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Dependency penalty: The wage cost of family care in the female labor force

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Abstract

Over the past two decades, the Spanish labor market has experienced significant changes, alternating between periods of expansion and recession. However, structural issues such as wage discrimination and job segregation persist, influenced by entrenched gender roles. This study examines the factors that drive women to change jobs for caregiving reasons in the past years and the resulting wage penalty. Using data from the Survey of Living Conditions (ECV), we employ econometric models and a Differences-in-Differences approach to analyze these transitions. Our findings indicate that women with lower salaries, temporary contracts, and employment in large firms are more likely to change jobs to care for dependents, facilitating a balance between work and family responsibilities. Additionally, we identify a wage penalty of 1549€ per year for women making this transition. These results highlight the economic cost associated with caregiving-related job changes and underscore the need for policies that promote job security and workplace flexibility. Implementing such measures could help mitigate economic disparities and support women's labor force participation while improving work-life balance.

Keywords: Female mobility, family-friendly job, wage penalty, caregiving.

JEL Classification: C21, C23, J12, J13, J14, J16, J31 and J62.

1 Introduction

Throughout the last two decades, the Spanish labor market has experienced different moments of unprecedented catharsis. Firstly, in 2008, an economic recession occurred, which placed the unemployment rate of the Spanish economy at histor-

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ical highs in the first quarter of 2013 (26.94%). Secondly, starting from 2014, there was an intense period of recovery, reducing the unemployment rate by more than twelve percentage points until 2019. Finally, from 2020 onwards, a health pandemic occurred, which resulted in an unknown number of employment regulation processes and sick leave due to illness and temporary incapacity, which until nowadays, it continues to remain at higher levels than the trend this variable had before 2020 (Dueñas, et al., 2021).

Despite this succession of turbulent events and this concatenation of contracting and expanding phases, the Spanish labor market continues to suffer from a series of structural problems, which seem to exhibit an exogenous behavior to the positive or negative evolution of labor organization. In this sense, wage discrimination (Anghel, et al., 2019; Dueñas, et al., 2015a; PWH, 2019), labor segregation (Dueñas, et al., 2015b; López, et al., 2019), and the set of gender roles that condition labor relations between men and women[1] in our labor market are challanges that remain pending without a definitive solution (Cebrián & Moreno, 2008).

These three problems, which are not independent but rather related to each other (Palacio & Simón, 2006), are strongly influenced by women's work trajectories (Cebrián & Moreno, 2015), conditioned in turn by the established belief in our society[2] that associates the role of the man or father with that of the main economic provider, and the role of the woman or mother with that of the primary caregiver for children and/or other dependents within the family environment. Despite the increasing participation of women in the Spanish labor market over the past decades -rising from an activity rate of 42.08% in the first quarter of 2002 to 53.58% in the fourth quarter of 2024- a relatively high percentage of couples with preschool-aged children (67%) agree with a family model in which the woman stays at home or works part-time, while the man works full-time (Moreno, 2015; Moreno, et al., 2017).

In many ocasions, these work trajectories are truncated for the female collective when they must change their professional activity towards a *family-friendly* job -fewer hours worked, part-time instead of full-time contracts, jobs with lower levels of responsibility, working in the public sector instead of the private sector, etc.- in order to reconcile work life with family responsibilities. In this way, women would be accepting the fact of earning less for their work in exchange of obtaining a higher level of utility from the working conditions of the new job (Blau, et al., 1998; Petrongolo, 2004).

Within the analysis of women's labor trajectories and the ongoing need to balance work and family life, extensive literature examines labor transitions, including job changes or exits from the workforce following childbirth or the presence of dependent minors in the household. These studies highlight the persistence of gender roles, with women facing labor market disadvantages. This article focuses on job changes motivated by the need to care for children or other dependents,

[1] This set of relationships is framed within the concept of gender regime, coined by Pfau-Effinger (1990, 2010).
[2] This is shown in Moreno (2005) through a comparative study of welfare regimes in southern Europe.

expanding the existing literature by considering not only childcare but also eldercare responsibilities. Changing jobs to achieve work-family balance perpetuates gender inequality in the labor market, wage discrimination, occupational segregation, and the persistence of traditional gender roles.

The fact that, in Spain, it is primarily women who alter their career trajectories when the household requires more hours of unpaid labor highlights a social issue that extends beyond the labor market and is rooted in persistent gender roles in the country. An example of this issue is presented by Martínez-Pastor et al. (2024), showing that Spain has lower levels of *men in care* than the European average, with a gap of more than 20 percentage points between men and women engaged in family caregiving. Similarly, studies indicate that during the COVID-19 pandemic, women increased the number of hours dedicated to caregiving and childcare, despite already devoting twice as many hours to these tasks as their male partners before the pandemic (Farré et al., 2022).

Based on that, in the case of the Spanish labor market, Table 1 shows the reasons why men and women changed jobs between 2014 and 2019. This table shows a significant difference in the case of caring of dependents against the female group, thus showing the greater sacrifice made by women when caring for dependents at home, since they are the ones who have to look for a *family-friendly* employment to a greater extent.

Table 1: Reasons for males and females to change their job

Reason to change jobs	Males	Females	t-test of mean differences
Get a better job	35.63%	37.92%	1.96**
End of contract	34.27%	35.39%	-0.69
Forced by the firm	13.17%	8.59%	9.02***
Closing the business	1.82%	1.27%	2.70**
Caring of dependents	0.35%	1.83%	-8.82***
Moving to another place	0.22%	0.28%	-0.5
Others	14.54%	14.73%	-3.35**

Source: ECV (Encuesta de Condiciones de Vida), available at INE.

Taking into account this series of issues, the research proposed here has two main goals: (i) we aim to analyze what socio-labor variables determine the probability that women have of changing jobs in order to dedicate a certain amount of time in taking care for children and/or other dependents within the household, and (ii) we want to analyze in terms of salary, the impact of this decision. In other words, how much salary women give up when they change jobs to provide family care. In this sense, the proposed analysis goes beyond the literature that addresses the wage penalty for women due to childcare - *child/motherhood penalty* - (Herrarte & Urcelay, 2022; De Quinto, et al., 2020), expanding the field of study to include the penalty for caring for dependent persons - *dependency penalty*.

To achieve the goals of this paper, the database used is the Survey of Living Conditions (*Encuesta de Condiciones de Vida*, ECV). Regarding the first goal of this paper, we use the pooled cross-section data from the ECV, from years 2014 to 2019.[3] For the second objective of the paper, we use the longitudinal ECV from years 2008 to 2019. The longitudinal database with such a broad time period can be obtained by merging the different ECVs provided by the National Institute of Statistics (*Instituto Nacional de Estadística*, INE).[4] The resulting panel from this merge allows us to get an understanding of demographic, labor, and wage variables over a period that can extend up to four consecutive years, including information on whether the surveyed person has changed jobs in the last twelve months and what the reason for this change is, being *for childcare and/or other dependent persons* one of the possible answers.

