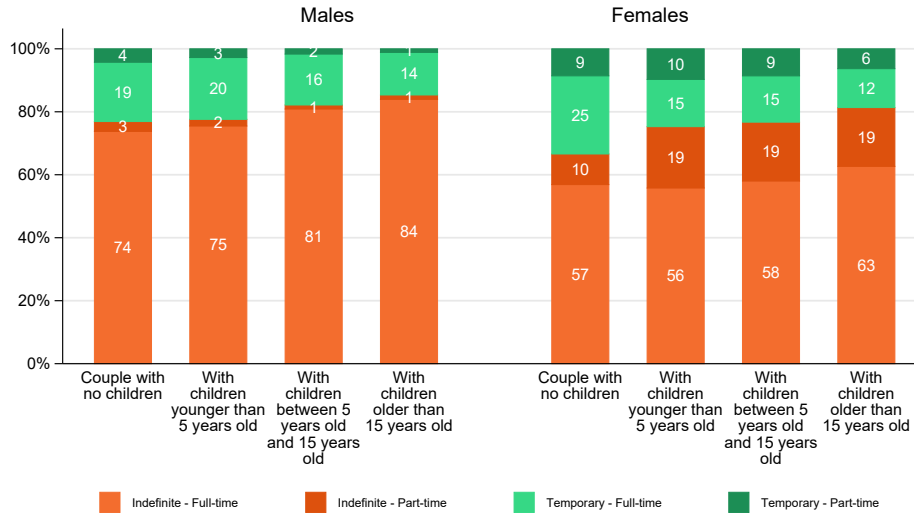
Also, with the arrival of children, many of them leave their jobs, becoming inactive population. Related to this, we have to remark that the inactivity level of those women with children is much higher compared with the rest of the categories. As children become teenagers, women increase their participation level, trying to recover all the proportion that they have just lost. This is a challenging process, and only 5 p.p. of women go back to employment compared to those who have younger kids. This cohort’s age explains the level of inactivity of women with children older than 15 years old. The median women of this cohort were born in the year 1967, where discriminating gender norms and culture assumed as incompatible the role of mother and worker.

When the individuals are neither cohabiting nor having children, the differences in terms of employment level are negligible. We have shown in **Figure 3** that *Singles living with their parents, with others* or a *One-person family* are not related to a lower level of employment whether they are females or males, but partial-time jobs and temporary contracts are a matter of women, with differences that are around 10 points with respect

¹⁴This includes caring sick, disabled, elderly children and/or adults

to males. Among unpartnered individuals, 5.7% of employed males are working part-time while the same situation for females increases up to 17.2%.

Figure 7: Children, work schedule and type of contract by gender



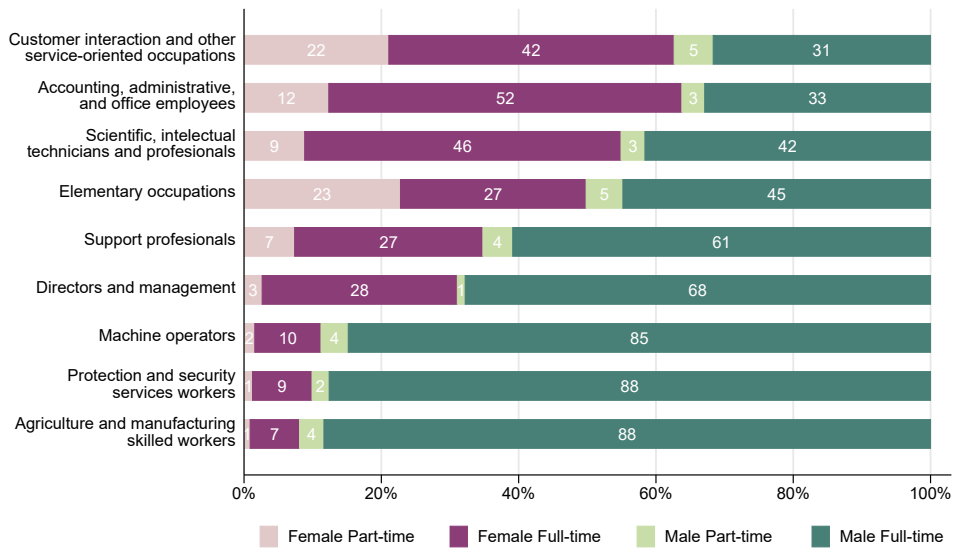
Source: *Spanish Labor Force Survey (SLFS) - Own elaboration in Stata 14.0*

Having children is negatively related to the level of temporary and part-time contracts that males held, so we cannot observe any adjustment in their labor supply when they become fathers. Therefore, women are more exposed than men to job insecurity since the beginning of their labor careers, as we can observe in **Figure 7**, with presence in part-time jobs through both, indefinite and temporary contracts. The type of contract is one of the significant factors that determine job quality [8]. Some authors have suggested that part-time and temporary work serves as a transition out mechanism from unemployment to a regular job in the future. Nevertheless, in Spain, temporary employment seems not to be so 'temporary', representing an obstacle to reach permanent jobs, leaving workers with low prospects of improvement in their career paths [22]. Temporary contracts mean uncertainty to workers, and this labor incertitude is more related to young people and with women.

Looking deeper into these differences that seem to be attached to women, we find that it could be related to *occupational gender-based segregation*. All the occupations are presented in **Figure 8**, desegregated in 9 *high-level aggregations*¹⁵. We can identify those *gendered occupations*, which are the ones that most people relate to females or males.

¹⁵It have been made by aggregation of the corresponding 1-digit occupations, based on the classification of occupations, CNO11. We have also used to support the *Standard Occupational Classification and Coding Structure* done by the U.S. Bureau of Labor Statistics. See more details: https://www.bls.gov/soc/soc_2010_class_and_coding_structure.pdf

Figure 8: Occupational sex segregation, work schedule and gender



Source: *Spanish Labor Force Survey (SLFS) - Own elaboration in Stata 14.0*

Analyzing all individuals who belong to the target population from both sub-samples, we can clearly observe an asymmetry in the distribution by occupations that are concerned with *sex segregation*. We denote by "gender-dominated" occupations, following Anker (1998) [2], as those occupations were, at least, 80% of workers are either women or men. Another way to determine them is to include all those occupations where females' presence is lower than their participation in the labor force. 47% of the workers in our sample and target population are females. So, it can be the case that, in a hypothetical situation with no occupational segregation, we might expect about 47% of workers in every occupation to be women¹⁶.

It can be determined as *male-dominated* occupation *agriculture and manufacturing skilled workers, protection and security services, and machine operators*. In the same way, we can say that *customer interaction and other service-oriented occupations and accounting, administrative and office employees* are *female-dominated* occupations. We can also distinguish gender inequality in the distribution of workers by sector of activity, also called *sectorial gender segregation* (see **Figure A.4**). This shows us that we must take into account the actual differences by gender in the Spanish labor market, to be able to obtain consistent results. This fact is crucial for being related to the females' career and promotion path, also called *pipeline problems*¹⁷. Wolfinger, Manson, and Goulden

¹⁶See more details: https://inequality.stanford.edu/sites/default/files/Pathways_SOTU_2018_occupational-segregation.pdf

¹⁷The pipeline theory suggests that increasing the number of women in *male-dominated* fields should lead to more equality in the labor market.

(2007) [16] found that marriage and children adversely affect the likelihood that women obtain tenure-track positions in Academia. Nevertheless, this also happens in other sectors where promotion is needed to obtain better job conditions through increments in salary, participating in training programs, increasing health insurance coverage, etc. This has nothing to do with educational heterogeneity since it has been tested that women have higher levels of education than their male counterparts.

Although public sector jobs help women's employability, it increases at the same time the level of *occupational sex segregation* [17]. In Spain, jobs in the public sector are well remunerated, and they offer the possibility to reduce working hours. One drawback of this could be the under-representation of women in other sectors. On the other side, although the expansion of the service sector has benefited women by providing increased job opportunities [13], it is a sector with a high incidence of job insecurity in Spain (part-time work schedules and high level of temporary contracts).

An important remark is that work schedules are highly related to the type of sector in which the individual works. We cannot declare any causal relationship but, which is a fact is that part-time schedules do not appear on *male-dominated* industries, whether they are highly related to those *female-dominated*. Furthermore, as Anker *et al.* (2003) [3] states, *occupational sex segregation* harms the efficiency and flexibility of the labor markets so, its consequences go further the gender inequality in the labor markets.

5 Estimation results

Before presenting the results of the estimations that we have proposed in **Section 3**, we will clarify what we can find in those estimations and how we will analyze those results. First, to estimate the relationship between cohabitation and the probability of being employed, we work with the first sub-sample of *singles* and *childless couples*. This allows us to address the importance of the couple in the labor situation and its differences by gender. Secondly, to estimate the association between having children and the probability of being employed, having a temporary contract, working part-time and working less than 35 hours per week, we use the second sub-sample of *couples*, with and without children. In this case, we can measure the gender differences within couples, if there exist any, in terms of employment. With these estimations, we can capture how having children can be negatively or positively related to the parents' labor situation.

For an easier interpretation of the coefficients from the probit model, marginal effects are reported. First, we analyze if there is any difference among those individuals without family commitments (in terms of childbearing and nurture) to test our first hypothesis related to cohabiting and being employed by gender. Is cohabitation associated with

different probability of being employed if the individual is female or male? **Table 2** presents the marginal effects of interest from the estimation of **Equation (4)**.

Table 2: Marginal Effects from estimating Equation (4)

	Model 1 Employed
Female (ref. Male)	-0.00683*** (0.000577)
Couple (ref. Single)	0.0572*** (0.000507)
Female and couple (ref. Male and single)	-0.0891*** (0.000938)
Immigrant (ref. native)	-0.0583*** (0.000527)
Age (ref. 35-45 years old)	
Less than 25 years old	-0.0862*** (0.000988)
25-34 years old	0.0143*** (0.000392)
Education (ref. Secondary education)	
Lower than secondary	-0.113*** (0.00111)
Tertiary	0.0791*** (0.000379)
Observations	3,346,713

Note: Regions of residence dummies are also included to control the estimation but they are not reported for the sake of simplicity. Weighted observations. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

The interpretation of the table is reported as follows. Comparing among singles¹⁸ with the same individual and socio-demographic characteristics, females have 5.6 p.p. fewer probabilities of being employed than males. This difference increases when we compare these singles individuals with those who cohabit with their couple. Cohabitation is associated with lower probabilities of being employed only in the case of females, in particular, they are 8.9 p.p. less likely to be employed than their spouses or partners. If we focus on males, those who live with their female couples are more likely to be employed than those unpartnered males.

Thus, we find that before having children, there still exists a *gender gap* on access to jobs where a woman, regardless if they are singles or not, with the same characteristics than a man is less likely to be employed, controlling for individual's nationality, age, educational level, and region of residence. Hence, it is crucial to compare individuals who live with their partners and test if gender plays a role in the differences in employment patterns.

¹⁸Singles include all those individuals *living with parents, with others or one-person family*.

When both individuals decide to be parents, both change the time devoted to work. As Anxo *et al.* (2011) [4] analyzed, the prevalence of gender norms may affect gender differences. According to those social norms, culture, and stereotype roles, they found that work activity can be seen for men as an instrument to exercise their role as *providers* and for women as a means to fulfill their role as family *caregivers*. Males increase their *paid* work, whereas females decrease it at the expense of increasing their *unpaid* work so, the difference resides on how they adjust their labor supply. While men with children present a higher level of employment than those childless partnered ones (as we have shown in **Figure 4**), the presence of *working mothers* falls 17 points in the same situation.

