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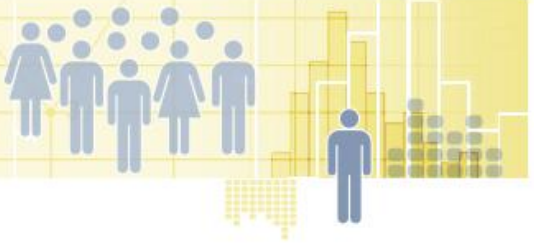

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Drivers behind the diverging gender patterns of wage inequality

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Drivers behind the diverging gender patterns of wage inequality

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Abstract

This paper examines wage inequality in Spain across the economic cycle of 2006-2018, focusing on gender perspectives, aiming to discern the underlying factors driving it. Employing the Firpo, Fortin, and Lemieux decomposition method, we analyse how differences in worker, firm, and job characteristics impact wage inequality evolution. Drawing on data from the Spanish Wage Structure Survey (WSS), our analysis reveals a decline in wage inequality for both genders over the entire economic cycle, with a more pronounced reduction among females. However, this decrease in wage inequality cannot be attributed to changes in worker, firm, or job characteristics of the employees (composition effects), as they actually increased. Our analysis indicates that rewards associated with these characteristics (wage structure effects) primarily drove the reduction in wage inequality. Nonetheless, gender disparities become evident when exploring the contribution of the primary explanatory variables. We find that the sector of activity is associated with lower wage inequality among females but higher among males. Conversely, the de-unionization process that occurred during the analysed period tends to increase wage inequality among males while having a neutral or opposite effect on females. A notable shift occurred during 2014-2018: while female wage inequality increased, male wage inequality continued to decline. Finally, we find no significant correlation between the economic cycle and the evolution of wage inequality.

Keywords: wage inequality, gender, decomposition

JEL codes: J31; J71; C21 and D63.

1. Introduction

The rise of income inequality has become a pressing concern in economic discourse, carrying profound implications for societies and economies at large. The 1980s and 1990s were a period marked by the simultaneous upsurge of wage inequality and income inequality in both Europe and the United States. The seminal work of Piketty and Saez (2014), who meticulously scrutinised extensive datasets spanning back to the early 20th century, unearthing the depth of this escalating trend.

A pivotal engine driving this widening income inequality was the marked proliferation of wage disparity. As articulated by Autor et al. (2006), their research underscored that high-income wages were expanding at a rapid pace relative to median and lower wages, effectively accentuating the wage dispersion within the United States.

The dawn of the 21st century has unveiled a diverse array of wage inequality trajectories among OECD countries, as elucidated in a recent OECD report (OECD, 2021). While some nations have made notable strides in curtailing wage disparities, others have grappled with their exacerbation. The study of the evolution of wage inequality is relevant in itself and provides a better understanding of the causes of income inequality.

Although not a new phenomenon, wage inequality persists as a pervasive and intricate challenge in contemporary labour markets, arising from the inherent diversity among workers and firms. This phenomenon reflects the complex interplay of various factors such as skill levels, educational attainment, industry dynamics, and organisational structures. At its core, the phenomenon of wage inequality is deeply intertwined with the multifaceted nature of the workforce. Workers exhibit divergent skill sets, experiences, and productivity levels, contributing to diverging wage trajectories. Moreover, firms themselves possess unique characteristics, ranging from size and industry to organizational culture and technological sophistication. These factors collectively shape the distribution of wages within and across industries, highlighting the need for a nuanced understanding of the dynamics at play.

Furthermore, institutional issues in the labour market, such as the degree of unionisation or minimum wages, also have an influence. These institutional factors impact wage inequality as they introduce regulatory and structural elements that can either mitigate or exacerbate disparities. The interaction between institutional settings and supply and demand labour market forces underscore the importance of considering policy dimensions in addressing wage inequality.

Multiple factors contribute to the intricate landscape of wage inequality. The economic and sociological literature emphasizes changes in labour demand and supply, as well as the structural attributes of labour markets. Among these factors, perhaps the most important in explaining wage inequality increases is the nexus between technological change and wage dynamics, notably evidenced by the skilled-biased technical change (SBTC, see Katz and Murphy 1992; Acemoglu and Autor 2011, among others). The SBTC hypothesis has witnessed a simultaneous increase in both the demand and supply of highly skilled workers over recent decades, albeit with demand outpacing supply, thereby amplifying wage differentials between highly skilled and mid to low-skilled workers. Consequently, wage inequality emerges as a natural outcome of labour market supply-demand dynamics. Another theoretical argument is the Routine-Biased Technological Change (Acemoglu and Autor 2011; Autor et al. 2003). According to it, technological progress disproportionately favours certain types of tasks over others, particularly those routine and repetitive tasks. Therefore, the advent of automation and other forms of machinery has led to a decline in the demand for workers engaged in occupations characterised by high levels of routine tasks. As a result, the relative value of labour in these occupations diminishes, reducing workers' wages in such roles.

The irruption of artificial intelligence (AI) has unknown effects on wage inequality and could modify the theories and paradigms mentioned above. Felten et al. (2019) constructed an index that measures the potential impact of AI on occupations, revealing important differences. They find evidence that occupations, where AI has a greater presence, can increase wages without a significant impact on employment. Therefore, AI could boost labour market polarisation and, consequently, increase wage inequality. AI is definitely in the initial stage, and there is little evidence of its influence on wage inequality. Recent research by Georgieff (2024) studied 19 OECD countries (over the period 2014-2018) and did not find evidence that AI affected wage inequality so far. However, further research is needed once AI is widely spread across industries.

Meanwhile, other authors argue that the causal factors are institutional. The waning influence of worker unionisation has been posited as a significant catalyst, diminishing collective bargaining power and inadvertently fostering the proliferation of wage disparities (see DiNardo et al. 1996; Fortin and Lemieux 1997). Furthermore, the advent of intensified global trade and migration flows has exerted downward pressure on wages, fuelled by heightened labour mobility and the encroachment of international competition (see Autor et al. 2014; Biewen and Seckler, 2019). Lastly, the erosion of the real value of the minimum wage stands as a potential contributor to the compression of wages for lower-skilled workers (see DiNardo et al. 1996).

Assessing the significance of these factors and other potential factors in wage inequality entails analysing them within a specific country. Spain is an intriguing case as it stands out among European countries in the Euro area for having higher income inequality. This trend notably escalated during the period under examination[1]. As emphasised by studies such as OECD (2021) and Giangregorio and Fana (2021 and 2023), income inequality is largely attributed to factors originating from the labour market. Moreover, the Spanish labour market has its particularities. First, it presents high heterogeneity in the characteristics of workers, mainly in their educational level and the occupation they perform (Motellón et al. 2010). Second, it is a dual labour market with huge differences between the conditions of permanent and temporary workers. Permanent workers benefit from elevated protection (mainly due to a high firing cost), while temporary workers are likely to be precarious and have a high rotation rate (Bentolila et al. 2012)[2]. Third, contrasting with Anglo-Saxon countries, which are characterised by decentralised negotiation bargaining, Spain has a collective bargaining system at the sector level, and its agreements benefit all workers, not only those belonging to unions (Garnero 2021). 91% of the employees are covered by collective agreements, one of the highest rates in the OECD (Eurofound 2022). Another peculiarity is that recessions affect unemployment more significantly than in neighbouring EU countries. De la Rica et al. (2022) found a stronger relationship between unemployment and income inequality in Spain than in other countries. Consequently, there is a counter-cyclical evolution of income inequality. Indeed, Ayala and Cantó (2022) explore the contribution of each source of income to income inequality and conclude that, even if the dispersion of capital income and self-employed income is more remarkable, wage-earners (as the main source of income) is the key determinant to explain income inequality of the Spanish households. Despite the present paper focuses on wage inequality of the wage-earners, it also sheds light on the relationship between income inequality, wage inequality and the business cycle.

[1] Spain had a Gini Coefficient of 31.9 at the beginning of the period of analysis, in 2006. It was the fourth country with higher inequality from the 12 countries that initially adopted the Euro (Euro area-12). In this order, Portugal, Greece and Italy were the countries with highest Gini Coefficients. In 2018, Spain presented a higher Gini Coefficient of 33.2 only behind Italy (33.4) in the Euro area-12. Greece and Portugal reduced inequality during the same period. The reduction in Portugal is quite remarkable (they moved from 37.7 in 2006 to 32.1 in 2018. All these data are from the EU Survey of Living Conditions of Eurostat (available at https://ec.europa.eu/eurostat/databrowser/view/ILC_DI12__custom_7236210/settings_1/table?lang=en, 24/8/2023).

[2] The 2012 Spanish labour market reform aimed to reduce the disparities between temporary and permanent workers and restrict the circumstances under which companies can hire temporary workers.

One of the critical points in the present paper is to analyse wage inequality experienced by Spanish male and female workers during the economic cycle 2006-2018. By delving into the intricate interactions between worker attributes and firm characteristics, researchers can elucidate the mechanisms underlying compensation disparities, shedding light on the factors influencing wage dynamics over the analysed periods. Moreover, given the contemporary relevance of gender, this study contributes to the existing literature on wage inequality by examining the phenomenon through a gender lens. In this sense, the sample is divided by gender, allowing for separate analyses of wage inequality trends among males and females. Consequently, this paper contributes to academic research by identifying the underlying gender-specific patterns of wage inequality, and it provides guidance to policymakers tasked with devising targeted interventions aiming to mitigate inequality and promote economic inclusivity.

Another concern of the paper is to disentangle the drivers behind changes in wage inequality. Methodologically, it applies *state-of-the-art* econometric techniques that allow inequality to be decomposed and the effect of each of the covariates to be seen. In particular, the paper uses the Firpo, Fortin, and Lemieux decomposition method (Firpo et al. 2018). This method has two steps. First, it divides distributional changes into a composition effect and a wage structure effect. Hence, it is possible to understand whether the changes in inequality are explained by changes in the characteristics of the workforce (composition effects), changes in the reward of the observed characteristics (wage structure effects) or both. Second, the two components are divided into the contribution of the covariates. This allows us to search for the differences in worker, firm and work characteristics on wage inequality. Previous studies on Spanish data employ more rudimentary methods, except for Casado and Simón (2015) who also use this decomposition technique,.

Moreover, besides of using this methodology relatively new in the field of wage inequality, we test the robustness of our results using three wage inequality measures: the Gini coefficient, the variance and the interquartile of different log wages.

Previous Spanish studies relied on data from the 1990s and 2000s. The present study contributes to updating previous findings analysing the period 2006-2018. The analysis spans a complete business cycle encompassing the pre-crisis period of 2006, characterised by low unemployment rates and high economic activity, the peak of the Great Recession in 2010 with unemployment rates exceeding 20%, and the subsequent recovery phase spanning from 2014 to 2018. We use the Spanish Wage Structure Survey (WSS), which is conducted by the National Statistical Institute every four years and includes worker and firm characteristics.

To provide a preview of our results, wage inequality decreased for both males and females throughout the analysis period (2006-2018). When we decompose wage inequality, we find that there is an increase due to changes in the characteristics of workers, jobs, and companies (composition effects). Then, how those wage-determining characteristics are remunerated (wage structure effects) is what drives wage inequality reduction

When we explore the evolution of wage inequality in each of the three subperiods (2006-2010, 2010-2014 and 2014-2018), we obtain similar results in the first two. However, during the period 2014-2018, a striking fact emerged: there was an increase in wage inequality for females but not for males. This is mainly due to the composition effect and specifically to a different evolution of seniority in the company. Between 2014 and 2018, the average female job tenure increased from 8.6 to 9.3 years, contributing to inequality growth (composition effects). However, for males, the average job tenure decreased from 9.6 to 9.2 years, leading to a reduction in wage inequality.

The remainder of the paper is organised as follows. Section 2 is devoted to the relevant literature. In section 3, the methodology is explained briefly. Section 4 describes the data and the descriptive results. Section 5 presents and discusses the empirical results. Lastly, the final section concludes.

2. Literature review

Wage inequality has been the subject of analysis in various countries and periods worldwide. Findings vary across countries, periods, and methodologies employed in the analysis, underscoring the importance of updating research. As the labour market undergoes changes over time and varies across countries, it is crucial to continually reassess and enhance our understanding of wage inequality.

During the 1970s and 1980s, an increase in wage inequality was observed in the US (Autor et al. 2008; Lemieux, 2008), the UK (Machin 2011), Germany (Biewen et al. 2019; Card et al. 2013; and Dustmann et al. 2009), Italy (Giangregorio and Fana, 2021 and 2023), Canada (Fortin et al. 2012), and Israel (Deutsch and Silber 2008).

However, in the 1990s and 2000s, the scenario shifted in some countries, with wage inequality stabilising or even decreasing. In the UK, Stewart (2012) observes that there has been a stagnation or decrease in wage inequality in the lower tail of the wage distribution since the 1990s, while in the upper tail, it continues to grow. In Italy, Deviciente et al. (2019) report a halt in the growth of wage inequality since the beginning of the 2000s, though Giangregorio and Fana (2021 and 2023) found an increase in wage inequality between 2007 and 2017, more pronounced in low wages. In Germany, Bossler and Schank (2023) observe a fall in wage inequality since 2010. In a multicountry study, Joao and Galego (2019) show diverging patterns in various EU countries regarding the evolution of wage inequality. Countries like Greece, Portugal, and the UK displayed increasing wage inequality after 2009, while Hungary and Poland experienced a decrease. For Israel, Kimhi et al. (2019) confirm a decline in wage inequality between 1995 and 2008.