Our findings indicate that economic factors are pivotal in the decision for females to change jobs due to caregiving responsibilities. Specifically, females with lower salaries, temporary contracts, and those employed in large firms are more likely to seek *family-friendly* jobs, given that the marginal cost of these transitions being minimal. Additionally, there is a notable wage penalty associated with these job changes. These results underscore the need for policy measures to improve job security, wages, and flexible work options for women in precarious economic situations.

To the best of our knowledge, there are no similar studies in this aspect, at least for Spain, partly because there are not many databases that provide information, on one hand, about recent job changes and the reason for such changes, and on the other hand, about the salary obtained before and after such changes.

The rest of the paper is structured as follows: following this introduction and statement of the objectives to be achieved, the article analyzes the theoretical background in which this research is framed. Next, the data used and the econometric methodology are presented, followed by the results obtained from this methodology. Finally we conclude the paper and present the recommendations to policymakers that can be drawn from this paper.

2 Theoretical Background

Within the analysis of family and labor strategies from a comparative perspective between countries, the Spanish labor market has historically been situated among countries defined as *Mediterranean welfare regime* (Ferrera, 1996; Trifiletti, 1999), where there is a strong emphasis on family relationships, limited development of family policies allowing work-life balance, little flexibility in the labor market, for example, regarding the limited availability of part-time jobs, as well as limited participation of women in the labor market.[5] Based on these characteristics, numerous studies have shown that

[3] The changes in working conditions that occurred in 2020 due to the healthcare recession (teleworking, layoffs, etc.) make it appropriate to carry the analysis through to 2019.

[4] The authors are grateful for the work carried out by Professor Marina Romaguera (UNED), as well as for the access to the database provided by the Research Group WEIPO (Well-Being, Inequality, Poverty and Public Policy) of the Universidad de Alcalá, headed by Professor Olga Cantó (UAH).

[5] There is extensive research on the implementation of these characteristics in the main southern European countries, including the work of Bettio and Villa (1998), Del Boca (2002), Flaquer (2002) and Moreno (2004).

individuals' decisions regarding work-life compatibility are influenced by the social and cultural context in which these individuals live (Delgado, et al., 2008; Moreno, 2007; Sevilla & De Laat, 2007), not forgetting the importance of the guidelines of public and family policies in shaping this context.

Similarly, this set of characteristics has led to a model of family and labor relations called the *male breadwinner model* (Pfau-Effinger, 2004; Ranci, 2010), where the man is the main economic provider for the family and there is an unequal distribution of family roles between genders. This system has been protected by the social responsibility of women in caring for children and/or other dependents living in the household,[6] unlike what has happened in other European countries where this responsibility is, in most cases, public.[7]

In recent years, specifically since the economic recession of 2008 and due to various factors such as a decrease in fertility, an increase in the educational level of women, and a higher likelihood of entering the labor market, as well as the sociological change that has occurred in certain gender roles, this model in Spain has experienced a certain decline, moving towards another model called the *adult-worker model family* (Lewis, 2006), in which both males and women become economic providers for the family unit (or household).

It should be noted that this transition has not occurred in a complete manner.[8] In other words, it is not possible to affirm that currently males and women within the family unit are equally responsible for family support and equally responsible for care services for children and/or dependent persons within the home. Instead, the model in which the strategic decisions between family and labor in the Spanish labor market can be framed is that of a woman/mother working part-time and a man/father working full-time (Moreno, et al., 2019).

This transition, still ongoing, has also been supported by a change in various directions regarding the preferences of males and females about family and labor decisions. Firstly, the literature shows a greater demand for formal services by families (Valarino, et al., 2018) as a substitution for the role of the *caregiver woman*. In this way, Spain would be approaching the Nordic or British model, given that the public sector does not have enough capacity to take care of dependent persons yet.

Secondly, a change happened, mainly among the female collective, regarding the desired type of family, considering that both males and females should have an occupation in the labor market (Moreno, et al., 2019). However, this modification has not occurred effectively but rather has an ambiguous nature, since, although the ideal family type is related to the two-

[6]For example, Gauthier and DeGusti (2012) show that Spain is one of the European countries where there is greater inequality in gender distribution about the time spent on child care.

[7]In this sense, it is possible to differentiate between two blocks of countries in terms of the public or private allocation of this care: on the one hand, the case of the Nordic countries and the United Kingdom, where the privatization of these family services has been market-oriented, favoring the family outsourcing of this type of services; on the other hand, the Central European countries have developed family policies so that the public sector provides families with this type of services, allowing for work and family reconcilation (Moreno, 2005).

[8]For example, Cebrián and Moreno (2022) find that for women born after 1980, the highest activity rate is reached around the age of 30, decreasing thereafter. Such increase in inactivity would validate the male breadwinner model.

sustainer model, in practice this does not fully occurs but instead, roles corresponding to the male breadwinner model are still maintained. Nevertheless, this situation shows certain progress compared to the study by Esping-Andersen and Billari (2015), where the existence of a stable trend in family preferences is discussed, as these run parallel to the transformation of gender roles and normative changes in public policies.

Thirdly, the change in individuals' preferences regarding traditional gender roles corresponding to the male breadwinner model is also noteworthy. For example, there is a growing literature addressing the increase in the use of parental leave by fathers (Arnalds, et al., 2021; Meil, et al., 2018; Moreno, et al., 2023), concluding that there are multiple benefits from this decision, ranging from increased paternal involvement, greater gender equality, to improved child well-being (Brandth & Kvande, 2018; Huerta et al., 2013; Pragg & Knoester, 2017). It is important to note that this decision by parents is highly positively correlated with two factors involving the female collective: on one hand, greater female/mother labor force participation increases the likelihood of the male/father taking parental leave (Moreno, et al., 2022), which represents a joint strategy within the family (shared family and work tasks model) rather than an individual strategy by the man (male breadwinner model). On the other hand, the higher educational level of the female/mother increases the likelihood of the male/father taking paternity leave (Moreno, et al., 2023), implying that these decisions within the household are made rationally in terms of opportunity cost rather than adhering to the traditionally established gender roles.

With this conceptual framework as a reference regarding the development of family strategies in Spain towards the distribution of childcare and/or dependent persons and labor tasks, it is important to highlight some characteristics of the female collective's job offerings in Spain and how women shape their professional careers.

