DOCUMENT DE TREBALL

XREAP2015-02

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XARXA DE REFERÈNCIA EN ECONOMIA APLICADA

An analysis of wage differentials between full- and part-time workers in Spain*

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Abstract

This research examines wage differences between part-time and full-time workers using microdata from the Spanish *Structure of Earnings Survey*. The main contribution of the paper is related to the analysis of differences along the wage distribution using econometric decomposition methods and introducing a regional perspective. The evidence shows that part-time workers in Spain experience a significant wage disadvantage. This disadvantage is worse in the case of female workers and it is not homogenous along the wage distribution, being comparatively more relevant for the most qualified women and becoming positive for the most qualified men. However, the disadvantage is practically explained by the endowments of characteristics, with a leading role of segregation of part-time workers in low-wage firms. From a regional perspective, although in the majority of the regions wage differences tend to be explained by endowments of characteristics, there are several regions where the unexplained part of the differential is significant, particularly in the case of male workers. These regional differences seem to be related to differences in the market power of firms at the regional level.

Keywords: Part-time work, wage gap, regional differences.
JEL Codes: J31, J22, J41, R23

* This work was supported by the Spanish Ministry of Economy and Competitiveness under grants ECO2013-41022-R, ECO2013-41310-R, 2014 SGR-420 and CSO2014-55780-C3-2-P(National R&D&I Plan).
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1. Introduction

The number of part-time jobs has increased slightly but continuously in most advanced economies over the last decades. The ratio of total employment of part-time workers in the OECD increased from 13.9% in 1988 to 15.7% in 2012. Driving this type of employment are demand factors, such as the increasing importance of the service sector and fixed costs per employee, and supply factors, like increasing women's labour participation (Euwals and Hogerbrugge, 2006 and Montgomery, 1988). Furthermore, many governments have considered part-time jobs as a response to economic crisis, given that they offer greater flexibility to firms regarding the use of their labour force while at the same time facilitating job creation. In particular, after the crisis in the 1970s, some countries had a high share of part-time jobs, like Denmark (21.1%), Canada (16.4%), the Netherlands (19.7%), United Kingdom (20.1%), and United States (14.7%)—a trend that continued in the subsequent years. More currently (2013 data), part-time employment is prevalent in the Netherlands (39.9%), followed by Switzerland (25.4%), Ireland (25.1%), Australia (24.2%), United Kingdom (24.0%), Germany (22.8%), New Zealand (20.6%), Denmark (19.9%), Belgium (19.4%), and Austria (19.3%).

Anglo-Saxon countries and some Scandinavian and Central European countries, with different social and labour models, rank highest in part-time employment, and all of them have high rates of female labour force participation. On the contrary, part-time employment has advanced less in Mediterranean countries, particularly in Portugal (7.2%) and Greece (12.1%), with lower rates of female activity. In Central and Eastern European countries, part-time jobs are only starting to develop after the transition to a market economy, with values between 4.4% (Hungary and Czech Republic) and 7.6% (Estonia).

In the Spanish case, part-time employment increased slightly, from 4.2% in 1987 to 6.8% in 1995, but it clearly accelerated over the next two decades, up to 10.8%, and even more during the last crisis, up to 15.7% in 2013. This is a moderate figure, similar to the OECD average (15.4%) but lower than the EU (19.6%) and the Eurozone (21.5%) averages. On one hand, the lower presence of part-time jobs is likely because its regulation has not been clear until very recently (Muñoz de Bustillo et al, 2008 and Fernández-Kranz and Rrodríguez-Planas, 2010). On the other hand, firms achieve flexibility mainly through fixed-term contracts (24.0% in 2014, but 31.6% in 2007). A prominent characteristic of part-time employment in Spain, different from the vast majority of countries, is that it is mainly involuntary (62%).

Spain's increasing trend of part-time employment, which will probably continue in the future, is propelled by the legal change approved in late 2013 allowing more flexibility in the number of working hours. The involuntary nature of part-time employment, together with the fact that it represents 26% of total female employment, clearly justifies interest in analysing part-time jobs in

Spain. Additionally, although economic theory gives reasons to expect a wage penalisation for part-time employees, research on the Spanish case is scarce and inconclusive—two features that justify interest in advancing in knowledge of the consequences of part-time employment for wages. Finally, international literature on part-time employment does not include studies from the regional perspective on the phenomenon (as far as we know). The Spanish case is especially attractive from this perspective. Regional differences in part-time employment are important (Table 3). For instance, among men, the percentage of part-time workers in the Canary Islands doubles that of Asturias, while among women, Navarra is ahead of Madrid by eleven points. In general, we observe more part-time workers in tourist areas in the South and along the Mediterranean coast, and in the islands in the case of men. On the other hand, observed wage differences between part-time and full-time workers are widely dissimilar at the regional level; aggregated values are negative for both genders, and bigger among women, but regional differences are very important, especially for men. Additionally, Spain is a highly decentralised state (second in the EU after Denmark), and it is the country where regional governments manage a greater percentage of public expenditures, having wide competencies in active labour market policies. Hence, a regional analysis is particularly interesting in the Spanish case.

In this paper, we analyse wage penalisation for part-time workers in the Spanish labour market, distinguishing among men and women. One of the novelties of our analysis is that it does not focus solely on differences in terms of average wages, but it is extended to wage differences observed along the wage distribution, an aspect that, to our knowledge, has not been examined in previous studies. Second, wage differences by working time duration and for all regions (and both genders) are quantified, and we approximate the regional factors that explain the regional differences observed. Again, note that it is an approximation for which there are few precedents in the literature.

The database used in the empirical analysis is the *Encuesta de Estructura Salarial* (Survey of Earnings Structure; hereafter, SES). It is a survey designed specifically to determine the characteristics of the wage distribution in the Spanish labour market, making it particularly appropriate for the analysis of wage differentials, e.g., differentials associated with the type of working time. One of the most remarkable features of SES is that it offers abundant information about the characteristics of employees and their jobs, allowing for the introduction of firm fixed effects in the econometric estimations when including observations for various employees in every firm (that is, matched employer-employee microdata). Moreover, data provided by firms does not suffer from the limitations, widely outlined in literature, of surveys addressed to households, where the information about wages and working time suffers from measurement error. Although the SES does not give information about the family setting of the worker, and it is impossible to make any

corrections of the potential sample self-selection with the usual techniques, this limitation is minor when we consider that in Spain a minority of part-time workers are voluntary.

The structure of the article is as follows. In the second section we review the literature about wage differences between part-time and full-time employees. In the third section, we present the database used in the study. In the fourth section we describe the econometric methodologies used in the empirical analysis. In the fifth section, we present the empirical evidence obtained, and, finally, the paper ends with the main conclusions.

2. Literature review

Part-time employment is seen in the majority of the literature as another component of the secondary labour market that grants flexibility while providing employment for less qualified persons. It is closely linked to the labour market segment (students or young adults, women limited by familial responsibilities, advanced age adults, those approaching retirement or lacking in productive capacity, among others). This conception is facilitated by the characteristics usually associated to part-time jobs, like lower wages, high temporality (and absence of firing costs), and—in the case of many countries or the modality of partial employment—fewer worker rights, like paid holidays or remuneration for medical leave. Coherent with this view, the literature has analysed the differences between part-time and full-time employment, confirming that part-time employees have reduced access to social security benefits (Houseman and Matchiko, 1998), fewer labour progress opportunities (Tilly, 1990; Russo and Hassik, 2008), smaller pensions (Gimm and Arber, 1998; O'Connell and Gash, 2003), less labour stability (Muñoz Bustillo et. al., 2008; Fernández-Franz et. al., 2014), and a lower unionisation rate (Belous, 1988).

Despite all these differences between part-time and full-time employment, the issue that has garnered the attention of researchers is the study of wage differences. Table 1 presents a list of studies on the topic carried out in the last decade. The main conclusions that can be obtained from these studies are the following:

a) There is a negative wage difference (in terms of hourly wage) for part-time employees when compared to full-time employees.
b) Part of this raw wage gap is explained by differences in the characteristics between both groups of workers, whether observable or unobservable.
c) The characteristics of the job and the firm contribute to explaining the wage differential, given that many part-time workers are engaged in sectors, firms, and low-salary occupations (Hirsch, 2005, among others).

d) Despite adding multiple controls, an unexplained part of the wage differential persists, which is the wage penalty associated with working part-time. The wage penalty can be null for young people who accede to their first job (Russo and Hassik, 2008), while there is abundant evidence that the differential increases with age and especially with years worked in part-time positions (Wolf, 2014). Wage increase over time is inferior for part-time workers (Fernández-Kranz and Rodríguez-Planas, 2011).

e) While analyses for both genders are abundant and agree that wage penalty is usually greater for women than for men, studies that make disaggregated estimations are scarce. Literature has advanced in disaggregating by levels of qualification, concluding that the wage penalty is greater for the most qualified workers, given that they suffer more from the effects of occupational degradation (Connolly and Gregory, 2009), although quantile regressions have not been carried out to estimate the penalty along the wage distribution. There is also empirical evidence by labour market segment finding that the wage penalty happens entirely due to the concentration of part-time employments in the secondary segment (O'Connell and Gash, 2003).

f) Studies with regional disaggregation have not been conducted. Only two studies analyse a territorial level lower than the national level. Harris (1993) studies the issue for women in Northern Ireland, finding a penalty of 19%—a number higher than that which other authors have found for the whole of the United Kingdom. Wolf (2014) distinguishes between West and East Germany, obtaining practically identical results, which is not a surprise given the little regional detail considered.

Analysing the estimated wage penalty, we observe that the magnitude is unequal among countries and also among studies in the same country. However, in countries like Australia and South Africa, a positive wage bonus for part-time workers is observed[1]. The variety of results among countries seems to respond to institutional differences: the wage penalty is systematically higher in Anglo-Saxon countries, representatives of a liberal model, than in Central European countries and, especially, in Nordic countries, characterised by labour markets that are more regulated and that show higher union and social agreement practices.

[1] This result is explained by the theory of compensatory wages. Posel and Muller (2007) attributes the existence of such wage premiums in South Africa to the fact that part-time workers do not usually have labour stability or access to unemployment benefits or a retirement pension; furthermore, they benefit from minimal sectorial wages that are high for part-time work. Boot and Wood (2008) argue that high marginal tax rates that plague secondary familial incomes in Australia have to be compensated by the companies to be able to have enough part-time job supply. Additionally, contract part-time workers are compensated with wage premiums, although the latter has only been empirically demonstrated for women. Rodgers (2004) does not observe a premium or a penalty in Australia.

For instance, Bardasi and Gornick (2008) observe higher wage penalties for part-time women in the US, UK, Canada, and Italy than in Germany and, especially, Sweden, where they did not find any penalty. Pissarides et al. (2005) obtain similar results using data from the European Community Household Panel Survey (ECHP), as in the 15 countries they analyse, the highest wage penalty is for women is in the UK and Ireland. In the case of men, it is UK and Ireland plus Denmark[2]. Although the numbers of Pissarides et al. refer to the 1980s, Hu and Tijdens (2003) also find a much greater wage penalty in the UK than in the Netherlands. O'Dorchai et al. (2007), working just with men, also estimate a high penalty in Ireland and the UK, plus Italy, while it is non-existent in Denmark. It seems, then, that the same forces that limit global wage inequality—whether it is government regulations or the presence of labour institutions—restrain the wage gap and the wage penalty for part-time workers.