Regarding the relation between parenthood and changes in the probabilities of being employed and working under certain labor conditions among both individuals of the couple, we find that there are differences if the individual is female or male. The results concerning to column [1] on **Table 3** proved that being a father is not associated to changes in the probability of being employed (the variable representing this comparison is *Children* which is not statistically different from zero) whereas being a mother is related to a decrease of 11.4 p.p in the probability of being employed compared to those males with children, once we have controlled by individual and socio-demographic. It is important to remark on the importance of education on the probability of being a worker. Individuals with the highest educational attainment levels are 13.3 p.p. more likely to be employed than those with medium and low levels.

Age is also an important factor, and we find that individuals with ages ranging from 30 to 45 years old are more likely to be employed over the youngest and oldest age cohorts. Nevertheless, gender holds women back, and *gender gap* in employment remains significant controlling for nationality, age, and education. Therefore, we have shown the existence of gender differences in employment rates among couples, whether they have children or not. Now, we are interested in how individuals perform in the labor market once they have gotten into the labor force when both are parents.

Women are more related to temporary contracts, part-time work schedules and reduce working hours which are defined as *irregular* or *atypical jobs*¹⁹. We have seen in **Figure 2** that having children is negatively related to the weekly hours worked, only for mothers, not for fathers. Although women achieve entering in the employment, they do it under less stable labor conditions, increasing their presence in part-time jobs when they are mothers. Even though there are differences by gender in the type of contract both individuals hold, we find more women with children working with indefinite contracts than childless ones (see **Figure A.3**).

Therefore, we quantify this relation in column [2] on **Table 3** where we are also

¹⁹Irregular or *atypical jobs* usually include part-time, temporary and casual jobs [19]

controlling for the probability of being salaried worker²⁰.

Table 3: Marginal Effects from estimating Equations (5), (7), (8), and (9)

	Model 2 Employed	Model 3 Temporary	Model 4 Part-time	Model 5 Less than 35 hours/week
Female (ref. Male)	-0.105*** (0.000666)	0.0680*** (0.000748)	0.0604*** (0.000575)	0.0639*** (0.000647)
Children (ref. Without children)	0.000341 (0.000548)	-0.0243*** (0.000554)	-0.0512*** (0.000550)	-0.0469*** (0.000585)
Female and children (ref. Male without children)	-0.114*** (0.000737)	-0.0820*** (0.000841)	0.0860*** (0.000775)	0.0713*** (0.000828)
Immigrant (ref. Native)	-0.131*** (0.000382)	0.0545*** (0.000777)	-0.00409*** (0.000511)	-0.0209*** (0.000534)
Age (ref. 46-60 years old)				
Less than 29 years old	-0.0224*** (0.000527)	0.242*** (0.000877)	0.0389*** (0.000549)	0.0575*** (0.000653)
30-45 years old	0.0665*** (0.000239)	0.112*** (0.000421)	0.0412*** (0.000327)	0.0617*** (0.000364)
Education (ref. Secondary education)				
Lower than secondary	-0.169*** (0.000535)	-0.00442*** (0.000951)	-0.0407*** (0.000495)	-0.0656*** (0.000506)
Tertiary	0.133*** (0.000214)	0.0131*** (0.000727)	0.00982*** (0.000574)	0.0420*** (0.000673)
Temporary job (ref. Indefinite)			0.0831*** (0.000300)	0.0877*** (0.000335)
Occupations (ref. Pink collar)				
White collar		-0.0604*** (0.000733)	-0.0648*** (0.000326)	-0.0907*** (0.000347)
Blue collar		0.125*** (0.000425)	0.0172*** (0.000266)	0.0152*** (0.000311)
Grey collar		-0.115*** (0.000524)	-0.0524*** (0.000484)	-0.0559*** (0.000586)
Gold collar		-0.0209*** (0.000423)	-0.0284*** (0.000262)	-0.0379*** (0.000305)
Sector of activity (ref. Primary)				
Services		-0.170*** (0.000703)	0.112*** (0.000680)	0.129*** (0.000791)
Industry		-0.171*** (0.000410)	-0.00665*** (0.000673)	-0.00977*** (0.000793)
Construction		-0.0274*** (0.000749)	0.0516*** (0.00105)	0.0413*** (0.00112)
Public Sector (Education, Health, etc)		-0.0282*** (0.000736)	0.0774*** (0.000872)	0.112*** (0.00103)
Probability of being salaried worker		-0.375*** (0.00413)	-0.236*** (0.00309)	0.0316*** (0.00102)
Observations	13,482,918	8,825,174	8,825,174	8,652,114

Note: Regions of residence dummies are also included to control the estimation but they are not reported for the sake of simplicity. Weighted observations. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

If they have children, both individuals of the couple have less probability of having a temporary contract compared to those who have not. In particular, while partnered

²⁰See more details in **Section 3.2**.

females without children are 6.8 p.p. more likely to have a temporary contract than their male counterparts, females with children have 8.2 p.p. fewer probabilities of holding a temporary contract than their partners. This may seem consistent with the related literature. Among workers with children, significant gender differences in the incidence of temporary work are detected only for Belgium and Ireland (see Boeri *et al.* 2005 [7]). Women’s likelihood of entering employment is lower than their partner’s ones, and, when they have entered, they have more chances to have a temporary contract.

Nevertheless, the situation changes with the arrival of children because parents would have to adjust their labor supply. The underlying reason can be that women with more stable job conditions have higher opportunity costs of leaving employment. This supports the fact that women in occupations or sectors with more part-time levels and lower salaries, will be the ones who leave the labor force in order to take care of children. As mothers participate less in the labor market than childless women, when they decide to work, they do it through better positions, which explains that they have more probabilities comparing to their partners to have an indefinite contract.

Given the results mentioned above, we estimate the magnitude of the gender differences in the other form of *atypical jobs*: part-time schedules. In this estimation displays in column [3] on **Table 3**, we also control for the type of contract so, we take into account if temporary contracts typically cover part-time jobs. The results indicate that, although both individuals of the couple have similar characteristics and no children, she has 6.8 points more probabilities of working part-time than her spouse or partner, with the arrival of a child, this gender difference increases. When they are parents, the mother is 8.6 p.p. more likely to work part-time than the father. This result corroborates that women change their labor supply when they become mothers to reconcile with family and household tasks. This trade-off between *paid* work in favor of *unpaid* work will negatively affect their labor careers in terms of promotion, salary complements, and additional remuneration, making the *gender pay gap* wider. The consequences behind this cannot be either by occupational differences or sector of activity because we are controlling for them, which is important due to *occupational gender-based* segregation and job segregation by sector of activity, as we have shown in **Section 4**. Women’s work is overwhelmed concentrated in *pink-collar* occupations such as cleaners, secretaries, clerks, nurses, teachers, waiters, and textile workers, among others. Individuals working in those occupations have more probabilities of working part-time. The same applies to the service and public sector. Individuals working in those sectors are more likely to work with less stable labor conditions, in terms of temporary and part-time contracts, which means higher job insecurity. Those individuals who work under indefinite contracts have lower probabilities of working part-time.

Column [4] in **Table 3** displays the estimation of the probability of working less than 35 weekly hours. We establish the estimation on a working week of 35 hours to capture the reduced working hours that can be accompanied by parenting. Indeed, regardless of their individual, socio-demographic, and job characteristics, we find that women are more likely to work less than 35 hours per week than their spouses or partners when neither of them has children.

Furthermore, once the individuals are parents, that probability increases in the case of women. If we focus on a couple with children, the mother has 7.1 points more probabilities of working less than 35 hours compared to the father, once successive controls are included. Another striking result in the comparison between parents and gender is the positive relationship between having children and the father's hours worked. They show lower predicted probability to work less than 35 hours per week than those childless men when both of them are living with their female partners.

In the first part of this paper, we present how the hours worked are distributed by gender. **Figure 2** exhibited that only 77% of partnered women work more than 35 hours per week, and this decreases when those women are *working mothers*. As we could see, even when women tried to recover from these hours cut when their children grew up, they could not catch up with their starting level. This negative relation between being a mother and hours worked (devoted to *paid* work) is another form of *child penalty*. It is important to remark that we call by child penalty the observed relationship between having a child and employment, other things equal. Also, we are comparing females and males who live together as a couple, so we can capture those gender differences when both individuals, a priori, have the same family commitments. Therefore, gender is the crucial factor that remains penalizing women's labor supply in terms of weekly hours worked.

6 Extensions

In this section, we work with the SLFS data from the second quarter of 2007 to run the analysis based on the same target population but focused on the relationship between parenthood, employment, and labor conditions, using the second sub-sample of couples, *couples with and without children*. This section aims to compare the results obtained for the SLFS in 2019 with those estimated for 2007. Finally, to link this with possible differences in gender discrimination by regions, we will extend the analysis from a national to a regional level, comparing the two years of interest.

6.1 Temporal perspective

Our findings are consistent with the literature analyzed in gender economics. Women participate less in the labor market, and when they do, they do it under less stable labor conditions. Children aggravate this situation. As we are interested in obtaining significant results that truly reflect the gender differences in the Spanish labor market, controlling for the set of explanatory variables included before, we may extrapolate these results changing the temporal perspective to test if the economic cycle, gender norms, roles, and culture can also be affecting them. Thus, we decide to estimate how gender differences among couples vary if we consider a pre-crisis period like 2007.

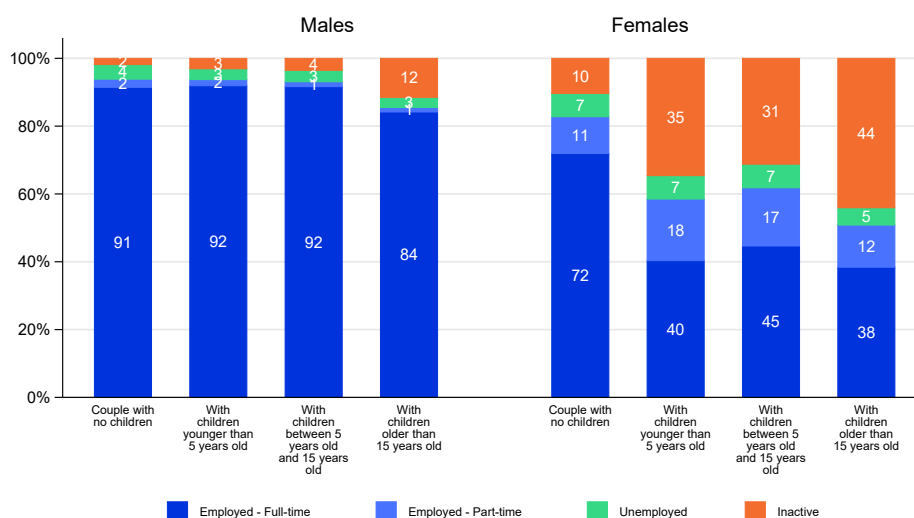
Table 4: Distribution of individuals among the second sub-sample - 2007

	Gender		Total
	Male	Female	
Couples with no children	2,844	2,616	5,452
With children younger than 5 years old	5,931	5,887	11,818
With children between 5 years old and 15 years old	7,986	8,122	16,108
With children older than 15 years old	8,480	9,561	18,041
Total	25,241	26,178	51,419

In this case, we will work with a target population of 51,465 individuals that fulfills the same restrictions for the study's aim, summarized by gender in **Table 4**. After weighting the sample, those observations represent 14,561,199 individuals for the second quarter of 2007. Before quantifying those differences, we will show how was the Spanish labor market situation in 2007. Although we will focus the analysis on the association of having children and changes in labor supply in 2007, we will present briefly the gender differences that women carry out before they become mothers. Levels of full-time work were higher than those obtained after the crisis, in both females and males (see **Figure A.5**). However, in the case of women, they held the majority of part-time jobs. So, even if Spain was in an expansion period, women went back to their *singles living with parents* inactivity level when they live with their partner males, and their employment rates were 7 points lower than those women *one-person* families.

