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JEL Codes: J16, J31.

~~1.~~ Introduction

Concerning the unequal labour market outcomes of men and women, one of the most intriguing questions is the asymmetry in the relative evolution of labour force participation, on the one hand, and wages, on the other. Hence, there is a sizeable, albeit narrowing, gender earnings gap (Blau and Kahn, 2017; OECD, 2017), regardless of the fact that, in developed countries, women's educational levels have increased sharply and their labour participation has grown strikingly to reach rates close to men's in a matter of decades (Goldin, 2006). Despite the huge amount of economic and sociological research on this issue (see ~~Ponthieux and Meurs, 2015, and~~ Blau and Kahn, 2017, and Ponthieux and Meurs, 2015 for comprehensive reviews of the literature), some dimensions of the male-female earnings differential are puzzling. One such dimension relates to how the gender wage differential evolves over time since individuals leave school and enter the labour market. Studies focusing on this issue suggest that the gender wage gap for labour market entrants may stem from differences in productive endowments between men and women, as well as occupational and firm segregation (see, for example, Kunze, 2005, and Manning and Swaffield, 2008). Subsequently, divergences by gender in career attachment (e.g. working hours, working time allocation and career interruptions mainly due to motherhood) are the key drivers of the evolution of the wage differential throughout the lifecycle (Erosa et al., 2016; Goldin, 2014~~; Erosa et al., 2016~~), with women being less prone than men to career promotion (Barth et al., 2017; Goldin et al., 2017). Generally speaking, available empirical evidence suggests that the gender wage gap tends to increase over the lifecycle, especially after motherhood (see, for example, Bertrand et al., 2010, or Juhn and McCue, 2017). A ~~recent~~ study by the OECD underscores that: (i) childbirth and the lack (or loss) of early-career promotion opportunities strongly influence women's income mobility, and (ii) most of the gender labour income gap is generated in the first half of the career[1]. Besides, the gender gap in hourly wages peaks at around 40 years of age for low-skilled workers, then dropping slightly; however, it continues worsening up to the end of their career for highly educated workers (OECD, 2018).

On the other hand, the gender wage gap and its evolution over the lifecycle might change across generations. Several papers have documented important shifts in the patterns of labour force participation across birth cohorts, with younger generations of women being more likely than the preceding cohorts to actively engage in the labour market throughout the lifecycle (see, for example, Aarson et al., 2006, and Goldin and Mitchell, 2017 for the case of the United States, and ~~Fitzenberger, 2004;~~ Balleer et al., 2009, ~~and~~ Euwalls et al., 2011 and Fitzenberger, 2004 for the case of several European Union countries). These differences by cohort regarding when and for how long women interrupt their careers might also have an impact on the profile of the gender wage gap (Cebrián and Moreno, 2015), especially with regard to wage trajectories after childbirth (Gangl and Ziefle, 2009).

Related to the above, one important question to bear in mind when plotting the evolution of the gender wage gap over the lifecycle is that, for a given set of individuals, lifecycle and cohort are confounding effects that occur at the same time. Also, the gender wage gap could also vary due to a simple time or period effect as a result of common macroeconomic or/and institutional changes in the labour market drawing a particular temporal trend affecting all employees, irrespective of age. In practice, then, age, cohort and period effects coexist and drive the evolution of the gender wage gap.

The conjunction of these three, simultaneous, confounding effects has been considered by the so-called age-period-cohort approach. This approach is often applied in sociological research to provide alternative explanations of the effects of ageing, trends over time periods and generational changes across cohorts on any outcome of interest net of other time-related effects (see, for example, seminal works by Fienberg and Mason, 1978, and Manson and Fienberg, 1985). Nonetheless, this interesting proposal has a serious limitation: age, period and birth cohort show perfect multicollinearity, and thus there is a problem of identification, preventing effects from being singled out from each other. Therefore, the proposal cannot be

[1] The gender labour income gap is defined by the OECD as "gap between the per capita labour income of all men and women between 20 and 64 years of age". Consequently, it can be due to gender differences not only in hourly wages but also in employment rates and working hours.

implemented in practice without assuming a constraint (Yang and Land, 2013). In fact, this approach has, despite its interest, hardly ever been applied to the analysis of the evolution of the gender wage gap, the main exception being the research reported by Campbell and Pearlman (2013)[2]. Using a pool of repeated cross-sectional data from the Current Population Survey, they propose a wage equation including gender-specific covariates for age, cohort and time and estimate this equation for the pool of data. The main conclusion of their study is that wage gap changes across generations play a major role in explaining the closing gender wage gap over the last three decades in the United States. Nonetheless, the proposal by Campbell and Pearlman (2013) has a major weakness: it imposes the hypothesis of equal estimated coefficients irrespective of the wave to which the data pertain, as they estimate a single wage equation using all the available cross-sectional data. This hypothesis could lead to problems both in practice and with regard to the constraints that have to be assumed. With respect to practice, the hypothesis of equal coefficients is only credible if the data confirm parameter constancy. As far as the derived assumptions are concerned, this hypothesis does not account for either plausible changes related to the age effect across generations or the impact that these career pathway differences have on the gender wage gap (Gangl and Ziefle, 2009), even though important generational changes have been documented regarding gender differences in labour force participation and employment over the lifecycle (~~Fitzenberger, 2004;~~ Aarson et al., 2006; Balleer et al., 2009; Euwalls et al., 2011; Fitzenberger, 2004; Goldin and Mitchell, 2017).

In this context, the aim of this paper is to provide new evidence on the evolution of the gender wage gap by age for the particular case of Spain, where changes in the gap across generations can be expected to be significant since the Spanish labour market has suffered notable shocks over the last few decades due to social, economic and regulatory changes (~~Guner et al., 2014;~~ Conde-Ruiz and Marra de Artiñano, 2016; Guner et al., 2014). In particular, the gender gap in labour market participation rates has narrowed considerably across generations of any given age and is lower and flatter with respect to age for the younger generations (De la Rica, ~~2017~~2016). This is consistent with the changes observed in the patterns of Spanish female employment related to motherhood (Guner et al., 2014; Legazpe and Davia, 2019). To accomplish our aim, we rely on the Wage Structure Survey (*Encuesta de Estructura Salarial*, referred to hereinafter as WSS), which provides overlapping cross-sectional matched employer-employee microdata containing very rich information on wage determinants. We propose a

[2] Kruse (2017) replicates the Campbell and Pearlman (2013) study, making a distinction between states. Bar-Haim et al. (2018) also apply an age-period-cohort analysis to demonstrate that increased female educational attainment across generations has done little to narrow the gender wage gap over time in a number of countries.

wage equation that controls for age and its interaction with gender. We estimate this equation separately for different WSS waves (referred to 2002, 2006, 2010 and 2014). Applying this procedure -and although estimating by wave a control for macrocohorts is implicitly included-, we cannot separately identify the age and the cohort effects, as year, age and cohort show perfect multocollinearitylinear (and thus our wage equation cannot explicitly account for the covariates related to the birth cohort); by contrast, the gender wage gap lifecycle dynamics are allowed to vary across the macrocohorts contained in each WSS wave, and our results actually do suggest that the pathway signalled by the age effect notably changes across generations. In a second step, we use the estimations of the wage equations by wave to derive the evolution of the gender wage gap by year of birth (that is to say, for individuals with the same age but belonging to different generations), since, if age is fixed, the birth year of the individuals can be combined with the wave to which they belong.