The literature on Spanish wage inequality is limited, primarily focusing on analyses of past decades. The first papers analysing wage inequality in the late 90s and early 2000s show a reduction in it. In their study covering the period from 1995 to 2002, Izquierdo and Lacuesta (2006) found that wage inequality had slightly decreased overall but increased in the upper tail of the wage distribution. This shift is primarily attributed to a higher concentration of wages in the middle part of the distribution and, to a lesser extent, to a smaller dispersion in the lower tail. The authors emphasise that this downturn results from changes in the wage structure, specifically in the returns to education and age, which have offset the increase in inequality driven by changes in the composition of the labour force, notably in education and tenure. Motellón et al. (2010) also observe that wage inequality tended to decline between 1995 and 2002. Likewise, they note that the changes in the wage structure during this period are essentially a result of changes in wage returns, with a minor role in compositional changes. They find that these changes affected temporary workers differently (who experienced relatively homogeneous wage improvements) compared to permanent workers (for whom there was a reduction in wages, focused on the middle part of the wage distribution). Simón (2009) also observes a cutback in inequality between 1995 and 2002. However, unlike Izquierdo and Lacuesta (2006) and Montellón et al. (2010), for this author, the reduction is explained to a greater extent by modifications in the characteristics of economic agents rather than changes in wage returns. Hidalgo (2010) observes a lowering in inequality for the period 1980-2000. However, when subdividing it into periods, the author highlights that inequality decreased during the eighties and late nineties but experienced a sharp rise during the early nineties. Pijoan-Mas and Sánchez-Marcos (2010) also observed a significant decline in wage inequality between 1985 and 2000. This reduction is primarily attributed to a decrease in the premium associated with tertiary education and a decline in the unemployment rate. The exception was the recession of 1992 and 1993, which resulted in an increase in inequality, mostly concentrated in the lower tail of the wage distribution. Lacuesta and Izquierdo (2012) concluded that wage inequality lowered slightly between 1995 and 2006. The above authors show that the contraction in inequality during the period occurred even though changes in

employment composition alone would have increased inequality. This is explained by the fact that changes in wage returns were a more relevant determinant. Budría and Moro-Egido (2008) analysed the period 1994-2001, focusing on the relationship between education and wage inequality. They observed that higher education is associated with greater wage dispersion and identified a downturn in wage inequality during the period under analysis (compatible with the SBTC theory).

However, the analysis of the period 2006 to 2010 found an increase in wage inequality in Spain, except for the work of Canal and Rodriguez (2016), who found that wage dispersion decreased in the later phase of the upward cycle (2002–2006) and the initial stages of the global financial crisis (2006–2010). This reduction was most pronounced in the initial phase of the current economic crisis, especially among workers subject to multi-employer bargaining (i.e. non-firm-based bargaining). In contrast, Bonhomme and Hospido (2017), Arranz and García-Serrano (2014), Carrasco et al. (2015) and Casado and Simón (2015) observed a rise during this period. Having a deeper look at those papers, Bonhomme and Hospido (2017) focus on the period 1988-2010 and note that wage inequality expanded in 1988-1996, experienced a substantial decrease during the 1997-2006 expansion, and then underwent a sharp increase during the 2007-2010 recession. They also show that the reduction in wage inequality during the expansion was driven mainly by changes in wage returns. Conversely, the increase in inequality associated with the crisis is explained almost entirely by changes in employment composition measured in terms of occupation, age, and sector. Arranz and García-Serrano (2014) exclusively study the period 2005-2010, demonstrating that the increment in wage inequality is primarily attributed to a shift in the distribution of worker and job characteristics. Carrasco et al. (2015) analysed the period 1995-2010 and showed that wage inequality contracted from 1995 to 2006, primarily due to a decrease in the returns to education. In contrast, between 2006 and 2010, the rise in wage inequality is predominantly attributed to an uptick in the relative demand for high-skilled workers, leading to an increase in the educational premium and also in changes in composition effects in terms of tenure and occupation. Casado and Simón (2015) note that the decrease in inequality that occurred between 2002 and 2006 is primarily explained by the effect of the coefficient component, while during the period 2006-2010, the observed increase in inequality is due to changes in the characteristics, mainly of occupation and type of activity.

The results of these investigations, based on different data sources[3] and years, show that wage inequality in Spain exhibits a countercyclical trend[4]. However, many of these studies limit their analysis to the male population, and if they include the entire population, they do not approach the analysis from a gender perspective. Furthermore, except for Casado and Simón (2015), the existing literature does not employ the FFL decomoposition technique, and there are no studies using data beyond 2010. This paper aims to fill this gap by updating the study of the Spanish case, incorporating a gender perspective, and considering the subsequent years.

3. Methodology

The methodology used in this paper is an extension of the Oaxaca-Blinder decomposition method based on the RIF regression approach proposed by Firpo et al. (2009), FFL hereafter. This approach permits the computation of several inequality measures and exploring how they evolve each year, decomposing the contribution of the evolution of the inequality to the change of the observed characteristics vs the rest of the factors and exploring the effect of each covariate separately.

[3] The Spanish Wage Structure Survey, Administrative data from the social security, Continuous Household Budget Survey and Continuous Sample of Working Lives.

[4] Canal and Rodríguez (2016) is an exception.

Similar to previous studies, the starting point is an extension of the Mincer equation. This equation incorporates factors beyond education and experience that could influence workers' wages.

$$Ln\ w_i = X_i'\beta + \epsilon_i \quad (1)$$

where w_i is the gross hourly wage of worker i; X_i is a vector of worker, job, and company characteristics; β is a parameter vector; and ϵ_i is the error term.

Our analysis is conducted in several steps. First, we run RIF regressions each year and gender, which is a method to estimate the effect of the covariates on the unconditional quantiles (or other statistics) of an outcome variable (that, in our case, is the log wage). We use the Gini coefficient, the log variance, and the unconditional interquantile as inequality measures. That way, we can analyse how wage inequality has changed overall and whether there are different patterns for low wages and high wages. Second, we apply the Oaxaca-Blinder decomposition method. It splits wage inequality into two parts: the composition effect and the wage structure effect. The composition effect is the part of the change in wage inequality due to a change in the characteristics of the observed variables (related to worker, job or company). The wage structure effect is related to other factors (unobserved characteristics or different rewards to a given variable across different periods) that affect wage inequality evolution. Finally, we analysed the contribution of the covariates to the change of wage inequality measures in several periods. As said in the introduction, the FFL method has the advantage that each component is further divided into the contribution of each covariate.

Regarding running RIF regressions separately by gender, the rationale behind this approach is to avoid selection bias in pooled estimation. Some studies pull together males and females in their estimations, assuming that the reward of the characteristics is independent of gender. Others opt for focusing on one gender only (mainly males) because they are aware that gender potentially affects the reward of some characteristics (e.g., the fertile age of females can reduce their salary, but not their male counterpart's salary). We opt for a different strategy to consider the gender perspective fully. We run separate regressions for males and females, allowing for different rewards of the same characteristics by gender, and we analyse the wage inequality evolution of both genders separately.

Below, we provide an overview of the FFL methodology. Firpo et al. (2018) propose using the recentred influence function (RIF) regression to analyse the impact of an explanatory variable on inequality measures. The Influence function is a renowned technique in econometrics employed for obtaining robust estimates of statistical or econometric models. The authors mentioned above propose the RIF because of its suitability for conducting Oaxaca-Blinder decompositions. The method developed replaces the logarithm of the gross hourly wage (w) in the extended Mincer wage equation (1) with the corresponding recentred influence function (RIF) of the specific distributional statistic $v(F_y)$.

$$RIF(w, v(F_y)) = \mathrm{v}(F_y) + IF\big(w, v(F_y)\big) \quad (2)$$

The conditional expectation of the RIF (w; v (F_y)) is called RIF- regression and is modelled as a function of the explanatory variables,

$$E = [RIF(w, v(Fy)|X] = X\gamma + \varepsilon \quad (3)$$

We run separate RIF-OLS regressions to four periods: the financial crisis period (2006-2010), the Great Recession (2010-2014), the recovery period (2014-2018), and the whole period (2006-2018) for the variance of log wages, the Gini index, and IQ 9010, IQ 9050 and IQ 5010, separately for male and female. To compute RIF-OLS regressions, we need to estimate the density of the different inequality statistics and form a dichotomous variable indicating whether the value of the outcome (the logarithm of wages) is below that statistic. Using the estimates of RIF-OLS regressions[5], we decompose the change in the inequality indexes in different periods and for males and females. We use the Oaxaca-Blinder decomposition method to distinguish between the composition and wage-structure effects. The decomposition is as follows:

$$\hat{\Delta}_o^v = (\bar{X}_{t1} - \bar{X}_{t0})\hat{\gamma}_{t0,v} + \bar{X}_{t1}\left(\hat{\gamma}_{t1,v} - \hat{\gamma}_{t0,v}\right) \qquad (4)$$

Where $\hat{\Delta}_o^v$ is the difference in the specific inequality index (v) between period t1 and t0, $\bar{X}_{t1}$ and $\bar{X}_{t0}$ are the means of the observed characteristics in period t1 and period t0, and $\hat{\gamma}_{t1,v}$ and $\hat{\gamma}_{t0,v}$ are the estimated coefficients of the RIF regression run on the specific inequality wage measure (v) for period t1 and period t0. Taking as an example the decomposition of the wage inequality between 2006 (t0) and 2018 (t1). The first component of equation 4, $(\bar{X}_{t1} - \bar{X}_{t0})\hat{\gamma}_{t0,v}$, the composition effect, shows the change on inequality index attributable to differences in the observed characteristics of workers in 2006 to those in 2018, keeping constant the level of rewards in 2006. The second component $\bar{X}_{t1}\left(\hat{\gamma}_{t1,v} - \hat{\gamma}_{t0,v}\right)$, the wage structure effect, compute the change in the inequality index explained by changes in the returns of worker, firm, and job characteristics from 2006 to those of 2018, keeping the level of characteristics in 2018.

The method proposed by Firpo et al. (2018) to perform the decomposition has several advantages compared to the ones proposed by Machado and Mata (2005), Melly (2005) or Chernozhukov, Fernández-Val, and Melly (2013). The main advantage of this approach is that, in addition to breaking down the overall wage inequality into the composition effect and the wage-structure effect, it allows us to determine the individual contribution of each explanatory variable. Furthermore, as the method employs a RIF regression, the counterfactual distribution remains independent of the sequence in which it is conducted. Finally, this technique is computationally less demanding since it does not require estimating the complete conditional distribution. The FFL method performs local inversions and only requires the calculation of the reweighting factor. This factor can be estimated using a linear probability model to predict the likelihood of observing whether a specific wage falls below a particular point.

One problem of the FFL method is that the detailed decomposition for categorical regressors depends on the choice of the (omitted) base category. A solution is to compute the decomposition based on "normalised" effects (Yun 2005; Rios Avila 2019). Another issue to consider is that the decomposition results should not be interpreted as causal effects. Nevertheless, as highlighted by Biewen and Seckler (2019), they do offer a comprehensive and insightful description of how distributional change is linked to shifts in observable factors. Consequently, conducting an FFL decomposition is valuable for identifying the variables through which distributional change is influenced or correlated, even though these relationships are not causal.

[5] To decompose the change in wage inequality, we conduct separate regressions for 2006 and 2018. As a result, the returns (or marginal effects) of the other covariates may differ depending on the year.

4. Data and descriptive statistics

4.1. Data

The data used for the analysis was obtained from the Spanish Wage Structure Survey (WSS)[6], which links employee characteristics with employer information. WSS provides detailed insights into wage characteristics, worker profiles, job details, and establishment attributes. In the paper, we use data from the last four waves: 2006, 2010, 2014 and 2018[7], which include different phases of the business cycle including: the end of the housing bubble, the Great Recession, and its subsequent recovery. The survey design enables the analysis of wage inequality and its changes over time despite not being a panel dataset.

The WSS sampling process consists of two distinct stages. In the initial stage, establishments are randomly chosen from the Social Security registers, ensuring a representative selection spanning various sectors, regions, and firm sizes. During the subsequent stage, workers are randomly chosen within the selected establishments. The surveyed worker population comprises individuals whose primary source of income is their salary, excluding board members and those with alternative income sources.

Unlike other similar datasets, WSS contains all wages with no censoring at the top. Nevertheless, a small fraction of extreme wage values were removed from our sample. These exclusions encompassed individuals earning below the inter-professional minimum wage and those with hourly wages exceeding 400 euros. The omitted observations represent a tiny portion of the sample[8]. After excluding these observations, our sample comprised 810,386 observations for the four waves (representing 44,062,382 in the wage-earners population: 20,140,749 for females and 23,921,633 for males. The database also includes an elevation factor that allows it to be moved from sample to population results[9].

Our analysis considers the natural logarithm of the gross hourly wage as the dependent variable. This wage variable is computed in accordance with the survey guidelines, incorporating extra and overtime payments to base wages for October (the month taken as a reference in the WSS). October is considered a standard month with no extended vacation periods or in which employees typically receive any extra pay, and it provides a reliable basis for calculating a monthly wage. This monthly wage is subsequently divided by the total number of hours worked (regular and overtime) during that month. To ensure wage comparability across years, we utilised the CPI to standardise salaries for 2018. Consequently, all wages in the sample are denominated in 2018 euros, allowing for a comparison of real wage rates.

We assess several attributes as explanatory variables, categorising them into three groups, each representing distinct factors whose impact on wage inequality is decomposed. The first group encompasses attributes related to the worker, termed "worker characteristics," and includes the following variables: gender, six age brackets, education (with up to seven categories) and nationality. The second group, “job characteristics”, comprises variables linked to the workplace, including up to 13 occupation categories according to the CNO[10], labour seniority, two contract types (fixed-term/permanent based on the company's social security

[6] The WSS is drawn up every four years by the *Instituto Nacional de Estadística* (INE, National Statistics Institute), using common EU criteria regarding methodologies and contents.

[7] Two additional WSS waves, from 2002 and 1995, are available; however, they exclude certain sectors of activity covered in subsequent waves. To maintain consistency and comparability across time, we have chosen to exclude these two initial waves from our analysis.

[8] Supposedly, in the database, no hourly wage should be found below the inter-professional minimum wage. Still, in practice, some cases can be found that might be attributable to atypical circumstances resulting in declared hours in the surveys not corresponding to the work week to which the shown wage refers. In particular, on the one hand, we observed 1,557; 346; 429, and 706 observations were below the minimum wage in 2006, 2010, 2014 and 2018, respectively. On the other hand, we dropped 0, 6, 8 and 15 observations above 400 euros in 2006, 2010, 2014 and 2018, respectively.

[9] See Table 1 for more details.

[10] The CNO-94 for 2006 includes 16 categories and the CNO-11 for 2010, 2014 and 2018, includes 17 categories.

classification criteria), work type (part-time/full-time) and whether the worker holds supervisory duties. The third group, "company characteristics," encompasses various attributes related to the company, such as 21 sector categories (based on codes used in the National Economic Activities Classification System), company size (categorised by the number of workers into 1-49, 50-199, and >200), type of collective bargaining agreement[11] (at the state, sector, company, or work-centre level), company ownership (public or private) and the region in which the company operates, based on the NUTS1 classification that divides Spain into seven regions.