If we introduce the children factor, we can observe in **Figure 9** that motherhood was already associated with very high levels of inactivity. For example, the inactivity rate among mothers of children younger than 15 years old was around 14 points higher than it was 12 years before (see **Figure 4**).

Figure 9: Children and labor situation by gender - Second quarter of 2007



Source: *Spanish Labor Force Survey (SLFS) - Own elaboration in Stata 14.0*

We can differentiate between these levels of inactivity two relations. On the one hand, having children was related to higher inactivity due to norms, culture, or stereotypes, considering that that inactivity did not fit with the economic boom of 2007, where very high employment rates characterized males and childless females' labor supply. On the other hand, age is an important factor in the level of inactivity. The average age of those women with children older than 15 years old is 43 years old. As they were born during the 1960s, they could adopt the role of *stay at home mums*. They presented 17 points more of inactivity than those mothers in 2019.

We estimate those gender differences on the access to employment using **Equation 5** with the data from the second quarter of 2007. In the same way, we apply the two-step procedure that we have shown in **Section 3.2** to quantify those penalties in terms of holding a temporary contract, working part-time, and working less than 35 weekly hours. We control for the same number of covariates²¹ to obtain the differences in employment levels and labor conditions among couples, from a gender perspective.

The results of those estimations are displayed in **Table 5**. Column [1] reveals that having children in 2007 is negatively associated with the probability of being employed but only in women's cases. This means that in a family with children, the woman was less likely to be employed in 2007, compared to their spouses or partners, than they were in 2019.

²¹**Socio-demographic** characteristics, **job attributes**, probability of being salaried worker, and type of contract depending on the estimated model.

Table 5: Marginal Effects from estimating Equations (5), (7), (8), and (9) for the second quarter of 2007

	Model 6 Employed	Model 7 Temporary	Model 8 Part-time	Model 9 Less than 35 hours/week
Female (ref. Male)	-0.177*** (0.000645)	0.0498*** (0.000811)	0.0440*** (0.000483)	0.0499*** (0.000571)
Children (ref. Without children)	0.00458*** (0.000582)	-0.0627*** (0.000577)	-0.00885*** (0.000399)	0.00691*** (0.000439)
Female and children (ref. Male without children)	-0.169*** (0.000747)	-0.0371*** (0.00109)	0.0463*** (0.000770)	0.0252*** (0.000808)
Immigrant (ref. native)	-0.0711*** (0.000388)	0.207*** (0.000591)	-0.0130*** (0.000197)	-0.0101*** (0.000290)
Age (ref. 46-60 years old)				
Less than 29 years old	0.0505*** (0.000379)	0.250*** (0.000839)	0.0290*** (0.000432)	0.0368*** (0.000522)
30-45 years old	0.0784*** (0.000262)	0.126*** (0.000466)	0.0261*** (0.000250)	0.0297*** (0.000304)
Education (ref. Secondary education)				
Lower than secondary	-0.134*** (0.000345)	0.0112*** (0.000714)	-0.00953*** (0.000350)	-0.0168*** (0.000434)
Tertiary	0.124*** (0.000235)	0.0341*** (0.000738)	0.0168*** (0.000426)	0.0591*** (0.000574)
Temporary job (ref. Indefinite)			0.0612*** (0.000235)	0.0717*** (0.000286)
Occupations (ref. Pink collar)				
White collar		-0.109*** (0.000765)	-0.0452*** (0.000157)	-0.0674*** (0.000230)
Blue collar		0.102*** (0.000518)	-0.0520*** (0.000209)	-0.0712*** (0.000276)
Grey collar		-0.151*** (0.000634)	-0.0297*** (0.000398)	-0.0513*** (0.000446)
Gold collar		-0.0619*** (0.000451)	-0.0258*** (0.000169)	-0.0212*** (0.000245)
Sector of activity (ref. Primary)				
Services		-0.144*** (0.000837)	0.00988*** (0.000499)	0.0112*** (0.000694)
Industry		-0.158*** (0.000589)	-0.0238*** (0.000376)	-0.0429*** (0.000510)
Construction		0.0797*** (0.00102)	-0.0353*** (0.000317)	-0.0548*** (0.000441)
Public Sector (Education, Health, etc)		-0.0414*** (0.000871)	-0.0273*** (0.000380)	-0.00699*** (0.000673)
Probability of being salaried worker		-0.457*** (0.00392)	-0.152*** (0.00198)	0.0715*** (0.00100)
Observations	14,561,199	8,821,228	8,821,228	8,416,548

Note: Regions of residence dummies are also included to control the estimation but they are not reported for the sake of simplicity. Weighted observations. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

In particular, they had 16.9 p.p. less probability of working than her partner when both share the same socio-demographic characteristics and family commitments. This alarming

situation reflects that after 12 years, women only have cut off 7 points of *child penalty* on females' participation. In 2019, women were 11.4 points less likely to be employed than their couples when both individuals have children, controlling for individual, socio-demographic, and job characteristics.

In terms of having part-time jobs and hours worked, child penalties were already on the Spanish labor market, which worsened over time. While in 2007 women with children were 4.6 p.p. more likely to have a part-time job than their couples, in 2019 this increases 4 points more, which can be obtained by comparing the coefficient of *Children* in column [3] from **Table 3** and **Table 5** (in both cases, the coefficient is statistically different from zero). Another striking result was found looking into the evolution of the hours worked. Women had lower performance in terms of hours devoted to *paid* work than their partners when both have family commitments. In 2007, females were 2.5 p.p. more likely to work less than 35 hours per week, which increased 5 points in 2019.

Therefore, the main conclusion reached concerning those differences between males' and females' labor situation over time is that, after 12 years, *gender gaps* persist in the Spanish labor market. Besides, we observe that the *gender gap* is lower in terms of access to employment and more related to norms and culture, whereas differences by gender in the participation on part-time jobs and hours worked are lower and more associated with the economic cycle.

6.2 Regional perspective

We turn now to the gender employment gap discussed in the previous sections, but this time we will compare over the Spanish regions. This can be an indicator of the relative performance of women in the different regional labor markets. We address this issue from a static overview across them, and then we will analyze how the situation has changed in the last 12 years, comparing the regional results obtained in 2007 with those in 2019.

There are substantial differences across regions, as it is shown in **Figure 10**. It has been analyzed the spatial distribution of the unemployment levels, regional disparities, and persistence.

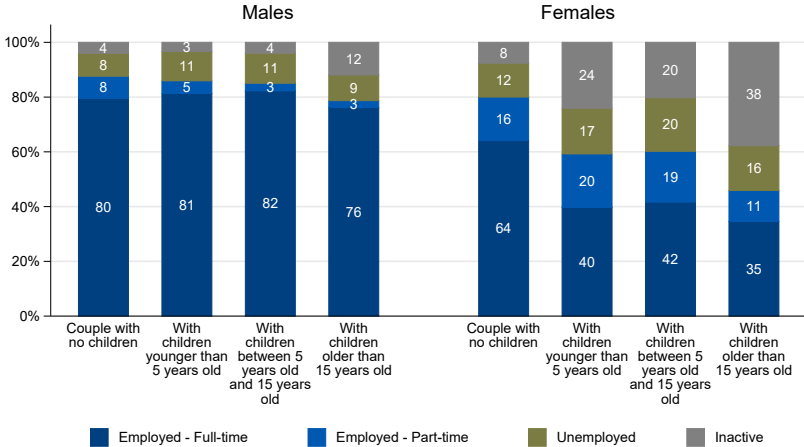
To investigate this issue further from a gender perspective, we will present the labor market situation of two different regions²²: Andalusia and Basque Country. Even though both economies are very different in terms of unemployment rates, the *gender gap* in the employment levels is still present in each of them. This reveals that women with children are associated with lowering employment rates than those childless, whether they allocate

²²We have analyzed in the same way the other 15 Autonomous Communities, and we have excluded the 2 Autonomous Cities of Ceuta and Melilla, for not having enough observations. See more details: **Appendix A.1 - Figures A.7 to Figure A.21**.

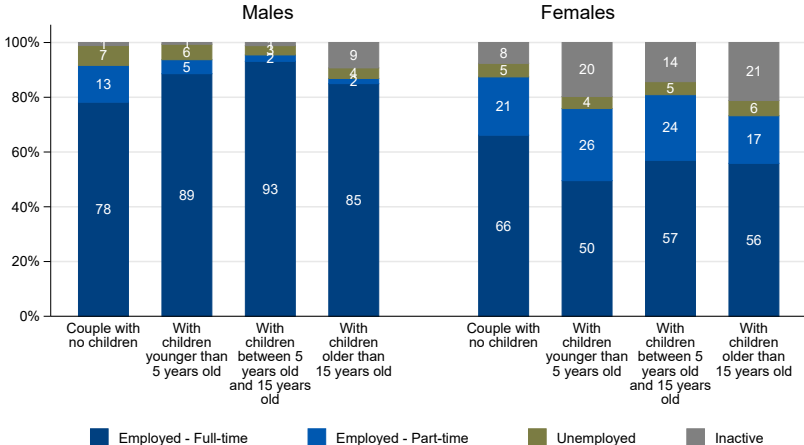
in a high-performance regional economy, which is the case of the Basque Country, or in a low one like Andalusia. Moreover, males' labor situation is related to an improvement in their occupational levels when they become fathers.

The case of Andalusia is somewhat surprising, as we can observe in **Figure 10a**. Although the Spanish economy was booming, in Andalusia, women's labor situation was characterized by very high levels of inactivity and unemployment. This can support the importance of social norms, traditional roles, and stereotypes related to the inactivity level among women.

Figure 10: Children and labor situation - Regional disparities



(a) Andalusia



(b) Basque Country

Source: Spanish Labor Force Survey (SLFS) - Own elaboration in Stata 14.0

As Ortals (2010) [20] states, in the late 1970s, the daily reality of women in Andalusia was rife with illiteracy and unemployment and was centered on their marriages. The

average female’s age represented in **Figure 10a** is 43 years old, which means that their labor force participation can be closely related to their mother’s roles [11].

Undoubtedly, there exists gender employment gap across all the regions, and part-time is highly related to women, as we can observe in **Figures A.7** until **Figure A.21**. However, we can see clearly some different patterns in, for example, the case of Navarre²³. The *motherhood penalty*, which is the difference in the employment levels of childless women compared to mothers, is more pronounced due to the starting point of the *childless* women: all those women in the Navarre’s sub-sample are employed, which reveals that having children is positively associated to inactivity and unemployment. This is also important in terms of working part-time. Only 13% of childless women were working part-time whereas, after having children, this number doubles.