Based on the *Economics of Identity* (Akerlof & Kranton, 2000), female's access to certain occupations where the male gender predominates entails a cost due to the loss of female identity and possible rejection from male colleagues in job performance. In this sense, females would have an *attraction effect* towards occupations defined as feminine, in order to avoid these costs. The results obtained by Dueñas, et al. (2014 and 2016) confirm that such effect is of great importance in the Spanish labor market, meaning that the female collective in Spain has a considerable propensity to work in *feminine* occupations.

A similar idea is proposed by Bender, et al. (2005) based on the preference for segregation, known as the *happy segregated paradox* (Hull, 1999; Parks et al., 1995). Similarly to the case of *Economics of Identity*, the results obtained in García, et al. (2016) demonstrate that females are happier than males in the workplace simply because they work with other females.

In contrast, the *Theory of Pollution* (Goldin, 2002) highlights the cost to the male collective when females access masculinized jobs, understanding this cost as a decrease in the average productivity of such jobs, with consequent wage costs.

Due to this *pollution* of masculinized occupations, we could expect a rejection of females' intrusion into their jobs. In this line, the results obtained in Dueñas, et al. (2014 and 2016) and in Llorente, et al. (2021) partially confirm this theory for the Spanish labor market, with lower robustness than the aforementioned *attraction effect*.

In conclusion, the literature analyzed for the completion of this work indicates that the Spanish labor market still maintains some characteristics of the *Male breadwinner model*, although progress is being made towards a model of shared family and labor role strategy by both breadwinners. On the other hand, empirical evidence shows that the female collective maintains a certain attraction to *feminine* occupations that allow for a greater degree of work-life balance. In this context, the analysis of the socio-labor variables that determine a woman's decision to change jobs in order to provide caregiving for dependent individuals within the household, as well as the wage penalty associated with transitioning to a family-friendly job, is fully justified. On one hand, this analysis serves as a means to assess the extent to which the Spanish labor market is indeed transitioning from the *male breadwinner model* to the *Adult-worker model family*. On the other hand, it allows for the quantification, in monetary terms, of the decision made by women when changing jobs -whether this decision stems from individual preferences (as in the *Adult-worker model family*) or from the persistence of traditional gender roles (as in the *Male breadwinner model*).

3 Data

We use data coming from the *Encuesta de condiciones de Vida (ECV)*[9] available at the *Instituto Nacional de Estadística (INE)*[10] covering the period from 2014 to 2019, inclusive. The rationale behind our selection of these years lies in Spain's economic landscape: the years between 2009 and 2014 were defined by a recession, marked by significant distortions in the labor market, with unemployment soaring to 26% in 2013 (according to the Spanish Labor Force Survey). Subsequently, in 2020, the COVID-19 pandemic and subsequent national lockdown affected drastically the Spanish labor market, prompting the implementation of various policies to mitigate the exponential surge in unemployment rates. Consequently, we opt to focus on years characterized by economic expansion in Spain, ensuring a stable economic environment for our analytical purposes.

For the first part of our analysis, we rely on the aggregated cross-sectional ECV data, which limits our ability to track individual behaviors longitudinally. The ECV is a nationally and regionally representative household survey that ensures population-level inference. Our sample consists of 208,879 individuals across the specified years, with 107,903 being females. Due to data constraints, we are unable to use the Panel Data version of the ECV, as it contains numerous missing observations in key variables crucial for our analysis, such as occupational sector, firm responsibilities, job type, contract details, etc. Nonetheless, for the latter part of our study, we turn to the continuous ECV dataset to examine the wage

[9] Live Standards Survey.
[10] Spanish National Institute of Statistics.

dynamics of women who undergo job changes due to childcare or other caregiving responsibilities.

Table 2: Summary Statistics - Individual controls for females

Variable	Mean	s.d.	Min	Max	Observations
Change job due to caregiving reasons	0.0015	0.026	0	1	107,903
Age	48.93	18.55	16	85	107,903
Spanish	0.89	0.314	0	1	107,126
Household size	3.13	1.361	1	14	107,903
Number children	0.07	0.376	0	7	107,903
Married	0.546	0.498	0	1	107,903
Household Income	6409.378	10292.09	0	276580	107,903
Urban	0.501	0.500	0	1	107,903
Unemployed	0.13	0.334	0	1	107,903
Retired	0.012	0.324	0	1	107,903
Indefinite contract	0.77	0.420	0	1	107,903
Full-time contract	0.34	0.473	0	1	107,903
White-collar	0.53	0.499	0	1	107,903

Source: ECV (Encuesta de Condiciones de Vida), available at INE.

In any case, for both datasets, we have to generate our variable of interest (*Change_job*), which assigns a value of one if a female has changed her job within the past year due to childcare or other dependent care obligations within her household or family. If this condition is met, she is categorized into the group of interest; otherwise, she is automatically placed in the comparison group. In this case, in Table 2 we observe that merely 0.15% of our female subsample falls within our group of interest (moving to another job because of caregiving reasons). Despite this being a minor proportion, conducting a balance test across groups, as outlined in Section 3.1, reveals that the treatment and control groups are balanced, as the resulting F-test is 0.53 (see Table A1 in the Appendix), indicating the absence of systematic differences between females in either group.

Table 2 presents the summary statistics of our sample. Notably, the average age of females is 48 years, with a standard deviation of 18 years. However, the average number of children is nearly zero, implying that if females have children, most are likely adults; therefore, they might not live in the household. Furthermore, a majority of females are married (54.6%), hold indefinite contracts (77%), but only a few ones have a full-time job (33%). Additionally, 13% of females are unemployed, while only 1.2% are retired, with approximately half residing in urban areas.[11] Household income averages at 6409€ per year, but with considerable dispersion from the mean. Finally, 53% of females work in a white-collar employment.

[11] We define *urban* area as a dummy variable that takes value one if the individual lives in a highly populated area and zero otherwise.

Table 3: Summary statistics: Female net wage differential across treatment and control groups

	Group of interest		Comparison Group		Testing Differences	
Variable	Mean	Standard Deviation	Mean	Standard Deviation	$t-$test difference	$p-$value
Net Wage	6844.65	7043.95	7280.83	11419.57	0.73	0.462

Source: ECV (Encuesta de Condiciones de Vida), available at INE.

Table 3 provides a summary of statistics concerning the net wage earnings of females in both the treatment and control groups. The treatment group comprises females who changed jobs in the past twelve months due to childcare or other caregiving responsibilities, while the control group consists of those who did not. Interestingly, females in the treatment group exhibit an average yearly wage 436€ lower than their counterparts in the control group. But when testing the mean differences across groups, we do not observe that such difference is statistically significant.