4.2. Descriptive statistics

Figure 1 reflects the evolution of the "raw" wage rate[12] across the distribution for both males and females from 2006 to 2018. Values over one reflect an increase in the wage rate in that period. A downward line implies a reduction of wage inequality because lower salaries grow at a higher rate than higher wages; while an upward line means higher wage inequality. Females (dotted black line) increase their salary over the whole period and reduce wage inequality (there is a clear negative trend). However, males (continuous black line) present a hump-shaped line. Then, there is more dispersion of wages for low-mid wages, while there is a concentration in the middle-top part of the wage distribution. Wage rates also increase for males for the whole period, except for those workers in the 90th percentile, where there is a slight reduction. Figure 1 also shows the evolution of the wage rate in each subperiod (2006-2010, 2010-2014 and 2014-2018). In the period 2006-2010, the wage rate increased both for males and females across the distribution. However, in the other two periods, the wage rate decreased for males at any point in the distribution.

Finally, comparing by gender, we clearly see how the dotted black line is always above the continuous black line between 2006 and 2018. That means wages grew at a higher rate for females than for males, and consequently, there was a reduction of the gender wage gap in each of the three analysed periods and at any point of the wage distribution. We do not observe a clear negative or positive trend in the subperiods lines; some lines are hump-shaped or U-shaped. Then, it is hard to say from Figure 1 whether wage inequality increased or decreased. The inequality measures in Table 2, which are commented on later in this section, resume wage inequality in a single number. This simplification, on the one hand, makes it easier to know if wage inequality increases or decreases in each case, but, on the other hand, it introduces some disparities depending on the inequality measure that is analysed.

Figure 1 (around here)

Table 1 contains the descriptive statistics for males and females in 2006, 2018, 2010, and 2014. Our sample, and consequently the Spanish labour market, is characterised by the following traits. Female "raw" wage rates are systematically lower than those earned by males. However, the gap between females and males narrowed in 2014 and 2018, mainly due to the increase in the average wage rate of females.

Regarding **worker characteristics,** we observe that first, the average age of the workers grew during the period, in parallel with population ageing. Female workers were younger than males in 2006, but the difference almost vanished in 2018. This fact can be explained by the progressive incorporation of women into the labour market in all age cohorts. Second, workers are more educated at the end of the period. There are fewer workers with less than primary education and more with at least a bachelor's degree, even if the changes are minor. Bachelor's degree increases by two percentage points. We also observed a shift from vocational training to secondary education during the analysis period. Finally, Spanish

[11] In Spain, collective agreements are legally binding for all workers falling under their scope (whether at the state, sector, company, or work-centre level), regardless of their union affiliation or lack thereof during the bargaining process.
[12] Raw wages refer to wages directly observed, without controlling by observed characteristics.

workers represent more than 90% of the workers. The rate is slightly higher for females, and we do not observe a clear trend throughout the period of analysis.

Related to **job characteristics**, workers increase their seniority in the company during the period. Females started in 2006 with lower levels of seniority than men, but they ended with similar seniority. This could also result from incorporating females into the labour market process. In addition, temporary contracts were reduced throughout the period of analysis from 26% and 30% for females and males, respectively, in 2006 to 23% in 2018 for both males and females. The successive labour market reforms, particularly the one implemented in 2012, aimed to reduce temporality and promote permanent contracts. Also, females tend to work in larger companies (with more than 50 employees). Finally, the crisis reduced the number of employees with responsible duties and males are more likely to occupy this kind of positions.

There are also gender differences and different evolution of **company characteristics**. First, the ratio of women working in the public sector is almost double the ratio of men. This phenomenon can be explained by the smaller gender gap in the public sector, but also by the fact that it encompasses fields such as education and healthcare, with a significant female presence. For both men and women, the percentage of workers in the public sector increased in relation to the private sector from 2006 to 2018. Indeed, there is also an apparent increase in the proportion of workers in exporter firms throughout the period. This aligns with a process that pushed companies to sell their products in international markets, especially after the Great Recession. Females are more likely to work in domestic firms, which tend to pay lower salaries[13]. Moreover, there is a process of de-unionisation, especially during the Great Recession, that is also observed in other Western countries (i.e. Germany and the US). There is a reduction in the proportion of workers whose salary is determined at the state or sector level versus the rest. This process is more intense for males, who, at the beginning of the period, exceed the number of females whose wage is determined at the state or sector level and end with a lower rate.

Table 1 (around here)

Table 2 reports some inequality measures that are also used in the decomposition analysis: the ratio between the 90th percentile and the 10th percentile (Q90/Q10), the variance, and the Gini coefficient. Differences between the 90th and 10th percentiles are decomposed into the lower (Q50/Q10) and upper parts (Q90/Q50) of the distribution.

For all years between 2006 and 2018, the hourly wage of a worker in the 90th percentile is greater than three times that of a worker in the 10th percentile. The dispersion is more prominent in the upper part of the distribution; in the upper part, a worker in the 90th percentile receives an hourly wage that doubles a worker in the median. A worker in the median earns around 1.5 times the hourly wage of a worker in the first decile. Males have greater average wage rates but, at the same time, higher dispersion measured by the variance. This greater dispersion results from higher wages for male top earners and is consistent with the glass ceiling theory.

The main conclusion from Table 2 illustrates a reduction in wage inequality from 2006 to 2014. However, from 2014 to 2018, there is a worrying fact: while male wage inequality continues to diminish, we observe the opposite for females. We get this result no matter whether we use the Gini coefficient or the ratio Q90/Q10. However, the variance moves in a different direction in some subperiods. For example, in 2006-2010, the variance increased, while Gini and Q90/Q10 decreased. Variance also increases for males in the last subperiod (2014-2018) even though the Gini and the Q90/Q50 ratio are negative. Moreover, when we

[13] For a complete characterization of domestic and exporter companies in Spain during the same period, see Groizard et al. (2022).

look at the lower (Q50/Q10) and upper part (Q90/Q50) of the distribution, we find that the reduction of wage inequality is mainly driven by the compression of salaries in the upper part of the distribution (negative sign of Q90/Q50). The gap between low wages and the median increased in several subperiods (2006-2010 for females and 2014-2018 for males).

Table 2 (around here)

In the decomposition analysis, we will analyse whether these movements are explained by a change in their characteristics or their rewards and which variables are associated with higher/lower wage inequality. This is the first step in designing the right policies to reduce wage inequality.

5. Empirical results

This section is devoted to exploring the drivers of wage inequality by gender. From the descriptive analysis, there is certainly a reduction in wage inequality between 2006 and 2018, both for males and females. The decomposition performed in this section allows us to disentangle which part of the change is due to the different observed characteristics, the composition effect, or how these characteristics receive a different compensation between 2006 and 2018, the wage structure effect. Moreover, some factors can contribute to an increase in wage inequality, while others impact a reduction. The FFL decomposition procedure also enables us to dig into each observed characteristic.

As these results may be sensitive to the choice of the years compared, we also explore the evolution of wage inequality across the business cycle in subsection 5.2.

5.1. Wage inequality between 2006 and 2018 (whole period)

In this subsection, we compare two years: 2006 and 2018. Both years are characterised by being in the upward phase of the economic cycle, just before a shock. The 2008 financial crisis and the 2020 COVID crisis were two years after the initial and the final year of our data, respectively. Therefore, the results regarding wage inequality are not a consequence of the economic cycle phase in the selected years but of the long-term trend during the analysed period.

Econometric results in Table 3 and Figure 2 show that wage inequality reduction is statistically significant, and wage structure effects fully accounted for the overall inequality reduction. In contrast, composition effects induce an increase in inequality throughout the period of analysis. The change in the characteristics of the workers has a positive sign[14], indicating that they tend to increase wage inequality. Still, wage structure has a negative sign and greater coefficients, which overcompensates the first effect. Detailed results are in Table A1 in the Appendix.

Table 3 (around here)

Figure 2 (around here)

This result is independent of the inequality measure (IQ 90/10, Gini or Variance), but we appreciate gender differences. Focusing on gender disparities, female wage inequality decreases more than males when comparing IQ 90/10 and the Gini coefficient. In the bottom part of the male distribution (IQ 50/10), there is an increase in inequality[15] because, even if the wage structure also contributes to reducing inequality, the

[14] All the estimated coefficients are statistically different from zero.

[15] Note that we expect the elevation of the minimum wage to contribute to reducing wage inequality in the bottom part of the wage distribution; however, the big jump in the minimum wage happened in 2019, after the period of analysis. So, we expect a compression of wages for the bottom part of the distribution in the forthcoming 2022 WSS wave.

composition effect has a more significant impact in the opposite direction at this part of the wage distribution. Therefore, only the compression of males on the upper part of the distribution (IQ 90/50) contributes to the reduction of inequality. However, female reduction of wage inequality happens throughout the distribution, and the overall effect is more intense.

With the log variance, we get a different result; the variance reduction for males is bigger than for females. However, variance must be considered as a mean dependent variable and is not standardised. As shown in Table 2, males' wages have a larger variance, so this result is a scale effect that disappears if we divide the change of the variance by the average variance of each gender. So, we can conclude that there is a reduction in wage inequality, which is greater for females.

Henceforth, in order to comment on wage inequality evolution, we mainly focus on two measures: the IQ 90/10 and the Gini coefficient because they are relative inequality measures, and they tend to move in the same direction almost all the time. The variance is an absolute dispersion measure, which is more likely to offer different results in some cases. Occasionally, we also comment on the IQ 90/50 and the IQ 50/10 when they do not change in the same direction.

To commence, we comment on the results of the **composition effect** (see Table 3 and Fig. 2a), which pushes up wage inequality. All three groups of variables (worker, company and, especially, position characteristics) help to explain a rise in wage inequality measured by our three inequality indexes, both for males and females.

Worker characteristics (Fig. 2c) include age, education and nationality[16]. In accordance with the findings presented in the descriptive statistics subsection, there was an increase in the average age from 2006 to 2018. The ageing of the population leads to a higher proportion of older workers with higher salaries, increasing wage inequality (positive sign). This effect is more substantial for women. The average education of the workers also increases during the analysis period and contributes to the rise in wage inequality. Then, we find evidence favouring the SBTC theory predictions (see Katz and Murphy 1992). This effect is more pronounced in men than women and more accentuated in the upper part of the wage distribution for men and in the lower part for women, which could indicate that glass ceilings are more evident at the end of the period. The nationality of the workers has a negligible impact on wage inequality (positive for females and negative for males).

Regarding *position characteristics* (Fig. 2e), occupation and seniority (note that seniority increased over the period) are the two main drivers of wage inequality. These effects are stronger for females than for males. The type of contract and holding a position of responsibility reduce wage inequality and partially compensate for the previous effect.

Finally, we highlight the following findings among *company characteristics* in Fig. 2g (the sector of activity, the firm size, the region, whether it operates at a national or international level, whether privately or publicly owned, or how wages are negotiated). First, there has been a decentralisation of wage bargaining (de-unionization) that was more intense for males and, as expected, contributed to the increase in wage inequality, especially within this group (see Plasman et al. 2007; Biewen and Seckler 2019). Second, bargaining agreements and working in a firm that operates internationally have an inequality-reducing effect just for females in the upper tail (IQ 90/50). For the other wage inequality measures and for males, they contribute to increase wage inequality. Third, working in a public firm reduces wage inequality for males, but it increases

[16] The estimation of our decomposition is conducted using the "normalisation" approach to mitigate the omitted-reference bias that affects the Oaxaca-Blinder decomposition when categorical variables are employed. However, we only present aggregate results for the key variables, wherein we sum up all the coefficients across different categories (e.g., the education effect is the sum of the coefficients of all education categories).

for females. Between 2006 and 2018, the number of workers in the public sector increased for both genders. The public sector often has a more uniform and regulated salary structure than the private sector, which implies less heterogeneity. Then, we expect a reduction in wage inequality, but this only happens for males.

We now turn to wage **structure effects** (Fig. 2b), which are responsible for the overall reduction of wage inequality. *Worker* and *position characteristics* (Fig. 2d and 2f) seem to contribute to the increase in wage inequality, or they do not have an apparent effect; the sign changes depending on the measure and/or the gender. Therefore, the main factors of the wage inequality reduction are *company characteristics* and the *constant.* Here, we also appreciate a difference by gender. While for females, the reward of the observed characteristics of the company is the primary driver of the reduction of wage inequality, for males, the major part is the *constant*. As Biewen and Seckler (2019) pointed out, when the covariates are normalised, the constant represents general wage structure effects that cannot be attributed to any particular group of covariates or unobserved variables.

When we investigate the *company characteristics* (Fig. 2h), we discover that the sector of activity is related to lower female wage inequality while increasing male wage inequality. Note that between 2006 and 2018, although workers tend to work in small companies, the rate of workers in large companies has increased, both for males and females. In the case of males, firm size is the main contributor to the reduction of wage inequality. De-unionization increases male wage inequality, while the effect is the opposite or neutral for females. This is a striking result. Previous studies reveal that unions tend to reduce wage inequality among males but not among females (see DiNardo et al. 1996; Card, 1996; Card and DiNardo 2002; Card et al. 2004; Gosling and Lemieux 2004).

In short, the differences in observed characteristics (composition effects) in the Spanish economy between 2006 and 2018 have increased wage inequality. However, there has been a homogenisation of the rewards of the observed characteristics (wage structure effects) that overcompensates the previous effect. Therefore, wage inequality has decreased. This is true regardless of gender.

5.2. Wage inequality evolution 2006-2010, 2010-2014 and 2014-2018

This subsection investigates the relationship between wage inequality and the business cycle. Ayala and Cantó (2022) show that Spain is one of the countries with higher income inequality in the EU-27, and there is a negative correlation between income inequality, measured by the Gini coefficient, and economic growth. Indeed, they observe that income inequality grows fast during recessions and diminishes slowly during periods of economic prosperity. An important factor is the high sensitivity of the unemployment rate to the business cycle. The unemployment rate in Spain is high even during the expansions, and it spikes during the downturns.