Our research takes advantage of a comprehensive, detailed database providing matched worker-firm microdata. As underlined by Cardoso et al. (2016) and Blau and Kahn (2017), segregation along lines such as occupations and industries continues to be a key factor in explaining the gender wage gap. Additionally, this segregation might also play a major role in the evolution of the gender wage gap throughout a career (Barth et al., 2017~~Kunze, 2005~~; Javdani and McGee, 2015; Kunze, 2005 ~~Barth et al., 2017~~). Thanks to the matched employer-employee WSS data, we can focus on this question in depth, since we can compare men and women with the same observed productive characteristics working at very similar firms (with respect to a broad set of characteristics, such us sector, size, type of collective bargaining, workforce composition, etc). As far as we know, this is the first research providing evidence of the evolution of the gender wage gap throughout the lifecycle and across generations for the case of Spain, although previous WSS-based papers have documented a narrowing of the gap over time (see, in particular, Anghel et al., 2019 and Murillo and Simón, 2014~~, and Anghel et al., 2018~~). Even though the long-term evolution has been towards a narrowing gender wage gap, this trend towards the convergence of wages by gender has slowed down in recent years in an international perspective (Blau and Kahn, 2017). This circumstance adds to the interest of studies that, like this one, aim to shed light on the conditioning factors driving its evolution over time.

In a nutshell, our results suggest that the trend in the gender wage gap is to decline both over time and across generations. By contrast, however, it widens as women age (mainly up to the late thirties, then it tends to level off, at least for recent cohorts). The same pattern has been documented for the age dynamics of the gender wage gap in other countries (see, for example,

~~Albrecht et al., 2018, for Sweden; Barth et al., 2017, and Goldin et al., 2017, for the USManning and Swaffield, 2008, for the UK,;~~ Del Bono and Vuri, 2011, for Italy, ~~Barth et al., 2017, and Goldin et al., 2017, for the US~~ or Manning and Swaffield, 2008, for the UK ~~Albrecht et al., 2018, for Sweden~~). We find that these gender wage gap dynamics trends are indeed robust to changes in the wage equation specification, and hold even when we compare very similar men and women working in very similar firms. In fact, segregation by occupation and firm appears to play an important role in explaining the gender wage gap and its dynamics throughout workers' careers. The remainder of the article is organized as follows. Section 2 summarizes the main papers dealing with the issue. In Section 3, we present the data used in the empirical analysis. The methodological approach is explained in Section 4. Section 5 reports and discusses the main empirical findings of our research. Finally, Section 6 outlines our conclusions.

~~2.~~ Literature review

Many papers have analysed the gender wage gap from several points of view within the benchmark provided by economic theory. One common topic focuses on the reasons why women earn lower wages than men even if they are equally productive. A common conclusion of these studies is that occupational and firm segregation, on the one hand, and gender differences in working hours and career attachment, on the other, seem to be the key explanations. By contrast, other commonly considered variables, like education, or more recently analysed issues, such as psychological factors, account for a much smaller proportion of the gap (Blau and Kahn, 2017).

Having uncovered the factors explaining the size of the gender wage gap, it is worth looking at what are the main features drawing its evolution over the lifecycle. According to Manning and Swaffiel (2008), there are three main theories that potentially explain the growth in the early-career gender wage gap. The first is human capital theory, as women would tend to: (i) invest less in education if they anticipate more frequent child-related career interruptions; (ii) accumulate lower levels of work experience as a result of such withdrawals from the labour force, and (iii) work fewer hours due to their heavier family commitments, as compared to men. The second is the job-shopping hypothesis, suggesting that women appear to have fewer opportunities to promote and to move from worse to better paid jobs than men. The third explanation accounts for the psychological differences between men and women regarding attitudes to risk-taking or competition, among others. The authors' main conclusion is that even though the human capital theory can explain about the half of the gender wage gap growth in early-career for the case of the UK–in contrast to the much lesser explanatory power of the remainder two theories-, a sizable unexplained gap remains, meaning that women's wages will lag behind men's throughout their professional lives even if the women have no children, do not interrupt their work-careers and have a similar personality to their male colleagues.

~~Kunze (2005) and~~ Erosa et al. (2006) and Kunze (2005) specifically analyse the importance of gender differences in human capital accumulation to explain the evolution of the gender wage gap. On the one hand, Kunze (2005) studies whether the gender wage gap sets in early as of workers' first job or, by contrast, evolves over their career, as women experience more frequent interruptions and then accumulate less work experience. Using data for the case of young German workers and based on an Oaxaca (1973) and Blinder (1973) decomposition, the authors provide information on the magnitude of the explained part of the gap that would prevail if men and women had the same work experience. The main conclusion points at gender differences in occupations as the main explanatory factor of the gender wage gap at any given level of experience, suggesting that occupational segregation results in a permanent wage penalty for women. On the other hand, Erosa et al. (2006) focus on gender differences in hours worked — and hence on job-specific human capital investment—, being their hypothesis that childbearing leads to a reduction in hours worked, accounted for mainly by women. Using panel data from the National Longitudinal Survey of Youth-79 for the US, they find that differences in labour supply and in hours worked lead to differences in returns to experience that increase with age. Therefore, work interruptions and fewer hours worked account for the most important part of the gender wage gap growth throughout the lifecycle. They also document that motherhood accounts for a large proportion of the respective growth, given that childbirth tends to take place at a stage of life when the returns to on-the-job human capital accumulation are high. Going beyond gender differences in hours worked, Goldin (2014) puts the emphasis on the distribution of working hours over time. The author provides evidence suggesting that non-linear rewards for individuals who work~~s~~ continuously and have no constraints on working hours play a major role in expanding the gender wage gap throughout working life. In the same vein, Bertrand et al. (2010) also conclude that flexibility at work, especially required when children come on the scene, comes at a high price in terms of lower wages, strongly conditioning the evolution of the gender wage gap throughout the lifecycle.