In addition to differences among countries, there are also different estimations for the same country, an aspect that can be appreciated in the case of the UK, because we have various studies separated by relatively few years[3]. Disparity of results seems to depend on the database used, the methodology of estimation, and on the controls included in the wage equations. Penalisation for British males varies between 15 points (O'Dorchai et al., 2007 with the WSS) and 20 points (Pissarides et. al., 2005). Hu and Tijdens (2003) estimate a penalty of 29 points combined for both genders with the same data as Pissarides et al. (2005).

Additional studies for women have found wage penalties that vary between 32 and 0 points. Bardasi and Gornick (2008), with data from the Luxemburg Income Study (LIS) and controlling for self-selection with a multinomial logit, estimate a pay penalty of 15 points, which disappears when sector and occupation controls are introduced. Manning and Petrongolo (2008) obtain similar results with data from the Labour Force Survey (LFS). On the contrary, Connolly and Gregory (2009) with the New Earnings Survey (NES) panel find a wage decrease of 7% for women who reduce their working time without changing occupation, and of 32% if they suffer occupational degradation.

The Spanish economy presents, likewise, very dissimilar results. In a first study about the issue, Cebrián et al. (2000) use the first wave of the ECHP carried out in 1994. The authors estimate a wage equation including individual controls and introducing dummy variables for part-time female workers, obtaining a positive wage premium of 12 logarithmic points for female part-time workers and of 30 points for those working less than 15 hours per week. In a later work (Cebrián et al.,

[2] The most surprising result from Pissarides et al. (2005) is a noticeable positive wage premium for men and women in the Mediterranean countries and for French women, which they attribute to a larger measurement error in the working hours in these countries.

[3] This aspect is important, because gross wage difference and wage penalty evolve over time. In particular, since part-time workers are segmented in jobs and low-wage sectors, their wage gap grows as a result of an increase of global wage inequality in the labour market (Manning and Petrongolo, 2008).

2001), using the ECHP for 1995, they estimate wage equations with individual and job controls (including sector and occupation), and they do not obtain any penalisation for part-time women workers.

Pissarides et al. (2005), also working with the ECHP from 1994 to 1999, obtain again a positive premium for Spain (6 logarithmic points among men and 9 points among women) after controlling for occupation[4]. Pagán (2007), with the extended sample of the ECHP from 2000, also estimates positive wage premiums for both genders, superior for women (14.3 logarithmic points as opposed to 6.3 for men), after controlling for occupations and correcting the sample selection with an ordered probit with four states. O'Dorchai et al. (2007) use SES microdata from 1995 and, after controlling for occupation, estimate a male wage penalty of -6 logarithmic points.

Using data from the Continuous Sample of Working Histories (MCVL in Spanish) from 1996 and 2006, Fernández-Kranz and Rodríguez-Planas (2011) obtain for 25 to 25 year-old women a wage penalty that varies between -18.7 logarithmic points, controlling for non-observable individual heterogeneity, and -11.4 points, controlling for occupations and adding firm fixed effects. The latter variable has a bigger effect on the magnitude of the penalty. In more recent work with the same database, Fernández-Kranz et al. (2014) estimate that part-time women from 23 to 45 years old on permanently contracts have wage penalties of -6.1 logarithmic points and -9.0 points if the contract is temporary.

Accordingly, the magnitude of the wage penalty in Spain appears to oscillate, looking for the greatest compatibility possible, from -17.1 logarithmic points in the MCVL and +14.3 points in the ECHP, controlling for occupations and correcting the sample selection. In the case of men, the variation goes from +6.3 logarithmic points with the ECHPS to -6.0 points with the SES. It seems to be absolutely necessary, then, to provide additional evidence about this issue.

3. Data

This research is based on the microdata of the most recent wave of the SES (2010). The SES is designed as independent cross-section databases updated every four years. Currently, there are four available waves: 1995, 2002, 2006, and 2010). The Spanish National Statistics Institute conducts this survey, and it is Spain's sample for the *European Structure of Earnings Survey* carried out in EU member countries in accordance with a harmonised methodology. It is a nationally representative survey on firms that covers employees registered in the social security system throughout the month of October at establishments of any size belonging to the general scheme of the social security system and whose economic activity is framed in sections B to S of the sectoral

[4] The authors argue that taking advantage of the panel structure of their data, controlling for the non-observable factors with individual fixed effects does not alter the obtained results, although they do not include such results.

classification NACE 2009. Therefore, it encompasses the bulk of the private sector of the Spanish economy, excluding only specific sectors such as agriculture and domestic service. The survey design corresponds to a two-stage sampling of employees working in firms registered in the social security system, and one of its most important features is the inclusion of matched employer-employee microdata (i.e., observations for various employees in each establishment). Another feature is that it is a survey specifically designed to determine the characteristics of the wage distribution in the Spanish labour market. Finally, it provides information about the region in which the establishment is located and, by design, it is also representative at the regional level, allowing for regional analysis, which is part of the aim of our research.

The survey provides detailed information on wages and worker characteristics (nationality, gender, age, and education); jobs (tenure, type of contract, and supervisory tasks)[5]; and firms (sector, size, type of collective agreement, and region). Wage information includes various components and covers different time references. The wage concept used in this research is the gross hourly wage, calculated from the wage corresponding to a representative month (October) divided by the number of hours worked in that month. In this calculation, any payment by companies, including commissions, bonuses for night work and weekends, as well as overtime work, has been incorporated.

The firm indicates the employee's status as full- or part-time is indicated in the SES,[6] so that the dependent variable in the analysis is a dummy variable differentiating between part-time and full-time. The analysis is carried out separately for men and women. The explanatory variables considered include characteristics of individuals and characteristics of their jobs and firms. The former are controls relating to the nationality of the individual (differentiating between natives and immigrants), the level of general education (distinguishing three levels: primary, secondary, and tertiary education), and age. The characteristics of the job are years of seniority in the current job (including its quadratic form) and type of contract (indefinite or fixed-term), while attributes of the firms are sector (12 categories corresponding to sections NACE-93), size (four categories), type of collective agreement (distinguishing between firm, national sector, and subnational sector agreements), and region of location of the firm.

Observations with missing values on key variables and those for individuals aged less than 16 years or over 65 years, or with hourly wages less than 2.5 Euros or greater than 200 Euros have

[5] It also includes information on occupation. However, this variable has not been considered in the analysis, given that it potentially suffers from endogeneity in relation to the distribution of individuals between full- and part-time jobs, to the extent that part-time employment is often limited to low-wage occupations (for details, see Manning and Petrongolo, 2008).

[6] Specifically, in the case of each worker, the firm has to choose between full-time or part-time in response to the following question: '4.1 Type of job.' It is considered part-time if hours worked are less than the normal working day of the firm or, in the absence of a normal working day, if they are lower than the maximum legally set (it must be stipulated in the contract).

been filtered. Moreover, firms with fewer than two observations were excluded from the sample in order to allow the correct identification of firm fixed effects in the econometric estimates. Finally, following most previous studies on the relative wage treatment of part-time workers that limit the analysis to private sector employees, observations corresponding to the public sector (i.e., Section O, Public administration and defence, compulsory social security) have been removed. The final sample is formed by 152,099 observations, which correspond to 89,344 men and 62,755 women.

4. Methodology

In the empirical analysis, two econometric methodologies have been used to decompose the wage differences of full- and part-time workers. This is an extension of the Juhn-Murphy-Pierce methodology (Juhn et al., 1991), adapted for use with matched employer-employee data, which permits a detailed decomposition of the average wage differential. The second is the methodology proposed by Fortin, Lemieux, and Firpo (2011), which provides a detailed decomposition of the wage differences throughout the wage distribution. Both techniques are described below.

4.1. Juhn-Murphy-Pierce decomposition

First, we use an extension of the Juhn et al. (1991) decomposition, as suggested by Blau and Kahn (1992), specifically adapted for use with matched employer-employee data. This technique departs from the estimation of the following semi-logarithmic wage equation:

$$w_{ij} = X_i \beta + \varepsilon_{ij} + a_j \quad (1)$$

wherein w_{ij} is the natural log of hourly wage of individual i in workplace j; X_i is a vector of controls including individuals' characteristics and those of their jobs and the companies employing them; β is a vector of parameters to be estimated (including an intercept); ε_{ij} is a stochastic error term, and a_j is an error component corresponding to workplace j and invariant for all individuals working in the same workplace.

Following the recommendation of Oaxaca and Ransom (1994) and Neumark (1998), we use as reference wage structure in the decomposition that corresponding to both groups; equation (1) is estimated for the pool of workers (i.e., full- and part-time workers). Identification of workplace effects is guaranteed, given that there is more than one observation per workplace in the dataset. Since the result of Hausman's contrast indicates that workplace-specific effects are correlated to the rest of the explanatory variables in equation (1), the model is estimated by fixed effects (which is equivalent to estimating by ordinary least squares with a set of workplace dummies). Relying on the properties of the ordinary least squares estimator, after the estimation of equation (1) with the pooled data and having obtained the values of $\hat{\beta}^A$, σ^A and η^A, the average wage of the subgroup of workers s (s=full- or part-time workers) can be expressed as:

$$\overline{w}^s = \overline{X}^s \hat{\beta} + \sigma\, \overline{\theta}^s + \eta\, \overline{\lambda}^s \qquad \text{where } \overline{\theta} \sim (0,1), \quad \overline{\lambda} \sim (0,1) \tag{2}$$

where $\overline{w}^s$ stands for the mean natural log of the hourly wage of a given group s; $\overline{X}^s$ is a vector of the average of the set of explanatory variables for group s; $\hat{\beta}$ is the vector of coefficients estimated with equation (1) and the pooled data; σ is the standard deviation of wage residuals of the pool of workers; $\overline{\theta}^s$ is the average standardised residual of group s; η is the standard deviation of workplace effects of the pool of full- and part-time workers and $\overline{\lambda}^s$ is the average standardised workplace effect of group s.

Using the pooled wage structure as the market price reference in the decomposition, the wage gap between part- and full-time workers can be written as follows:

$$\overline{w}^p - \overline{w}^f = (\overline{X}^p - \overline{X}^f)\hat{\beta} + (\overline{\theta}^p - \overline{\theta}^f)\sigma + (\overline{\lambda}^p - \overline{\lambda}^f)\eta = \Delta\overline{X}\ \hat{\beta} + \Delta\overline{\theta}\ \sigma + \Delta\overline{\lambda}\ \eta \tag{3}$$

where the subscript *p* is for part-time workers and *f* is for full-time workers, and a *Δ* prefix denotes the average difference between both groups in the subsequent variable.