Our paper does not consider unemployed workers since they are not included in our database. Still, we could explore the contribution of the wage inequality of the employees to the evolution of income inequality.

2006-2010 (Table A2)

Generally, the results align with those of the entire period (2006-2018). There are two opposing effects: the composition effect tends to increase inequality, while the reward obtained from characteristics reduces inequality, with the latter effect being dominant. Gender differences are also observed. Once again, the reduction in wage inequality is more significant for females. Wage compression only occurs at the upper part of the male distribution, as in the 2006-2018 period.

When each variable's contribution to the *composition effect* is analysed, all variables contribute to increasing inequality (especially occupation, job tenure, and de-unionization), or their contribution to inequality reduction is insignificant.

While the *wage structure effect* contributes to explaining inequality reduction in this period, an investigation into the variables reveals gender differences. The variables associated with job position and company primarily contribute to reducing inequality for female workers. In the case of males, all three groups of variables (worker, job position and company) tend to reduce inequality. Although the constant played a significant role in explaining the reduction of wage inequality during the 2006-2018 period (especially for males), during the financial crisis, its effect is positive or not significant. Company size (despite the rate of workers in large firms not changing significantly between 2006 and 2010) contributes to reducing inequality for men (while it is not significant for women). It is noteworthy that occupation or sector of activity variables help to explain the reduction of inequality due to changes in the remuneration of these variables for women. In contrast, for males, the sector of activity increases wage inequality, and occupation has a small impact on reducing inequality.

2010-2014 (Table A3)

The 2010-2014 subperiod follows a similar trend to the previous one, with wage inequality reduced due to changes in the compensation of employees' characteristics (*wage structure*). It is worth noting that in this subperiod, a trend change is observed in the lower part of the female wage distribution. Previously, wage inequality decreased, but between 2010 and 2014, it increased in this part of the distribution, and this trend will extend to the rest of the distribution in the following subperiod, as we will show below.

The *composition effect* acts in the opposite direction, increasing wage inequality, but its effect is more moderate. There is a reduction in workers occupying positions of responsibility, which contributes to reducing inequality explained by the *composition effect*. The other variables have positive or insignificant effects on the composition effect.

Regarding *wage structure*, which contributes to reducing overall inequality, the most relevant variables are related to the company (especially the sector of activity and whether the employee has a permanent or temporary contract). It is worth noting that in 2012, labour reform was implemented aiming to reduce temporary employment, limit the grounds for fair dismissals, and address the significant inequality existing in Spain between employees with permanent and temporary contracts. While the reform did not significantly increase the percentage of workers with permanent contracts[17], it did impact the reduction of wage inequality by aligning the rights of permanent and temporary workers and limiting situations in which temporary contracts could be used. The constant, representing unobserved or unattributable to specific variables in the analysis, once again plays a significant role in reducing inequality, as it did during the 2006-2018 period.

2014-2018 (Table A4)

In the last subperiod, relevant differences are observed compared to the previous subperiods, particularly concerning gender. While the trend for males continues with a reduction in wage inequality, for females, the trend reverses, and wage inequality increases. For females, this change in trend is due to the *wage structure effect* becoming positive, meaning it increases wage inequality. The wage inequality increase is moderate compared to the reductions observed in the previous two periods. Still, it marks a concerning shift in the trend mentioned earlier (see Figure 1 and Table 2). For males, although there is a reduction in wage inequality, it is attributed to the *composition effect*, as the *wage structure effect* is positive or insignificant during this subperiod.

[17] The weight of permanent contracts increased significantly from 2006 to 2010 due to companies prioritizing dismissing (or not renewing) temporary workers, but there were no relevant changes from 2010 to 2014.

A closer look at each variable reveals that job tenure is the major source of this differential behaviour between males and females. Between 2014 and 2018, the average female job tenure increased from 8.6 to 9.3 years (Table 1), contributing to inequality growth (composition effect). However, the average job tenure for males decreased from 9.6 to 9.2 years, reducing wage inequality. There are other variables with divergent trends, but their contribution to explaining inequality evolution is much smaller. The recovery of the construction sector could help explain this different evolution. This sector has a high rate of male workers, and new workers were hired during that period, lowering male tenure.

Summing up, after the analysis of the subperiods, we do not find a countercyclical behaviour of wage inequality. There is a structural reduction of wage inequality independently of the evolution of the economy. There is a reduction in wage inequality in all subperiods, except for the last subperiod (2014-2018) for females, where there is an increase. However, the Gini coefficient of the household disposable income followed a different trend: it increased during the financial crisis 2006-2010 and the Debt Crisis 2010-2014, only decreasing during the subsequent recovery period from 2014-2018, as illustrated in Table 2. The overall results, 2006-2018, evidence an increase in income inequality, with the Gini coefficient shifting from 0.319 in 2006 to 0.332 in 2018.

Ayala and Cantó (2022) note that labour income plays a significant role in wage inequality. This may seem to contradict our results. Nevertheless, the explanation is simple. What causes an increase in inequality during recessions is not the wage inequality among those who remain employed but rather the variations in unemployment. The less skilled individuals are more likely to lose their jobs during recessions. Losing employment leads to a decline in income for these individuals, exacerbating inequality. However, by expelling low-wage workers, the labour market reduces wage inequality among the employed workforce.

6. Conclusions

In this paper, we investigate wage inequality in Spain between 2006 and 2018, analysing the determinants of diverging trends in male and female wage inequality. We use data from the WSS for Spain and followed the FFL decomposition technique for several standard wage inequality measures: the Gini index, the log variance and several interquantiles (Q90/Q10, Q90/Q50 and Q50/Q10 log wage gaps). This technique is not an inference method; therefore, we do not infer any causal effect. However, the FFL provides a detailed decomposition of the changes experienced across the wage distribution, allowing for an understanding of the individual contribution of each explanatory characteristic through the components of the composition effect (characteristics) and the wage structure effect (rewards).

This analysis is relevant, given that significant changes occurred in the Spanish economy during the period under examination, affecting both the supply and demand characteristics of labour and institutional issues of the labour market, thereby shaping the wage structure. Spain was severely impacted by the double-dip Great Recession (2008-2009 and 2010-2013), exacerbating its chronic labour market problems. Moreover, the Spanish labour market institutions, often labelled as dysfunctional, were characterised by dual employment protection legislation and a rigid collective bargaining system. This combination led the labour market to predominantly respond to adverse shocks through redundancies, disproportionally affecting temporary workers. Notably, a significant number of job losses in Spain were concentrated in male-dominated sectors, particularly the construction industry, while sectors with higher female employment rates generally fared

better. Furthermore, a labour market reform was implemented in 2012. Therefore, many factors changed in the Spanish labour market over the period studied, and they have affected inequality in diverse manners. [18]

Understanding the dynamics of wage inequality underscores the necessity for tailored policies to address wage inequality. As pointed out by Criscuolo et al. (2020), a growing disparity in pay among workers with different characteristics may necessitate the implementation of wage regulations and initiatives aimed at enhancing skill levels. Conversely, an increasing discrepancy in pay among firms employing similar workers underscores the importance of addressing productivity gaps between firms, as well as examining factors influencing pay determination and bargaining power.

The evidence obtained indicates that throughout the period 2006-2018, there was a decline in wage inequality. This reduction stems from a decrease in wage returns, as changes in worker, job, and firm characteristics lead to an increase in wage inequality. In the case of women, this reduction occurs in both high and low wages, although it is more pronounced in the higher wages. In contrast, wage inequality increased at the lower end of the distribution for men, so the observed reduction is due to a more significant reduction of inequality at the higher end, compensating for the increase at the lower end. The main drivers of this reduction were changes in the type of contractual arrangement, having a responsible position, and sector of activity. Moreover, the rewards of tenure in the firm also decreased wage inequality. Regarding the diverging gender patterns, the main drivers of the decrease in female wage inequality are the rewards associated with the type of occupation, sector of activity, and type of unionisation. However, for males, the primary driver of wage inequality reduction is the varying rewards among different firm sizes. Consequently, our results point to job and firm characteristics as the main drivers of wage inequality, and policies should focus on productivity gaps among firms and occupations.

Ayala and Cantó (2022) show that wage income is the main source of income for Spanish households. Thus, our work also provides valuable information for determining how much wage inequality translates into household income inequality. The aforementioned authors also note that income inequality behaves countercyclically, increasing in recessions and decreasing during expansions. Moreover, the changes are not symmetrical; while inequality sharply rises in recessions, it slightly decreases in expansions, increasing structural inequality. However, our results reveal that inequality has decreased during the period 2006-2018, indicating that the wages of active employees are not the cause of the rising inequality. This seemingly surprising result is explained by the fact that the Spanish economy is characterised by a pronounced adjustment in reducing hired workers during recessions (which mainly affect the less productive), leading to an increase in income inequality and poverty among those who lose their jobs (De la Rica et al. 2022). Consequently, we do not observe a countercyclical behaviour of inequality of those who retain their jobs.

Digging into the subperiods, it is worth noting that there was a change in the last subperiod (2014-2018), where wage inequality increased for females but not for males. The increase in seniority within the firm and the rewards associated with the sector of activity are the main sources of the change and widening wage inequality for females. Future WSS wave will allow us to verify whether the increase in female wage inequality is persistent. This data will also shed light on the implication of wage inequality of the COVID crisis and the significant enhancement of the minimum wage that has been set from 2019.

Despite the advantages of the WSS, such as including numerous observations, combining worker and firm information, and not being censored for the highest salaries, our study faces two significant limitations. First, the WSS does not account for family circumstances, which are especially relevant for determining female labour supply and wage rates. Second, it only includes employees; consequently, wage rate estimations

[18] For an analysis of the recent Spanish labour market reforms and shocks, see Sanz-de-Galdeano and Terskaya (2020).

represent only those working. To overcome these limitations, a possible solution is to merge different datasets like the Survey of Living and Income Conditions, which includes rich information about socio-economic variables of the household and its members, with the WSS, which provides firm characteristics and detailed information for accurately computing wage rates.

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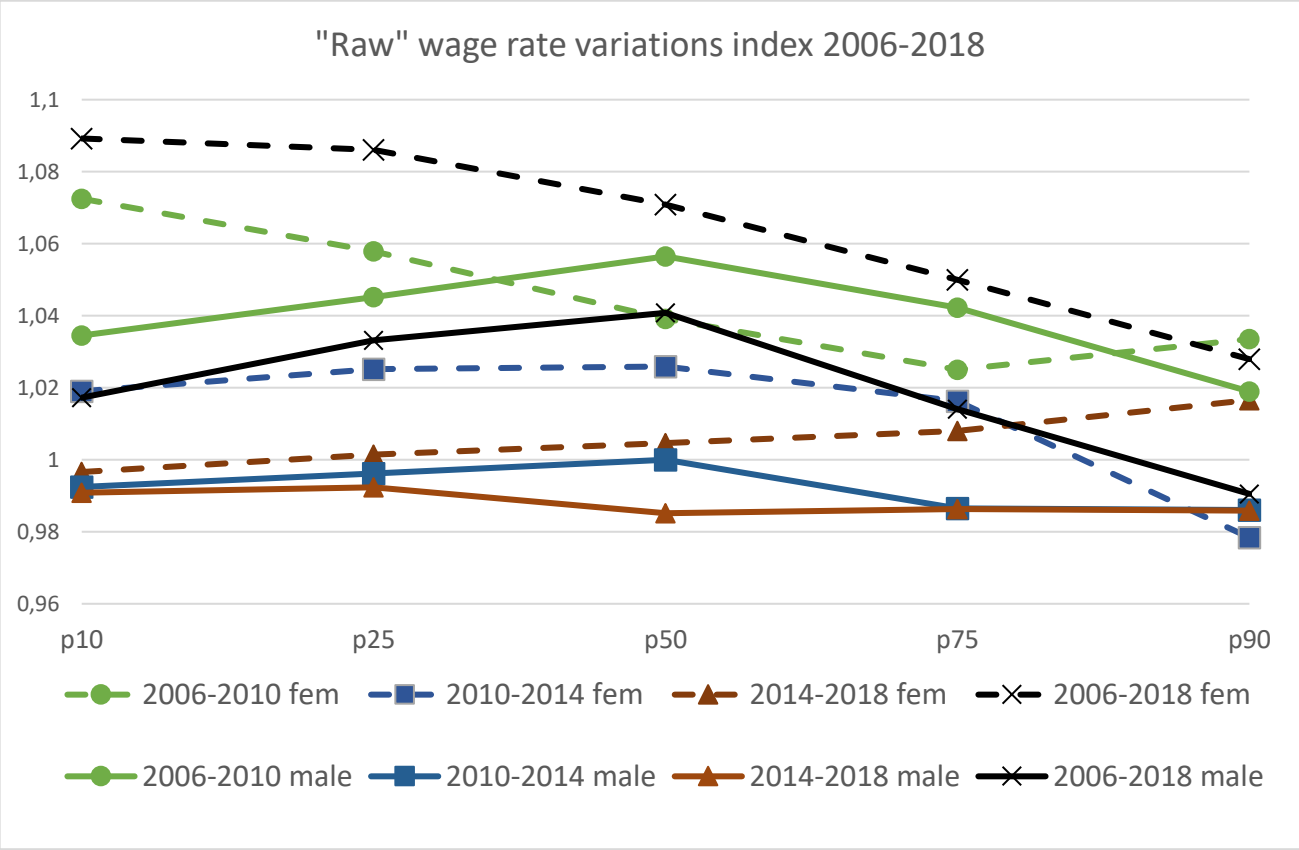
Tables and figures

Figure 1. "Raw" wage rate variations index 2006-2018



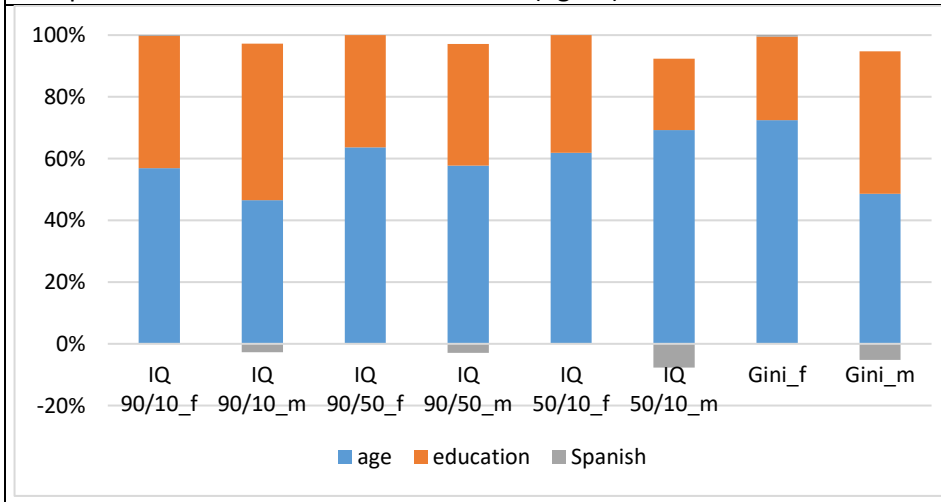
Notes: “Raw” wage rate is the hourly wage observed in the data. Wages has been updated using the CPI to make them comparable. The vertical axis reflects is the ratio of the wage rate at the end and at the beginning of the period. The horizontal axis computes the ratio in several percentiles of the wage rate distribution. Data from the SWSS.