With regard to the relevance of career promotion as a way to close the gender wage gap, Del Bono and Vuri (2011) find that job mobility accounts for a large proportion of early-career wage growth for young Italian men, albeit not as large for equally productive women. Their results show that although job mobility differences are important for explaining gender wage growth gap, the key question revolves around gender differences with respect to the returns to job mobility, which are mainly due to moves to larger firms. Javdani and McGee (2015) analyse internal career promotion using matched employer-employee microdata for a representative sample of Canadian workers. They find that women are less likely to get promotion than men, mainly due to the fact that women tend to locate in industries and occupations with flatter job ladders and fewer opportunities for promotion. In addition, they find that the wage growth associated with promotions is lower for women than for men, even controlling for differences in industries and occupations[3]. There are hardly any such gender differences in wage growth after promotion for childless and single women, suggesting that there is a family gap in women´s wage return to promotion; by contrast, they are especially pronounced among mothers in the top wage distribution quantile, in line with the glass-ceiling hypothesis. Using a rich database referreed to the US, Barth et al. (2017) analyse the extent to which changes in the sorting of male and female workers into high- and low-wage firms, and, alternatively, gender differences in earnings growth within firms condition the age dynamics of the gender wage gap. They find different patterns depending on the educational level of the workers. Thus, the gender wage gap for workers with higher educational levels increases notably throughout the lifecycle, mainly due to gender differences in wage growth within firms, whereas the gender wage gap for non-college workers barely widens with age, any widening being mainly due to gender differences in wage premium derived from moves across firms. They also find that the widening of the wage premium across firms is almost entirely attributable to married workers, irrespective of their attained educational level, where motherhood is a major factor in the growing earnings gap for married women. Along the same lines, Goldin et al. (2017) also remark upon the relevance of moves within and across establishments in explaining the increase of the early-career gender wage gap, even comparing very similar educational and birth cohort groups. Finally, using matched employer-employee microdata for Sweden, Albretch et al. (2018) demonstrate that although the wages of high-skilled men and women are very similar at the beginning of their careers, the gender wage gap widens with age, especially after the birth of the first child. They conclude that gender differences with regard to both sorting across firms and firm-to-firm mobility account for very little of the gender wage gap dynamics, the main driver of its trajectory being the higher returns for men, whether or not they switch firms or stay at the same firm throughout their working life.

[3] Booth et al. (2003) and Johnston and Lee (2010) also document lower wage growths after promotion for women than for men sharing similar productive endowments and working in similar firms and occupations for the case of the UK and Australia, respectively.

As far as we know, and although gender differences in personality and attitudes have been proved to influence the gender wage gap (see ~~Croson and Gneezy, 2009, and~~ Bertrand, 2011, and Croson and Gneezy, 2009 for exhaustive literature reviews), only Manning and Swaffiel (2008) have directly tested how these differences condition the gender wage gap dynamics throughout the lifecycle. As mentioned above, they conclude that the explanatory power of non-cognitive skills with respect to early-career gender wage gap dynamics is modest for the case of the UK.

As far as Spain is concerned, only ~~De la Rica (2017) and~~ Anghel et al. (~~2018~~2019) and De la Rica (2016) and have provided evidence of the evolution of the gender wage gap by age. Using WSS matched employer-employee microdata referreed to four different waves, De la Rica (2016) estimates the gender wage gap by age for two different generations, defining synthetic cohorts based on survey overlapping. She finds that the gender wage gap increases as individuals get older, especially into their late thirties, although it continues to grow for older high-skilled workers. She also finds that the age dynamics of the gender wage gap varies by cohort, with the youngest generation showing a lower gender wage gap throughout the lifecycle. Finally, she concludes that the gender wage gap at any given age is highly related to the occupations that men and women tend to perform and due mainly to wage bonus differences by gender. Considering that such bonuses are more frequent in some economic sectors, like finance, and less usual in other activities, like education or health, taken together, these results suggest that segregation could be a key explanation of the evolution of the gender wage gap over working life for the case of Spain. Anghel et al. (~~2018~~2019) provide estimations of the observed and adjusted gender wage gap distinguishing, among other variables, by age groups on the basis of the WSS. Their results also confirm that the gender wage gap increases with age for the case of the Spanish economy.

~~3.~~ Data

This research is based on the data ~~provided by~~from the Encuesta de Estructura Salarial -Wage Structure Survey (WSS)-. This is a survey conducted by the Spanish National Institute of Statistics (INE) ~~in accordance with a harmonized methodology common to all the European Union Member States, as the WSS is the Spanish sample~~as part of the European Structure of Earnings Survey, and thus employs a harmonized methodology common to all European Union Member States. It ~~is designed according to~~involves four–yearly independent cross-sections and our study is based on the waves corresponding to 2002, 2006, 2010 and 2014. One of the main characteristics of the WSS is that it includes a random two-stage selection of units: the first-stage units are establishments registered with the Spanish Social Security system, classified according to their economic activity, and the second-stage units are employees working at the above establishments throughout the whole month of October in the reference year. The survey thus provides observations for several employees working at each of the establishments included in the sample. In other words, it offers matched employer-employee microdata[4].

The dependent variable used in our study is the gross hourly wage at 2014 constant prices, calculated as the wage corresponding to a representative month (October) divided by the hours worked in that month[5]. The explanatory variables refer to the characteristics of the workers and the jobs and firms in which they work. In particular, the individual explanatory variables include information regarding educational level (disaggregated at a maximum level according to the Spanish educational system into primary education; lower secondary education; upper secondary education; lower vocational training; upper vocational training, and higher education, distinguishing two levels of university studies)[6]; quadratic current job tenure, and also age specified in quinquennial cohorts. The job-related variables are occupation (nine major occupational groups); contract type (permanent or fixed-term); full- or part- time job, and supervisory role. Finally, the firm-related variables include information regarding activity sector (twelve industries); size (small, medium or big); the type of collective agreement (firm, national sectoral or subnational sectoral agreement); ownership (public or private); type of market to which the products are sold (local, regional, national or international market), and establishment workforce composition (regarding, in particular, the percentage of women, foreign workers, workers with a permanent contract, full-time jobs, skilled workers with higher education and qualified occupations).

To ensure that results are comparable, we have removed from our sample any observations corresponding to NACE-2009 Section O (public administration and defence, compulsory social security, a sector included from the 2010 wave onwards). Also, our sample only includes individuals aged from 16 to 65 years.

Table 1 provides descriptive statistics for the four WSS waves using the weights provided by the survey (Table A1 of the Appendix details these descriptive statistics by gender). The samples include a large number of observations (176,350 for the 2002 wave; 210,461 for the 2006 wave;

[4] The number of workers selected in each establishment depends on firm size. The survey only includes all workers for firms with fewer than 5 workers.

[5] The number of hours worked was calculated as the worker's regular working week in the respective month multiplied by 4.35, plus the number of hours of overtime worked, according to the guidelines given by the INE.

[6] The Spanish higher education system used to make a distinction between *Diplomatura* (Higher education-1) and *Licenciatura* (Higher education-2). On average, individuals holding Higher education-2 have attended university for two more years than individuals holding Higher education-1.