In brief, equation (3) provides a decomposition of the part-time/full-time wage gap that quantifies the extent to which average wage differences between part-time and full-time workers are related to (a) differences in observed characteristics, (b) the influence of unobserved elements, and (c) the influence of workplace-related factors. More specifically, the first term on the right-hand side of the equation corresponds to the portion of the wage differential attributable to differences in the observed characteristics between the two groups $(\overline{X}^p - \overline{X}^f)$, valued at market prices $(\hat{\beta})$, which coincides with the 'explained' component of the standard Oaxaca-Blinder decomposition. The second term measures the influence of unobserved factors in the model. This component comprises the effect of unobserved ability, motivation, and discrimination, among others, and corresponds to the impact of differences between part- and full-time workers on the average standardised residual $(\overline{\theta}^p - \overline{\theta}^f)$ multiplied by the money value per unit difference in the standardised residual (σ), which determines the specific wage penalty suffered by the disadvantaged group. Finally, the third term estimates the influence of workplace-related factors. This term is taken as a product of the difference in the average standardised workplace effect of part-time and full-time workers $(\overline{\lambda}^p - \overline{\lambda}^f)$ which measures the intensity of part-time workers' segregation into comparatively low-wage workplaces, and the dispersion of wage differentials across workplaces (η), which determines the degree of the wage penalty for part-time workers resulting from this segregation.

4.2. Fortin-Lemieux-Firpo decomposition

Fortin, Lemieux, and Firpo (2011) have recently proposed a technique that enhances the development of the empirical decompositions of differences between two distributions of a variable. This technique provides a breakdown of the differences between distributions in the value of any distributional statistic (as the value of a quantile or an inequality index) based on differences in the endowments of characteristics and in their returns. This procedure has considerable advantages compared to techniques previously proposed in the literature, which also permit the decomposition of differences between distributions based on construction of counterfactual distributions (DiNardo, Fortin and Lemieux, 1996; Juhn, Murphy and Pierce, 1993; Machado and Mata, 2005 and Melly, 2005, 2006). Thus, whereas the latter techniques consist of aggregated decompositions, which, aside from partial exceptions, provide exclusively the separate effects of characteristics and returns, Fortin, Lemieux, and Firpo's methodology provides a detailed decomposition that allows us to ascertain the individual contribution of each explanatory variable for both components.

This methodology is based on the estimation of a regression in which the independent variable (the wage) is substituted by a transformation of the same, the *recentred influence function* (RIF). Subsequently, a standard Oaxaca-Blinder decomposition can be developed for any distributional statistic based on the regression results.

The influence function measures the effect on distributional statistics of small changes in the underlying distribution. Thus, for a given distributional statistic of the distribution F_W, $v(F)$, this function measures the importance of each observation in shaping its value. Fortin, Lemieux, and Firpo (2011) suggest using a recentred version of the influence function having added the statistic of interest, $RIF(W)=v(F)+IF(W)$, since it has as expected value the actual statistic $v(F)$ (insofar as the expectation of the function of influence with respect to distribution of W is, by definition, zero).

In the case of the quantiles Q_θ of the unconditioned marginal distribution F_W, the function of influence, $IF(W, Q_\theta)$, is defined as

$$IF(W / Q_\theta) = \frac{\theta - I\{W < Q_\theta\}}{f_W(Q_\theta)} \tag{4}$$

where $I\{\cdot\}$ is an indicator function and f_W is the function of density of the marginal distribution of W evaluated in Q_θ.

Given that the function of recentered influence, $RIF(W, Q_\theta)$, is equal to $Q_\theta + IF(W, Q_\theta)$, then the following is fulfilled:

$$RIF(W / Q_\theta) = Q_\theta + \frac{\theta - I\{W < Q_\theta\}}{f_W(Q_\theta)} \tag{5}$$

The RIF function may be computed empirically in the case of the quantiles by means of a local inversion following calculation of the dummy variable $1\{W < Q_\theta\}$ (which specifies whether the value W is higher or lower than Q_θ), the estimation of the quantile of the sample Q_θ, and the estimation by means of kernel density functions of the corresponding density function f_W evaluated in Q_θ.

Following calculation of the RIF function for the quantile, a value is provided for the transformed variable for each observation of the sample. Insofar as the effect of the change in distribution of an explanatory variable in the quantile may be expressed *ceteris paribus*, as the average partial effect of that variable in the conditioned expectation on its RIF function, and assuming that the conditioned expectation of the RIF function may be modelled as a linear function of the explanatory variables, these values may be used for estimation by means of ordinary least squares of a regression of the RIF variable in a vector of explanatory variables. The estimated coefficients may be interpreted as the effect of an increase in the average value of an explanatory variable in the distribution quantile.

The estimated coefficients of that regression may be used for calculation of a standard Oaxaca-Blinder decomposition of different quantiles of the distribution. In the development of the decomposition, the wage structure of the two groups involved in the comparison has also been used as the reference wage structure.

Consequently, the decomposition takes the following form:

$$\Delta_{Q_\theta} = (\overline{X}^p - \overline{X}^f)\hat{\gamma}^*_{Q_\theta} + \left\{\overline{X}^p(\hat{\gamma}^f_{Q_\theta} - \hat{\gamma}^*_{Q_\theta}) + \overline{X}^f(\hat{\gamma}^*_{Q_\theta} - \hat{\gamma}^p_{Q_\theta})\right\} \quad (6)$$

Wherein Δ_{Q_θ} is the difference in the quantile Q_θ of the wage distributions of part- and full-time workers, respectively; $\overline{X}^p$ and $\overline{X}^f$ are the average observed characteristics for part- and full-time workers, and $\hat{\gamma}^p_{Q_\theta}$, $\hat{\gamma}^f_{Q_\theta}$ and $\hat{\gamma}^*_{Q_\theta}$ are the estimated coefficients following regression of the RIF variable of the quantile Q_θ on the group of explanatory variables for part-time workers, full-time workers, and the pool of both groups respectively. The first component of the right-hand side of the equation represents the effect on the differential between distributions caused by differences in characteristics (or the 'explained' component), whereas the second corresponds to the effect of the coefficients (or 'unexplained' component). As previously referenced, the contribution of each explanatory factor can be observed in the decomposition results.

5. Results

5.1. Descriptive evidence

Table 2 and figure 1 provide information on the wage differential between part-time and full-time workers, measured as the logarithm of the wage per hour and distinguishing between male and female workers. A negative value (positive) of the differential corresponds to a wage disadvantage (advantage) of part-time workers. Looking at the data, we can conclude that in Spain there is a significant negative average wage differential for part-time workers, although the gap is substantially lower in the case of men (-0.104 logarithmic points) than of women (-0.254 logarithmic points). The wage differential, however, is not homogeneous along the wage distribution. For instance, in the case of male workers the differential decreases notably along the wage distribution (until the point to be favourable for part-time workers in the right tail of the distribution), whereas in the case of females, the differential increases along the distribution.

The magnitude of the average wage differential associated with part-time work presents, at the same time, high regional heterogeneity (table 3). In the case of female workers, the magnitude of the differential exceeds the national average in regions like Andalusia, Extremadura, or Madrid, whereas in others like Navarra or The Rioja the differential is notably lower (the maximum and minimum values of the wage differential are -0.315 for Extremadura and -0.071 for The Rioja, with a standard deviation of 0.071). Regional differences are even higher in the case of male workers, where in some regions like Cantabria, Aragon, or Navarra the average wage of part-time workers is higher than that of full-time workers (the extreme values of the differential are -0.299 for Madrid and -0,050 for Cantabria, with a standard deviation of 0.100).

Tables A.1 and A.2 of the appendix present descriptive statistics of the sample used in the empirical analysis, distinguishing between male and female workers and by the different quartiles of the wage distribution. According to these figures, there are significant differences in the characteristics of full-time and part-time workers, although these differences vary between male and female workers. In particular, in the case of female workers those working part-time present characteristics usually associated with lower wages: lower average educational levels and seniority; greater incidence of fixed-term contracts; less presence in high-wage sectors like manufacturing and construction; and higher presence in small firms without specific collective agreements. In the case of male part-time workers, although some characteristics are clearly unfavourable (e.g., lower seniority; a greater incidence of fixed-term contracts; work in the service sector and in firms without specific collective agreements), other characteristics have the opposite effect (e.g., older and seniority). This last circumstance is mainly explained by the characteristics of the individuals in the high part of the wage distribution, as better endowments of those variables are, in fact, only observed for part-time workers in the right tail of the distribution. This finding is consistent with the fact that most job contracts among part-time male workers are related to partial retirement (Muñoz de Bustillo et al., 2008).

5.2. National results

The results of applying the extension of the Juhn, Murphy, and Pierce (1991, 1993) methodology for the decomposition of the differentials in average wages between part-time and full-time workers are shown in Table 4, distinguishing between males (left panel) and females (right panel). In particular, the first row of the table shows the value of the raw differential in log hourly wages between the two groups of workers, while the rest of the rows show the value of the different terms of the decomposition (where a negative value indicates that the factor has a negative effect on the wage of part-time workers when compared to full-time workers). For each case, we consider three specifications of the wage equation. The first specification (model 1) only includes explanatory variables related to the socio-demographic characteristics of the individuals (nationality, education, and age). The second specification (model 2) includes the same individual characteristics, but also characteristics related to job and firm (e.g., seniority, type of contract, region, sector, size, and type of collective agreement). The last specification (model 3) includes firm fixed effects instead of firm characteristics. It is important to highlight that the results of models 1 and 2 are equivalent to those that would be obtained from a standard decomposition in two components (characteristics and returns), such as the Oaxaca-Blinder decomposition, whereas results from model 3 also include the third component of the right side of the equation (3).

The results of model 1 reveal that when only individual characteristics are considered, the lower wage levels of part-time workers are not fully explained by their relative endowments of characteristics, but by a different wage treatment. In the case of male workers, the component associated with characteristics takes a practically negligible value (a result explained by the fact that the lower endowments of education and the greater presence of immigrants between part-time workers compensate for the higher average age of this group compared to full-time workers), while most of the wage differential corresponds to the unexplained part. In the case of female workers, observable characteristics explain a relevant part of the differential (around 41%) (mostly related to the lower relative educational endowments of part-time female workers), but as before, most of the differential is related to the unexplained part. This implies that the part-time wage-penalty is -10.6 logarithmic points for male and -15.0 points for female workers.

The inclusion of additional explanatory variables related to the characteristics of jobs and firms (model 2) substantially increases the contribution of the explained component for both genders. In the case of male workers, apart from individual characteristics related to lower educational levels and seniority, a higher incidence of fixed-term contracts and a higher presence in low-wage sectors are the main variables responsible of the wage disadvantage of part-time workers. The only factor with a positive effect for this group is their higher relative age. For female workers,

the factors explaining lower wages of part-time workers are also related to their lower endowments of education and seniority and their higher presence in low-wage sectors, although the contribution of these variables is relatively lower than in the case of male workers. Hence, the most remarkable result of the evidence obtained from model 2 is that, once not only socio-demographic but also job and workplace characteristics are controlled for, a very important part of the wage gap between part-time and full-time workers is explained—the contribution of the explained part of the differential increases to 66% for men and to 82% for women. The unexplained part (or wage penalty in strict sense) is only -3.6 logarithmic points for men and -4.6 logarithmic points for women, representing 34% and 18% of the total, respectively. These values are very different from the wage premium for part-time workers found by Cebrián et al. (2000), Pissarides et al. (2005), and Pagán (2007) using the PHOGUE, but are very close to the results obtained by O'Dorchai et al. (2007) with the *Structure of Earnings Survey 1995* for men (-6 logarithmic points), and slightly lower than those obtained by Fernández-Kranz and Rodríguez-Planas (2011) and Fernández-Kranz et al. (2014) using the MCVL (between -6 and -13 logarithmic points).