Figure 2. Wage inequality decomposition 2006-2018

Compositon effect (fig. 2a)

Wage structure effect (fig. 2b)

Composition effect – Worker characterists (fig. 2c)



Wage structure effect – Worker characterists (fig. 2d)

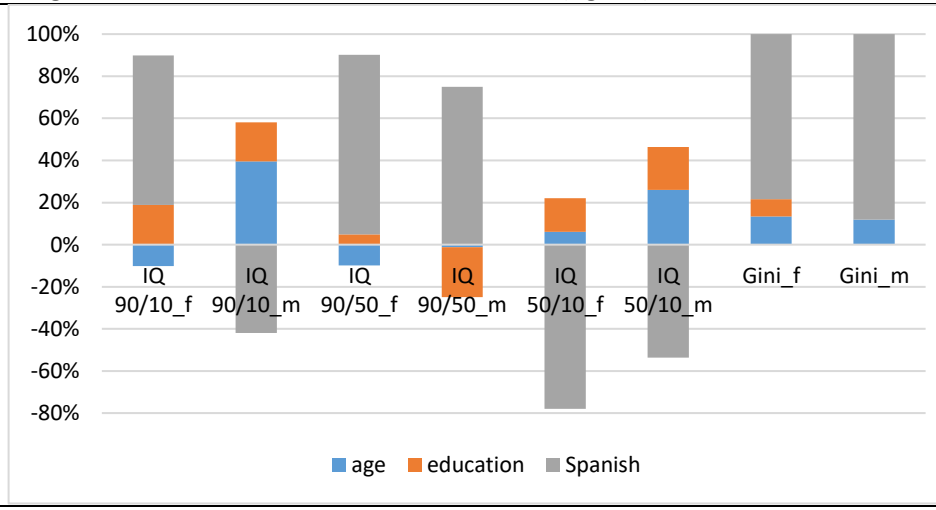
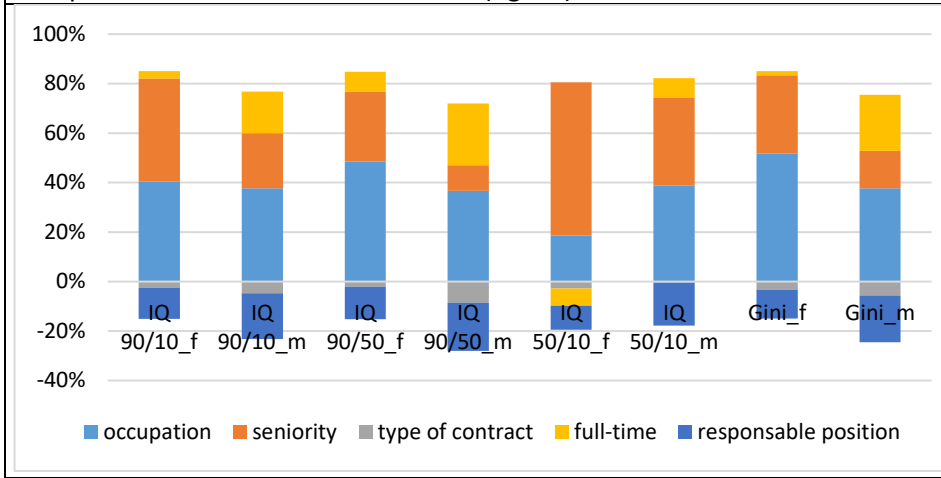
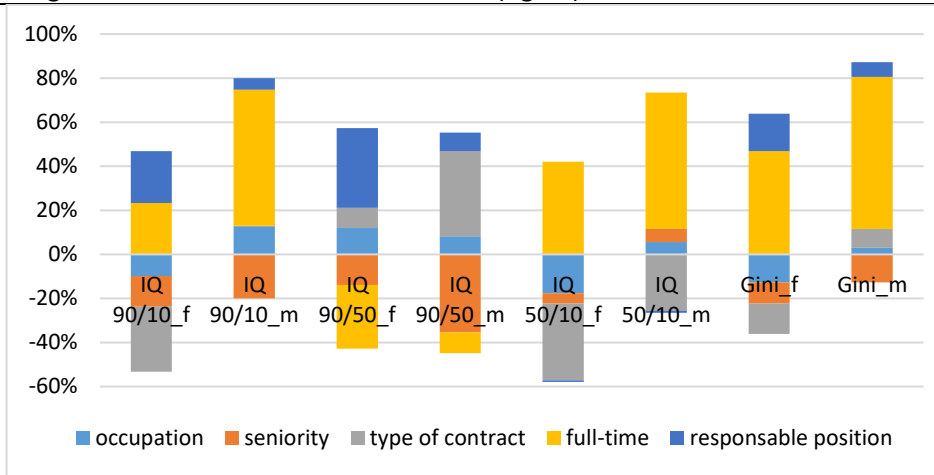


Fig. 2 (cont.)

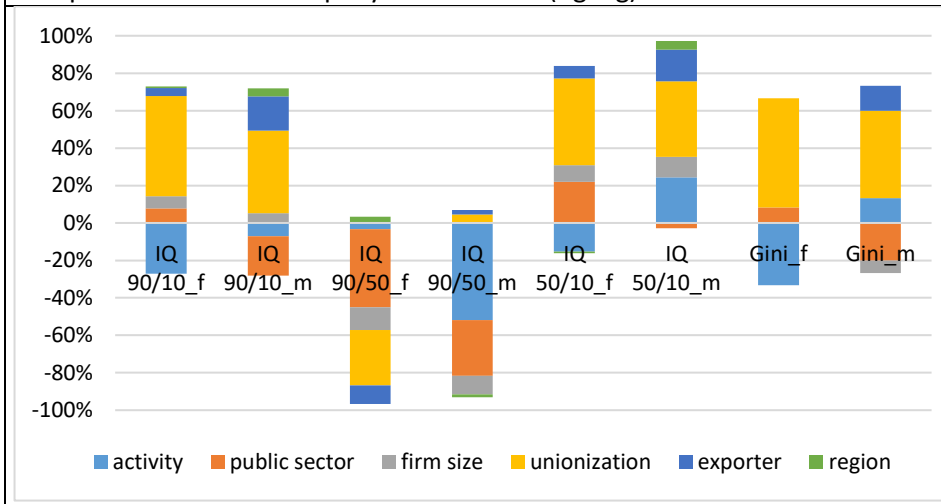
Composition effect – Job characterists (fig. 2e)



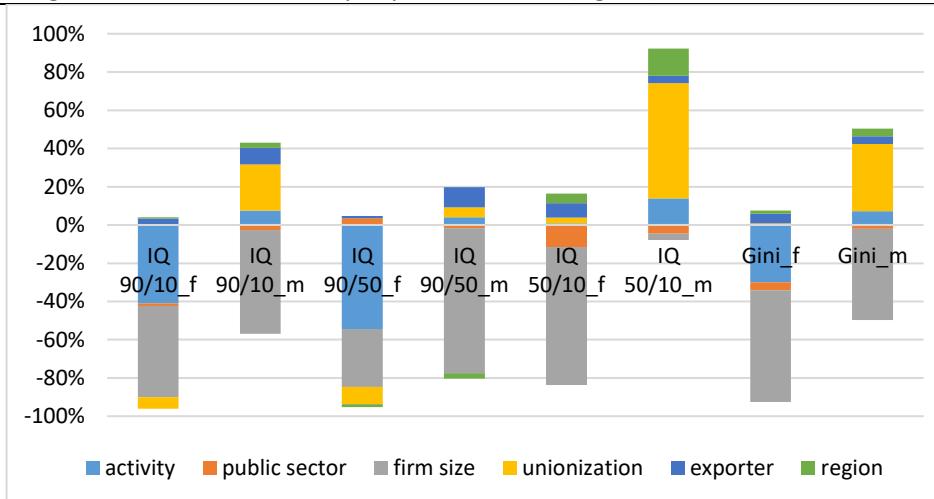
Wage structure effect - Job characterists (fig. 2f)



Composition effect – Company characterists (fig. 2g)



Wage structure effect - Company characterists (fig. 2h)



Source: own calculations from the WSS 2006, 2010, 2014 and 2018.

Table 1. Descriptives statistics 2006-2018

	2006		2010		2014		2018	
	females	**males**	**females**	**males**	**females**	**males**	**females**	**males**
	Mean/freq	Mean/freq	Mean/freq	Mean/freq	Mean/freq	Mean/freq	Mean/freq	Mean/freq
wage per hour	10.3	12.3	10.7	12.7	10.7	12.5	10.8	12.3
	(6.42)	(8.61)	(6,87)	(8,9)	(6,25)	(7,88)	(6.29)	(8.02)
Worker characteristics								
age								
less than 19 to 29	0.281	0.239	0.2	0.167	0.139	0.123	0.128	0.126
from 30 to 39	0.341	0.323	0.347	0.334	0.332	0.314	0.264	0.249
from 40 to 49	0.233	0.244	0.259	0.266	0.299	0.302	0.318	0.316
from 50 to 59	0.123	0.153	0.159	0.18	0.188	0.206	0.225	0.241
More than 59	0.0217	0.0421	0.0343	0.0535	0.0427	0.0553	0.0654	0.0674
educational level								
less than primary	0.0559	0.0763	0.0285	0.0346	0.0162	0.0192	0.0084	0.0109
primary	0.145	0.227	0.121	0.184	0.152	0.191	0.158	0.22
secondary I	0.224	0.283	0.259	0.309	0.221	0.284	0.233	0.285
secondary II	0.129	0.101	0.124	0.111	0.241	0.212	0.22	0.191
Vocational training	0.176	0.14	0.183	0.168	0.0646	0.0825	0.0734	0.0865
Advance vocational training	0.127	0.0646	0.13	0.0699	0.13	0.0686	0.139	0.0762
Bachelor or higher	0.143	0.107	0.154	0.124	0.174	0.142	0.169	0.13
nationality								
Spanish	0.935	0.9	0.923	0.906	0.938	0.92	0.934	0.909
rest of the world	0.065	0.1	0.077	0.094	0.062	0.08	0.066	0.091
Job characteristics								
seniority	6.33	7.28	7.47	8.83	8.56	9.62	9.32	9.21
	(8.04)	(9.24)	(8,37)	(9,54)	(8,49)	(9,72)	(9.17)	(9.89)
type of contract								
permanent	0.737	0.703	0.776	0.777	0.786	0.795	0.774	0.772
temporary	0.263	0.297	0.224	0.223	0.214	0.205	0.226	0.228
working hours								
full-time	0.713	0.922	0.672	0.88	0.63	0.848	0.644	0.837
part-time	0.287	0.078	0.328	0.12	0.37	0.152	0.356	0.163
responsible position								
yes	0.145	0.212	0.142	0.199	0.105	0.167	0.0996	0.146
no	0.855	0.788	0.858	0.801	0.895	0.833	0.9004	0.854
Company characteristics								
property								
public	0.107	0.0499	0.143	0.0857	0.133	0.0783	0.15	0.0861
private	0.893	0.9501	0.857	0.9143	0.867	0.9217	0.85	0.9139
size								
Not Available	0	0	0.0012	0.0014	0.0021	0.0023	0	0
from 1 to 49 workers	0.503	0.576	0.491	0.561	0.485	0.545	0.465	0.533
from 50 to 199	0.177	0.191	0.178	0.185	0.173	0.182	0.177	0.187
More than 200	0.32	0.233	0.33	0.253	0.341	0.271	0.357	0.277
Regulation's forms of labour relations								
state	0.396	0.347	0.296	0.259	0.295	0.268	0.322	0.283
sector	0.475	0.497	0.467	0.517	0.46	0.486	0.438	0.487
firm	0.117	0.141	0.127	0.148	0.119	0.154	0.118	0.146
work centre	0.01	0.0134	0.0169	0.0307	0.0198	0.0333	0.0163	0.0273
other	0.0025	0.002	0.0925	0.0451	0.105	0.0587	0.105	0.0564
region								
Galicia, Asturias and Cantabria	8.86	8.86	8.86	8.86	8.86	8.86	8.86	8.86
Basque Country, Navarra, La Rioja and Aragon	10.05	10.05	10.05	10.05	10.05	10.05	10.05	10.05
Madrid's community	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
Castilla and Extremadura	10.01	10.01	10.01	10.01	10.01	10.01	10.01	10.01
Catalonia, Valencia and the Balearics	31.94	31.94	31.94	31.94	31.94	31.94	31.94	31.94
Andalucia, Murcia, Ceuta and Melilla	17.39	17.39	17.39	17.39	17.39	17.39	17.39	17.39
Canary Islands	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
market								
domestic	0.9052	0.884	0.9139	0.865	0.881	0.818	0.887	0.829
exporter	0.0948	0.116	0.0861	0.135	0.119	0.182	0.113	0.171
n (sample)	90,568	143,039	83,045	111,455	80,052	107,974	84,003	110,250
N (population)	4,914,877	7,176,814	4,983,056	5,695,997	4,688,401	5,009,541	5,554,415	6,039,281

Notes: Own elaboration with data from WSS (2006, 2010, 2014 and 2018). The descriptive statistics for the variables in the study are provided in terms of means and standard deviations (in brackets) for the continuous variables and frequencies (in percentages) for the categorical variables. Note: the occupations and the type of activity's descriptives have been omitted due to an excessive extension of the table (but they are available upon request).