To understand the forces that lie behind those regional disparities, we quantify *child penalties* in the access to employment by gender among couples for each of the Spanish Autonomous Communities, applying the same methodology, and controlling for the same covariates²⁴ (See **Section 3.2**). For simplicity, we present the main results of the estimations in a graph to better compare the results obtained for the two years of interest.

We select the coefficients that represent the difference of the relationship between having children and the access to the employment for mothers with the same relation for their spouses or partners in terms of probabilities among regions, and we plot them in **Figure 11**. When this coefficient is negative, and both individuals of the couple are also parents, the probability of being employed of the woman is lower compared to those of her husband or partner, when they share similar socio-demographic characteristics as nationality, age, and educational attainment.

In general, it is striking that gender differences have declined due to the probability of being employed among parents over time and regions. If we focus, for example, in the case of Basque Country, we obtain that women are less likely to be employed compared with their spouses or partner when both are parents, and these gender differences were higher in 2007. Only Cantabria and Navarre presents equal opportunities for accessing the labor market among couples, whether the individual is mother or father. Those coefficients were no statistically different from zero, which means that having children is not related to differences in employment levels by gender.

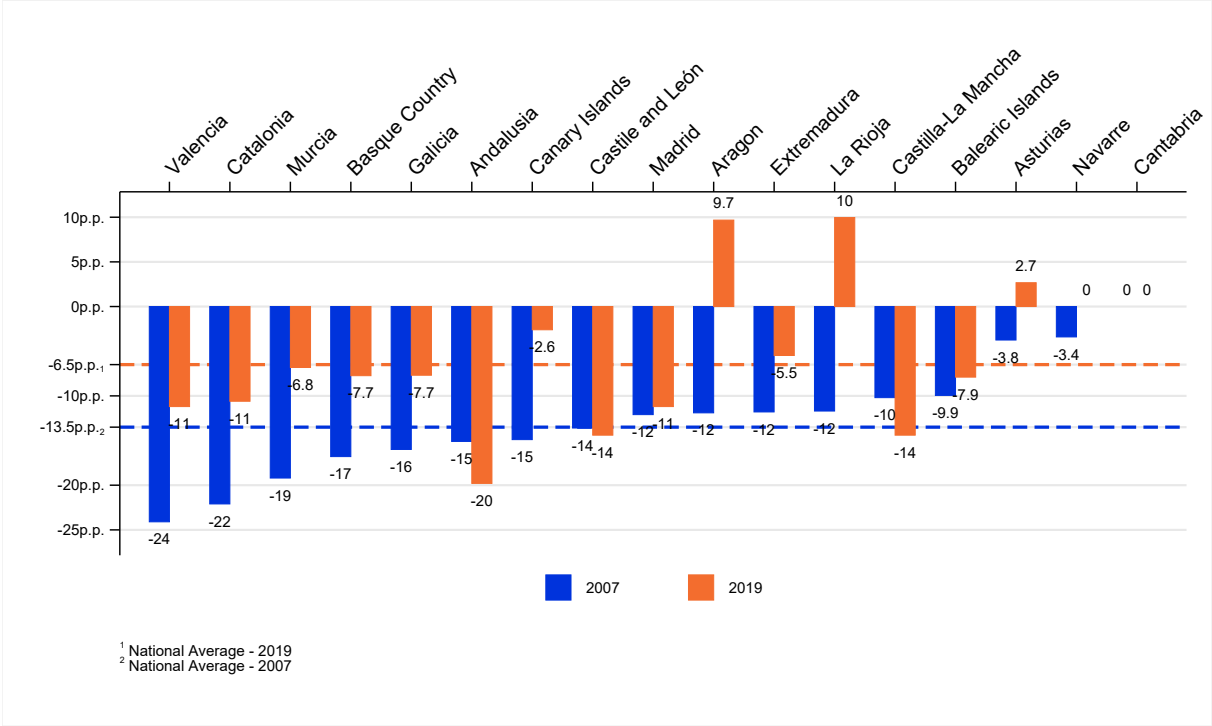
Focusing on the case of Andalusia, differences among couples depending on the gender increased in 12 years. Mothers are 5 points less likely to be employed than they were in 2007, compared to fathers among couples with children. Worth mentioning is the

²³See **Figure A.20**

²⁴In each regression, we control by **socio-demographic** characteristics and **job attributes**, except for not introducing regional dummies.

positive relation between motherhood and the access to employment that we can observe in Aragon and La Rioja for the last year, 2019. In both, women had higher probabilities of having a job than their partners, comparing among a sample of couples.

Figure 11: Estimated probability of being employed among parents - Differences between women and men.



Source: Spanish Labor Force Survey (SLFS) - Own elaboration in Stata 14.0

We explore which can be the underlying reasons for this to occur in one of the three regions where there is no *child penalty* related to the employment level. One of the reasons could be the existence of gender differences in the educational attainment²⁵. We present in **Table 6** all those individuals that are living with their partners and children in Aragon for the two years of interest. It is very striking that the distribution of mothers that are employed are 9 p.p. more located in tertiary education than their spouses or partners, as we can see in column [3] from **Table 6**.

These differences become higher when we analyze the same target individual in Aragon for 2019: woman and mother living with her husband or partner and with her child or children. They are 6 points more educated than those mothers in 12 years before and 15 points more than their couples in 2019. To sum up, one of the explanations we find resides on those educational level disparities. Those mothers are more educated (higher presence on tertiary education) than their husbands or partners, and education increases

²⁵Other possible explanations could be the lack of observations and the presence of multicollinearity. However, we are not able to differentiate between these three.

Table 6: Differences in educational attainment among those couples with children employed in Aragon.

	2007			2019		
	Males	Females	Gender differences	Males	Females	Gender differences
Low educated	15.4%	9.7%	5.7 p.p.	3.3%	1.9%	1.3 p.p.
Medium educated	63.0%	59.6%	3.4 p.p.	73.8%	60.2%	13.6 p.p.
High educated	21.6%	30.7%	-9.1 p.p.	23.0%	37.9%	-14.9 p.p.

their opportunity costs, so if they look actively for a job, they find more chances than their couples.

7 Summary and final remarks

This paper is motivated by the existence of differences in the employment rates between men and women. We test the existence of *gender gaps* in different labor outcomes among singles and couples. Although men and women share the same characteristics, we find that they obtain different outcomes, which is a signal of *gender discrimination* on the Spanish labor market. Those differences are higher if the woman is also a mother so, while women try to close the employment gap, they have to deal with the cost of motherhood in their labor careers. If we analyze a couple with children, the mother has lower probabilities of being employed than the father, when both have similar socio-demographic characteristics like nationality, age, education, and region of residence. As we have mentioned throughout this paper, this is due to differences in the time devoted to *unpaid* work, where we can include those activities related to a family commitment, child care, and household tasks.

However, the entry to employment is not the only labor market outcome that we have analyzed and where women are under-represented. As we have mentioned in this study, one key factor contributing to a broader or a narrower *gender pay gap* is the existence of differences in the females' and males' hours worked. We have seen that women are more likely to participate in employment through less stable labor conditions, which means that they are more present on part-time and temporary contracts and have a higher likelihood of being on that unstable labor situation.

With this paper, we contribute to understanding the differences between females' labor situation in Spain compared to their partners' ones, subject to their own characteristics. Also, descriptive analysis has shown significant disparities depending on an individual's life cycle stage, gender, and her or his family commitments. Our results support the existence of two penalties in the labor market, in terms of employment levels and labor

conditions: being a woman and being a mother. We quantify them, taking into account the number of covariates to control for and changing the temporal and territorial perspective. Despite considerable gender convergence, substantial gender inequality remains in Spain, over time and regions. Males have more significant chances for entering the labor market than their partners when both have similar characteristics.

Spain must boost sustainability to the pension system. Increasing the female's participation in the labor market and transforming how this increase is negatively related to fertility rates can be the solution for its improvement. The means for this is related to stimulate female employment through *mother friendly policies*. It is widely known that extending the length of education and childcare services provided by the governmental institutions to children between 0 and 3 years old contributes to closing gender gaps and increasing fertility rates. Regarding this, we have found on the results of the year 2007 that whether the economy is expanding, *gender gaps* are still on the table. At the same time, part-time jobs were more related to women, although they shared characteristics with their spouses or partners. We cannot declare any causal relationship between being a mother and working part-time, but differences in their preferences cannot only explain the proportion of those women. Demand-side restrictions and *involuntary* part-time work can be the underlying reasons, as we have mentioned in this paper. Improve *gender equality* through non-gendered norms and roles, eradication of stereotypes, education, and culture can be the right solution for reaching it and maintain it in the long run because of the existence of the *inter-generational transmission of child penalties*. So, increasing males' time devoted to household tasks and childcare can boost females' participation in the labor market and make it persist over time.

Even though our findings contribute to a better understanding of Spain's employment situation from a gender perspective, it is not without limitations. On the one hand, although we have waves of representative individuals of the Spanish population, we do not have panel data that allows us to analyze the dynamics within the labor market, following individuals over their life cycle, giving us more precise information about their labor transitions. On the other hand, the lack of wages in the SLFS data do not allow us to estimate the *inequality in earnings* and the factors driving it in Spain. Also, it would be interesting to have enough information about same-sex couples to determine if gender roles have a more significant impact on the relation between children and employment.

Last but not least, we propose further research on the inclusion of the *elderly care* activities on time devoted to *unpaid* work. As gender differences can come from a different distribution of time devoted to *unpaid* work among couples, it would be interesting to include those caring activities like elderly care to the ones just analyzed here as child care.