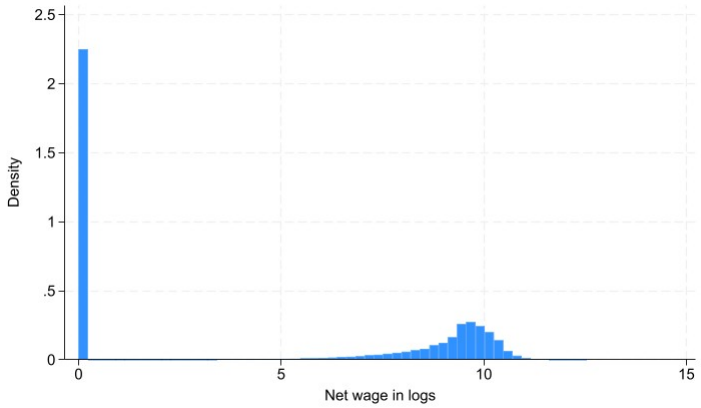

Figure 1: Wage distribution histogram
Source: ECV. The Figure shows the wage distribution across females.

Furthermore, as illustrated in Figure 1, a considerable portion of reported net wages is zero. Consequently, it is crucial to acknowledge that the wage differentials presented in Table 3 may not accurately capture the true wage disparity between females in the two groups. This is primarily due to the potential presence of sample selection bias and the small number of females changing jobs due to caregiving responsibilities. Hence, we need to proceed with the estimation of more sophisticated wage models to assess the genuine impact of treatment on wage penalties (or not), as elaborated further in Section 4.

3.1 Balance Table - Randomize Sample

To assess the balance between the group of interest and the comparison group, we examine the normalized differences in Table 4. Given the low proportion of females changing jobs for caregiving reasons, it is essential to verify if these females differ significantly from the comparison group, ensuring sample balance across groups. Adopting the Imbens and Rubin (2015) approach, a normalized difference of 0.25 or less indicates balanced data.[12]

Table 4: Balanced Summary Statistics for females

	Do not Change Jobs (1)		Change Jobs (2)		Normalized Difference
Variable	Mean	SE	Mean	SE	(1)-(2)
Age	48.935	0.057	36.446	0.810	0.891***
Spanish	0.889	0.001	0.703	0.053	0.472***
Household size	3.131	0.004	3.365	0.110	-0.200
Number children	0.070	0.001	0.041	0.030	0.093
Married	0.546	0.002	0.716	0.053	-0.358***
Household Income	6409.316	31.349	6499.430	785.427	-0.010
Urban	0.501	0.002	0.473	0.058	0.056
Full-time contract	0.338	0.001	0.405	0.057	-0.140
White_collar	0.660	0.002	0.716	0.053	-0.121

Source: Encuesta de Condiciones de Vida (ECV), INE. The value displayed for t-tests are the differences in the means across the groups. The normalized difference is understood as the difference between the mean of the treatment group and the mean of the control one, over the square root of half of the sum of the treatment and control group variances (as defined in McKeinze, 2017). Standard errors are heteroskedastic. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level. The F-test for the joint orthogonality is 0.53 with a corresponding p-value equal to 0.9999

As we can observe in Table 4, the sample is well-balanced as most of the normalized differences are below 0.25. In this case, we excluded certain variables from the general summary statistics, such as unemployed or retired, as all the females that belong to the group of interest are employed; therefore, the inclusion of these variables would lead to imbalance mean differences. However, we observe that the normalized differences in age lead to an imbalanced sample across females in both groups. Despite that, we observe that the average age lead to a sample of adult females in both groups, prompting speculation that among females changing jobs due to family care, some may be caring for dependent parents requiring assistance with daily tasks. Marital status and nationality also show imbalances, but other variables are balanced.

To ensure the balance across groups, we perform the balanced test (or exogeneity test) as discussed above and also in more detail in Section 4, resulting in an F-statistic of 0.53, suggesting no systematic differences across groups. Thus, our sample is well-balanced, validating our assumption that females transitioning to *family-friendly* jobs for caregiving are, on average, identical to the rest of the females of our sample. Therefore, wage changes should be attributed to the job

[12] A *normalized* difference is defined as *the mean difference between the group of interest and the comparison group, divided by the square root of half the sum of the variances of both groups* (see McKenzie, 2017).

change decision rather than individual effects or region-specific shocks.

4 Empirical Strategy

In this section we analyze the methodology we use to develop the two proposed goals of this paper. Firstly, we aim to test which variables condition the possibility that a female has changed her job in the past year due to caregiving duties for family members (regardless of whether they live in the same household). To do this, we estimate a probabilistic model as follows:

$$change\_job_{i,t} = \Phi\left(\beta_0 + \vec{X'}_{i,t}\beta_1 + \rho_{i,r} + \tau_t + u_{i,t}\right) \tag{1}$$

where our dependent variable is *change_job*, which is a dummy variable that takes value one if the female has changed her job due to caregiving reasons and, $\Phi(\cdot)$ represents the cumulative distribution function. The vector $\vec{X}$ includes the following demographic and labor variables: age, age-squared, tenure and its square, the log of household income, household size, number of children in the household, marital status, nationality, area of residence (urban or rural), educational level, capability to handle unforeseen expenses, type of contract, sector of employment, and firm size (small, medium, or large). ρ and τ account for region and time fixed effects, respectively. Finally, u represents the error term of the regression.

However, we should consider that the analyzed females are part of the working-age population and, thus, it is possible that Equation (1) incurs in a sample selection bias problem by leaving out of the sample the inactive females that, having similar characteristics to the surveyed females, are not part of the estimated model. For this reason, to deal with the issue of zeros and understand why some females might be out of the labor force, we proceed with a probabilistic Heckman model (Heckman, 1979) with the following specification, first for the selection equation:

$$labor\_force_{i,t} = \Phi\left(\alpha_0 + \alpha_1 partner\_work_{i,t} + \alpha_2 partner\_out\_lf_{i,t} + \vec{X'}_{i,t}\alpha_3 + \rho_{i,r} + \tau_t + u_{i,t}\right) \tag{2}$$

where *partner_work* and *partner_out_lf* are the instrumental variables used in the selection equation. The first variable is a dummy that takes value one if the partner of the female works and the second one is another indicator variable taking value one if the partner of the female is out of the labor force. We use $labor_force$ as our selecting variable, which determines whether the female is part of the labor force or not. The rest of controls are as in Equation (1). In this case, we estimate the selection equation through a Probit model. Once we obtain the estimates, we proceed with the test for the relevant condition of the instrumental variables and the estimation of the inverse of Mill's ratio to include it in the second stage regression of the probabilistic Heckman model:

$$change\_job_{i,t} = \Phi\left(\beta_0 + \vec{X'}_{i,t}\beta_1 + \psi\lambda_{i,t} + \rho_{i,r} + \tau_t + u_{i,t}\right) \tag{3}$$

Therefore, Equation (3) is as the first one presented in this section, but we account for sample selection by including the inverse of Mill's ratio (λ) in the model. To test for sample selection, the hypothesis is H_0: $\psi = 0$. If the null is rejected, we have sample selection, and thus, the probabilistic Heckman model is the correct one to be used.