Table 2. Inequality measures and its evolution 2006-2018

FEMALE							Households
year	**Mean**	**Q90/Q10**	**Q90/Q50**	**Q50/Q10**	**Variance**	**Gini**	**Gini (SILC, Eurostat)**
2006	10.277	3.321	2.185	1.520	41.168	0.284	0.319
2010	10.675	3.201	2.174	1.473	47.245	0.276	0.335
2014	10.684	3.080	2.078	1.482	39.005	0.266	0.347
2018	10.848	3.146	2.105	1.494	39.592	0.272	0.332
2006-2018	**0.570**	**-0.175**	**-0.079**	**-0.026**	**-1.575**	**-0.012**	**0.013**
2006-2010	0.398	-0.120	-0.011	-0.048	6.077	-0.008	0.016
2010-2014	0.009	-0.121	-0.095	0.009	-8.239	-0.010	0.012
2014-2018	0.163	0.066	0.027	0.012	0.587	0.006	-0.015
MALE							Households
year	**Mean**	**Q90/Q10**	**Q90/Q50**	**Q50/Q10**	**Variance**	**Gini**	**Gini (SILC, Eurostat)**
2006	12.316	3.307	2.203	1.501	74.124	0.299	0.319
2010	12.727	3.266	2.129	1.534	79.233	0.291	0.335
2014	12.470	3.240	2.100	1.543	62.025	0.282	0.347
2018	12.331	3.219	2.096	1.536	64.364	0.281	0.332
2006-2018	**0.016**	**-0.088**	**-0.108**	**0.035**	**-9.761**	**-0.018**	**0.013**
2006-2010	0.412	-0.041	-0.074	0.033	5.109	-0.008	0.016
2010-2014	-0.257	-0.026	-0.030	0.009	-17.208	-0.009	0.012
2014-2018	-0.139	-0.020	-0.004	-0.007	2.339	-0.001	-0.015

Source: Own elaboration with data from WSS (2006, 2010, 2014 and 2018). Last column reports the Gini coefficient of household disposable income, without a differentiation by gender using data from the Survey of Income and Living Conditions offered by Eurostat. Shadowed values for positive increase of wage inequality.

Table 3. Decomposition of wage inequality evolution between 2006-2018

Female	**IQ 90/10**	**IQ 90/50**	**IQ 50/10**	**Variance**	**Gini**
2018	1.1462***	0.7444***	0.4018***	0.2036***	0.1098***
	(0.0004)	(0.0004)	(0.0002)	(0.0001)	(0.0003)
2006	1.2004***	0.7814***	0.4189***	0.2219***	0.1181***
	(0.0005)	(0.0005)	(0.0003)	(0.0002)	(0.0003)
difference	-0.0542***	-0.0370***	-0.0172***	-0.0183***	-0.0082***
	(0.0007)	(0.0006)	(0.0004)	(0.0002)	(0.0004)
Composition effect	0.1025***	0.0572***	0.0453***	0.0329***	0.0069***
	(0.0005)	(0.0005)	(0.0003)	(0.0002)	(0.0003)
Wage structure	-0.1567***	-0.0942***	-0.0624***	-0.0511***	-0.0152***
	(0.0007)	(0.0007)	(0.0004)	(0.0002)	(0.0004)
Male	**IQ 90/10**	**IQ 90/50**	**IQ 50/10**	**Variance**	**Gini**
2018	1.1687***	0.7399***	0.4289***	0.2168***	0.1076***
	(0.0004)	(0.0004)	(0.0003)	(0.0002)	(0.0002)
2006	1.1958***	0.7900***	0.4057***	0.2415***	0.1134***
	(0.0004)	(0.0004)	(0.0002)	(0.0002)	(0.0002)
difference	-0.0271***	-0.0502***	***0.0231*****	-0.0247***	-0.0058***
	(0.0006)	(0.0006)	(0.0003)	(0.0002)	(0.0003)
Composition effect	0.0804***	0.0248***	0.0556***	0.0232***	0.0045***
	(0.0005)	(0.0004)	(0.0003)	(0.0002)	(0.0003)
Wage structure	-0.1074***	-0.0749***	-0.0325***	-0.0479***	-0.0103***
	(0.0007)	(0.0007)	(0.0004)	(0.0002)	(0.0004)

Note: * p<0.05, ** p<0.01, *** p<0.001. Robust Standard errors in brackets. Fortin, Firpo and Lemieux (2018) decomposition method. **Source**: Own elaboration with data from WSS (2006, 2010, 2014 and 2018).

APPENDIX

Table A1. Decomposition of wage inequality evolution between 2006-2018

	Female					Male				
	IQ 90/10	**IQ 90/50**	**IQ 50/10**	**Variance**	**Gini**	**IQ 90/10**	**IQ 90/50**	**IQ 50/10**	**Variance**	**Gini**
overall										
2018	1.1462***	0.7444***	0.4018***	0.2036***	0.1098***	1.1687***	0.7399***	0.4289***	0.2168***	0.1076***
	(0.0004)	(0.0004)	(0.0002)	(0.0001)	(0.0003)	(0.0004)	(0.0004)	(0.0003)	(0.0002)	(0.0002)
2006	1.2004***	0.7814***	0.4189***	0.2219***	0.1181***	1.1958***	0.7900***	0.4057***	0.2415***	0.1134***
	(0.0005)	(0.0005)	(0.0003)	(0.0002)	(0.0003)	(0.0004)	(0.0004)	(0.0002)	(0.0002)	(0.0002)
difference	-0.0542***	-0.0370***	-0.0172***	-0.0183***	-0.0082***	-0.0271***	-0.0502***	0.0231***	-0.0247***	-0.0058***
	(0.0007)	(0.0006)	(0.0004)	(0.0002)	(0.0004)	(0.0006)	(0.0006)	(0.0003)	(0.0002)	(0.0003)
Composition effect	0.1025***	0.0572***	0.0453***	0.0329***	0.0069***	0.0804***	0.0248***	0.0556***	0.0232***	0.0045***
	(0.0005)	(0.0005)	(0.0003)	(0.0002)	(0.0003)	(0.0005)	(0.0004)	(0.0003)	(0.0002)	(0.0003)
Wage structure	-0.1567***	-0.0942***	-0.0624***	-0.0511***	-0.0152***	-0.1074***	-0.0749***	-0.0325***	-0.0479***	-0.0103***
	(0.0007)	(0.0007)	(0.0004)	(0.0002)	(0.0004)	(0.0007)	(0.0007)	(0.0004)	(0.0002)	(0.0004)
Composition effect										
worker	0.0317***	0.0214***	0.0103***	0.0110***	0.0022***	0.0312***	0.0189***	0.0123***	0.0098***	0.0011***
	(0.0004)	(0.0004)	(0.0002)	(0.0001)	(0.0002)	(0.0004)	(0.0003)	(0.0002)	(0.0001)	(0.0002)
age	0.0181***	0.0155***	0.0025***	0.0070***	0.0013***	0.0153***	0.0102***	0.0051***	0.0060***	0.0009***
education	0.0136***	0.0058***	0.0078***	0.0040***	0.0008***	0.0167***	0.0097***	0.0070***	0.0041***	0.0003*
Spanish	0.0001***	0.0001***	0.0000***	0.0000***	0	-0.0009***	-0.0011***	0.0002***	-0.0003***	-0.0001***
position	0.0643***	0.0444***	0.0199***	0.0197***	0.0043***	0.0400***	0.0173***	0.0227***	0.0120***	0.0026***
	(0.0003)	(0.0003)	(0.0002)	(0.0001)	(0.0002)	(0.0003)	(0.0003)	(0.0002)	(0.0001)	(0.0002)
occupation	0.0371***	0.0310***	0.0061***	0.0128***	0.0031***	0.0281***	0.0144***	0.0137***	0.0077***	0.0020***
seniority	0.0383***	0.0180***	0.0203***	0.0101***	0.0019***	0.0166***	0.0041***	0.0125***	0.0055***	0.0008***
type of contract	-0.0023***	-0.0014***	-0.0009***	-0.0005***	-0.0002***	-0.0035***	-0.0034***	-0.0001**	-0.0014***	-0.0003***
full-time	0.0027***	0.0051***	-0.0023***	0.0010***	0.0001***	0.0125***	0.0098***	0.0028***	0.0055***	0.0012***
responsible position	-0.0115***	-0.0083***	-0.0032***	-0.0037***	-0.0007***	-0.0138***	-0.0076***	-0.0062***	-0.0053***	-0.0010***
company	0.0064***	-0.0086***	0.0150***	0.0022***	0.0005***	0.0093***	-0.0114***	0.0206***	0.0014***	0.0007***
	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0003)	(0.0002)	(0.0002)	(0.0001)	(0.0001)
activity	-0.0038***	-0.0003*	-0.0034***	-0.0013***	-0.0004***	-0.0015***	-0.0068***	0.0053***	-0.0009***	0.0002
public sector	0.0011***	-0.0038***	0.0049***	0.0006***	0.0001	-0.0045***	-0.0039***	-0.0006***	-0.0013***	-0.0003***
firm size	0.0009***	-0.0011***	0.0020***	0.0004***	0	0.0011***	-0.0013***	0.0024***	0.0002***	-0.0001**
unionization	0.0075***	-0.0027***	0.0103***	0.0023***	0.0007***	0.0094***	0.0006***	0.0088***	0.0022***	0.0007***
exporter	0.0006***	-0.0009***	0.0015***	0.0002***	0	0.0039***	0.0003***	0.0037***	0.0009***	0.0002***
region	0.0001*	0.0003***	-0.0002***	-0.0000*	0.0000*	0.0009***	-0.0002***	0.0010***	0.0002***	0
Wage structure										
worker	0.0452***	0.0684***	-0.0232***	0.0202***	0.0061***	0.0026	0.0043*	-0.0017	0.0154***	0.0042***
	(0.0025)	(0.0025)	(0.0014)	(0.0008)	(0.0014)	(0.0020)	(0.0019)	(0.0011)	(0.0007)	(0.0010)
age	-0.0058***	-0.0084***	0.0025***	0.0053***	0.0008	0.0064***	-0.0001	0.0065***	0.0067***	0.0005*
education	0.0107***	0.0041***	0.0066***	0.0024***	0.0005*	0.0030***	-0.0021***	0.0051***	0.0001	0
Spanish	0.0404***	0.0727***	-0.0323***	0.0125***	0.0047***	-0.0068***	0.0066***	-0.0134***	0.0086***	0.0037***
position	-0.0069*	0.0107***	-0.0177***	0.0130***	0.0026	0.0680***	0.0090***	0.0590***	0.0511***	0.0123***
	(0.0029)	(0.0029)	(0.0017)	(0.0009)	(0.0016)	(0.0021)	(0.0020)	(0.0012)	(0.0007)	(0.0011)
occupation	-0.0108***	0.0088***	-0.0196***	-0.0017*	-0.0012	0.0141***	0.0070***	0.0071***	0.0069***	0.0005
seniority	-0.0153***	-0.0102***	-0.0051***	-0.0062***	-0.0009**	-0.0226***	-0.0300***	0.0074***	-0.0084***	-0.0021***
type of contract	-0.0322***	0.0067***	-0.0388***	-0.0023***	-0.0013*	0.0007	0.0328***	-0.0321***	0.0062***	0.0014**
full-time	0.0256***	-0.0212***	0.0467***	0.0167***	0.0044***	0.0699***	-0.0080***	0.0779***	0.0429***	0.0114***
responsible position	0.0257***	0.0266***	-0.0009***	0.0065***	0.0016***	0.0060***	0.0071***	-0.0012***	0.0034***	0.0011***
company	-0.1561***	-0.1170**	-0.0391	-0.0414**	-0.0102	-0.0207	-0.0637***	0.0430***	-0.0005	0.0001
	(0.0433)	(0.0422)	(0.0248)	(0.0143)	(0.0236)	(0.0129)	(0.0125)	(0.0071)	(0.0045)	(0.0063)
activity	-0.0697***	-0.0702***	0.0005	-0.0160***	-0.0036***	0.0113***	0.0043***	0.0071***	0.0036***	0.0011**
public sector	-0.0021***	0.0046***	-0.0067***	-0.0028***	-0.0005**	-0.0041***	-0.0018***	-0.0023***	-0.0015***	-0.0003***
firm size	-0.081	-0.0391	-0.0419	-0.0253	-0.007	-0.0813***	-0.0796***	-0.0017	-0.0263***	-0.0072
unionization	-0.0102***	-0.0118***	0.0017	0.0004	0.0001	0.0361***	0.0053**	0.0308***	0.0214***	0.0053***
exporter	0.0058***	0.0015***	0.0044***	0.0028***	0.0006***	0.0131***	0.0111***	0.0020***	0.0024***	0.0006***
region	0.0010*	-0.0019***	0.0029***	-0.0006***	0.0002	0.0042***	-0.0030***	0.0072***	-0.0001	0.0006***
Constant	-0.0388	-0.0563	0.0175	-0.0429**	-0.0137	-0.1574***	-0.0246	-0.1328***	-0.1140***	-0.0270***
	(0.0434)	(0.0424)	(0.0249)	(0.0143)	(0.0237)	(0.0132)	(0.0128)	(0.0073)	(0.0046)	(0.0065)
N	174,571	174,571	174,571	174,571	174,571	253,289	253,289	253,289	253,289	253,289
N_2018	84,003	84,003	84,003	84,003	84,003	110,250	110,250	110,250	110,250	110,250
N_2006	90,568	90,568	90,568	90,568	90,568	143,039	143,039	143,039	143,039	143,039

Note: * p<0.05, ** p<0.01, *** p<0.001. Robust Standard errors in brackets. The reference variables are: domestic firms, female, less than 20 years, not completed primary education, foreign, temporary contract, part-time worker, no responsible position, private property. The estimation includes controls for: occupation (CNO-94) for 2006 and CNO-11 for 2010, 2014 and 2018), activity classification (CNACE), size of the firm, regulation's forms of labour relations, region (NUTS1), and a constant. The database includes a factor variable that allows to move from sample to population values. N reflects the number of workers in the sample. **Source**: Own elaboration with data from WSS (2006, 2010, 2014 and 2018).