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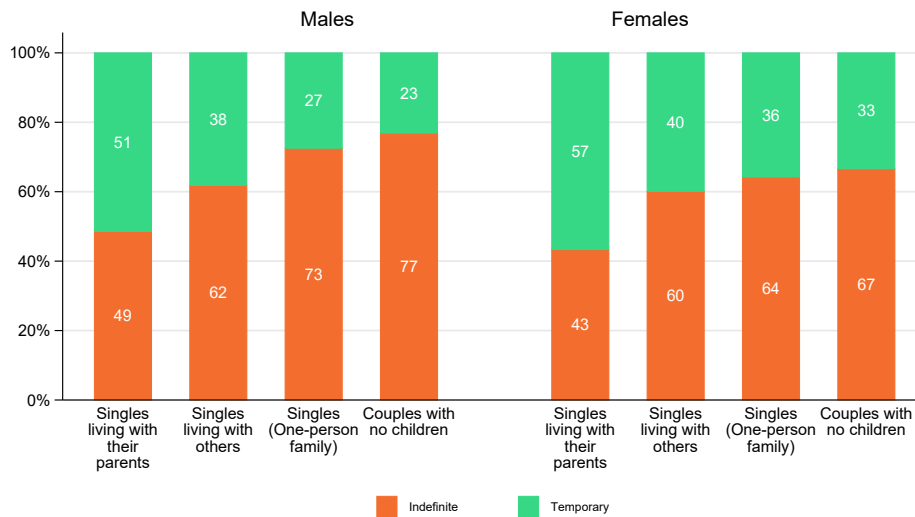
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A Appendices

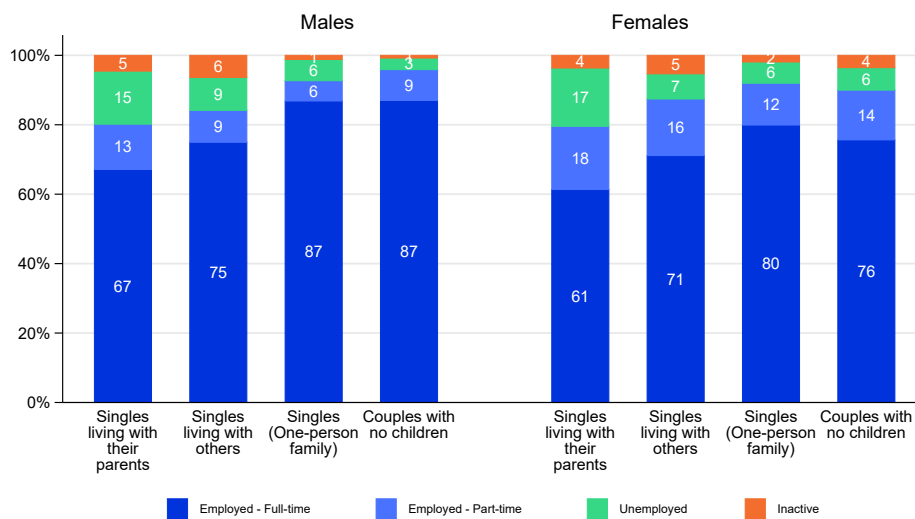
A.1 Other descriptive graphs

Figure A.1: Couple and type of contract by gender



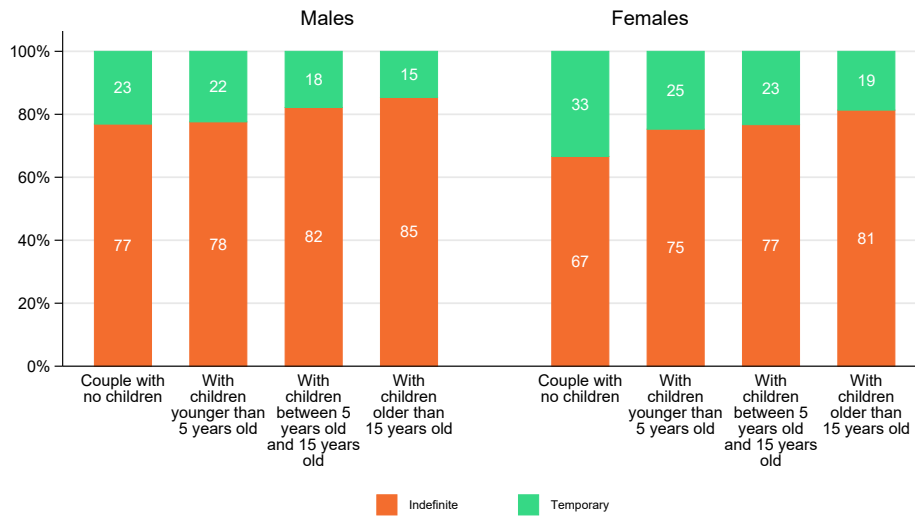
Source: *Spanish Labor Force Survey (SLFS) - Own elaboration in Stata 14.0*

Figure A.2: Couple and labor situation by gender - High educated individuals



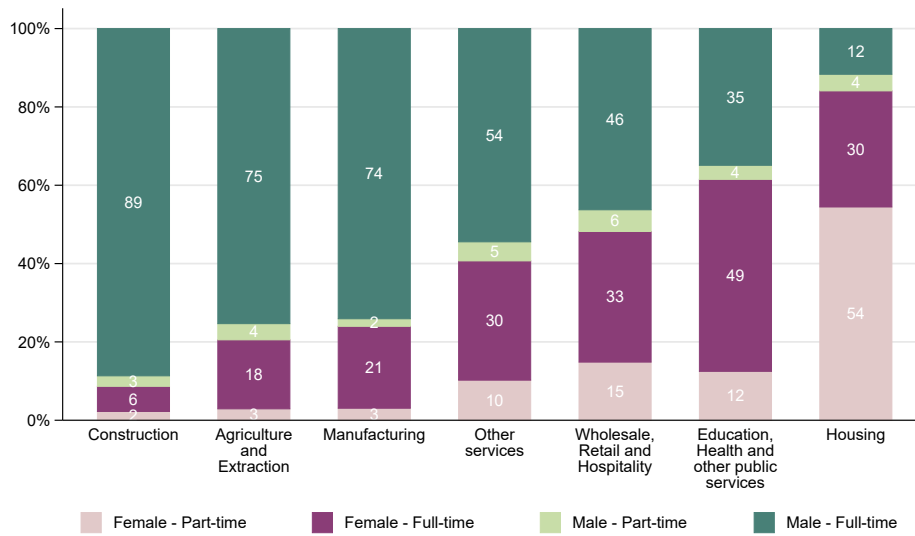
Source: *Spanish Labor Force Survey (SLFS) - Own elaboration in Stata 14.0*

Figure A.3: Children and type of contract by gender



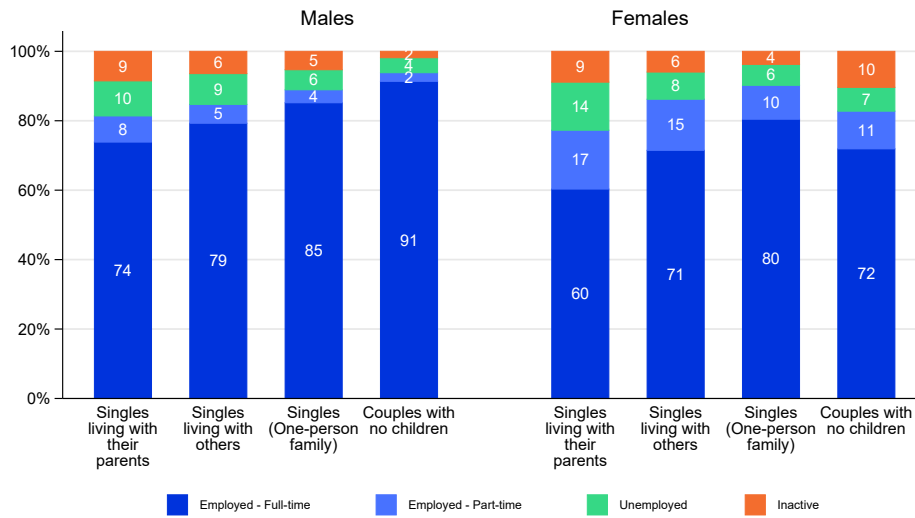
Source: Spanish Labor Force Survey (SLFS) - Own elaboration in Stata 14.0