166,066 for the 2010 wave, and 160,014 for the 2014 wave). Real gross hourly wages decrease slightly with the onset of the ~~Great Recession~~Global Financial Crisis (GFC) and barely change subsequently. By contrast, the observed gender wage gap sharply decreases from 2002 to 2014: women's observed wages were 0.2 log points lower than men's in 2002, whereas 12 years later the gap was under 0.14 log points. The percentage of women in the sample increases sharply from 37% in 2002 to 47% in 2014. The average age and tenure of the workers included in the sample also rise, albeit to a lesser extent. According to the profiles of workers more intensively affected by the ~~Great Recession~~GFC, Table 1 shows a 10 percentage point decrease in the workforce holding compulsory (primary or lower secondary) education from 2002 to 2014, whereas the percentage of workers with higher education rose from less than 20% prior to the onset of ~~Great Recession~~GFC to almost 25% in 2014. A similar evolution can be appreciated with regard to the type of occupation, with a decline in unskilled jobs (e.g. operators or elementary occupations) in exchange for a rise in highly skilled occupations (e.g. technical and scientific professions). About one-third of the workers hold a permanent contract and around 75% are in full-time employment. The percentage of supervisory tasks also decreased from 25% in 2002 to 13% in 2014. Regarding the size of firms, small firms were dominant before the onset of the crisis (43% of the total sample of employees in 2002), but big companies are the leading establishments after the recession (31% of the workers in the sample worked for big firms and only 25% of employees worked at firms with less than 50 workers in 2014). The foremost type of collective agreement is a subnational sectoral collective agreement, and the firms sell their products mainly to the local market, especially after the onset of the crisis. Finally, regarding the workforce composition at the establishments, there is, in line with the evolution of the characteristics of the workers included in the sample, a remarkable increase in the percentage of women working at the firms (from 37% in 2002 to 46% in 2014); a rise in the percentage of workers holding higher education (from 28% in 2002 to 34% in 2014), and a growth of workers in highly skilled occupations (from 28% in 2002 to 33% in 2014).

Table 1. Descriptive statistics

	2002		2006		2010		2014	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Log of gross hourly wage	2.295	0.527	2.249	0.497	2.302	0.472	2.284	0.463
Gender wage gap	-0.201	0.003	-0.166	0.002	-0.163	0.002	-0.138	0.002
Women	0.372	0.483	0.412	0.492	0.457	0.498	0.473	0.499
Age	37.510	10.784	37.916	10.827	39.719	10.600	41.378	10.235
Primary education	0.260	0.439	0.265	0.441	0.187	0.390	0.173	0.378
Lower secondary education	0.278	0.448	0.262	0.440	0.288	0.453	0.252	0.434
Upper secondary education	0.105	0.307	0.111	0.315	0.119	0.324	0.118	0.322
Lower vocational training	0.072	0.259	0.070	0.255	0.095	0.293	0.110	0.312
Upper vocational training	0.086	0.280	0.085	0.279	0.083	0.276	0.077	0.266
Higher education-1	0.085	0.279	0.086	0.281	0.094	0.291	0.094	0.292
Higher education-2	0.113	0.316	0.118	0.323	0.134	0.340	0.158	0.365
Tenure	7.191	9.235	6.185	8.565	7.668	8.938	8.531	9.077
Tenure Squared	136.983	277.956	111.617	262.712	138.689	292.504	155.173	298.388
Permanent contract	0.734	0.442	0.714	0.452	0.784	0.412	0.796	0.403
Full-time job	0.890	0.313	0.832	0.374	0.791	0.406	0.752	0.432
Supervisory tasks	0.251	0.434	0.183	0.387	0.173	0.378	0.138	0.345
Mining and quarrying	0.003	0.051	0.003	0.051	0.001	0.038	0.001	0.033
Manufacturing	0.231	0.422	0.174	0.379	0.179	0.383	0.170	0.375
Elect., gas and water production	0.006	0.074	0.004	0.066	0.007	0.086	0.008	0.087
Hospitality	0.052	0.223	0.071	0.257	0.079	0.270	0.089	0.284
Construction	0.128	0.334	0.150	0.357	0.096	0.294	0.059	0.236
Financial intermediation	0.044	0.205	0.032	0.176	0.032	0.175	0.028	0.166
Trade	0.175	0.380	0.200	0.400	0.205	0.404	0.208	0.406
Real estate and rental	0.144	0.351	0.150	0.357	0.151	0.358	0.158	0.365
Transport and communications	0.061	0.240	0.050	0.218	0.084	0.277	0.085	0.279
Education	0.041	0.199	0.046	0.208	0.037	0.189	0.047	0.213
Health	0.074	0.262	0.078	0.268	0.095	0.293	0.109	0.312
Other social and service activities	0.040	0.195	0.043	0.203	0.035	0.183	0.038	0.191
Directors and managers	0.021	0.144	0.022	0.146	0.024	0.152	0.024	0.154
Technical and scientific professions	0.112	0.316	0.102	0.302	0.136	0.342	0.156	0.363
Technical and associated prof.	0.155	0.362	0.144	0.351	0.145	0.352	0.142	0.349
Office and administrative staff	0.127	0.333	0.136	0.343	0.125	0.331	0.121	0.327
Caterers and vendors	0.133	0.339	0.154	0.361	0.214	0.410	0.224	0.417
Skilled workers in manuf. and const.	0.164	0.371	0.174	0.379	0.135	0.342	0.114	0.318
Operators of plant and machinery	0.146	0.353	0.110	0.313	0.096	0.295	0.097	0.296
Elementary occupations	0.139	0.346	0.156	0.363	0.121	0.327	0.118	0.323
Workplace size less than 50	0.435	0.496	0.301	0.459	0.268	0.443	0.259	0.438
Workplace size 50-199	0.245	0.430	0.185	0.389	0.151	0.358	0.147	0.354
Workplace size 200 or more	0.320	0.466	0.250	0.433	0.296	0.457	0.309	0.462
Subnational sectoral collect. agree.	0.461	0.498	0.499	0.500	0.519	0.500	0.497	0.500
National sectoral collective agree.	0.339	0.473	0.376	0.484	0.272	0.445	0.282	0.450
Firm collective agreement	0.200	0.400	0.125	0.331	0.209	0.407	0.221	0.415
Public ownership	0.082	0.274	0.055	0.228	0.088	0.283	0.085	0.278

Local market	0.467	0.499	0.563	0.496	0.514	0.500	0.506	0.500
National market	0.399	0.490	0.337	0.473	0.371	0.483	0.357	0.479
International market	0.134	0.341	0.100	0.300	0.116	0.320	0.137	0.344
% of women employees at firm	0.372	0.301	0.411	0.335	0.452	0.320	0.466	0.307
% of permanent contracts at firm	0.733	0.321	0.714	0.330	0.784	0.286	0.797	0.279
% of work. with higher educ. at firm	0.284	0.302	0.290	0.324	0.310	0.323	0.341	0.335
% of full-time jobs at firm	0.889	0.221	0.831	0.271	0.790	0.292	0.765	0.305
% of foreign workers at firm	0.035	0.101	0.089	0.198	0.089	0.186	0.071	0.162
% of highly skilled jobs at firm	0.288	0.314	0.267	0.332	0.306	0.324	0.335	0.336
% of semi-skilled jobs at firm	0.570	0.327	0.574	0.348	0.569	0.338	0.547	0.339
% of unskilled jobs at firm	0.140	0.247	0.156	0.264	0.121	0.233	0.115	0.226
Number of observations	176392		210461		166066		160014	
Weight factor	6587224.5		11408521.4		9582126.34		8721300.84	