For the second goal of the paper, we aim to estimate the cost of such decision (i.e., changing jobs because of having to spend more time caring for their children and/or other dependents) in terms of wage. Therefore, the starting point is the division of the female group of the sample into two categories: the group of interest is composed by those females who change jobs in the past years because of caregiving reasons, and the comparison group is made up by the rest of females of our sample.

Prior to the estimation of the wage penalty equation, we proceed to estimate a balance test in which we want to analyze whether the group of interest (change jobs because of caregiving reasons) and the comparison group are balanced or not. That is, if the females representing one group have similar characteristics to the females representing the other group and thus, can be compared with each other. For this procedure, we use the methodology proposed by Imbens and Rubin (2015) in which we proceed with the estimation of a linear probability model, using the treatment dummy variable as the dependent variable and the regressors are those variables that define the characteristics of the females: age, number of children, marital status, education, income level, etc., in addition to including the fixed effects of region and time in the regression. In this case, the idea of the test is that the sum of all the estimated coefficients in the linear probability model equals zero, and thus, the null hypothesis that females belonging to the treatment group do not differ systematically from females belonging to the control group is not rejected. In this case, as reported in Table A1, the resulting F-test is 0.53, which means that the proposed hypothesis is not rejected and thus, the sample is well balanced between both groups. This indicates that the assignment of groups in this case is random, and thus, the estimated coefficient for this parameter in subsequent regressions avoids certain biases.

Once this check has been made, the monetary impact of changing jobs due to caring for children or other dependent persons is estimated through a *Differences in Differences* (D&D) methodology between the groups of interest and comparison previously established. This methodology is often applied to the evaluation of the impact of public policies as it allows comparing the evolution of two populations with similar characteristics before and after the measure has been implemented (Arranz & García-Serrano, 2023), although it is also used in issues related to the wage penalty of the female collective in the case of motherhood (Kleven, et al., 2019). In this study, this methodology is used to measure the wage cost assumed by the female collective when deciding to change jobs by comparing their salary after making this change with the salary of females who have not changed jobs. However, we must keep in mind that there may be a potential sample selection bias in this regression, due to the number of zeros reported in the wage variable, as shown in Figure 1. This implies that, if such a bias really exists, we should proceed with the estimation of a Heckman model. Therefore,

using the selection equation presented in Equation (2), we estimate the wage equation as follows, using the continuous ECV:

$$\omega_{i,t} = \beta_0 + \beta_1 change\_job_{i,t} + \vec{X'}_{i,t}\beta_1 + \psi\lambda_{i,t} + \rho_{i,r} + \tau_t + u_{i,t} \tag{4}$$

where ω represents the net yearly wage of the female, which in this case we estimate it in levels to know the penalty in monetary terms, and in logarithms to know the relative loss to other females. *change_job* is our variable of interest and it is as described in Equation (1). The rest of the variables are as in Equation (3). We also include the inverse of Mill's ratio, to test for sample selection. Finally, τ the year fixed effects. In this case, the coefficient of interest is β_1 as it captures the wage increase in percentage terms experienced by females that have to change jobs due to childcare and/or other dependents relative to other females. And, as before, the ψ parameter shows us whether there is sample selection in the model or not. In this case, the null hypothesis is that there is no selection in the model and that the estimated parameter ψ is equal to zero and therefore we could use a Tobit model to correct for censoring in the dependent variable. Otherwise, we have sample selection and the Heckman model is the right one.

5 Female characteristics to change jobs due to caregiving reasons

Between years 2014 and 2019, a total of 146,088 women changed jobs to dedicate time to their children or dependent elderly individuals living in the household.[13] In a first descriptive estimation in Figure 2, it is observed how these females are distributed according to their age into three clearly differentiated population groups: firstly, a population of young females around the age of 30 whose reason is the care of dependent children; secondly, a group of females aged around 35-38 that have not only changed jobs to care for dependent children but also for the care of dependent elderly individuals; and thirdly, a collective of females aged between 43 and 50 whose reason is to care for dependent elderly individuals.

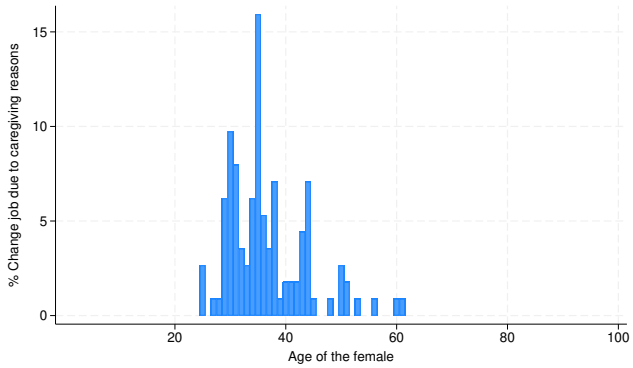

Figure 2: Females changing jobs in the past twelve months due to caregiving reasons - by age
Source: ECV. The Figure shows the number of females changing job due to caregiving reasons by different ages.

[13]This estimate is derived from the ECV data in population terms, where the number of females making such job transitions is adjusted using population scaling.

Secondly, we have estimated econometric models to identify the sociodemographic variables that influence the decision to change jobs within the past twelve months due to the need to care for dependent minors or elderly individuals. This analysis includes the Inverse of Mill's ratio to control for potential sample selection bias. The regression model is specified in Equation (3), and the results are presented in Table 5.

Table 5: Individual characteristics for changing job

	(1)
	Change_job
log-Net Wage	-0.121***
	(-9.20)
Able to handle unforseen expenditures	-0.386**
	(-2.97)
Full-time contract	-0.560***
	(-4.61)
Big firm (more than 50 workers)	0.391*
	(2.50)
_cons	-1.723
	(-0.86)
λ	-1.047*
	(-2.10)
N	23,320
R-Squared	0.2655

Source: Encuesta de Condiciones de Vida (ECV), INE. Note: In this table we present the results for the females characteristics that induce them to change their job because of caregiving reasons within the family. Because the set of individual characteristics is quite long, we present in this table only those estimates that significantly affect this likelihood. The full set of results are in Table B1 in the Appendix. We also control for age categories, marital status dummies, whether the individual is Spanish or not, the household size, the number of kids the individual has, and other individual controls. Moreover, we also include region and term fixed effects in all specifications. We compute heteroskedastic-robust standard errors. t-statistics in parentheses: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

First, we observe the estimated coefficient for sample selection (λ) and reject the null hypothesis that the coefficient is equal to zero. Consequently, we apply a Heckman-Probit estimation model to account for potential sample-selection biases in the estimations. The instrumental variables for the selection equation exhibit negative and statistically significant coefficients. This indicates that if the female's partner is employed, there is a lower likelihood of the female being part of the labor force. Similarly, if the female's partner is out of the labor force, this also significantly reduces the female's probability of labor force participation. These findings suggest a strong interdependence between the labor force statuses

of partners, implying that in many cases, neither member of the household is engaged in the labor market. The detailed results of the selection equation are presented in Table B1 in the Appendix of this paper.