Table A2. Decomposition of wage inequality evolution between 2006-2010

	Female					Male				
	IQ 90/10	**IQ 90/50**	**IQ 50/10**	**Variance**	**Gini**	**IQ 90/10**	**IQ 90/50**	**IQ 50/10**	**Variance**	**Gini**
overall										
2018	1.1462***	0.7444***	0.4018***	0.2036***	0.1098***	1.1687***	0.7399***	0.4289***	0.2168***	0.1076***
	(0.0004)	(0.0004)	(0.0002)	(0.0001)	(0.0003)	(0.0004)	(0.0004)	(0.0003)	(0.0002)	(0.0002)
2006	1.2004***	0.7814***	0.4189***	0.2219***	0.1181***	1.1958***	0.7900***	0.4057***	0.2415***	0.1134***
	(0.0005)	(0.0005)	(0.0003)	(0.0002)	(0.0003)	(0.0004)	(0.0004)	(0.0002)	(0.0002)	(0.0002)
difference	-0.0542***	-0.0370***	-0.0172***	-0.0183***	-0.0082***	-0.0271***	-0.0502***	0.0231***	-0.0247***	-0.0058***
	(0.0007)	(0.0006)	(0.0004)	(0.0002)	(0.0004)	(0.0006)	(0.0006)	(0.0003)	(0.0002)	(0.0003)
Composition effect	0.1025***	0.0572***	0.0453***	0.0329***	0.0069***	0.0804***	0.0248***	0.0556***	0.0232***	0.0045***
	(0.0005)	(0.0005)	(0.0003)	(0.0002)	(0.0003)	(0.0005)	(0.0004)	(0.0003)	(0.0002)	(0.0003)
Wage structure	-0.1567***	-0.0942***	-0.0624***	-0.0511***	-0.0152***	-0.1074***	-0.0749***	-0.0325***	-0.0479***	-0.0103***
	(0.0007)	(0.0007)	(0.0004)	(0.0002)	(0.0004)	(0.0007)	(0.0007)	(0.0004)	(0.0002)	(0.0004)
Composition effect										
worker	0.0317***	0.0214***	0.0103***	0.0110***	0.0022***	0.0312***	0.0189***	0.0123***	0.0098***	0.0011***
	(0.0004)	(0.0004)	(0.0002)	(0.0001)	(0.0002)	(0.0004)	(0.0003)	(0.0002)	(0.0001)	(0.0002)
age	0.0181***	0.0155***	0.0025***	0.0070***	0.0013***	0.0153***	0.0102***	0.0051***	0.0060***	0.0009***
education	0.0136***	0.0058***	0.0078***	0.0040***	0.0008***	0.0167***	0.0097***	0.0070***	0.0041***	0.0003*
Spanish	0.0001***	0.0001***	0.0000***	0.0000***	0	-0.0009***	-0.0011***	0.0002***	-0.0003***	-0.0001***
position	0.0643***	0.0444***	0.0199***	0.0197***	0.0043***	0.0400***	0.0173***	0.0227***	0.0120***	0.0026***
	(0.0003)	(0.0003)	(0.0002)	(0.0001)	(0.0002)	(0.0003)	(0.0003)	(0.0002)	(0.0001)	(0.0002)
occupation	0.0371***	0.0310***	0.0061***	0.0128***	0.0031***	0.0281***	0.0144***	0.0137***	0.0077***	0.0020***
seniority	0.0383***	0.0180***	0.0203***	0.0101***	0.0019***	0.0166***	0.0041***	0.0125***	0.0055***	0.0008***
type of contract	-0.0023***	-0.0014***	-0.0009***	-0.0005***	-0.0002***	-0.0035***	-0.0034***	-0.0001**	-0.0014***	-0.0003***
full-time	0.0027***	0.0051***	-0.0023***	0.0010***	0.0001***	0.0125***	0.0098***	0.0028***	0.0055***	0.0012***
responsible position	-0.0115***	-0.0083***	-0.0032***	-0.0037***	-0.0007***	-0.0138***	-0.0076***	-0.0062***	-0.0053***	-0.0010***
company	0.0064***	-0.0086***	0.0150***	0.0022***	0.0005***	0.0093***	-0.0114***	0.0206***	0.0014***	0.0007***
	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0003)	(0.0002)	(0.0002)	(0.0001)	(0.0001)
activity	-0.0038***	-0.0003*	-0.0034***	-0.0013***	-0.0004***	-0.0015***	-0.0068***	0.0053***	-0.0009***	0.0002
public sector	0.0011***	-0.0038***	0.0049***	0.0006***	0.0001	-0.0045***	-0.0039***	-0.0006***	-0.0013***	-0.0003***
firm size	0.0009***	-0.0011***	0.0020***	0.0004***	0	0.0011***	-0.0013***	0.0024***	0.0002***	-0.0001**
unionization	0.0075***	-0.0027***	0.0103***	0.0023***	0.0007***	0.0094***	0.0006***	0.0088***	0.0022***	0.0007***
exporter	0.0006***	-0.0009***	0.0015***	0.0002***	0	0.0039***	0.0003***	0.0037***	0.0009***	0.0002***
region	0.0001*	0.0003***	-0.0002***	-0.0000*	0.0000*	0.0009***	-0.0002***	0.0010***	0.0002***	0
Wage structure										
worker	0.0452***	0.0684***	-0.0232***	0.0202***	0.0061***	0.0026	0.0043*	-0.0017	0.0154***	0.0042***
	(0.0025)	(0.0025)	(0.0014)	(0.0008)	(0.0014)	(0.0020)	(0.0019)	(0.0011)	(0.0007)	(0.0010)
age	-0.0058***	-0.0084***	0.0025***	0.0053***	0.0008	0.0064***	-0.0001	0.0065***	0.0067***	0.0005*
education	0.0107***	0.0041***	0.0066***	0.0024***	0.0005*	0.0030***	-0.0021***	0.0051***	0.0001	0
Spanish	0.0404***	0.0727***	-0.0323***	0.0125***	0.0047***	-0.0068***	0.0066***	-0.0134***	0.0086***	0.0037***
position	-0.0069*	0.0107***	-0.0177***	0.0130***	0.0026	0.0680***	0.0090***	0.0590***	0.0511***	0.0123***
	(0.0029)	(0.0029)	(0.0017)	(0.0009)	(0.0016)	(0.0021)	(0.0020)	(0.0012)	(0.0007)	(0.0011)
occupation	-0.0108***	0.0088***	-0.0196***	-0.0017*	-0.0012	0.0141***	0.0070***	0.0071***	0.0069***	0.0005
seniority	-0.0153***	-0.0102***	-0.0051***	-0.0062***	-0.0009**	-0.0226***	-0.0300***	0.0074***	-0.0084***	-0.0021***
type of contract	-0.0322***	0.0067***	-0.0388***	-0.0023***	-0.0013*	0.0007	0.0328***	-0.0321***	0.0062***	0.0014**
full-time	0.0256***	-0.0212***	0.0467***	0.0167***	0.0044***	0.0699***	-0.0080***	0.0779***	0.0429***	0.0114***
responsible position	0.0257***	0.0266***	-0.0009***	0.0065***	0.0016***	0.0060***	0.0071***	-0.0012***	0.0034***	0.0011***
company	-0.1561***	-0.1170**	-0.0391	-0.0414**	-0.0102	-0.0207	-0.0637***	0.0430***	-0.0005	0.0001
	(0.0433)	(0.0422)	(0.0248)	(0.0143)	(0.0236)	(0.0129)	(0.0125)	(0.0071)	(0.0045)	(0.0063)
activity	-0.0697***	-0.0702***	0.0005	-0.0160***	-0.0036***	0.0113***	0.0043***	0.0071***	0.0036***	0.0011**
public sector	-0.0021***	0.0046***	-0.0067***	-0.0028***	-0.0005**	-0.0041***	-0.0018***	-0.0023***	-0.0015***	-0.0003***
firm size	-0.081	-0.0391	-0.0419	-0.0253	-0.007	-0.0813***	-0.0796***	-0.0017	-0.0263***	-0.0072
unionization	-0.0102***	-0.0118***	0.0017	0.0004	0.0001	0.0361***	0.0053**	0.0308***	0.0214***	0.0053***
exporter	0.0058***	0.0015***	0.0044***	0.0028***	0.0006***	0.0131***	0.0111***	0.0020***	0.0024***	0.0006***
region	0.0010*	-0.0019***	0.0029***	-0.0006***	0.0002	0.0042***	-0.0030***	0.0072***	-0.0001	0.0006***
Constant	-0.0388	-0.0563	0.0175	-0.0429**	-0.0137	-0.1574***	-0.0246	-0.1328***	-0.1140***	-0.0270***
	(0.0434)	(0.0424)	(0.0249)	(0.0143)	(0.0237)	(0.0132)	(0.0128)	(0.0073)	(0.0046)	(0.0065)
N	174,571	174,571	174,571	174,571	174,571	253,289	253,289	253,289	253,289	253,289
N_2010	84,003	84,003	84,003	84,003	84,003	110,250	110,250	110,250	110,250	110,250
N_2006	90,568	90,568	90,568	90,568	90,568	143,039	143,039	143,039	143,039	143,039

Note: * p<0.05, ** p<0.01, *** p<0.001. Robust Standard errors in brackets. The reference variables are: domestic firms, female, less than 20 years, not completed primary education, foreign, temporary contract, part-time worker, no responsible position, private property. The estimation includes controls for: occupation (CNO-94) for 2006 and CNO-11 for 2010, 2014 and 2018), activity classification (CNACE), size of the firm, regulation's forms of labour relations, region (NUTS1), and a constant. The database includes a factor variable that allows to move from sample to population values. N reflects the number of workers in the sample. **Source**: Own elaboration with data from WSS (2006, 2010, 2014 and 2018).

Table A3. Decomposition of wage inequality evolution between 2010-2014

	Female					Male				
	IQ 90/10	IQ 90/50	IQ 50/10	Variance	Gini	IQ 90/10	IQ 90/50	IQ 50/10	Variance	Gini
overall										
2018	1.1250***	0.7317***	0.3933***	0.1966***	0.1085***	1.1755***	0.7419***	0.4336***	0.2214***	0.1086***
	(0.0005)	(0.0004)	(0.0003)	(0.0001)	(0.0003)	(0.0005)	(0.0004)	(0.0003)	(0.0002)	(0.0002)
2006	1.1635***	0.7764***	0.3871***	0.2072***	0.1113***	1.1835***	0.7558***	0.4277***	0.2299***	0.1093***
	(0.0005)	(0.0005)	(0.0003)	(0.0002)	(0.0003)	(0.0005)	(0.0004)	(0.0003)	(0.0002)	(0.0002)
difference	-0.0385***	-0.0447***	0.0062***	-0.0107***	-0.0027***	-0.0080***	-0.0139***	0.0059***	-0.0085***	-0.0007*
	(0.0007)	(0.0006)	(0.0004)	(0.0002)	(0.0004)	(0.0007)	(0.0006)	(0.0004)	(0.0002)	(0.0003)
Composition effect	0.0536***	0.0415***	0.0121***	0.0139***	0.0030***	0.0383***	0.0186***	0.0198***	0.0121***	0.0025***
	(0.0004)	(0.0003)	(0.0002)	(0.0001)	(0.0002)	(0.0004)	(0.0003)	(0.0002)	(0.0001)	(0.0002)
Wage structure	-0.0921***	-0.0862***	-0.0059***	-0.0245***	-0.0058***	-0.0464***	-0.0325***	-0.0138***	-0.0206***	-0.0032***
	(0.0007)	(0.0007)	(0.0004)	(0.0002)	(0.0004)	(0.0007)	(0.0006)	(0.0004)	(0.0002)	(0.0003)
Composition effect										
worker	0.0210***	0.0206***	0.0004**	0.0059***	0.0013***	0.0128***	0.0106***	0.0021***	0.0039***	0.0005***
	(0.0003)	(0.0003)	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
age	0.0084***	0.0079***	0.0004***	0.0028***	0.0005***	0.0052***	0.0026***	0.0027***	0.0016***	0.0001*
education	0.0143***	0.0141***	0.0003	0.0037***	0.0009***	0.0094***	0.0099***	-0.0005***	0.0032***	0.0006***
Spanish	-0.0017***	-0.0014***	-0.0003***	-0.0005***	-0.0001***	-0.0019***	-0.0018***	-0.0001***	-0.0009***	-0.0002***
position	0.0302***	0.0209***	0.0093***	0.0078***	0.0017***	0.0108***	0.0036***	0.0072***	0.0036***	0.0008***
	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
occupation	0.0160***	0.0111***	0.0049***	0.0048***	0.0011***	0.0064***	0.0018***	0.0046***	0.0019***	0.0005***
seniority	0.0163***	0.0095***	0.0068***	0.0039***	0.0008***	0.0065***	0.0025***	0.0040***	0.0022***	0.0003***
type of contract	-0.0002***	-0.0003***	0.0001***	-0.0001***	-0.0001***	-0.0011***	-0.0014***	0.0003***	-0.0005***	-0.0001***
full-time	0.0022***	0.0026***	-0.0004***	0.0010***	0.0002***	0.0059***	0.0040***	0.0020***	0.0023***	0.0006***
responsible position	-0.0041***	-0.0020***	-0.0021***	-0.0017***	-0.0003***	-0.0070***	-0.0033***	-0.0037***	-0.0023***	-0.0004***
company	0.0024***	0	0.0024***	0.0002***	0.0001	0.0147***	0.0044***	0.0104***	0.0046***	0.0012***
	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
activity	-0.0007***	0.0001	-0.0007***	-0.0004***	-0.0001	0.0025***	0.0014***	0.0010***	0.0008***	0.0004***
public sector	0.0009***	0.0015***	-0.0006***	0.0002***	0.0001***	0.0016***	0.0014***	0.0002***	0.0003***	0.0001***
firm size	-0.0001***	-0.0002***	0.0002***	0.0001***	0	0.0001*	-0.0013***	0.0013***	-0.0002***	-0.0001***
unionization	0.0012***	0.0004***	0.0009***	0.0004***	0.0001***	0.0074***	0.0028***	0.0046***	0.0020***	0.0006***
exporter	0.0001**	-0.0015***	0.0016***	-0.0002***	-0.0001**	0.0026***	-0.0002***	0.0028***	0.0014***	0.0002***
region	0.0009***	-0.0002***	0.0010***	0.0002***	0	0.0006***	0.0002***	0.0003***	0.0002***	0
Wage structure										
worker	-0.0143***	0.0099***	-0.0242***	-0.0002	-0.001	0.0334***	0.0230***	0.0103***	-0.0011	0.0014
	(0.0025)	(0.0024)	(0.0013)	(0.0008)	(0.0013)	(0.0022)	(0.0021)	(0.0013)	(0.0008)	(0.0011)
age	-0.0089***	-0.0013*	-0.0075***	0.0020***	0.0003	-0.0053***	-0.0056***	0.0003	0.0059***	0.0005*
education	0.0118***	0.0059***	0.0059***	0.0029***	0.0009**	-0.0019***	-0.0040***	0.0020***	-0.0016***	-0.0006*
Spanish	-0.0173***	0.0053*	-0.0226***	-0.0051***	-0.0023	0.0406***	0.0326***	0.0080***	-0.0054***	0.0015
position	0.0080**	-0.0045	0.0125***	0.0127***	0.0015	-0.0015	-0.0047*	0.0032*	0.0467***	0.0024*
	(0.0029)	(0.0029)	(0.0016)	(0.0009)	(0.0016)	(0.0021)	(0.0020)	(0.0013)	(0.0007)	(0.0010)
occupation	0.0447***	0.0522***	-0.0075***	0.0140***	0.0035*	-0.0048***	0.0092***	-0.0140***	-0.0002	-0.0003
seniority	-0.0282***	-0.0187***	-0.0095***	-0.0081***	-0.0018***	-0.0209***	-0.0175***	-0.0035***	-0.0112***	-0.0020***
type of contract	-0.0255***	-0.0424***	0.0168***	-0.0052***	-0.0023**	-0.0436***	-0.0294***	-0.0142***	0.0041***	-0.0024***
full-time	0.0077***	-0.0074***	0.0151***	0.0072***	0.0011*	0.0467***	0.0170***	0.0298***	0.0465***	0.0054***
responsible position	0.0094***	0.0118***	-0.0024***	0.0049***	0.0011***	0.0211***	0.0161***	0.0051***	0.0074***	0.0017***
company	-0.0421***	-0.0516***	0.0095***	-0.0042**	-0.0022	-0.0271***	0.0355***	-0.0626***	0.0023	-0.0003
	(0.0045)	(0.0044)	(0.0024)	(0.0014)	(0.0024)	(0.0038)	(0.0037)	(0.0023)	(0.0014)	(0.0019)
activity	-0.0507***	-0.0641***	0.0134***	-0.0090***	-0.0020*	-0.0186***	-0.0150***	-0.0036***	-0.0059***	-0.0014***
public sector	-0.0096***	-0.0024***	-0.0072***	-0.0047***	-0.0013***	-0.0133***	-0.0085***	-0.0048***	-0.0025***	-0.0005***
firm size	0.0049	0.0005	0.0043*	0.0043***	0.0002	-0.0058	0.0411***	-0.0469***	0.0037**	0.0006
unionization	0.0054***	0.0052***	0.0002	0.0028***	0.0004	-0.0128***	-0.0061***	-0.0067***	0.0004	-0.0005
exporter	0.0024***	0.0032***	-0.0008***	0.0014***	0.0002*	0.0176***	0.0196***	-0.0020***	0.0051***	0.0011***
region	0.0054***	0.0060***	-0.0006**	0.0011***	0.0003	0.0057***	0.0044***	0.0013***	0.0015***	0.0003
Constant	-0.0436***	-0.0400***	-0.0037	-0.0329***	-0.0041	-0.0511***	-0.0863***	0.0352***	-0.0684***	-0.0067**
	(0.0060)	(0.0058)	(0.0031)	(0.0019)	(0.0032)	(0.0049)	(0.0047)	(0.0029)	(0.0017)	(0.0024)
N	163,097	163,097	163,097	163,097	163,097	219,429	219,429	219,429	219,429	219,429
N_2014	80,052	80,052	80,052	80,052	80,052	107,974	107,974	107,974	107,974	107,974
N_2010	83,045	83,045	83,045	83,045	83,045	111,455	111,455	111,455	111,455	111,455