~~4.~~ Methodology

The aim of this paper is to provide evidence of how the gender wage gap evolves as individuals age and then assess whether this gender wage gap has narrowed across generations. To do this, we estimate the following Mincerian wage equation by OLS and using robust standard errors:

$$\ln W_{it} = \beta_{0t} + \beta_{1t}\, Woman + \beta_{2t}\, Age + \beta_{3t}\, Age\, Woman + \sum \beta_{nt} Xit + u_{it} \quad (1)$$

The dependent variable in equation 1 is the logarithm of the gross hourly wage of individual i that belongs to wave t, $Woman$ is a variable indicating gender, and Age refers to the age of the individual specified in five-year intervals. Thanks to interaction term between gender and age, the ageing effect can vary by gender. Hence, the estimated coefficients β_{3t} provide values with respect to the variation of women's relative wages by age. Finally, Xit contains ~~three~~ two different sets of variables depending on the estimated model. Model 1 does not include any extra information except gender and the age group dummies. Therefore, the estimation of this model matches the observed gender wage gap by age. Model 2 also includes information regarding educational level and tenure squared ~~in order to compare the evolution by age of the wages of men and women with the same human capital endowments. Lastly, Model 3 also incorporates~~as well as information regarding occupation (in particular, contract type, full- or part-time employment, supervisory tasks and occupation type) and firm (in particular, economic sector, size, ownership —public or private—, collective agreement type, market type and, finally, firm composition regarding the percentage of women, immigrant workers, workers holding higher education, full-time jobs, permanent contracts and skilled workers). In view of the detailed employer-employee matched information regarding occupation and firm available in the WSS, Model ~~3~~ 2 estimations provide accurate information on how the gender wage gap varies by age comparing observationally equivalent men and women working at very similar firms.

Worthy of note is the fact that Equation (1) is time variant, that is to say, it is estimated by year (or by wave). Thus, the age dynamics of the gender wage gap are allowed to vary across generations, as indicated in the Introduction. This is a key difference with respect to the estimations provided by the age-period-cohort approach, where age effects are necessarily the same over time and thus identical across generations, despite the important generational changes observed with regard to the lifecycle patterns of women's labour force participation and outcomes[7].

As it is possible by fixing age to combine the year of birth of the individuals with the wave to which they belong, in a second step we use the estimations of Equation 1 to derive the evolution of the gender wage gap by year of birth (also specified in five-years intervals, as age in Equation 1). In particular, for each birth interval we compare the gender wage gap estimated using the data referred to the oldest and the youngest generation (those belonging to the 2002 and 2014 wave, respectively[8]). This comparison provides a picture of the changes in the gender wage gap for individuals for a given age but belonging to different generations.

~~5.~~ Results

We now report the results of estimating Equation 1 by ordinary least squares (OLS) separately for the different WSS waves. These estimations will provide evidence of how the gender wage gap evolves as individuals get older. As mentioned in Section 4, ~~three~~ two specifications for the earnings equations are proposed for comparison purposes: Model 1 addresses the observed evolution of the gender wage gap by age, whereas Model 2 evaluates the evolution of the

[7] By estimating a single wage equation for the whole period, the age-period-cohort models assume parameter constancy. In order to test whether this assumption would be reliable for the data that we use, Equation 1 is also estimated forming a pool of all waves by interacting a dummy corresponding to each year or wave with the explanatory variables of the equation. By reformulating the equation thus, we can test whether Equation 1 has been subjected to structural changes that would affect the wage premium and age effect. The conclusion of this exercise is that, at conventional significance levels, the null hypotheses are rejected by data. In other words, the wage premium is not constant over time, and there is an age effect that varies between waves. By contrast, when we test whether the gender wage gap has not changed over time, the null hypothesis is clearly rejected. Taken as a whole, these results suggest that there is a period effect (e.g. the gender wage gap varies over time). Therefore, the lack of structural constancy of the other coefficients precludes any specification for Equation1 imposing structural constancy on the parameters of the model between waves.

[8] Thus, for example, the change in the gender wage gap across generations for individuals aged 18-21 is calculated and the gender wage gap for individuals born between 1981 and 1984 and belonging to the 2002 wave, minus the gender wage gap por individuals born between 1993 and 1996 and belonging to the 2014 wave.

gender wage gap by age for ~~individuals with similar human capital accumulation. Given the exhaustive detail of the variables included in Model 3, the results provide evidence on changes in the gender wage gap by age for individuals with~~ individuals holding very similar observed productive characteristics and working at very similar firms. Consequently, this estimation might provide some insights into the role played by segregation in explaining the gender wage gap age dynamics. The results are shown in Tables 2 ~~to 4~~and 3, respectively, and illustrated in Figure 1.

Table 2. Earnings equations, Model 1 (without covariates)