Hence, looking at the Probit estimates in Table B1 in the Appendix, we observe that most of the controls included in the regression do not have a statistically significant effect on the likelihood of females changing jobs in the past twelve months due to caregiving obligations. However, Table 5 highlights those coefficients that are statistically significant in explaining job changes due to caregiving reasons. In this case, we observe that economic variables play a crucial role in the decision to move towards *family-friendly* jobs. Specifically, females with lower salaries are more likely to change jobs, as are those under temporary contracts and those working in large firms. This underscores the importance of job stability in retaining current employment. Additionally, females unable to handle unexpected expenses are more likely to change jobs, indicating their need to secure consistent monthly income and flexibility to manage unforeseen expenses alongside caregiving. Therefore, females with full-time contracts are less likely to change jobs, as their higher earnings may enable them to afford alternative caregiving arrangements for household members in need of care. Additionally, transitioning to a part-time position may entail a substantial opportunity cost, given the potential for significant wage loss.

Such results imply that the marginal cost of moving to a *family-friendly* job for a female not under good labor conditions should be minimal. Therefore, we note that females in poor economic situations are more likely to change their jobs due to caregiving reasons, suggesting the need for policy measures to help this group. Policies enhancing job security, better pay, and flexible work arrangements can assist in balancing work and caregiving responsibilities.

6 Wage gap differential

Once we have stablished the facts that cause a female to change jobs because of caregiving reasons, now we want to estimate what the cost of such decision is. Our objective is to scrutinize the outcomes derived from the wage equation utilizing the continuous ECV dataset, structured as panel data. Our aim is to ascertain whether any alterations occur in salaries following job changes due to caregiving responsibilities and, consequently, to discern if there exists a wage disparity attributable to this factor.

So far, our analysis has led us to the conclusion that the economic situation significantly influences females' decisions to change jobs due to caregiving responsibilities, such as the capacity to face unforeseen expenditures, as females facing challenges in meeting unexpected payments are more likely to change jobs, opting to get a *family-friendly* employment, as the marginal cost of such decision, in salary terms, would be minimal. But also, the labor market situation proves to be a crucial determinant, with females in full-time employment displaying greater reluctance to switch jobs, whereas those with temporary contracts are more open to accommodating caregiving responsibilities through job changes.

Table 6: Estimates of the Wage equation

	(1) Labor Force	(2) Wage	(3) Wage	(4) Wage
partner_work	-0.267***			
	(-4.63)			
partner_out_lf	-0.895***			
	(-57.74)			
change_job	0.364	-1548.66*		2111.3
	(1.68)	(-2.26)		(0.65)
End of contract			-459.9	
			(-1.03)	
Forced by the firm			-590.9	
			(-0.62)	
Firm clousure			-3089.7	
			(-1.29)	
Caregiving reasons			-2220.2*	
			(-2.14)	
Other reasons			207.4	
			(0.35)	
change_job × household size				-1039.8
				(-1.10)
λ		-581.03**	-8598.0***	-583.0**
		(-2.84)	(-3.76)	(-2.85)
Relevance test of IVs	1663.01			
	0.0000			
Model	Selection Equation	Heckman	Heckman	Heckman
N	110,486	55,635	55,635	55,635
R-Square	0.6543	0.2339	0.2383	0.2340

Source: Encuesta de Condiciones de Vida (ECV), INE. Note: In this table we present the results for the wage equation, including the selection equation, in column (1). The *Partner employed* and *Partner Out of Work* coefficients are our selecting variables to be part of the working force. The first one shows how the fact that your partner works (i.e., he has a paid job) affects the likelihood of working for the female. Whereas the second one represents the effect that your partner is inactive has on females' probability of working. The *change_job* coefficient reports the effect that changing job due to caregiving reasons had in the females' wage. We control for age categories, marital status dummies, whether the individual is Spanish or not, the household size, the number of kids the individual has, and other individual controls. Moreover, we also include region and term fixed effects in all specifications. Moreover, we include in columns (3) and (4) two robustness exercises to ensure that the findings in column (2) are strong and reliable. We compute heteroskedastic-robust standard errors. t-statistics in parentheses: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Full set of estimates are in Table B2.

Understanding the pivotal characteristics influencing females' decisions to change jobs due to caregiving responsibilities, we now advance to estimate the wage disparity between females who change jobs and the rest of the females in our sample. Employing a D&D approach, our analysis reveals a wage decline among females who changed jobs for caregiving reasons, in contrast to other females.

Table 6 provides the estimates of the wage-penalty equation, using a Heckman approach to control for sample selection issues. In this context, we prioritize the Heckman estimates, given the statistically significant results of the lambda of Heckman, implying that there is sample selection within the wage equation. In monetary terms, we observe that females changing jobs due to caregiving obligations earn 1549€ per year less relative to the rest of the female sample, being this effect statistically significant. Notably, this value surpasses the differences in means computed in Table 3, underscoring the necessity for more sophisticated estimation methods to address potential sample selection biases, as we do with the Heckman estimation. Therefore, these findings from the wage equation indicate the presence of a notable wage penalty linked to job transitions prompted by caregiving duties.

Commenting briefly the selection equation, as described in section 4, we find that both instruments have statistically significant effects on the likelihood of females' workforce participation. These effects are consistent with the previous findings: if the female's partner is employed, it reduces the female's likelihood of being part of the labor force. Similarly, if the partner is not in the labor force, the female's probability of participating in the labor market also falls. This points to a positive relationship between the labor force statuses of partners, but a negative correlation between employment status and labor force activity. Furthermore, the joint significance test of the instruments yields an F-test value of 1663.01, indicating that the relevance condition of the instrumental variables is met, validating their use in the selection equation.

In another relevant aspect, we also proceed to test the Parallel Trends Assumption, and in this case the study clearly passes the test as shown in Figure C1, where the F-statistic is 0.07 with a p-value of 0.7915, which indicates that the null hypothesis that the salaries of the females surveyed do not anticipate the fact that they will change jobs due to childcare is not rejected and, thus, the Parallel Trends assumption is met.