The relevance of characteristics as the main explanatory factor of the wage differential between part-time and full-time workers is also observed when firm level variables are replaced by firm fixed-effects (model 3). According to the obtained results, for both genders the wage disadvantage of part-time workers is almost fully explained by their characteristics. The first term of the decomposition associated with individual and job characteristics explains 29% of the gap for men and 41% for women, and the second term, associated with their relative segregation in low-wage firms, explains 69% of the gap for men and 56% for women. As a consequence, the third component associated with the wage residuals has a minimum influence to explain the gap: it nearly disappears for male workers and reduces to -0.7 logarithmic points for female workers. This last result shows that, in aggregate terms, part-time workers who possess the same productive characteristics as full-time workers and who work in the same firm receive similar wage treatment (i.e., there is no evidence of wage discrimination).

Figures 2 and 3 show the results of the decomposition of wage differences between part-time and full-time workers by quantiles obtained after applying the methodology proposed by Fortin, Lemieux, and Firpo (2011). To facilitate the presentation, figure 2 distinguishes between the aggregated contribution of characteristics and returns (or wage penalty), whereas figure 3 shows the detailed results of the separate effect of each explanatory variable associated with the characteristics component[7]. This evidence has been obtained from a specification of the wage equation that

[7] Additional information on the results of the decomposition can be found in tables A.3 and A.4 of the annex. Estimated coefficients by means of unconditional quantile regressions required for the decomposition are available from the authors on request.

includes socio-demographic individual characteristics and job and firm characteristics (model 2). In figure 3, variables have been grouped according to these three categories to facilitate interpretation.

In the case of male workers, and similar to the results obtained for the decomposition of average wages, the wage penalty associated with part-time jobs observed in the left and in the medium part of the distribution is related to the worst endowment of characteristics of individuals with part-time contracts (characteristics), but also to a relative wage penalty (coefficients). However, the wage differential decreases along the wage distribution until the point that in the right tail it is favourable to part-time workers. The component associated with characteristics shows a slowly increasing profile along the distribution, so that for upper quantiles it contributes less negatively to the observed wage gap (figure 2)—a result that is explained by the higher incidence of permanent contracts in the right tail of the wage distribution (figure 3 and table A.4). In any case, the reduction of the wage gap along the wage distribution is mainly explained by the fact that the wage penalty reduces its intensity in the right tail of the distribution until a point where it becomes a wage premium for the last two deciles (figure 2).

In the case of women, the results in figure 2 confirm that differences in endowments of characteristics are systematically the main driver of the lower wages of part-time female workers (figure 2). The influence of this factor is not, however, homogenous along the wage distribution, as it is comparatively more reduced in the left tail but growing (in absolute terms) along the distribution. The results of the detailed decomposition reveal that the increasing profile of this component is due to the increasing importance of the individual characteristics and, in particular, of the endowments of education, since the differences in this particular domain are very important and negative for workers in the right tail of the distribution (figure 3 and table A.4). The contribution of the component associated with coefficients also shows an increasing trend along the wage distribution, which means that women in the right part of the distribution, who have more experience, higher levels of education, and higher levels of seniority (table A.4 of the annex) suffer a greater wage penalty. In particular, this reflects lower returns to education and to experience (proxied by age)—a circumstance derived from the three phenomena highlighted in the literature. On one hand, part-time workers receive a lower reward to their experience due to the fact that in working fewer hours they accumulate less human capital. On the other hand, the returns to education are lower as the transition from full-time to part-time work usually involves occupational downgrading (Connolly and Gregory, 2009), particularly in those countries, like Spain, where the law does not contemplate the right of the employee to reduce working time and keep the same job[8].

[8] In countries like Norway, the Netherlands, Sweden, Germany, or France the worker can change to part-time status with neither loss of category nor responsibility, except in determinate circumstances, which minimises the risk of occupational downgrading. In the UK, where this possibility does not exist, Connolly and Gregory (2009) have found that 25.6% of the women that opt by part-time jobs suffer occupational downgrading, representing an hourly wage decrease of 32%.

Finally, those who work part-time have a lower probability of being promoted in the firm (Russo and Hassik, 2008) and show less wage progress when they achieve it (Wolf, 2014 and Fernández-Kranz and Rodríguez-Planas, 2011). Probably, these three factors affect, in greater measure, those who have more studies (more degradation) and more years of experience (more lost promotions)[9].

5.3. Regional results

Tables 5 and 6 show the results of the Juhn, Murphy, and Pierce (1991, 1993) decomposition of average wages between part-time and full-time workers for each of the 17 Spanish regions. The obtained results show marked differences between regions, particularly for male workers. In the case of female workers, differences in endowments of characteristics (component (1) of the decomposition) are systematically unfavourable for part-time workers in all considered regions. Differences in observable characteristics are the main reason for the negative wage gap for part-time female workers. A similar picture is obtained when looking at the effect of the relative distribution of workers among firms (component (2)). While it is true that in most regions the greater part of the observed wage gap is explained by different endowments of individual and firm characteristics, there are some regions where the unexplained part of the differential (component (3)) is particularly relevant. In fact, while in most regions this component is negative (wage penalty), there is a significant number of regions where this component is positive (wage premium). As previously explained, regional differences in the relative contribution of observed characteristics are more complicit in the case of the men, as for this group there are regions where the first component can exert a positive or negative effect—a result that reveals that in some regions part-time workers have better endowments of productive characteristics.

Map 1 shows regional differences in the relative contribution of wage residuals (component (3)). In the case of men, the wage penalty for part-time workers is higher in the southern part of the country (plus The Rioja, Catalonia, and Balearic islands), whereas positive premiums are observed in the northern part of Spain, especially in the Basque Country and Navarra, which are regions of high per capita income, and Galicia, a region with a specific productive structure. In the case of women, higher penalties are observed in the richer regions (Madrid, Catalonia, Basque Country, and the Balearic islands) plus Cantabria, whereas small positive premiums are observed in medium-income regions (Navarra, Aragon, Canary Islands, and Galicia). These results show that apart from regional differences in the characteristics of individuals (like educational level or the age) or of firms (like size

[9] Unlike female workers, these phenomena are not observed for male workers. In fact, the returns to experience do not have the same negative impact for males. The most reasonable explanation is that in a lot of cases these workers change to part-time jobs after several years of full-time dedication, having accumulated specific human capital at the same level as other full-time workers. Men's returns to education do not have the same penalty as for women, reflecting the absence of occupational downgrading although working part-time—a result that is in line with the fact that there is a significant proportion of advanced age men who access a partial retirement, probably without changing firms or occupations.

or sectoral structure), there are other regional factors determining returns to these characteristics for different groups of workers.

The literature has pointed out different factors that can explain the existence of a wage penalty (or premium) for part-time workers. First, as previously mentioned, the literature tends to consider part-time workers as part of the secondary labour market (*outsiders*), who are mostly temporary with reduced job stability[10]. This implies that the wages of part-time workers are more sensitive to the business cycle when compared to full-time workers (*insiders*). Thus, we will expect wage penalty increases associated with part-time work in high unemployment periods accompanied by positive shifts of labour supply. Figure 4 relates the unexplained component of the wage decomposition for male workers in the different regions with the male unemployment rate, while for female workers the comparison is carried out in terms of activity rates[11]. As can be seen in this figure, there is a negative correlation between the considered variables; that is to say, in regions with higher values of the unemployment rate, there is a higher wage penalty, whereas in regions with lower unemployment rates (males) and low activity rates (females), there is a wage premium for part-time workers. These results confirm that in regions with a higher availability of workers (higher activity and/or higher unemployment), firms have more power to push down the wages of workers in the secondary market, penalising more those in the segment with lower bargaining power.

Second, the literature has also highlights the role of institutions in explaining wage differentials between different types of workers. One of these institutional features is related to the presence of unions with capacity to prevent discriminatory practices among firms, making relevant the degree of unionisation of part-time workers compared to full-time workers (Riley, 1997). Although in the Spanish case the degree of union membership does not determine the bargaining power of firms[12], one should expect that a higher union density in a particular region would result in a higher capacity to defend the rights of the workers and combat social inequalities, including wages. Accordingly, regions with higher union density are expected to have a lower wage penalty for part-time workers. This is precisely what we observe in the figure: a positive correlation both for men and women[13]. Another way of proxying union strength is by means of the relative importance of firm-level collective agreements in the region. Such agreements imply a greater presence of unions in firms and a lower wage penalty and, this is exactly the result observed both for men and women[14].

[10] Tilly (1996) applies this approach to the labour market of part-time workers, and O'Connell and Gash (2003) provide evidence for Ireland in this regard.
[11] Data on activity and unemployment rates by gender and region have been obtained from the Spanish Labour Force Survey and correspond to the average value in 2010.
[12] As in the considered period, sectorial collective agreements are of legal application "erga omnes" (i.e., to all workers and firms). This is automatically translated into a high coverage of agreements, independent of union membership.
[13] Data on union density by region have been obtained from the 2010 *Survey of Quality of Life at Work*.
[14] The data on the percentage of workers affected by firm collective agreements by region comes from the *Statistics of Collective Agreements of Work* of the Ministry of Employment and Social Security.

A third explanatory factor pointed out in the literature is the monopsonistic power of firms due to the limited geographic mobility of part-time workers—an aspect particularly relevant for female workers, as they are much more restricted than male workers in terms of job search. In particular, as Ermisch and Wright (1991) show, geographic mobility is much more intense for the head of the household, usually males. Due to their lack of mobility and limited job search capacity, firms face a relatively inelastic labour supply that makes it possible for them to reduce wages. The limitations of the SES regarding the territorial level of detail does not make it possible to consider the possible impact in terms of wage penalty of the job search capacity of the unemployed at the local labour market level. For this reason, we have tried to proxy this phenomenon by focusing on inter-regional mobility. In particular, we expect that the higher the number of workers entering a region in the last years, the higher the number of potentially part-time workers who are geographically limited[15]. As seen in the figure, the correlation is negative[16], and the effect is the expected one: a greater availability of part-time workers in the region reduces their bargaining power and increases the wage penalty.

The evidence presented reveals that regional differences in the wage penalty associated with part-time workers when compared to full-time workers is related to a higher sensitivity to labour market conditions (unemployment, labour supply, monopsonistic power of firms) and to the uneven capacity of unions to prevent such discrimination.

6. Conclusions

This research has examined wage differentials between part-time and full-time workers in Spain using individual data from the *Structure of Earnings Survey* and econometric decomposition methods. The empirical analysis has been carried out distinguishing between male and female workers, and it contributes to the literature by considering differences along the wage distribution as well as introducing a regional perspective into the analysis. The obtained results allow us to conclude that part-time workers in Spain experience a significant wage disadvantage, and that disadvantage is higher for female workers. This disadvantage is not homogenous along the wage distribution, as in the case of women it tends to increase along the distribution, whereas in the case of the men it shows a declining profile until the point at which it ascertains a wage advantage in the right tail of the distribution.