Figure A.4: Job segregation by sectors of activity, work schedule and gender



Source: Spanish Labor Force Survey (SLFS) - Own elaboration in Stata 14.0

Figure A.5: Couple and labor situation by gender - Second quarter of 2007



Source: *Spanish Labor Force Survey (SLFS) - Own elaboration in Stata 14.0*

Figure A.6: Children and labor situation - Regional disparities

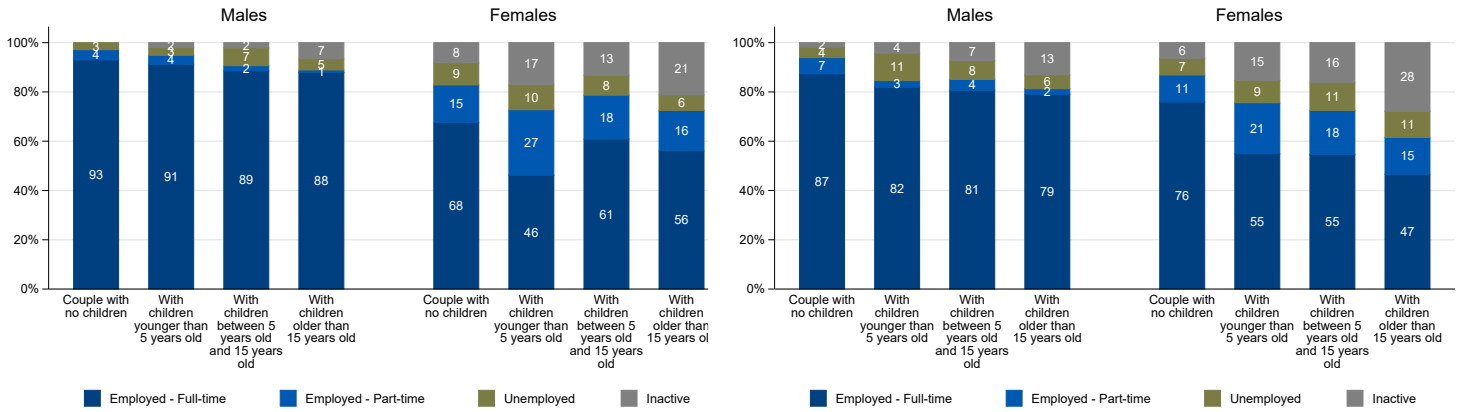


Figure A.7: Aragon

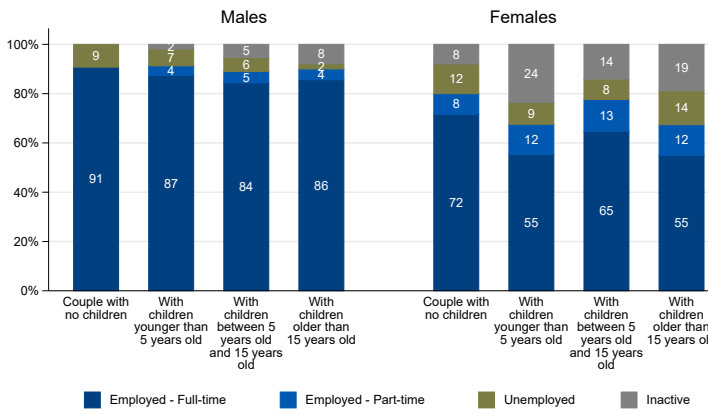


Figure A.8: Asturias

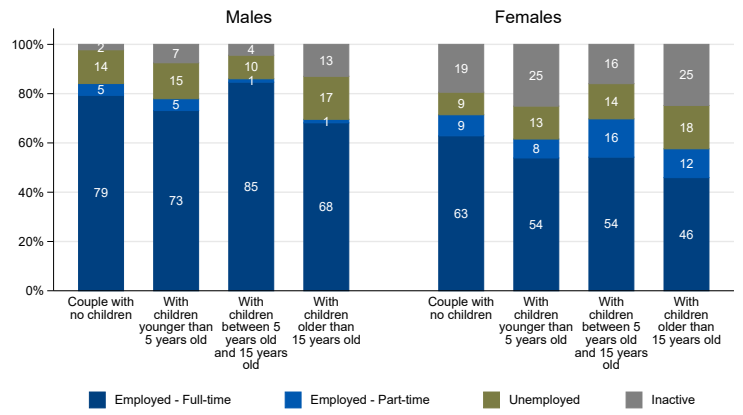


Figure A.9: Balearic Islands

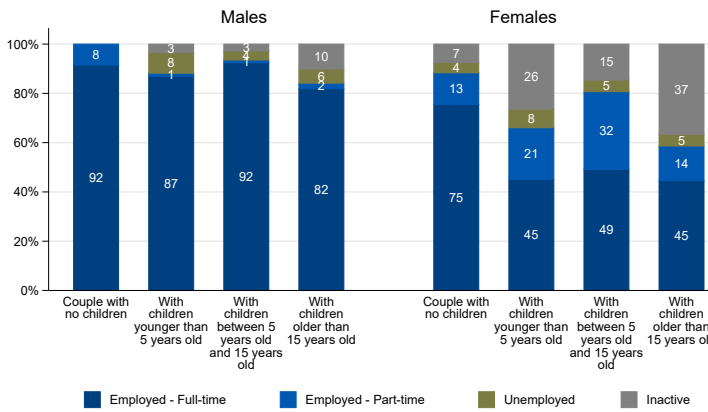


Figure A.10: Canary Islands

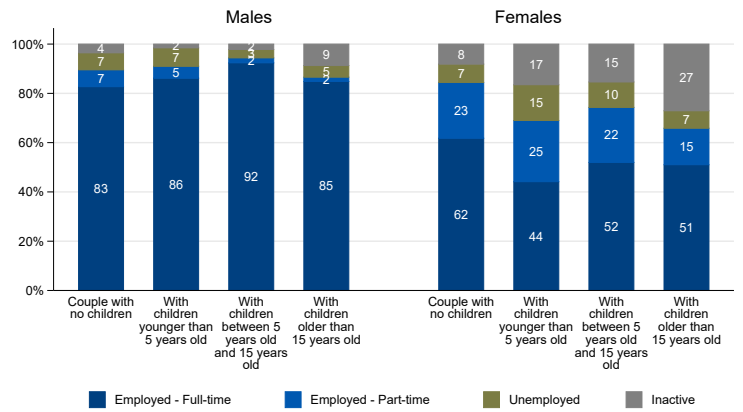


Figure A.11: Cantabria

Figure A.12: Castilla y La Mancha

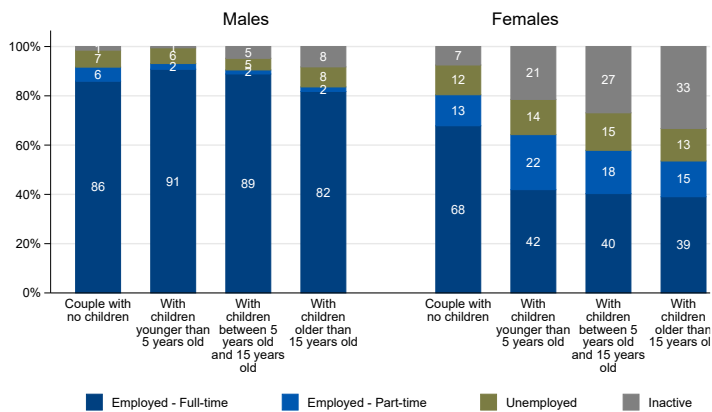


Figure A.13: Castile and León

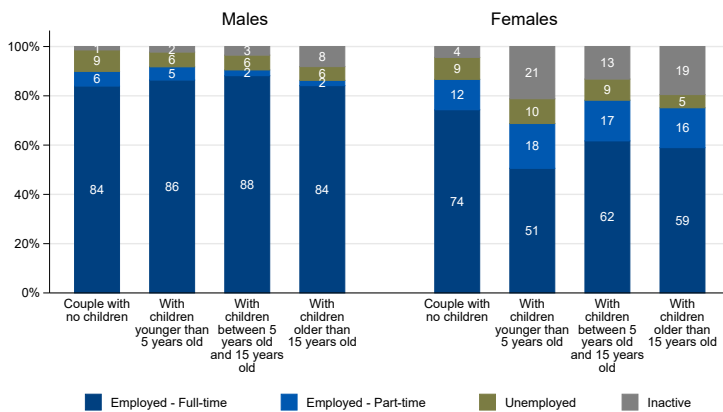


Figure A.14: Catalonia

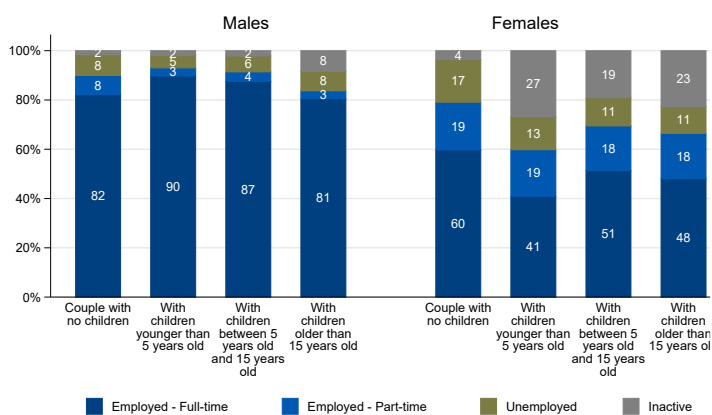


Figure A.15: Valencia

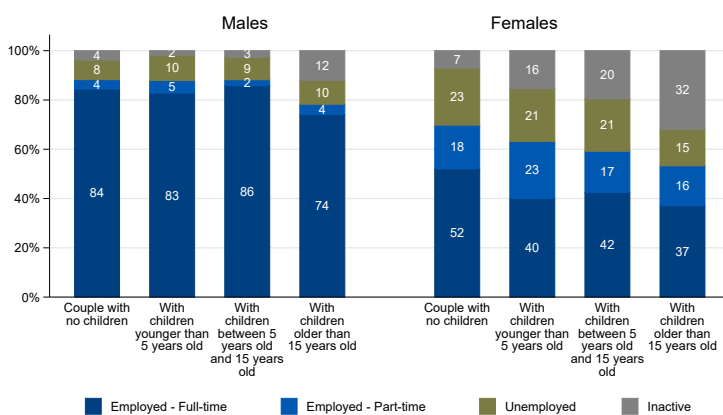


Figure A.16: Extremadura

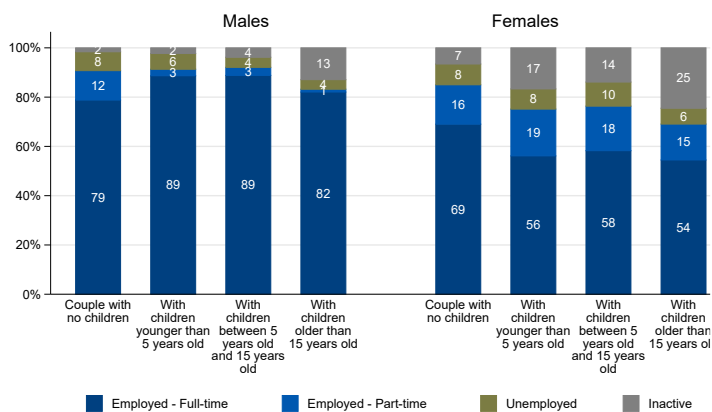


Figure A.17: Galicia

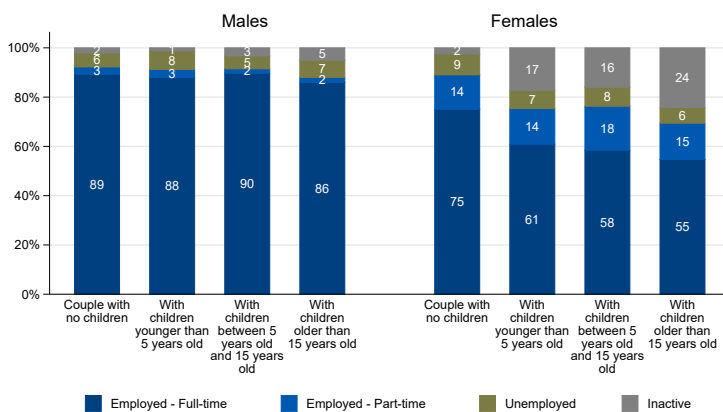


Figure A.18: Madrid

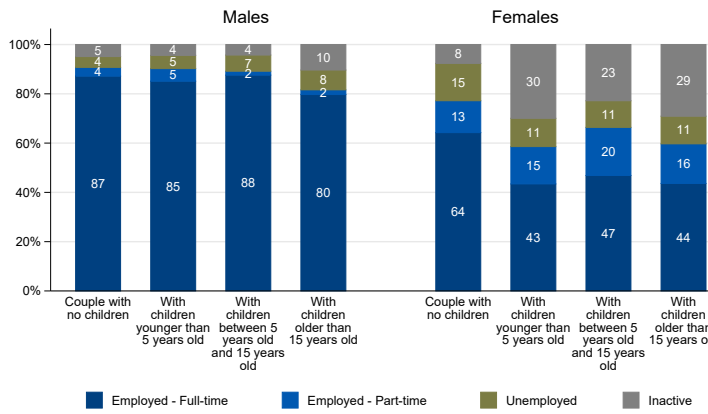


Figure A.19: Murcia

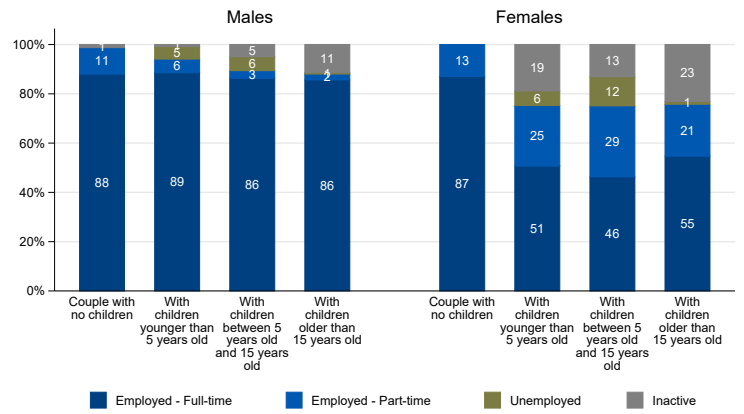


Figure A.20: Navarra

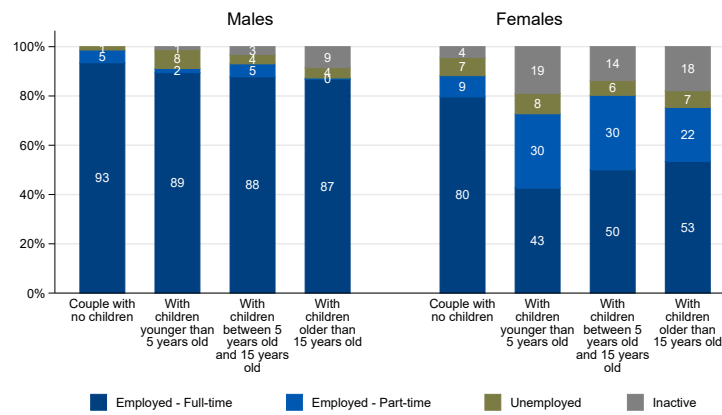


Figure A.21: La Rioja

A.2 Other table results

Table A.2.1: Results of probit models - First sub-sample

	Model 1 Employed
Female (ref. Male)	-0.00683*** (0.000577)
Couple (ref. Single)	0.0572*** (0.000507)
Female and couple (ref. Male and single)	-0.0891*** (0.000938)
Immigrant (ref. native)	-0.0583*** (0.000527)
Age (ref. 46-60 years old)	
Less than 29 years old	-0.0862*** (0.000988)
30-45 years old	0.0143*** (0.000392)
Education (ref. Secondary education)	
Lower than secondary	-0.113*** (0.00111)
Terciary	0.0791*** (0.000379)
Regions (ref. Andalucia)	
Aragon	0.0599*** (0.000799)
Asturias	0.0375*** (0.00114)
Balearic Islands	0.0499*** (0.000858)
Canary Islands	0.0115*** (0.000818)
Cantabria	0.0545*** (0.00132)
Castilla y La Mancha	0.0419*** (0.000803)
Castilla y León	0.0441*** (0.000752)
Catalonia	0.0446*** (0.000523)
Valencia	0.0272*** (0.000636)
Extremadura	-0.0252*** (0.00147)
Galicia	0.0313*** (0.000788)
Madrid	0.0608*** (0.000505)
Murcia	0.0324*** (0.000948)
Navarra	0.0909*** (0.000853)
Basque Country	0.0470***

Continued on the next page...