Additionally, we conduct a robustness exercise by controlling for all reported reasons for job changes to determine if other factors might contribute to a wage penalty. The results, presented in column (3), indicate that the only reason significantly associated with a decrease in female wages is changing jobs for caregiving reasons. Furthermore, in column (4), we include an interaction term between changing jobs for caregiving reasons and household size to assess whether the number of household members influences the wage penalty for females. In this case, we do not observe any significant effect on wages. Thus, after performing these two robustness checks, we confirm that job changes due to caregiving responsibilities are a critical factor in explaining wage penalties among females.

7 Robustness Exercise

To ensure the validity of the obtained results, we conduct a sensitivity analysis by restricting the sample to females who changed jobs within the past twelve months. This allows us to expand the group of interest while maintaining the focus on job transitions related to caregiving. As shown in Table 1, 1.83% of these women reported caregiving responsibilities as the primary reason for their job change. We re-estimate Equation (4) using this restricted sample, and the results are presented in Table 7.

Among women who changed jobs in the last twelve months, those who did so for caregiving reasons earned, on average, 1,924€ less per year than those who changed for other reasons. Although this effect is not statistically significant, the magnitude of the wage penalty is consistent with the estimate obtained from the full sample. However, due to limited variation in the treatment variable in this restricted group, formal statistical comparisons across samples are not feasible.

Table 7: Robustness Check: wage equation for those females who changed job in the past twelve months

	(1)
	Wage
change_job	-1924.5
	(-1.80)
_cons	-46754.3***
	(-3.35)
λ	-7082.5***
	(-3.38)
Model	Heckman
N	4409
R-Square	0.2323

Source: Encuesta de Condiciones de Vida (ECV), INE. Note: In this table we present the results for the robustness estimate of the wage equation using the sample of those females who changed job during the past twelve months. The *change_job* coefficient reports the effect that changing job due to caregiving reasons had in the females' wage. We control for age categories, marital status dummies, whether the individual is Spanish or not, the household size, the number of kids the individual has, and other individual controls. Moreover, we also include region and term fixed effects in all specifications. We compute heteroskedastic-robust standard errors. t-statistics in parentheses: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Full set of estimates are in Table B2.

8 Conclusion

In this study, we have analyzed the employment situation of females who change jobs to care for children and dependent individuals living in the household, thereby expanding the existing literature on childhood and motherhood penalties. Despite having a small sample of females making such job changes, the econometric tests conducted are robust enough to allow comparisons between this group and other females: through a balance test, we find that females belonging to the group of interest do not sistematically differ from those females in the comparison group.

The first significant finding highlights the substantial difference between males and females who change jobs to care for children or dependent individuals in the household, as it is predominantly females who make these job transitions. In line with recent research by Cebrián and Moreno (2022) and Moreno et al. (2019), this underscores the fact that in Spain, the male breadwinner model coexists with the adult-worker model family. Therefore, it can be concluded that the transition

from the traditional family and labor relations model, where men were the sole breadwinners, to a model where both males and females equally share family and work responsibilities, is still not fully complete. This situation highlights the depth and persistence of the *Male breadwinner model* in Spain. Despite its gradual erosion over the past decades, it continues to produce negative consequences in society, such as the gender gap in unpaid work (Moreno, 2013).

This paper also analyzes which are the socio-labor variables that determine the probability of females changing jobs to provide care for children or other dependents. This decision is notably influenced by their economic and labor market situations. Females with lower salaries, unable to face unforseen expenditures, temporary contracts, and those employed in large firms are more inclined to seek family-friendly jobs, as the marginal cost of such transitions is minimal.

In line with the literature on the childhood/motherhood penalty, which highlights the wage loss or deterioration of working conditions for women after motherhood (Herrarte & Ucelay, 2022; De Quinto et al., 2020), our analysis revealed a substantial wage penalty (dependency penatly) associated with job changes due to caregiving responsibilities. Employing a D&D approach, we found that females who changed jobs for caregiving reasons experienced a wage decline of 1549€ compared to other females. This wage disparity underscores the economic sacrifices females make to balance work and caregiving duties.

One significant limitation of our study is the amount of missing values in the continuous ECV dataset. This issue restricts our ability to comprehensively follow the behavior of individuals over time, particularly in determining the characteristics that influence their decision to move to family-friendly jobs. The missing data can introduce biases and limit the robustness of our findings.

Our findings highlight the need for policy measures aimed at improving job security, wages, and flexible work options for females, especially those in precarious economic situations. Addressing these issues could help mitigate the wage penalty and support females in managing both their professional and caregiving responsibilities more effectively. Similar to previous studies on the wage penalty for childcare, our research extends the understanding of this issue by including the penalty for caring for other dependents, thereby providing a broader perspective on the economic challenges faced by females in balancing work and caregiving roles.

In summary, the economic and labor market conditions significantly influence females' decisions to change jobs for caregiving purposes. The resulting wage penalty emphasizes the necessity for targeted policies to support females in these transitions, ensuring that they do not have to choose between adequate earnings and fulfilling caregiving roles.

Compliance with Ethical Standards

Data availability: The data used in this paper is the *Encuesta de Condiciones de Vida* available at the INE. Click here to access the data.

Conflict of interest: Both authors declare that they have no conflict of interest.

Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors.

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A Balanced Test

Table A1: Identification Strategy

Variable	Coefficient	(Std. Err.)
Age	0.000	(0.000)
Spanish	-0.002	(0.001)
Household size	0.000	(0.000)
Number of children	0.000	(0.000)
Married	0.001	(0.000)
Household income	0.000	(0.000)
Urban	0.000	(0.000)
Full-time contract	0.000	(0.000)
Indefinite contract	-0.001	(0.000)
White_collar	0.000	(0.000)
Constant	0.007	(0.002)
N	69764	
R-Squared	0.0033	
F-test	0.53	

Source: ECV, available at the Instituto Nacional de Estadística (INE). Here we present an exogeneity test of the treatment group. The model used to test this regression is a linear probability one, using the treatment variable as our dependent variable on all household characteristics and control variables. We use the F-test to check for exogeneity, under the null that all estimated regressors are equal to zero. Given that the F-test is 0.53, we fail to reject the null hypothesis and the identifying assumption of the paper, holds.