The results of the econometric decompositions show that the wage penalty associated with part-time workers, both male and female, is almost fully explained by their relative characteristics

[15] The percentage of workers arriving to the region between 3 and 5 years before in 2010 has been obtained from the *Statistics of Labour and Geographic Mobility*, elaborated by the National Institute of Statistics.
[16] Although in theory a negative correlation for female workers is predicted, the effect is better observed for male workers.

and, in particular, by segregation of part-time workers in low-wage firms. In fact, we do not observe significant wage differences between full-time and part-time workers with similar observable productive characteristics working in the same firm. However, the wage penalty associated with part-time workers differs substantially along the wage distribution, declining for women and increasing for men. This seems to indicate that comparatively, part-time work penalises low-qualified men and high-qualified women the most.

From a regional perspective, although in the majority of the Spanish regions the greater part of the observed average wage differential between part-time and full-time workers tends to be explained by endowments of characteristics, there are several regions where the unexplained part of the differential is significant, particularly in the case of male workers. Overall, regional differences seem to be related to differences in the market power of firms in the regional markets. In fact, a lower wage penalty is observed in those regions with lower unemployment rates, lower activity rates, and lower immigrant flows in the last few years, as well as a greater presence of unions that can bargain and prevent firm discriminatory practices.

To conclude, our analysis could suffer from a limitation related to the database used in the study. It is impossible to take into account the potential selection bias associated with the selection of working part-time or full-time by individuals. The usual form to correct this problem requires the use of valid exclusion restrictions, which is not possible using the SES. However, as most part-time employment in Spain is involuntary, the mentioned limitation could be less important in the Spanish context.

7. References

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Figures, maps and tables

Figure 1.
Wage differentials between part- and full-time workers along the wage distribution.

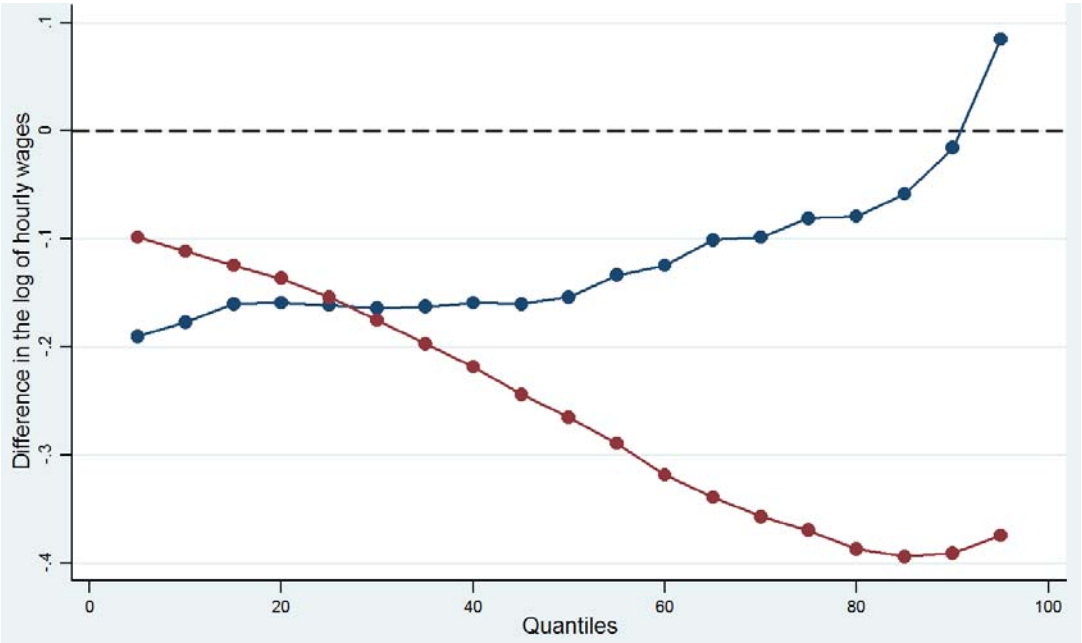
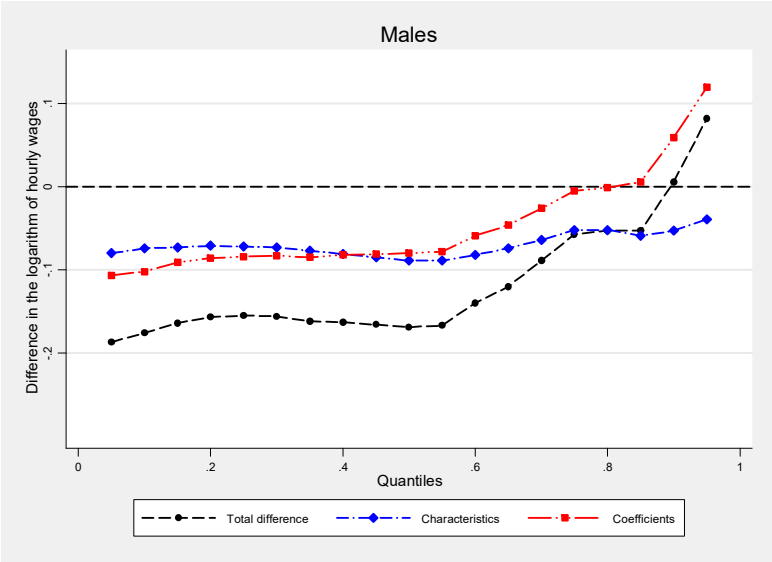
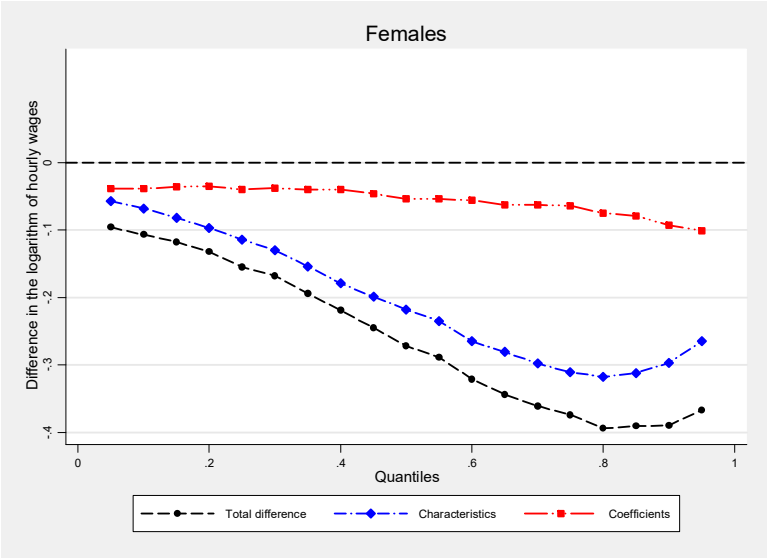


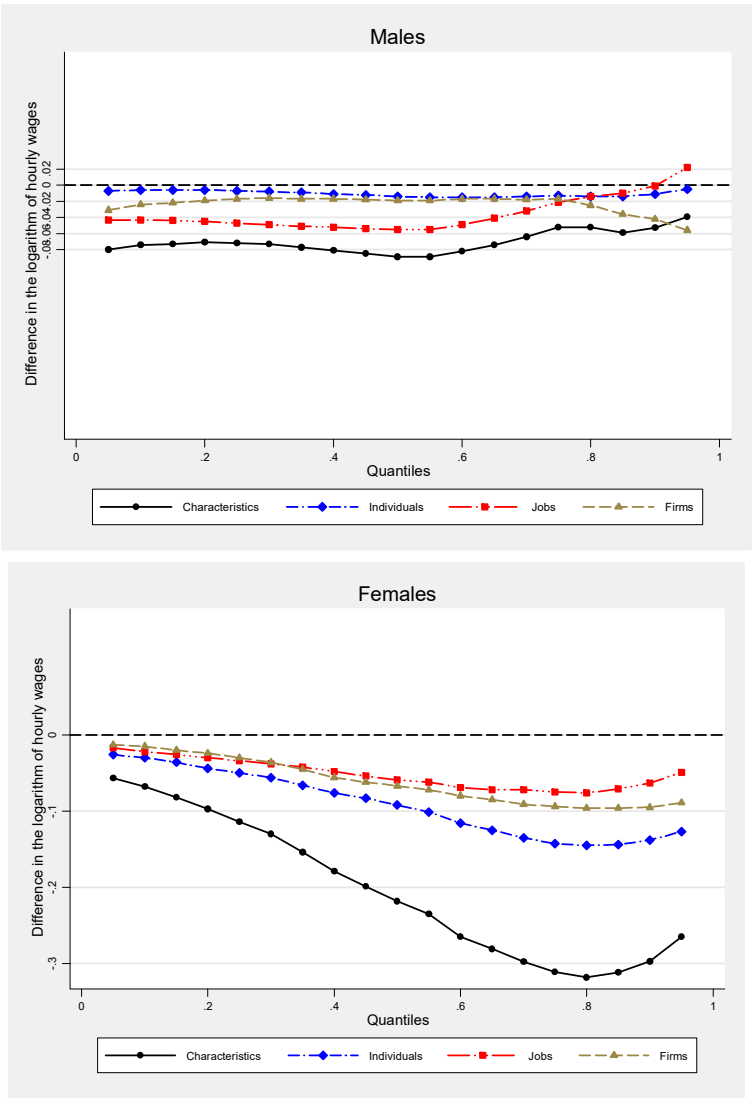
Figure 2.
Aggregate decomposition of wage differentials between part- and full-time employees. Fortin-Lemieux-Firpo decomposition. Males (upper panel) and females (lower panel).





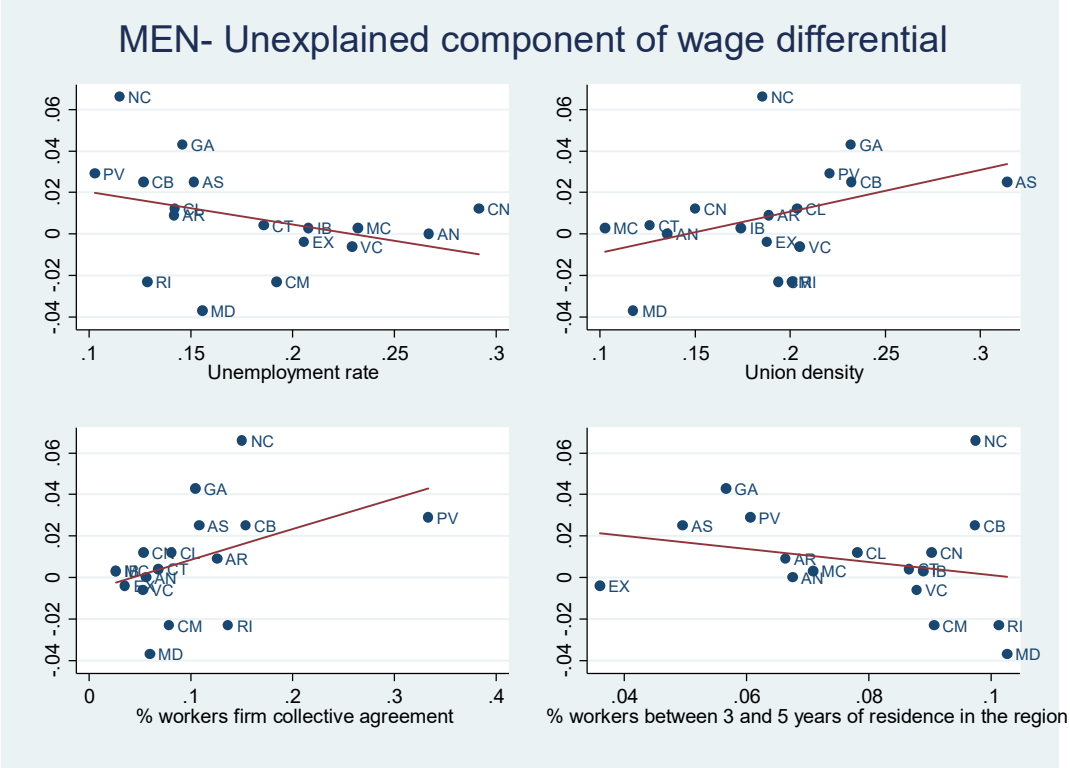
Notes: Individual characteristics and job and firm attributes have been considered as explanatory variables.