	Model 1 Employed
	(0.000755)
La Rioja	0.0700*** (0.00137)
Ceuta and Melilla	0.0316*** (0.00300)
Observations	3,346,713

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table A.2.2: Results of probit models - Second sub-sample - 2019

	Model 2 Employed	Model 3 Temporary	Model 4 Part-time	Model 5 Less than 35 hours/week
Female (ref. Male)	-0.105*** (0.000666)	0.0680*** (0.000748)	0.0604*** (0.000575)	0.0639*** (0.000647)
Children (ref. Without children)	0.000341 (0.000548)	-0.0243*** (0.000554)	-0.0512*** (0.000550)	-0.0469*** (0.000585)
Female and children (ref. Male without children)	-0.114*** (0.000737)	-0.0820*** (0.000841)	0.0860*** (0.000775)	0.0713*** (0.000828)
Immigrant (ref. native)	-0.131*** (0.000382)	0.0545*** (0.000777)	-0.00409*** (0.000511)	-0.0209*** (0.000534)
Age (ref. 46-60 years old)				
Less than 29 years old	-0.0224*** (0.000527)	0.242*** (0.000877)	0.0389*** (0.000549)	0.0575*** (0.000653)
30-45 years old	0.0665*** (0.000239)	0.112*** (0.000421)	0.0412*** (0.000327)	0.0617*** (0.000364)
Education (ref. Secondary education)				
Lower than secondary	-0.169*** (0.000535)	-0.00442*** (0.000951)	-0.0407*** (0.000495)	-0.0656*** (0.000506)
Tertiary	0.133*** (0.000214)	0.0131*** (0.000727)	0.00982*** (0.000574)	0.0420*** (0.000673)
Temporary job (ref. Indefinite)			0.0831*** (0.000300)	0.0877*** (0.000335)
Occupations (ref. Pink collar)				
White collar		-0.0604*** (0.000733)	-0.0648*** (0.000326)	-0.0907*** (0.000347)
Blue collar		0.125*** (0.000425)	0.0172*** (0.000266)	0.0152*** (0.000311)
Grey collar		-0.115*** (0.000524)	-0.0524*** (0.000484)	-0.0559*** (0.000586)
Gold collar		-0.0209*** (0.000423)	-0.0284*** (0.000262)	-0.0379*** (0.000305)
Sector of activity (ref. Primary)				
Services		-0.170*** (0.000703)	0.112*** (0.000680)	0.129*** (0.000791)
Industry		-0.171*** (0.000410)	-0.00665*** (0.000673)	-0.00977*** (0.000793)
Construction		-0.0274*** (0.000749)	0.0516*** (0.00105)	0.0413*** (0.00112)
Public Sector (Education, Health, etc)		-0.0282*** (0.000736)	0.0774*** (0.000872)	0.112*** (0.00103)
Probability of being salaried worker		-0.375*** (0.00413)	-0.236*** (0.00309)	0.0316*** (0.00102)
Regions (ref. Andalusia)				
Aragon	0.104*** (0.000433)	-0.0492*** (0.000841)	0.0239*** (0.000894)	-0.00764*** (0.000876)
Asturias	0.0311*** (0.000756)	-0.0374*** (0.000942)	3.03E-05 (0.000776)	-0.0330*** (0.000708)
Balearic Islands	0.0931*** (0.000466)	-0.0436*** (0.000856)	-0.0358*** (0.000544)	-0.0598*** (0.000398)
Canary Islands	0.0192*** (0.000503)	-0.0477*** (0.000605)	-0.0472*** (0.000328)	0.0509*** (0.00136)
Cantabria	0.0694*** (0.000772)	-0.0321*** (0.00117)	0.0280*** (0.00113)	0.0142*** (0.000666)
Castilla y La Mancha	0.0418***	-0.0644***	0.0106***	0.0486***

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	Model 2 Employed	Model 3 Temporary	Model 4 Part-time	Model 5 Less than 35 hours/week
Castile and León	(0.000464) 0.0729***	-0.000575 -0.0439***	-0.000577 0.0402***	-0.000818 0.0325***
Catalonia	(0.000418) 0.100***	-0.000674 -0.0746***	-0.000733 0.0137***	-0.000663 0.0245***
Valencia	(0.000272) 0.0628***	-0.00056 -0.0244***	-0.000567 0.0214***	-0.000573 0.0288***
Extremadura	(0.000326) 0.0104***	-0.000559 -0.0448***	-0.00051 0.0302***	-0.000904 0.0167***
Galicia	(0.000682) 0.0750***	-0.000796 -0.0281***	-0.000813 0.0131***	-0.000704 0.00208***
Madrid	(0.000400) 0.0844***	-0.000686 -0.0896***	-0.000615 -0.00673***	-0.000574 0.00028
Murcia	(0.000295) 0.0500***	-0.000514 -0.0366***	-0.000489 0.000331	-0.000721 0.104***
Navarra	(0.000508) 0.102***	-0.000722 -0.0169***	-0.000616 0.0870***	-0.00153 0.0806***
Basque Country	(0.000593) 0.0948***	-0.00119 -0.00443***	-0.0014 0.0613***	-0.000994 0.130***
La Rioja	(0.000391) 0.104***	-0.000841 -0.0289***	-0.000892 0.0804***	-0.00213 -0.0416***
Ceuta and Melilla	(0.000802) -0.0323***	-0.00152 -0.0121***	-0.00181 -0.0346***	-0.00154 -0.412***
	(0.00181) -0.00225	-0.00131 -0.00131	-0.00131 -0.00131	-0.00346 -0.00346
Observations	13,482,918	8,825,174	8,825,174	8,652,114

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.2.3: Results of probit models - Second sub-sample - 2007

	Model 6 Employed	Model 7 Temporary	Model 8 Part-time	Model 9 Less than 35 hours/week
Female (ref. Male)	-0.177*** (0.000645)	0.0498*** (0.000811)	0.0440*** (0.000483)	0.0499*** (0.000571)
Children (ref. Without children)	0.00458*** (0.000582)	-0.0627*** (0.000577)	-0.00885*** (0.000399)	0.00691*** (0.000439)
Female and children (ref. Male without children)	-0.169*** (0.000747)	-0.0371*** (0.00109)	0.0463*** (0.000770)	0.0252*** (0.000808)
Immigrant (ref. native)	-0.0711*** (0.000388)	0.207*** (0.000591)	-0.0130*** (0.000197)	-0.0101*** (0.000290)
Age (ref. 46-60 years old)				
Less than 29 years old	0.0505*** (0.000379)	0.250*** (0.000839)	0.0290*** (0.000432)	0.0368*** (0.000522)
30-45 years old	0.0784*** (0.000262)	0.126*** (0.000466)	0.0261*** (0.000250)	0.0297*** (0.000304)
Education (ref. Secondary education)				
Lower than secondary	-0.134*** (0.000345)	0.0112*** (0.000714)	-0.00953*** (0.000350)	-0.0168*** (0.000434)
Tertiary	0.124*** (0.000235)	0.0341*** (0.000738)	0.0168*** (0.000426)	0.0591*** (0.000574)
Temporary job (ref. Indefinite)			0.0612*** (0.000235)	0.0717*** (0.000286)
Occupations (ref. Pink collar)				
White collar		-0.109*** (0.000765)	-0.0452*** (0.000157)	-0.0674*** (0.000230)
Blue collar		0.102*** (0.000518)	-0.0520*** (0.000209)	-0.0712*** (0.000276)
Grey collar		-0.151*** (0.000634)	-0.0297*** (0.000398)	-0.0513*** (0.000446)
Gold collar		-0.0619*** (0.000451)	-0.0258*** (0.000169)	-0.0212*** (0.000245)
Sector of activity (ref. Primary)				
Services		-0.144*** (0.000837)	0.00988*** (0.000499)	0.0112*** (0.000694)
Industry		-0.158*** (0.000589)	-0.0238*** (0.000376)	-0.0429*** (0.000510)
Construction		0.0797*** (0.00102)	-0.0353*** (0.000317)	-0.0548*** (0.000441)
Public Sector (Education, Health, etc)		-0.0414*** (0.000871)	-0.0273*** (0.000380)	-0.00699*** (0.000673)
Probability of being salaried worker		-0.457*** (0.00392)	-0.152*** (0.00198)	0.0715*** (0.00100)
Regions (ref. Andalucia)				
Aragon	0.109*** (0.000451)	-0.0780*** (0.000786)	0.0504*** (0.000865)	0.00384*** (0.000707)
Asturias	-0.00134* (0.000752)	-0.0911*** (0.000760)	-0.00345*** (0.000504)	0.0125*** (0.000765)
Balearic Islands	0.106*** (0.000475)	-0.0844*** (0.000777)	0.00536*** (0.000592)	-0.0222*** (0.000433)
Canary Islands	0.0512*** (0.000488)	-0.0434*** (0.000684)	-0.00891*** (0.000358)	-0.00709*** (0.000849)
Cantabria	0.0401*** (0.000878)	-0.0812*** (0.00103)	-0.00385*** (0.000660)	0.0260*** (0.000624)
Castilla y La Mancha	0.0372***	-0.0669***	0.0179***	0.0249***

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	Model 6 Employed	Model 7 Temporary	Model 8 Part-time	Model 9 Less than 35 hours/week
Castilla y León	(0.000496) 0.0476***	(0.000618) -0.0941***	(0.000494) 0.0327***	(0.000581) 0.0316***
Catalonia	(0.000456) 0.102***	(0.000542) -0.121***	(0.000528) 0.0338***	(0.000525) 0.0389***
Valencia	(0.000283) 0.0605***	(0.000495) -0.0715***	(0.000486) 0.0374***	(0.000503) 0.0276***
Extremadura	(0.000342) -0.00367***	(0.000487) -0.0155***	(0.000441) 0.0242***	(0.000818) 0.0347***
Galicia	(0.000731) 0.0706***	(0.000946) -0.0567***	(0.000668) 0.00992***	(0.000610) 0.0105***
Madrid	(0.000408) 0.0798***	(0.000611) -0.107***	(0.000431) 0.0232***	(0.000450) 0.0280***
Murcia	(0.000316) 0.0532***	(0.000479) -0.0357***	(0.000424) 0.0140***	(0.000730) 0.0928***
Navarra	(0.000541) 0.0944***	(0.000784) -0.0589***	(0.000551) 0.0922***	(0.00139) 0.0845***
Basque Country	(0.000685) 0.0702***	(0.00110) -0.0626***	(0.00132) 0.0635***	(0.000810) 0.0719***
La Rioja	(0.000446) 0.0730***	(0.000665) -0.111***	(0.000696) 0.0644***	(0.00171) 0.00923***
Ceuta and Melilla	(0.000986) -0.0910***	(0.00113) -0.0794***	(0.00149) 0.0315***	(0.00194) -0.264***
	(0.00227)	(0.00213)	(0.00190)	(0.00236)
Observations	14,561,199	8,821,228	8,821,228	8,416,548