Note: * p<0.05, ** p<0.01, *** p<0.001. Robust Standard errors in brackets. The reference variables are: domestic firms, female, less than 20 years, not completed primary education, foreign, temporary contract, part-time worker, no responsible position, private property. The estimation includes controls for: occupation (CNO-94) for 2006 and CNO-11 for 2010, 2014 and 2018), activity classification (CNACE), size of the firm, regulation's forms of labour relations, region (NUTS1), and a constant. The database includes a factor variable that allows to move from sample to population values. N reflects the number of workers in the sample. **Source**: Own elaboration with data from WSS (2006, 2010, 2014 and 2018).

Table A4. Decomposition of wage inequality evolution between 2014-2018

	Female					Male				
	IQ 90/10	**IQ 90/50**	**IQ 50/10**	**Variance**	**Gini**	**IQ 90/10**	**IQ 90/50**	**IQ 50/10**	**Variance**	**Gini**
overall										
2018	1.1462***	0.7444***	0.4018***	0.2036***	0.1098***	1.1687***	0.7399***	0.4289***	0.2168***	0.1076***
	(0.0004)	(0.0004)	(0.0002)	(0.0001)	(0.0003)	(0.0004)	(0.0004)	(0.0003)	(0.0002)	(0.0002)
2006	1.1250***	0.7317***	0.3933***	0.1966***	0.1085***	1.1755***	0.7419***	0.4336***	0.2214***	0.1086***
	(0.0005)	(0.0004)	(0.0003)	(0.0001)	(0.0003)	(0.0005)	(0.0004)	(0.0003)	(0.0002)	(0.0002)
difference	0.0212***	0.0127***	0.0084***	0.0071***	0.0013***	-0.0068***	-0.0020***	-0.0048***	-0.0047***	-0.0010**
	(0.0007)	(0.0006)	(0.0004)	(0.0002)	(0.0004)	(0.0007)	(0.0006)	(0.0004)	(0.0002)	(0.0003)
Composition effect	0.0113***	0.0059***	0.0054***	0.0033***	0.0007***	-0.0149***	-0.0044***	-0.0105***	-0.0042***	-0.0006***
	(0.0003)	(0.0002)	(0.0002)	(0.0001)	(0.0002)	(0.0003)	(0.0002)	(0.0002)	(0.0001)	(0.0001)
Wage structure	0.0099***	0.0068***	0.0031***	0.0038***	0.0006	0.0081***	0.0024***	0.0057***	-0.0005*	-0.0005
	(0.0006)	(0.0006)	(0.0003)	(0.0002)	(0.0003)	(0.0006)	(0.0006)	(0.0004)	(0.0002)	(0.0003)
Composition effect										
worker	0.0071***	0.0070***	0	0.0023***	0.0005***	0.0039***	0.0032***	0.0007***	0.0016***	0.0004***
	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
age	0.0080***	0.0087***	-0.0007***	0.0029***	0.0006***	0.0090***	0.0076***	0.0014***	0.0033***	0.0007***
education	-0.0012***	-0.0018***	0.0007***	-0.0006***	-0.0001	-0.0060***	-0.0055***	-0.0005***	-0.0021***	-0.0003***
Spanish	0.0002***	0.0001***	0.0001***	0.0001***	0.0000*	0.0009***	0.0012***	-0.0002***	0.0003***	0.0001***
position	0.0080***	0.0046***	0.0035***	0.0022***	0.0005***	-0.0043***	0.0021***	-0.0064***	-0.0013***	0.0001
	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
occupation	-0.0004*	0.0017***	-0.0020***	0.0002***	0	0.0008***	0.0030***	-0.0022***	0.0004***	0.0003***
seniority	0.0097***	0.0045***	0.0051***	0.0026***	0.0005***	-0.0035***	-0.0009***	-0.0026***	-0.0012***	-0.0002***
type of contract	0.0008***	0.0005***	0.0003***	0.0002***	0.0001***	0.0012***	0.0011***	0.0000**	0.0005***	0.0001***
full-time	-0.0006***	-0.0010***	0.0005***	-0.0002***	-0.0000**	0.0017***	0.0013***	0.0004***	0.0007***	0.0002***
responsible position	-0.0015***	-0.0011***	-0.0004***	-0.0005***	-0.0001***	-0.0044***	-0.0024***	-0.0020***	-0.0017***	-0.0003***
company	-0.0038***	-0.0057***	0.0019***	-0.0013***	-0.0003***	-0.0146***	-0.0098***	-0.0048***	-0.0045***	-0.0010***
	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0001)
activity	-0.0044***	-0.0043***	-0.0001***	-0.0017***	-0.0004***	-0.0116***	-0.0084***	-0.0032***	-0.0034***	-0.0008***
public sector	0.0005***	-0.0015***	0.0020***	0.0002***	0	-0.0010***	-0.0008***	-0.0001***	-0.0003***	-0.0001***
firm size	0.0001***	-0.0009***	0.0010***	0.0001***	0	-0.0001***	-0.0007***	0.0006***	-0.0001***	-0.0000***
unionization	-0.0001**	0.0004***	-0.0005***	0.0001***	0.0000*	-0.0019***	-0.0002***	-0.0017***	-0.0007***	-0.0002***
exporter	-0.0002***	0.0003***	-0.0005***	-0.0001***	0	-0.0008***	-0.0001***	-0.0008***	-0.0002***	-0.0000***
region	0.0003***	0.0003***	0	0	0.0000*	0.0008***	0.0004***	0.0004***	0.0001***	0
Wage structure										
worker	0.0514***	0.0396***	0.0118***	0.0121***	0.0051***	0.0538***	0.0127***	0.0411***	0.0313***	0.0077***
	(0.0025)	(0.0025)	(0.0014)	(0.0008)	(0.0014)	(0.0023)	(0.0021)	(0.0013)	(0.0008)	(0.0011)
age	0.0011*	-0.0098***	0.0109***	-0.0010***	-0.0002	0.0084***	0.0020***	0.0065***	0.0025***	0.0004
education	-0.0080***	-0.0095***	0.0015***	-0.0022***	-0.0010*	0.0046***	-0.0050***	0.0096***	-0.0021***	-0.0005
Spanish	0.0583***	0.0589***	-0.0006	0.0154***	0.0062***	0.0408***	0.0157***	0.0251***	0.0310***	0.0078***
position	-0.0265***	-0.0167***	-0.0097***	0.0115***	0.0034*	0.0718***	0.0502***	0.0216***	0.0237***	0.0089***
	(0.0028)	(0.0027)	(0.0015)	(0.0008)	(0.0016)	(0.0020)	(0.0019)	(0.0012)	(0.0007)	(0.0010)
occupation	-0.0012	0.0048*	-0.0061***	0.0058***	0.0013	0.0292***	0.0268***	0.0024***	0.0106***	0.0026***
seniority	-0.0183***	-0.0231***	0.0048***	-0.0019***	-0.0007	0.0030***	-0.0101***	0.0131***	0.0006*	0
type of contract	-0.0299***	-0.0047***	-0.0252***	-0.0010*	0.0002	0.0069***	0.0222***	-0.0152***	0.0050***	0.0024***
full-time	0.0082***	-0.0072***	0.0154***	0.0049***	0.0019***	0.0337***	0.0091***	0.0246***	0.0056***	0.0036***
responsible position	0.0148***	0.0135***	0.0014***	0.0037***	0.0007***	-0.0011***	0.0022***	-0.0033***	0.0018***	0.0003
company	0.0111**	-0.0091*	0.0202***	0.0003	0.0012	0.0900***	0.0330***	0.0569***	0.0174***	0.0047**
	(0.0041)	(0.0040)	(0.0023)	(0.0012)	(0.0023)	(0.0033)	(0.0031)	(0.0020)	(0.0011)	(0.0016)
activity	0.0054**	0.0158***	-0.0103***	-0.0005	0.0003	0.0134***	0.0035***	0.0099***	0.0005*	0.0005
public sector	0.0149***	0.0070***	0.0080***	0.0040***	0.0012***	0.0070***	0.0062***	0.0008***	0.0007***	0.0003*
firm size	-0.0128***	-0.0234***	0.0106***	-0.0046***	-0.0008	0.0327***	0.0126***	0.0201***	0.0112***	0.0021
unionization	-0.0050***	-0.0103***	0.0053***	-0.0017***	-0.0004	0.0346***	0.0114***	0.0232***	0.0091***	0.0022***
exporter	0.0033***	-0.0009***	0.0042***	0.0022***	0.0005***	0.0030***	0.0017***	0.0013***	-0.0024***	-0.0003*
region	0.0052***	0.0028***	0.0024***	0.0009***	0.0004	-0.0007*	-0.0024***	0.0016***	-0.0017***	0
Constant	-0.0261***	-0.0069	-0.0191***	-0.0202***	-0.0090**	-0.2074***	-0.0935***	-0.1140***	-0.0729***	-0.0218***
	(0.0055)	(0.0054)	(0.0031)	(0.0017)	(0.0031)	(0.0045)	(0.0042)	(0.0027)	(0.0015)	(0.0022)
N	164,055	164,055	164,055	164,055	164,055	218,224	218,224	218,224	218,224	218,224
N_2018	84,003	84,003	84,003	84,003	84,003	110,250	110,250	110,250	110,250	110,250
N_20014	80,052	80,052	80,052	80,052	80,052	107,974	107,974	107,974	107,974	107,974

Note: * p<0.05, ** p<0.01, *** p<0.001. Robust Standard errors in brackets. The reference variables are: domestic firms, female, less than 20 years, not completed primary education, foreign, temporary contract, part-time worker, no responsible position, private property. The estimation includes controls for: occupation (CNO-94) for 2006 and CNO-11 for 2010, 2014 and 2018), activity classification (CNACE), size of the firm, regulation's forms of labour relations, region (NUTS1), and a constant. The database includes a factor variable that allows to move from sample to population values. N reflects the number of workers in the sample. **Source**: Own elaboration with data from WSS (2006, 2010, 2014 and 2018).