Figure 3.
Detailed decomposition of wage differentials between part- and full-time employees. Fortin-Lemieux-Firpo decomposition. Males (upper panel) and females (lower panel).



Notes: Individual characteristics and job and firm attributes have been considered as explanatory variables.

Figure 4.
Unexplained component of wage differentials between part-time and full-time workers and regional characteristics by gender.



Map 1.
Regional differences in the unexplained component of wage differentials between part-time and full-time workers

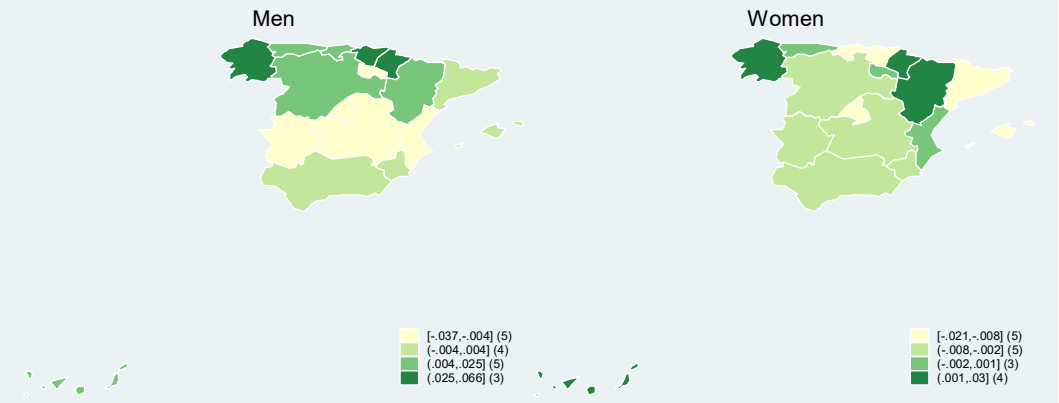


Table 1.
Recent studies about part-time versus full-time wage differences

Authors	Country	Years	Databases	Samples/Gender	Sample/Age	Part-time wage penalty	Control occupations	Control self-selection	Firm Fixed Effects
O'Connell and Gash (2003)	Ireland	1994	ECHP	Men and Women	17 and more	M 0% W -9% * M 0% W 0%	No No Yes Yes	No No No No	No No No No
Hu and Tijdens (2003)	Netherland and Unites Kingdom	1984-88	ECHP	Men +Women together	15-65	Neth. -11%* UK -3%*	Yes	Ordered Probit	No
Rodgers (2004)	Australia	2001	HILDA (households)	Men and Women	...	M -3 p. log. W -9 p. log.	Yes	Multinomial Logit	No
Hirsch (2005)	USA	1995-2002	Census Population Survey	Men and Women	16 and more	M -33 p. log.* W -18 p. log.* M -22 p. log.* W -10 p. log.* M +19 p. log.* W +15 p. log.*	No No Yes Yes Yes Yes	No No No No FE individual FE individual	No No No No No No
Jepsen et al (2005)	Belgium	1995	SES (firms)	Women	...	-4 p. log.* +1 p. log.	No Yes	No No	No No
Pissarides et al (2005)	United Kingdom Finland Denmark Germany Netherland Belgium Austria Ireland France Italy Spain Portugal Greece	1994-99	ECHP	Men and Women	16-61	UK M -20 p. log.* W -12 p. log.* FINL M -9 p. log.* W -2p. log. DEN M -15 p. log.* W-6 p. log.* GERM M 0p. log. W -10 p. log.* NET M -11 p. log.* W -4 p. log.* BELG M -6 p. log. W +3 p. log. AUS M -12 p. log.* W +6 p. log.* IREL M -12 p. log.* W-8 p. log.* FRA M 0 p. log. W +4 p. log.* ITAL M +15 p. log.* W +16 p. log.* SPA M +6 p. log.* W +19 p. log.* PORT M 0 p. log. W -4 p. log.* GRE M +12 p. log.* W +14 p. log.*	Yes	No (1)	No
Hardoy and Schone (2006)	Norway	1997-98	LLS (households)	Women (only voluntary PT)	20-60	- 0,5% -10,9%*	Yes Yes	No Probit	No No
O'Dorchai et al (2007)	Belgium Denmark Italy Spain Ireland United Kingdom	1995	SES (firms)	Men	...	BEL -7 p. log.* DEN +1 p. log. ITA -13 p. log.* SPA -6 p. log.* IREL -29 p. log.* U K -15 p. log.*	Yes	No	No

Posel and Muller (2007)	South Africa	2001-2004	LFS (households)	Men	...	+ 34% *	No	No	No
						+ 40% *	Yes	No	No
						+ 50% *	Yes	Individual FE	No
Pagán (2007)	Spain	2000	ECHP	Men and Women	16-64	M +6 p. log.*	Yes	Ordered Probit	No
						W +14 p. log.*			
Russo and Massik (2008)	Netherland	1997-98 and 1999-2000	WCS (firms)	Men and Women wich do not change company	...	M - 3%*	Yesi	No	No
						W - 1% *			
Manning and Petrongolo (2008)	United Kingdom	2001-03	LFS (households)	Women	16-64	-11 p. log.*	No	No	No
						- 3 p. log.*	Yes	No	No
						-11 p. log.*	No	Probit	No
						- 2 p. log. *	Yes	Probit	No
Mumford and Smith (2008)	United Kingdom	2004	BWERS (firms)	Men and Women	...	M 0 p. log.	No	No	No
						W -11 p. log.*	No	No	No
						M +5 p. log.*	Yes	No	No
						W -3 p. log.*	Yes	No	No
						M +1 p. log.*	Yes	No	Yes
						W -8 p. log.*	Yes	No	Yes
Bardasi and Gornick (2008)	Canada USA United Kingdom Germany Italy Sweden	1994-1995	Luxembourg Income Study	Women	25-59	CAN -9 p. log.* USA -17 p. log.* UK -1 p. log. GER -8 p. log.* ITA -15 p. log.* SWE -3 p. log.*	Yes	Yes	No
Boot and Wood (2008)	Australia	2001-04	HILDA (households)	Men and Women	18-60	M Casual +10%*	Yes	Individual FE	No
						M No Cas +15%*			
						W Casual + 15%*			
						W No Cas + 10%*			
Connelly and Gregory (2009)	United Kingdom	1975-2001	New Earnings Survey	Women	16 and more	-10 p. log.*	No	EF Individual FE	No
						-2 p. log.*	Yes	EF Individual FE	No
						-7 p. log.*	Yes	Movers FE	No
						-32 p. log.*	No	Movers FE	No
Fernández-Kranz and Rodríguez-Planas (2011)	Spain	1996-2006	MCVL	Women	25-45	-19 p. log.*	No	Individual FE	No
						-17 p. log.*	Yes	Individual FE	No
						-13 p. log.*	No	Individual FE	Yes
						-11 p. log.*	Yes	Individual FE	Yes
Fernández-Kranz, Paul and Rodríguez-Planas (2014)	Spain	1996-2006	MCVL	Women	23-45	Permanent Contract -6 p. log.* Temporary Contract -9 p. log.*	No (2)	Multiequational Model and Probit	Yes
Wolf (2014)	Germany (East and West)	1984-2010	SOEP (households)	Men and Women	20-60	West M -12%*	No	Individual FE	No
						M -11%*	Yes		
						W 0%	No		
						W +1%	Yes		
						East M -11%*	No		
						M -10%*	Yes		
						W +1%	No		
						W +2%	Yes		
Preston and Yu (2015)	Australia	2010	AWS (households)	Men and Women	...	M -8,9 p.log*	Yes	No	No
						W -1,1 p. log*			
						W Casual +7,1%*			

* Statistically significant at the usual levels (1% or 5%, depending on each paper).

(1) According to the authors, results are robust to controlling for self selection by a probit model or by individual fixed effect when they work with the sample of movers from full-time to part-time.

(2) Authors explain that they introduced additional controls (occupations and more) and results did not change.

Table 2.
Wage differentials between part- and full-time workers in Spain.

	Males	Females
Average	-0.104	-0.254
Percentiles		
5	-0.191	-0.099
10	-0.178	-0.112
20	-0.160	-0.137
30	-0.165	-0.176
40	-0.159	-0.219
50	-0.155	-0.266
60	-0.125	-0.319
70	-0.099	-0.358
80	-0.080	-0.388
90	-0.016	-0.391
95	0.084	-0.375

Notes: The wage gap corresponds to the differential of the logarithm of the hourly wage.

Table 3.
Incidence of part-time work and wage differences between part-time and full-time workers in Spanish regions.

	Incidence of part-time work		Wage differential part-time/full-time	
	Males	Females	Males	Females
Andalusia	0.089	0.296	-0.164	-0.305
Aragon	0.063	0.261	0.028	-0.146
Asturias	0.054	0.213	0.028	-0.165
Balearic Islands	0.071	0.220	-0.010	-0.192
Canary Islands	0.111	0.231	-0.139	-0.268
Cantabria	0.058	0.233	0.050	-0.230
Castilla-Leon	0.061	0.252	-0.016	-0.246
Castilla La Mancha	0.064	0.279	-0.032	-0.269
Catalonia	0.079	0.235	-0.151	-0.247
Valencia	0.099	0.306	-0.138	-0.209
Extremadura	0.069	0.273	-0.104	-0.315
Galicia	0.067	0.226	0.045	-0.192
Madrid	0.073	0.208	-0.299	-0.314
Murcia	0.090	0.286	-0.125	-0.271
Navarre	0.063	0.314	0.049	-0.071
Basque Country	0.058	0.306	0.037	-0.227
The Rioja	0.068	0.290	-0.083	-0.100
Unweighted average	0.073	0.261	-0.060	-0.222
Regional standard deviation	0.016	0.036	0.100	0.071
Maximum	0.111	0.314	0.050	-0.071
Minimum	0.054	0.208	-0.299	-0.315

Notes: The wage gap corresponds to the differential of the logarithm of the hourly wage.