Dependent variable: log of the gross hourly wage	2002			2006			2010			2014		
	Coef.	t-Stat	p-value	Coef.	t-Stat	p-value	Coef.	t-Stat	p-value	Coef.	t-Stat	p-value
Woman	-0.119	-7.73	0.00	-0.105	-7.23	0.00	-0.046	-1.33	0.18	-0.041	-1.04	0.30
Age 22-25	0.128	13.07	0.00	0.107	8.87	0.00	0.093	4.48	0.00	0.077	2.76	0.01
Age 26-29	0.276	28.41	0.00	0.232	18.76	0.00	0.224	11.37	0.00	0.177	6.56	0.00
Age 30-33	0.375	37.06	0.00	0.319	25.63	0.00	0.308	15.89	0.00	0.286	10.56	0.00
Age 34-37	0.446	42.21	0.00	0.367	28.46	0.00	0.373	19.11	0.00	0.370	13.7	0.00
Age 38-41	0.488	44.56	0.00	0.411	29.57	0.00	0.399	20.08	0.00	0.424	15.64	0.00
Age 42-45	0.543	44.52	0.00	0.449	32.48	0.00	0.438	21.87	0.00	0.437	16.00	0.00
Age 46-49	0.610	49.11	0.00	0.470	32.35	0.00	0.463	22.32	0.00	0.479	17.28	0.00
Age 50-53	0.656	47.57	0.00	0.539	35.43	0.00	0.513	24.42	0.00	0.485	17.41	0.00
Age 54-57	0.652	48.7	0.00	0.568	31.88	0.00	0.563	26.67	0.00	0.550	19.32	0.00
Age 58-61	0.618	37.85	0.00	0.557	31.77	0.00	0.591	24.35	0.00	0.581	19.57	0.00
Age 62-65	0.601	25.45	0.00	0.492	19.41	0.00	0.636	22.74	0.00	0.582	17.78	0.00
Age 22-25*Woman	0.005	0.27	0.79	0.006	0.33	0.74	-0.048	-1.29	0.20	-0.002	-0.06	0.95
Age 26-29*Woman	0.003	0.16	0.87	0.002	0.09	0.93	-0.052	-1.44	0.15	0.007	0.17	0.87
Age 30-33*Woman	0.000	-0.01	0.99	0.015	0.83	0.41	-0.054	-1.49	0.14	-0.028	-0.69	0.49
Age 34-37*Woman	-0.027	-1.46	0.15	-0.011	-0.57	0.57	-0.075	-2.06	0.04	-0.073	-1.78	0.08
Age 38-41*Woman	-0.062	-3.21	0.00	-0.051	-2.59	0.01	-0.087	-2.39	0.02	-0.087	-2.13	0.03
Age 42-45*Woman	-0.088	-4.17	0.00	-0.095	-4.79	0.00	-0.131	-3.57	0.00	-0.092	-2.24	0.03
Age 46-49*Woman	-0.132	-5.8	0.00	-0.106	-4.96	0.00	-0.146	-3.91	0.00	-0.145	-3.5	0.00
Age 50-53*Woman	-0.160	-6.42	0.00	-0.152	-6.28	0.00	-0.170	-4.48	0.00	-0.134	-3.21	0.00
Age 54-57*Woman	-0.235	-9.70	0.00	-0.189	-6.67	0.00	-0.173	-4.42	0.00	-0.176	-4.12	0.00
Age 58-61*Woman	-0.214	-7.10	0.00	-0.187	-6.47	0.00	-0.214	-4.94	0.00	-0.168	-3.82	0.00
Age 62-65*Woman	-0.277	-6.81	0.00	-0.064	-1.2	0.23	-0.280	-5.37	0.00	-0.174	-3.57	0.00
Cons	1.934	232.55	0.00	1.952	186.27	0.00	1.989	109.38	0.00	1.949	75.01	0.00

R^2	0.1270	0.0926	0.0923	0.0771
N	176350	210461	166066	160014

~~Table 3. Earnings equations, Model 2~~

Dependent variable: log of the gross hourly wage	2002		2006		2010		2014	
	Coef.	t-Stat	Coef.	t-Stat		Coef.	t-Stat	Coef.
Woman	-0.148	-9.78	-0.139	-9.42	-0.069	-1.87	-0.040	-1.03
Age 22-25	0.047	4.63	0.049	3.88	0.019	0.92	-0.018	-0.64
Age 26-29	0.096	9.64	0.104	7.85	0.071	3.56	0.024	0.94
Age 30-33	0.161	15.91	0.144	11.81	0.115	5.88	0.100	3.86
Age 34-37	0.209	20.26	0.170	13.5	0.153	7.80	0.151	5.84
Age 38-41	0.222	21.18	0.203	15.42	0.166	8.36	0.183	7.03
Age 42-45	0.245	21.3	0.198	15.06	0.184	9.21	0.183	7.01
Age 46-49	0.271	23.39	0.210	15.44	0.194	9.49	0.204	7.73
Age 50-53	0.289	22.11	0.236	16.51	0.200	9.73	0.198	7.38
Age 54-57	0.298	23.86	0.241	14.66	0.210	10.2	0.227	8.41
Age 58-61	0.268	18.48	0.232	14.25	0.214	9.28	0.224	8.04
Age 62-65	0.252	12.84	0.182	8.20	0.259	10.16	0.189	6.05
Age 22-25*Woman	-0.037	-2.08	-0.036	-2	-0.074	-1.92	-0.040	-0.92
Age 26-29*Woman	-0.055	-3.30	-0.049	-2.75	-0.097	-2.53	-0.065	-1.60
Age 30-33*Woman	-0.056	-3.27	-0.051	-2.91	-0.093	-2.47	-0.097	-2.41
Age 34-37*Woman	-0.070	-4.03	-0.062	-3.39	-0.119	-3.15	-0.137	-3.39
Age 38-41*Woman	-0.074	-4.28	-0.078	-4.27	-0.115	-3.04	-0.144	-3.57
Age 42-45*Woman	-0.092	-4.85	-0.082	-4.38	-0.118	-3.11	-0.128	-3.16

Age 46-49*Woman	-0.116	-5.86	-0.093	-4.89	-0.122	-3.20	-0.143	-3.51
Age 50-53*Woman	-0.122	-5.62	-0.111	-5.15	-0.129	-3.36	-0.137	-3.33
Age 54-57*Woman	-0.183	-8.91	-0.143	-6.44	-0.143	-3.67	-0.156	-3.77
Age 58-61*Woman	-0.174	-7.15	-0.154	-6.24	-0.142	-3.42	-0.153	-3.62
Age 62-65*Woman	-0.230	-6.70	-0.048	-1.07	-0.238	-5.28	-0.123	-2.67
Lower secondary education	0.046	11.53	0.026	5.49	0.031	6.73	0.039	8.20
Upper secondary education	0.261	43.55	0.190	28.20	0.175	26.27	0.157	25.43
Lower vocational training	0.171	27.75	0.135	16.76	0.154	24.48	0.136	23.50
Upper vocational training	0.270	47.13	0.188	27.93	0.233	35.16	0.257	37.49
Higher education 1	0.536	85.88	0.453	58.09	0.474	64.29	0.469	69.51
Higher education 2	0.715	107.98	0.627	88.34	0.649	94.00	0.636	96.79
Tenure	0.029	49.96	0.027	42.47	0.022	38.23	0.019	35.58
Tenure²	0.000	-19.57	0.000	-15.87	0.000	-10.67	0.000	-7.81
Cons	1.840	205.7	1.876	170.93	1.897	100.68	1.858	72.87
R2	0.4136		0.3969		0.4048		0.4012	
N	176350		210416		166066		160014	

Table ~~4~~3. Earnings equations, Model ~~3~~2 (with covariates)

	2002		2006		2010		2014	
Dependent variable: log of the gross hourly wage	Coef.	t	Coef.	t	Coef.	t	Coef.	t
Woman	-0.110	-7.79	-0.078	-5.13	-0.010	-0.27	0.013	0.33
Age 22-25	0.028	2.93	0.038	3.19	0.013	0.69	-0.020	-0.71
Age 26-29	0.056	6.11	0.073	6.32	0.043	2.31	0.007	0.25
Age 30-33	0.108	11.5	0.105	9.32	0.076	4.11	0.065	2.47
Age 34-37	0.148	15.46	0.126	10.74	0.109	5.85	0.102	3.89
Age 38-41	0.161	16.62	0.149	12.26	0.119	6.33	0.134	5.10