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.2.4: Results of probit models by regions - Second sub-sample - 2007

	Andalusia	Aragon	Asturias	Balearic Islands	Canary Islands	Cantabria	Castilla-La Mancha	Castile and León	Catalonia
Female (ref. Male)	-0.285*** (0.00170)	-0.123*** (0.00371)	-0.264*** (0.00522)	-0.148*** (0.00306)	-0.196*** (0.00344)	-0.352*** (0.00595)	-0.277*** (0.00288)	-0.304*** (0.00366)	-0.0661*** (0.00128)
Children (ref. Without children)	-0.00266* (0.00157)	-0.0427*** (0.00273)	-0.158*** (0.00358)	0.0352*** (0.00305)	0.000621 (0.00300)	-0.00531 (0.00592)	-0.00514* (0.00272)	-0.0595*** (0.00306)	0.0720*** (0.00131)
Female and children (ref. Male without children)	-0.151*** (0.00197)	-0.119*** (0.00438)	-0.0375*** (0.00597)	-0.0995*** (0.00369)	-0.149*** (0.00390)	0.00297 (0.00702)	-0.102*** (0.00339)	-0.136*** (0.00430)	-0.221*** (0.00158)
Immigrant (ref. Native)	-0.00112 (0.00112)	0.00194 (0.00162)	0.0656*** (0.00363)	-0.0939*** (0.00172)	0.0370*** (0.00153)	-0.0845*** (0.00507)	-0.0835*** (0.00224)	-0.0994*** (0.00203)	-0.119*** (0.000810)
Age (ref. 46-60 years old) Less than 29 years old	0.0700*** (0.00101)	0.108*** (0.00214)	0.0423*** (0.00325)	0.0530*** (0.00191)	0.0911*** (0.00168)	0.109*** (0.00302)	0.0754*** (0.00175)	0.0296*** (0.00208)	0.0550*** (0.000732)
30-45 years old	0.102*** (0.000697)	0.0846*** (0.00127)	0.129*** (0.00191)	0.0118*** (0.00157)	0.100*** (0.00137)	0.0748*** (0.00239)	0.0425*** (0.00116)	0.0575*** (0.00135)	0.0849*** (0.000591)
Education (ref. Secondary education) Lower than secondary	-0.155*** (0.000788)	-0.113*** (0.00190)	-0.179*** (0.00260)	-0.151*** (0.00224)	-0.142*** (0.00160)	-0.110*** (0.00352)	-0.143*** (0.00154)	-0.125*** (0.00154)	-0.0919*** (0.000756)
Tertiary	0.188*** (0.000638)	0.0869*** (0.00106)	0.149*** (0.00191)	0.0175*** (0.00179)	0.0815*** (0.00143)	0.167*** (0.00198)	0.140*** (0.00100)	0.196*** (0.00102)	0.107*** (0.000482)
Observations	2,710,909	404,590	308,815	351,820	591,928	173,731	750,222	652,994	2,411,603

	Valencia	Extremadura	Galicia	Madrid	Murcia	Navarre	Basque Country	La Rioja
Female (ref. Male)	-0.125*** (0.00187)	-0.282*** (0.00599)	-0.126*** (0.00299)	-0.166*** (0.00162)	-0.219*** (0.00421)	-0.267*** (0.00541)	-0.135*** (0.00269)	-0.249*** (0.00827)
Children (ref. Without children)	0.0150*** (0.00171)	-0.113*** (0.00418)	-0.00521** (0.00254)	-0.0349*** (0.00132)	0.0175*** (0.00395)	-0.0259*** (0.00478)	0.00714*** (0.00243)	0.0134 (0.00845)
Female and children (ref. Male without children)	-0.241*** (0.00218)	-0.118*** (0.00674)	-0.160*** (0.00334)	-0.121*** (0.00191)	-0.192*** (0.00479)	-0.0340*** (0.00606)	-0.168*** (0.00320)	-0.117*** (0.00973)
Immigrant (ref. Native)	-0.108*** (0.00102)	-0.259*** (0.00517)	-0.163*** (0.00282)	-0.0380*** (0.000838)	-0.00192 (0.00179)	-0.0195*** (0.00278)	-0.115*** (0.00258)	-0.0833*** (0.00409)
Age (ref. 46-60 years old) Less than 29 years old	0.0670*** (0.00108)	-0.0421*** (0.00364)	0.0415*** (0.00177)	0.0254*** (0.00104)	0.0245*** (0.00216)	0.0115*** (0.00323)	0.0310*** (0.00200)	0.0842*** (0.00364)
30-45 years old	0.0780*** (0.000779)	0.0884*** (0.00185)	0.0665*** (0.00106)	0.0620*** (0.000642)	0.101*** (0.00155)	0.0616*** (0.00193)	0.0832*** (0.00112)	0.0862*** (0.00314)
Education (ref. Secondary education) Lower than secondary	-0.143*** (0.00112)	-0.164*** (0.00247)	-0.113*** (0.00146)	-0.125*** (0.00100)	-0.157*** (0.00191)	-0.0873*** (0.00291)	-0.124*** (0.00177)	-0.165*** (0.00408)
Tertiary	0.110*** (0.000737)	0.253*** (0.00143)	0.121*** (0.000994)	0.0865*** (0.000561)	0.159*** (0.00127)	0.0861*** (0.00157)	0.0717*** (0.00104)	0.0867*** (0.00282)
Observations	1,630,878	340,735	812,166	1,945,723	461,666	188,052	677,448	103,723

Table A.2.5: Results of probit models by regions - Second sub-sample - 2019

	Andalusia	Aragon	Asturias	Balearic Islands	Canary Islands	Cantabria	Castilla-La Mancha	Castile and León	Catalonia
Female (ref. Male)	-0.285*** (0.00170)	-0.123*** (0.00371)	-0.264*** (0.00522)	-0.148*** (0.00306)	-0.196*** (0.00344)	-0.352*** (0.00595)	-0.352*** (0.00595)	-0.304*** (0.00366)	-0.0661*** (0.00128)
Children (ref. Without children)	-0.00266* (0.00157)	-0.0427*** (0.00273)	-0.158*** (0.00358)	0.0352*** (0.00305)	0.000621 (0.00300)	-0.00531 (0.00592)	-0.00531 (0.00592)	-0.0595*** (0.00306)	0.0720*** (0.00131)
Female and children (ref. Male without children)	-0.151*** (0.00197)	-0.119*** (0.00438)	-0.0375*** (0.00597)	-0.0995*** (0.00369)	-0.149*** (0.00390)	0.00297 (0.00702)	0.00297 (0.00702)	-0.136*** (0.00430)	-0.221*** (0.00158)
Immigrant (ref. Native)	-0.00112 (0.00112)	0.00194 (0.00162)	0.0636*** (0.00363)	-0.0939*** (0.00172)	0.0370*** (0.00153)	-0.0845*** (0.00507)	-0.0845*** (0.00507)	-0.0994*** (0.00203)	-0.119*** (0.000810)
Age (ref. 46-60 years old)	0.0700*** (0.00101)	0.0108*** (0.00214)	0.0423*** (0.00325)	0.0530*** (0.00191)	0.0911*** (0.00168)	0.109*** (0.00302)	0.109*** (0.00302)	0.0296*** (0.00208)	0.0550*** (0.000732)
Less than 29 years old	0.102*** (0.000697)	0.0846*** (0.00127)	0.122*** (0.00191)	0.0118*** (0.00157)	0.100*** (0.00137)	0.0748*** (0.00239)	0.0748*** (0.00239)	0.0575*** (0.00135)	0.0849*** (0.000591)
30-45 years old									
Education (ref. Secondary education)	-0.155*** (0.000788)	-0.113*** (0.00190)	-0.179*** (0.00260)	-0.151*** (0.00224)	-0.142*** (0.00160)	-0.110*** (0.00352)	-0.110*** (0.00352)	-0.125*** (0.00154)	-0.0919*** (0.000756)
Lower than secondary	0.188*** (0.000638)	0.0869*** (0.00106)	0.149*** (0.00191)	0.0175*** (0.00179)	0.0815*** (0.00143)	0.167*** (0.00198)	0.167*** (0.00198)	0.196*** (0.00102)	0.107*** (0.000482)
Tertiary									
Observations	2,710,909	404,590	308,815	351,820	591,928	173,731	173,731	652,994	2,411,603

	Valencia	Extremadura	Galicia	Madrid	Murcia	Navarre	Basque Country	La Rioja
Female (ref. Male)	-0.125*** (0.00187)	-0.282*** (0.00599)	-0.126*** (0.00299)	-0.166*** (0.00162)	-0.219*** (0.00421)	-0.267*** (0.00541)	-0.135*** (0.00269)	-0.249*** (0.00827)
Children (ref. Without children)	0.0150*** (0.00171)	-0.113*** (0.00418)	-0.00521** (0.00254)	-0.0349*** (0.00132)	0.0175*** (0.00395)	-0.0259*** (0.00478)	0.00714*** (0.00243)	0.0134 (0.00845)
Female and children (ref. Male without children)	-0.241*** (0.00218)	-0.118*** (0.00674)	-0.160*** (0.00334)	-0.121*** (0.00191)	-0.192*** (0.00479)	-0.0340*** (0.00606)	-0.168*** (0.00320)	-0.117*** (0.00973)
Immigrant (ref. Native)	-0.108*** (0.00102)	-0.259*** (0.00517)	-0.163*** (0.00282)	-0.0380*** (0.000838)	-0.00192 (0.00179)	-0.0195*** (0.00278)	-0.115*** (0.00258)	-0.0833*** (0.00409)
Age (ref. 46-60 years old) Less than 29 years old	0.0670*** (0.00108)	-0.0421*** (0.00364)	0.0415*** (0.00177)	0.0254*** (0.00104)	0.0245*** (0.00216)	0.0115*** (0.00323)	0.0310*** (0.00200)	0.0842*** (0.00364)
30-45 years old	0.0780*** (0.000779)	0.0884*** (0.00185)	0.0665*** (0.00106)	0.0620*** (0.000642)	0.101*** (0.00155)	0.0616*** (0.00193)	0.0832*** (0.00112)	0.0862*** (0.00314)
Education (ref. Secondary education) Lower than secondary	-0.143*** (0.00112)	-0.164*** (0.00247)	-0.113*** (0.00146)	-0.125*** (0.00100)	-0.157*** (0.00191)	-0.0873*** (0.00291)	-0.124*** (0.00177)	-0.165*** (0.00408)
Tertiary	0.110*** (0.000737)	0.253*** (0.00143)	0.121*** (0.000994)	0.0865*** (0.000561)	0.159*** (0.00127)	0.0861*** (0.00157)	0.0717*** (0.00104)	0.0867*** (0.00282)
Observations	1,630,878	340,735	812,166	1,945,723	461,666	188,052	677,448	103,723