Table 4.
Decomposition of the differential in average wages between part- and full-time workers. Juhn-Murphy-Pierce decomposition.

	Males			Females		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Wage differential	-0.104	-0.104	-0.104	-0.254	-0.254	-0.254
Characteristics (1)	0.002(-2.0)	-0.069(66.3)	-0.030(28.8)	-0.104(40.9)	-0.208(81.9)	-0.104(40.9)
Nationality	-0.003	-0.001	0.000	-0.002	0.000	0.000
Educational attainment	-0.026	-0.022	-0.017	-0.104	-0.088	-0.069
Age	0.031	0.014	0.011	0.001	0.000	0.000
Tenure	-	-0.016	-0.014	-	-0.048	-0.034
Type of contract	-	-0.016	-0.010	-	0.000	-0.001
Region		0.007			-0.005	
Activity sector	-	-0.040	-	-	-0.052	-
Firm size	-	0.003	-	-	-0.006	-
Collective agreement	-	0.003	-	-	-0.010	-
Firm fixed effects (2)	-	-	-0.074(69.2)	-	-	-0.143(56.3)
Wage residuals (3)	-0.106(102.0)	-0.036(34.6)	0.000(0.0)	-0.150(59.1)	-0.046(18.1)	-0.007(2.8)

Notes: The table shows the results obtained after applying equation (3) to the 2010 wave of the *Encuesta de Estructura Salarial*. Model 1 corresponds to a specification of the wage equation that includes individual characteristics (nationality, age and education); model 2 incorporates to the specification attributes of jobs and firms (tenure, type of contract, region, sector, size and type of collective agreement), whereas model 3 includes individual and job attributes and firm fixed effects instead of firm attributes. The percentage of the wage differential explained by each term appears in brackets.

Table 5.
Decomposition of the differential in average wages between part- and full-time workers.
Juhn-Murphy-Pierce decomposition. Regional disaggregated analysis. Males.

	Andal.	Arag.	Astur.	Balear.	Canar.	Cantab.	C-L	C-LM	Catal.	Val.	Extre.	Galic.	Madrid	Murcia	Navarra	Basq.	Rioja
Wage differential	-0.164	0.028	0.028	-0.010	-0.139	0.050	-0.016	-0.032	-0.151	-0.138	-0.104	0.045	-0.299	-0.125	0.049	0.037	-0.083
Characteristics (1)	-0.042	0.075	0.028	-0.015	-0.040	0.059	0.013	0.017	-0.068	-0.019	-0.021	-0.002	-0.121	-0.023	0.017	0.015	-0.004
Nationality	0.000	-0.001	0.000	0.000	0.000	-0.001	0.000	0.000	-0.001	0.000	-0.001	0.000	-0.001	0.001	0.001	0.001	-0.001
Educational attainment	-0.007	0.002	-0.036	-0.024	0.007	-0.005	-0.001	-0.012	-0.008	0.002	0.004	-0.013	-0.060	-0.016	-0.013	-0.031	0.004
Age	-0.001	0.035	0.041	0.018	-0.007	0.047	0.018	0.016	-0.004	0.010	0.002	0.015	-0.003	0.006	0.024	0.050	0.008
Tenure	-0.020	0.038	0.011	-0.009	-0.032	0.042	0.006	0.014	-0.039	-0.032	-0.019	0.021	-0.035	-0.013	0.036	-0.002	-0.005
Type of contract	-0.013	0.000	0.012	0.000	-0.008	-0.025	-0.010	0.000	-0.016	0.002	-0.007	-0.025	-0.021	0.000	-0.030	-0.003	-0.010
Firm fixed effects (2)	-0.122	-0.056	-0.024	0.003	-0.111	-0.035	-0.042	-0.026	-0.087	-0.113	-0.074	0.004	-0.142	-0.105	-0.034	-0.007	-0.057
Wage residuals (3)	0.000	0.009	0.025	0.003	0.012	0.025	0.012	-0.023	0.004	-0.006	-0.004	0.043	-0.037	0.003	0.066	0.029	-0.023

Notes: The table shows the results obtained after applying equation (3) to the 2010 wave of the *Encuesta de Estructura Salarial* with a specification of the wage equation that includes individual and job characteristics and firm fixed effects.

Table 6.
Decomposition of the differential in average wages between part- and full-time workers.
Juhn-Murphy-Pierce decomposition. Regional disaggregated analysis. Females.

	Andal.	Arag.	Astur.	Balear.	Canar.	Cantab.	C-L	C-LM	Catal.	Val.	Extre.	Galic.	Madrid	Murcia	Navarra	Basq.	Rioja
Wage differential	-0.305	-0.146	-0.165	-0.192	-0.268	-0.230	-0.246	-0.269	-0.247	-0.209	-0.315	-0.192	-0.314	-0.271	-0.071	-0.227	-0.100
Characteristics (1)	-0.100	-0.085	-0.082	-0.090	-0.089	-0.091	-0.101	-0.108	-0.106	-0.092	-0.105	-0.077	-0.131	-0.100	-0.079	-0.095	-0.082
Nationality	0.000	0.000	0.000	-0.001	0.000	0.000	0.000	0.001	-0.001	0.000	0.001	0.000	0.002	0.004	-0.001	0.001	0.001
Educational attainment	-0.066	-0.055	-0.069	-0.084	-0.063	-0.068	-0.058	-0.089	-0.053	-0.060	-0.075	-0.054	-0.097	-0.070	-0.077	-0.061	-0.047
Age	-0.001	0.000	0.000	0.004	0.000	-0.002	-0.001	0.001	-0.003	0.002	-0.001	0.001	0.003	-0.001	0.008	0.003	0.000
Tenure	-0.034	-0.030	-0.020	-0.010	-0.025	-0.021	-0.038	-0.023	-0.046	-0.029	-0.023	-0.021	-0.037	-0.032	-0.011	-0.034	-0.038
Type of contract	0.002	0.000	0.006	0.000	0.000	0.000	-0.005	0.003	-0.003	-0.005	-0.007	-0.002	-0.002	-0.001	0.001	-0.004	0.003
Firm fixed effects (2)	-0.200	-0.088	-0.084	-0.089	-0.198	-0.127	-0.142	-0.159	-0.125	-0.117	-0.203	-0.130	-0.162	-0.166	-0.022	-0.124	-0.018
Wage residuals (3)	-0.005	0.027	0.001	-0.013	0.019	-0.012	-0.002	-0.002	-0.016	0.000	-0.007	0.014	-0.021	-0.006	0.030	-0.008	0.000

Notes: The table shows the results obtained after applying equation (3) to the 2010 wave of the *Encuesta de Estructura Salarial* with a specification of the wage equation that includes individual and job characteristics and firm fixed effects.

Appendix

Figure A.1.
Kernel density functions of the logarithm of hourly wages of part- and full-time males and females.

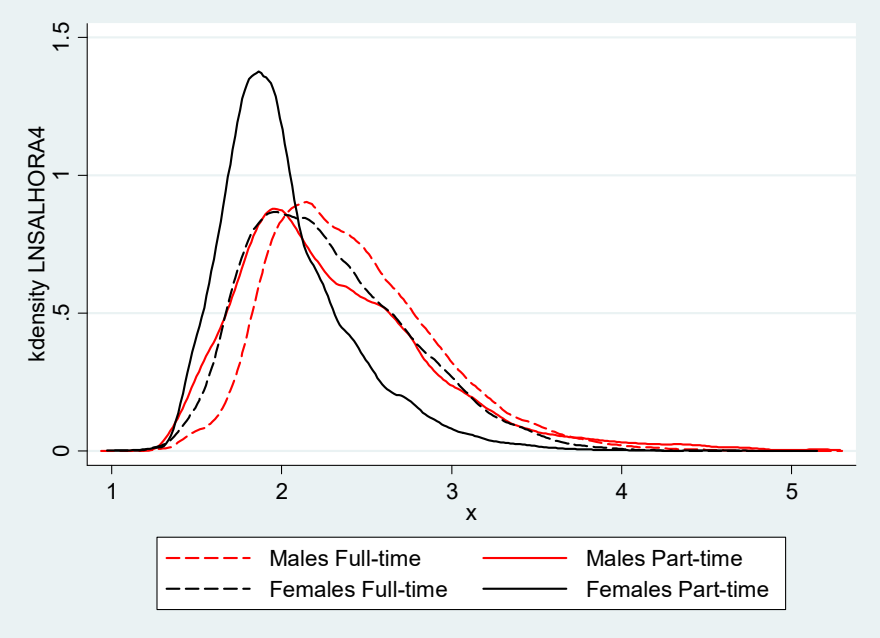


Table A.1.
Descriptive statistics. Males.

	Full-time						Part-time					
	Total		Average				Total		Average			
			Parts of the wage distribution						Parts of the wage distribution			
	Average	S.D.	<p25	p25-p50	p50-p75	>p75	Average	S.D.	<p25	p25-p50	p50-p75	>p75
Logarithm of hourly wage	2.423	0.494	1.874	2.201	2.519	3.097	2.318	0.591	1.709	2.040	2.404	3.121
Primary education	0.183	0.387	0.278	0.232	0.157	0.067	0.233	0.423	0.259	0.224	0.251	0.198
Secondary education	0.598	0.490	0.670	0.664	0.621	0.436	0.585	0.493	0.637	0.668	0.555	0.482
Tertiary education	0.219	0.414	0.052	0.104	0.222	0.497	0.181	0.385	0.104	0.108	0.194	0.320
Age	40.640	10.150	37.390	39.330	41.010	44.810	42.740	14.830	36.110	37.890	45.030	51.900
Tenure	9.351	9.676	4.738	7.638	10.530	14.490	9.877	13.410	3.292	4.954	11.870	19.400
Fixed-term contract	0.811	0.391	0.665	0.781	0.863	0.935	0.444	0.497	0.501	0.548	0.419	0.307
Andalusia	0.099	0.299	0.103	0.104	0.090	0.101	0.111	0.314	0.134	0.121	0.095	0.095
Aragon	0.042	0.201	0.035	0.051	0.050	0.034	0.038	0.191	0.028	0.037	0.044	0.042
Asturias	0.034	0.181	0.034	0.037	0.038	0.026	0.028	0.164	0.025	0.021	0.026	0.038
Balearics	0.023	0.151	0.030	0.028	0.020	0.016	0.052	0.223	0.044	0.052	0.062	0.051
Canary Islands	0.042	0.201	0.073	0.037	0.030	0.029	0.033	0.179	0.061	0.027	0.026	0.019
Cantabria	0.027	0.161	0.033	0.030	0.025	0.019	0.026	0.158	0.024	0.024	0.023	0.032
Castilla-Leon	0.054	0.227	0.067	0.053	0.052	0.045	0.045	0.208	0.050	0.040	0.041	0.051
Castilla La Mancha	0.042	0.201	0.055	0.047	0.037	0.029	0.032	0.176	0.029	0.036	0.037	0.026
Catalonia	0.163	0.369	0.102	0.152	0.190	0.209	0.187	0.390	0.139	0.195	0.216	0.199
Valencia	0.083	0.275	0.091	0.092	0.081	0.066	0.084	0.278	0.093	0.091	0.100	0.053
Extremadura	0.024	0.151	0.050	0.020	0.013	0.012	0.017	0.127	0.030	0.019	0.011	0.007
Galicia	0.055	0.228	0.081	0.065	0.043	0.031	0.040	0.196	0.042	0.045	0.034	0.040
Madrid	0.171	0.377	0.138	0.138	0.169	0.240	0.172	0.377	0.209	0.181	0.142	0.157
Murcia	0.031	0.174	0.046	0.036	0.024	0.020	0.026	0.159	0.038	0.027	0.025	0.014
Navarre	0.030	0.169	0.015	0.033	0.044	0.027	0.029	0.166	0.009	0.026	0.032	0.047
Basque Country	0.063	0.243	0.027	0.055	0.082	0.089	0.068	0.252	0.034	0.040	0.077	0.124
The Rioja	0.016	0.125	0.022	0.021	0.014	0.007	0.012	0.109	0.012	0.020	0.010	0.007
Industry	0.424	0.494	0.354	0.438	0.488	0.415	0.288	0.453	0.161	0.208	0.345	0.437
Construction	0.122	0.327	0.171	0.154	0.096	0.066	0.037	0.188	0.027	0.047	0.042	0.031
Services	0.454	0.498	0.475	0.408	0.416	0.518	0.675	0.468	0.812	0.745	0.613	0.532
Firm size less than 20	0.105	0.307	0.196	0.122	0.060	0.043	0.138	0.345	0.203	0.195	0.103	0.051
Firm size 10-49	0.238	0.426	0.332	0.287	0.198	0.137	0.195	0.396	0.236	0.228	0.182	0.134
Firm size 50-199	0.277	0.447	0.261	0.298	0.297	0.250	0.226	0.418	0.214	0.224	0.244	0.221
Firm size 500 or more	0.380	0.485	0.211	0.293	0.445	0.571	0.441	0.497	0.348	0.353	0.471	0.594
National sect. collect. agr.	0.286	0.452	0.319	0.282	0.255	0.288	0.282	0.450	0.380	0.312	0.238	0.200
Sub-national sect. coll. agr.	0.416	0.493	0.527	0.507	0.385	0.243	0.388	0.487	0.362	0.466	0.424	0.302
Firm collective agreement	0.299	0.458	0.154	0.211	0.360	0.469	0.329	0.470	0.258	0.222	0.338	0.498
Number of observations	81,578		20,394	20,394	20,394	20,394	7,766		1,941	1,941	1,941	1,941