~~Age 42-45~~	~~0.183~~	~~17.41~~	~~0.147~~	~~12.02~~	~~0.135~~	~~7.23~~	~~0.136~~	~~5.17~~
~~Age 46-49~~	~~0.195~~	~~18.39~~	~~0.160~~	~~12.89~~	~~0.147~~	~~7.72~~	~~0.156~~	~~5.89~~
~~Age 50-53~~	~~0.211~~	~~17.3~~	~~0.173~~	~~13.43~~	~~0.152~~	~~7.86~~	~~0.158~~	~~5.90~~
~~Age 54-57~~	~~0.226~~	~~19.55~~	~~0.189~~	~~12.65~~	~~0.164~~	~~8.45~~	~~0.180~~	~~6.65~~
~~Age 58-61~~	~~0.211~~	~~16.06~~	~~0.187~~	~~12.47~~	~~0.171~~	~~7.95~~	~~0.184~~	~~6.65~~
~~Age 62-65~~	~~0.204~~	~~11.22~~	~~0.159~~	~~8.13~~	~~0.207~~	~~8.65~~	~~0.167~~	~~5.48~~
~~Age 22-25*Woman~~	~~-0.013~~	~~-0.82~~	~~-0.031~~	~~-1.74~~	~~-0.070~~	~~-1.84~~	~~-0.032~~	~~-0.76~~
~~Age 26-29*Woman~~	~~-0.020~~	~~-1.34~~	~~-0.038~~	~~-2.21~~	~~-0.089~~	~~-2.40~~	~~-0.060~~	~~-1.52~~
~~Age 30-33*Woman~~	~~-0.020~~	~~-1.28~~	~~-0.047~~	~~-2.74~~	~~-0.086~~	~~-2.32~~	~~-0.084~~	~~-2.12~~
~~Age 34-37*Woman~~	~~-0.030~~	~~-1.87~~	~~-0.045~~	~~-2.56~~	~~-0.101~~	~~-2.73~~	~~-0.114~~	~~-2.91~~
~~Age 38-41*Woman~~	~~-0.026~~	~~-1.62~~	~~-0.057~~	~~-3.27~~	~~-0.108~~	~~-2.93~~	~~-0.128~~	~~-3.24~~
~~Age 42-45*Woman~~	~~-0.040~~	~~-2.35~~	~~-0.049~~	~~-2.77~~	~~-0.102~~	~~-2.76~~	~~-0.106~~	~~-2.66~~
~~Age 46-49*Woman~~	~~-0.050~~	~~-2.76~~	~~-0.058~~	~~-3.22~~	~~-0.111~~	~~-2.99~~	~~-0.119~~	~~-3.00~~
~~Age 50-53*Woman~~	~~-0.051~~	~~-2.61~~	~~-0.055~~	~~-2.71~~	~~-0.113~~	~~-3.03~~	~~-0.121~~	~~-3.03~~
~~Age 54-57*Woman~~	~~-0.096~~	~~-5.08~~	~~-0.096~~	~~-4.55~~	~~-0.135~~	~~-3.58~~	~~-0.139~~	~~-3.44~~
~~Age 58-61*Woman~~	~~-0.076~~	~~-3.57~~	~~-0.108~~	~~-4.76~~	~~-0.114~~	~~-2.83~~	~~-0.140~~	~~-3.41~~
~~Age 62-65*Woman~~	~~-0.112~~	~~-3.43~~	~~-0.025~~	~~-0.58~~	~~-0.189~~	~~-4.37~~	~~-0.132~~	~~-2.97~~
~~Lower secondary education~~	~~0.003~~	~~0.83~~	~~0.011~~	~~2.75~~	~~0.005~~	~~1.25~~	~~0.012~~	~~2.55~~
~~Upper secondary education~~	~~0.083~~	~~14.11~~	~~0.077~~	~~12.94~~	~~0.072~~	~~11.25~~	~~0.085~~	~~14.37~~
~~Lower vocational training~~	~~0.033~~	~~5.39~~	~~0.051~~	~~6.71~~	~~0.069~~	~~11.44~~	~~0.071~~	~~12.32~~
~~Upper vocational training~~	~~0.049~~	~~7.20~~	~~0.028~~	~~4.06~~	~~0.061~~	~~8.76~~	~~0.090~~	~~12.47~~
~~Higher education 1~~	~~0.094~~	~~10.18~~	~~0.095~~	~~11.05~~	~~0.102~~	~~12.25~~	~~0.111~~	~~13.81~~
~~Higher education 2~~	~~0.204~~	~~23.09~~	~~0.198~~	~~22.86~~	~~0.207~~	~~23.86~~	~~0.231~~	~~28.07~~
~~Tenure~~	~~0.017~~	~~28.20~~	~~0.017~~	~~26.24~~	~~0.014~~	~~24.32~~	~~0.010~~	~~18.06~~
~~Tenure^2~~	~~0.000~~	~~-12.71~~	~~0.000~~	~~-10.62~~	~~0.000~~	~~-7.16~~	~~0.000~~	~~-0.93~~
~~Permanent contract~~	~~0.038~~	~~8.26~~	~~0.026~~	~~5.45~~	~~0.002~~	~~0.37~~	~~0.033~~	~~5.95~~
~~Full-time job~~	~~-0.033~~	~~-4.00~~	~~-0.007~~	~~-0.98~~	~~-0.027~~	~~-4.78~~	~~0.014~~	~~2.55~~
~~Supervisory role~~	~~0.131~~	~~36.22~~	~~0.136~~	~~25.11~~	~~0.125~~	~~26.11~~	~~0.143~~	~~26.52~~