B Estimation Results

Table B1: Likelihood of chaging jobs due to caregiving reasons - Porbit and Heckprobit estimations

	(1) Labor_force	(2) Change_job
Partner_work	-0.744***	
	(-12.47)	
Partner_out_lf	-3.368***	
	(-56.40)	
Age	0.228***	-0.0000366
	(27.62)	(-0.00)
Age^2	-0.00276***	-0.000752
	(-33.54)	(-0.68)
Tenure	0.0944***	-0.0124
	(26.35)	(-0.47)
$Tenure^2$	-0.00115***	0.000403
	(-16.49)	(0.48)
Number Children	0.0702*	0.104
	(2.03)	(0.93)
Household Size	-0.250***	-0.0389
	(-21.47)	(-0.94)
Medium-populated Area	-0.0132	-0.0128
	(-0.47)	(-0.10)
Rural Area	0.0469	-0.0804
	(1.71)	(-0.66)
Unforseen Expenditures	-0.152***	-0.386**
	(-5.32)	(-2.97)
Spanish	-0.0417	-0.240
	(-1.16)	(-1.72)
Secondary Education	-0.0875**	0.590
	(-2.71)	(1.95)
A-levels Education	-0.110**	0.398
	(-3.03)	(1.18)
Undergraduate Education	0.189*	0.122
	(2.49)	(0.32)
Marter's or PhD Education	0.0474	0.519
	(1.38)	(1.64)
ln Household Income	0.157***	0.140
	(11.16)	(1.62)
White Collar Employment		-0.0972
		(-0.61)
Full-time Contract		-0.560***
		(-4.61)
Small firm (Between 11 and 19 workers)		0.222
		(1.25)
Medium firm (Between 20 and 49 workers)		0.114
		(0.56)
Big firm (more than 50 workers)		0.391*
		(2.50)
Supervises in the job		0.0419
		(0.25)
λ		-1.047*
		(-2.10)
_cons	-3.047***	-1.723
	(-13.34)	(-0.86)
Observations	251157	23320

Data Source: ECV, available at the Instituto Nacional de Estadística (INE). In this table we present the results the probit and Heckprobit estimates. Our dependent variable is the likelihood of changing job in the past twelve months due to caregiving reasons for the second stage of the heckpobit in column (2). For the selection equation, in column (1), we use as dependent variable the labor force participation. *partner_work* and *partner_out_lf* are the instrumental variables for the selection equation. Both are dummy variables, where the first one takes value one if the partner of the female works, zero otherwise and, the second one takes value of if the partner of the female is out of the labor force. For both specifications we account for all type of control variables to determine the characteristics that influence the likelihood of changing jobs, these controls are: age, age squared, tenure and its square, household size, number of children, household income, area where the female lives, marital status, nationality, capacity to face unexpected payments, education level and job characteristics. We also account for region and year fixed effects. Finally, λ represents the inverse of Mill's ratio. We compute robust standard errors. t-statistics in parentheses: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table B2: Estimates of the Wage equation

	(1) Labor_force	(2) ln-Wage	(3) Wage
Partner_work	-0.268***		
	(-4.63)		
Partner_out_lf	-2.895***		
	(-57.74)		
Change_job		-1.138*	-1548.7*
		(-2.26)	(-2.26)
[1em] Age	0.154***	0.145*	838.1***
	(38.81)	(2.49)	(5.45)
Age^2	-0.00239***	-0.00179**	-8.265***
	(-55.63)	(-2.73)	(-4.81)
Ttenure	0.0827***	0.0406***	97.56***
	(36.27)	(3.90)	(3.61)
$Tenure^2$	-0.00100***	-0.000725***	-1.640**
	(-22.09)	(-3.55)	(-3.12)
Number Children	-0.154***	-0.0118	-37.74
	(-4.74)	(-0.32)	(-0.41)
Household Size	-0.102***	-0.0721*	-272.5**
	(-17.21)	(-2.42)	(-3.11)
Medium-populated Area	-0.0231	-0.134	-465.3
	(-1.33)	(-1.17)	(-1.29)
Rural Area	0.00926	-0.485**	-1617.7**
	(0.49)	(-2.68)	(-3.08)
Unforseen Expenditures	-0.0861***	0.0653*	292.2***
	(-4.83)	(2.28)	(4.34)
Married	1.516***		
	(47.57)		
Secondary Education	0.301***	0.00371	437.9
	(7.68)	(0.03)	(1.28)
A-levels Education	0.319***	0.113	1646.5***
	(7.86)	(0.66)	(3.66)
Undergraduate Education	0.0824	-0.119	1528.0**
	(1.76)	(-0.61)	(3.15)
Master's or PhD Education	0.485***	0.390*	3151.3***
	(12.12)	(2.06)	(6.02)
Difficulties to economically reach the end of month	-0.0102	0.0478	82.64
	(-0.43)	(1.07)	(0.89)
Some difficulties to economically reach the end of month	-0.0141	0.0422	123.9
	(-0.60)	(0.89)	(1.22)
Easy to economically reach the end of month	0.0186	0.0971	335.6**
	(0.70)	(1.92)	(2.92)
Very easy to economically reach the end of month	0.0457	0.105	526.9***
	(1.52)	(1.91)	(3.95)
Type of house: unifamliar	-0.00286	0.120	65.60
	(-0.12)	(1.12)	(0.22)
Type of house: area with less than 10 houses	-0.0226	0.164	503.1
	(-0.94)	(1.03)	(1.13)
Type of house: area with more than 10 houses	-0.0395	0.218	966.4
	(-1.75)	(1.34)	(1.92)
Property with mortgage	-0.127***	-0.0635	-21.47
	(-7.76)	(-1.18)	(-0.14)
Rent at the market price	0.0615**	-0.0665	-621.4
	(2.90)	(-0.49)	(-1.52)
Rent below the market price	-0.0219	0.0941	-468.7
	(-0.76)	(0.81)	(-1.34)
Full-time Contract		0.119**	1022.3***
		(2.85)	(9.73)
_cons	-2.436***	4.613***	-8987.4*
	(-18.17)	(3.48)	(-2.33)
[1em] λ		-0.185*	-581.0**
		(-2.08)	(-2.84)
Model	Selection Equation	Wage Equation in Logs	Wage Equation in Levels
N	110486	55635	55635

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

C Parallel Trend Assumption

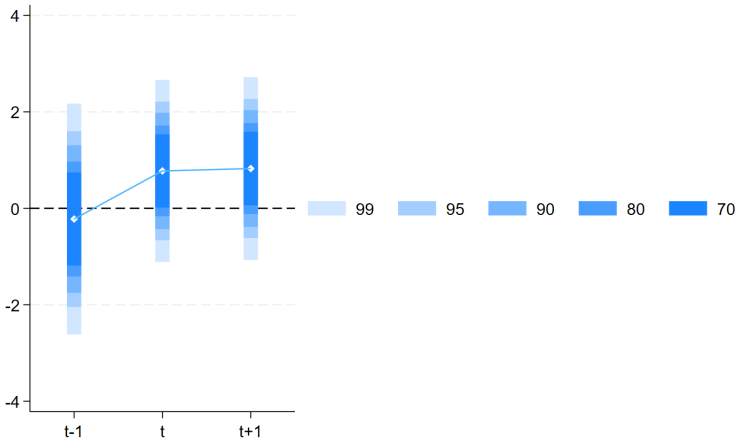

Figure C1: Parallel Trends Assumption
Source: ECV. The Figure shows the test of the parallel trends assumption for the wage equation.