Notes: The table includes descriptive (mean and standard deviation) for each of the groups (individuals with full- and part-time) and the value of the average of the variables for the four sections of the wage distribution defined by the three quartiles.

Table A.2.
Descriptive statistics. Females.

	Full-time						Part-time					
	Total		Average				Total		Average			
			Parts of the wage distribution						Parts of the wage distribution			
	Average	S.D.	<p25	p25-p50	p50-p75	>p75	Average	S.D.	<p25	p25-p50	p50-p75	>p75
Logarithm of hourly wage	2.282	0.481	1.736	2.062	2.384	2.945	2.028	0.400	1.623	1.854	2.059	2.576
Primary education	0.102	0.303	0.191	0.129	0.064	0.024	0.200	0.400	0.261	0.240	0.199	0.101
Secondary education	0.542	0.498	0.703	0.651	0.539	0.274	0.637	0.481	0.678	0.672	0.669	0.529
Tertiary education	0.356	0.479	0.105	0.220	0.397	0.701	0.163	0.369	0.061	0.088	0.131	0.370
Age	39.080	9.826	37.090	37.770	39.360	42.110	39.200	10.920	39.300	39.200	38.900	39.410
Tenure	8.320	9.059	4.590	6.562	9.498	12.630	5.114	6.623	3.360	4.283	5.315	7.500
Fixed-term contract	0.800	0.400	0.743	0.777	0.817	0.862	0.666	0.472	0.621	0.668	0.701	0.675
Andalusia	0.080	0.272	0.077	0.087	0.080	0.078	0.134	0.341	0.166	0.138	0.119	0.113
Aragon	0.038	0.191	0.038	0.047	0.041	0.025	0.036	0.186	0.027	0.037	0.043	0.037
Asturias	0.025	0.156	0.043	0.028	0.017	0.013	0.025	0.155	0.038	0.030	0.014	0.016
Balearics	0.026	0.158	0.025	0.023	0.027	0.027	0.037	0.189	0.029	0.027	0.043	0.050
Canary Islands	0.044	0.205	0.059	0.045	0.037	0.035	0.040	0.196	0.068	0.035	0.029	0.027
Cantabria	0.018	0.135	0.023	0.018	0.017	0.016	0.023	0.149	0.017	0.032	0.027	0.015
Castilla-Leon	0.048	0.213	0.052	0.047	0.046	0.045	0.055	0.228	0.049	0.070	0.054	0.048
Castilla La Mancha	0.037	0.188	0.044	0.039	0.032	0.032	0.029	0.167	0.034	0.032	0.026	0.024
Catalonia	0.201	0.401	0.142	0.202	0.231	0.228	0.187	0.390	0.146	0.156	0.218	0.228
Valencia	0.076	0.265	0.101	0.083	0.070	0.050	0.080	0.271	0.096	0.095	0.064	0.064
Extremadura	0.016	0.125	0.023	0.011	0.014	0.015	0.020	0.139	0.036	0.015	0.016	0.012
Galicia	0.059	0.236	0.094	0.061	0.048	0.035	0.047	0.211	0.070	0.052	0.036	0.029
Madrid	0.223	0.416	0.182	0.192	0.226	0.291	0.170	0.376	0.138	0.187	0.164	0.189
Murcia	0.026	0.158	0.033	0.024	0.024	0.021	0.027	0.163	0.037	0.027	0.025	0.020
Navarre	0.020	0.141	0.017	0.027	0.026	0.011	0.020	0.139	0.008	0.016	0.029	0.026
Basque Country	0.052	0.222	0.029	0.051	0.056	0.072	0.060	0.237	0.029	0.033	0.082	0.094
The Rioja	0.012	0.108	0.018	0.017	0.008	0.005	0.013	0.111	0.012	0.018	0.011	0.009
Industry	0.220	0.414	0.231	0.245	0.217	0.185	0.093	0.291	0.095	0.083	0.091	0.105
Construction	0.014	0.117	0.007	0.016	0.017	0.015	0.005	0.073	0.003	0.005	0.007	0.006
Services	0.766	0.423	0.762	0.739	0.765	0.800	0.902	0.298	0.903	0.912	0.902	0.889
Firm size less than 20	0.085	0.280	0.160	0.094	0.057	0.031	0.123	0.329	0.163	0.122	0.115	0.094
Firm size 10-49	0.171	0.377	0.249	0.202	0.144	0.091	0.153	0.360	0.153	0.153	0.162	0.142
Firm size 50-199	0.218	0.413	0.243	0.251	0.212	0.168	0.235	0.424	0.250	0.248	0.230	0.212
Firm size 500 or more	0.525	0.499	0.349	0.453	0.587	0.711	0.489	0.500	0.434	0.477	0.493	0.552
National sect. collect. agr.	0.349	0.477	0.421	0.353	0.316	0.307	0.304	0.460	0.331	0.299	0.292	0.294
Sub-national sect. coll. agr.	0.303	0.460	0.388	0.370	0.269	0.186	0.458	0.498	0.433	0.530	0.490	0.380
Firm collective agreement	0.348	0.476	0.192	0.277	0.415	0.507	0.238	0.426	0.236	0.172	0.217	0.327
Number of observations	45,338		11,334	11,334	11,334	11,334	17,417		4,354	4,354	4,354	4,354

Notes: The table includes descriptive (mean and standard deviation) for each of the groups (individuals with full- and part-time) and the value of the average of the variables for the four sections of the wage distribution defined by the three quartiles.

Table A.3.
Decomposition of wage differentials between part- and full-time workers. Fortin-Lemieux-Firpo decomposition. Males.

		Quantiles		
		10th perc.	Median	90th perc.
Total	Part-time	1.692	2.176	3.090
		(0.006)***	(0.006)***	(0.019)***
	Full-time	1.867	2.345	3.084
		(0.001)***	(0.002)***	(0.004)***
	Difference	-0.176	-0.169	0.006
		(0.006)***	(0.006)***	(0.020)
	Characteristics	-0.074	-0.089	-0.053
		(0.002)***	(0.004)***	(0.009)***
	Coefficients	-0.102	-0.080	0.059
		(0.005)***	(0.005)***	(0.016)***
Characteristics	Nationality	-0.002	-0.003	0.002
		(0.000)***	(0.000)***	(0.000)***
	Age	0.002	0.008	0.029
		(0.000)***	(0.001)***	(0.003)***
	Education	-0.006	-0.019	-0.042
		(0.001)***	(0.002)***	(0.004)***
	Tenure	-0.018	-0.022	-0.012
		(0.001)***	(0.002)***	(0.004)***
	Contract	-0.025	-0.033	0.011
		(0.002)***	(0.002)***	(0.004)***
	Region	0.005	0.009	0.008
		(0.001)***	(0.001)***	(0.001)***
	Sector	-0.028	-0.032	-0.060
		(0.001)***	(0.001)***	(0.003)***
	Size	0.000	0.001	0.005
		(0.001)	(0.001)	(0.001)***
	Collective agreement	-0.001	0.003	0.005
		(0.000)***	(0.001)***	(0.001)***
N		89.344	89.344	89.344

* $p<0,1$; ** $p<0,05$; *** $p<0,01$

Table A.4.
Decomposition of wage differentials between part- and full-time workers. Fortin-Lemieux-Firpo decomposition. Females.

		Quantiles		
		10th perc.	Median	90th perc.
Total	Part-time	1.616	1.944	2.557
		(0.003)***	(0.003)***	(0.009)***
	Full-time	1.724	2.216	2.948
		(0.002)***	(0.003)***	(0.005)***
	Difference	-0.107	-0.272	-0.390
		(0.003)***	(0.004)***	(0.010)***
	Characteristics	-0.068	-0.218	-0.297
		(0.002)***	(0.003)***	(0.005)***
	Coefficients	-0.039	-0.054	-0.093
		(0.003)***	(0.004)***	(0.009)***
Characteristics	Nationality	-0.001	-0.001	0.003
		(0.000)***	(0.000)***	(0.000)***
	Age	-0.000	0.000	0.001
		(0.000)	(0.000)	(0.001)
	Education	-0.029	-0.091	-0.142
		(0.001)***	(0.002)***	(0.003)***
	Tenure	-0.019	-0.056	-0.068
		(0.001)***	(0.002)***	(0.003)***
	Contract	-0.003	-0.003	0.005
		(0.001)***	(0.001)***	(0.001)***
	Region	-0.001	-0.004	-0.013
		(0.001)**	(0.001)***	(0.001)***
	Sector	-0.011	-0.043	-0.063
		(0.001)***	(0.001)***	(0.003)***
	Size	-0.004	-0.006	-0.005
		(0.000)***	(0.001)***	(0.001)***
	Collective agreement	0.001	-0.014	-0.014
		(0.001)	(0.001)***	(0.001)***
N		62,755	62,755	62,755

* p<0,1; ** p<0,05; *** p<0,01

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