Manufacturing	-0.138	-14.13	-0.127	-15.32	-0.069	-4.16	-0.063	-4.11
Production of electricity, gas and water	-0.049	-3.87	0.024	2.05	0.079	4.26	-0.003	-0.16
Hospitality	-0.127	-11.44	-0.073	-6.53	-0.019	-1.03	-0.023	-1.33
Construction	-0.051	-4.94	-0.057	-6.13	-0.033	-1.94	-0.086	-5.38
Financial intermediation	-0.001	-0.09	-0.006	-0.51	0.128	7.01	0.060	3.49
Trade	-0.117	-10.96	-0.152	-15.81	-0.085	-4.90	-0.126	-7.81
Real estate and rental	-0.174	-15.61	-0.182	-17.49	-0.134	-7.88	-0.162	-10.19
Transport and communications	-0.112	-10.03	-0.126	-12.77	-0.054	-3.12	-0.098	-6.12
Education	-0.165	-12.83	-0.177	-13.39	-0.142	-7.09	-0.191	-10.25
Health	-0.138	-10.80	-0.150	-12.06	-0.068	-3.80	-0.129	-7.76
Other social and services activities	-0.176	-15.26	-0.182	-17.02	-0.144	-8.10	-0.175	-10.61
Directors and managers	0.678	50.03	0.627	44.47	0.585	33.06	0.492	27.97
Technical and scientific professionals	0.436	42.27	0.383	36.85	0.377	40.01	0.365	36.42
Technical and associated professionals	0.222	29.07	0.182	22.08	0.202	27.34	0.179	21.15
Office and administrative staff	0.058	9.16	0.059	8.46	0.055	8.35	0.030	4.01
Caterers and vendors	0.077	11.05	0.035	4.76	0.028	4.50	-0.001	-0.16
Skilled workers in manufacturing and construction	0.088	16.08	0.080	12.28	0.089	14.52	0.082	11.18
Operators of plant and machinery	0.063	11.57	0.059	8.99	0.068	10.36	0.068	8.88
Workplace size 50-199	0.077	25.08	0.083	25.28	0.097	26.88	0.101	26.57
Workplace size 200 or more	0.149	36.02	0.156	38.41	0.148	41.98	0.146	41.76
National sectoral collective agreement	0.001	0.31	-0.012	-3.23	-0.031	-7.95	-0.021	-5.41
Firm collective agreement	0.049	12.25	0.076	16.02	0.044	10.96	0.037	8.45
Public ownership	0.055	8.60	0.119	14.22	0.108	16.52	0.070	10.91
National market	0.063	19.15	0.061	16.17	0.043	12.31	-0.013	-3.83
International market	0.103	22.63	0.077	15.24	0.102	19.25	-0.012	-2.56
% of women in the establishment	-0.156	-21.89	-0.098	-11.16	-0.089	-10.90	-0.075	-9.31
% of permanent contracts in the establishment	0.054	8.58	0.019	2.50	0.013	1.61	0.029	3.71
% of workers with higher ed. in the establishment	0.075	8.08	0.073	7.27	0.055	5.95	0.089	9.54

~~% of full-time jobs in the establishment~~	~~-0.112~~	~~-8.04~~	~~0.024~~	~~2.15~~	~~0.020~~	~~1.99~~	~~0.001~~	~~0.11~~
~~% of foreign workers in the establishment~~	~~0.041~~	~~2.91~~	~~0.013~~	~~1.13~~	~~-0.011~~	~~-0.93~~	~~0.015~~	~~1.13~~
~~% of skilled jobs in the establishment~~	~~0.140~~	~~14.08~~	~~0.137~~	~~12.30~~	~~0.092~~	~~10.11~~	~~0.065~~	~~6.94~~
~~% of unskilled jobs in the establishment~~	~~-0.078~~	~~-9.18~~	~~-0.006~~	~~-0.63~~	~~-0.002~~	~~-0.18~~	~~0.015~~	~~1.41~~
~~Cons~~	~~1.980~~	~~114.92~~	~~1.884~~	~~114.55~~	~~1.911~~	~~70.14~~	~~1.888~~	~~60.57~~
~~R2~~	~~0.5299~~		~~0.4976~~		~~0.5437~~		~~0.5204~~	
~~N~~	~~176350~~		~~210461~~		~~166066~~		~~160014~~	

	2002			2006			2010			2014		
Dependent variable: log of the gross hourly wage	Coef.	t	p-value	Coef.	t	p-value	Coef.	T	p-value	Coef.	t	p-value
Woman	-0.110	-7.79	0.00	-0.078	-5.13	0.00	-0.010	-0.27	0.79	0.013	0.33	0.74
Age 22-25	0.028	2.93	0.00	0.038	3.19	0.00	0.013	0.69	0.49	-0.020	-0.71	0.48
Age 26-29	0.056	6.11	0.00	0.073	6.32	0.00	0.043	2.31	0.02	0.007	0.25	0.80
Age 30-33	0.108	11.5	0.00	0.105	9.32	0.00	0.076	4.11	0.00	0.065	2.47	0.01
Age 34-37	0.148	15.46	0.00	0.126	10.74	0.00	0.109	5.85	0.00	0.102	3.89	0.00
Age 38-41	0.161	16.62	0.00	0.149	12.26	0.00	0.119	6.33	0.00	0.134	5.10	0.00
Age 42-45	0.183	17.41	0.00	0.147	12.02	0.00	0.135	7.23	0.00	0.136	5.17	0.00
Age 46-49	0.195	18.39	0.00	0.160	12.89	0.00	0.147	7.72	0.00	0.156	5.89	0.00
Age 50-53	0.211	17.3	0.00	0.173	13.43	0.00	0.152	7.86	0.00	0.158	5.90	0.00
Age 54-57	0.226	19.55	0.00	0.189	12.65	0.00	0.164	8.45	0.00	0.180	6.65	0.00
Age 58-61	0.211	16.06	0.00	0.187	12.47	0.00	0.171	7.95	0.00	0.184	6.65	0.00
Age 62-65	0.204	11.22	0.00	0.159	8.13	0.00	0.207	8.65	0.00	0.167	5.48	0.00
Age 22-25*Woman	-0.013	-0.82	0.41	-0.031	-1.74	0.08	-0.070	-1.84	0.07	-0.032	-0.76	0.45
Age 26-29*Woman	-0.020	-1.34	0.18	-0.038	-2.21	0.03	-0.089	-2.40	0.02	-0.060	-1.52	0.13

Age 30-33*Woman	-0.020	-1.28	0.20	-0.047	-2.74	0.01	-0.086	-2.32	0.02	-0.084	-2.12	0.03
Age 34-37*Woman	-0.030	-1.87	0.06	-0.045	-2.56	0.01	-0.101	-2.73	0.01	-0.114	-2.91	0.00
Age 38-41*Woman	-0.026	-1.62	0.10	-0.057	-3.27	0.00	-0.108	-2.93	0.00	-0.128	-3.24	0.00
Age 42-45*Woman	-0.040	-2.35	0.02	-0.049	-2.77	0.01	-0.102	-2.76	0.01	-0.106	-2.66	0.01
Age 46-49*Woman	-0.050	-2.76	0.01	-0.058	-3.22	0.00	-0.111	-2.99	0.00	-0.119	-3.00	0.00
Age 50-53*Woman	-0.051	-2.61	0.01	-0.055	-2.71	0.01	-0.113	-3.03	0.00	-0.121	-3.03	0.00
Age 54-57*Woman	-0.096	-5.08	0.00	-0.096	-4.55	0.00	-0.135	-3.58	0.00	-0.139	-3.44	0.00
Age 58-61*Woman	-0.076	-3.57	0.00	-0.108	-4.76	0.00	-0.114	-2.83	0.01	-0.140	-3.41	0.00
Age 62-65*Woman	-0.112	-3.43	0.00	-0.025	-0.58	0.57	-0.189	-4.37	0.00	-0.132	-2.97	0.00
Lower secondary education	0.003	0.83	0.41	0.011	2.75	0.01	0.005	1.25	0.21	0.012	2.55	0.01
Upper secondary education	0.083	14.11	0.00	0.077	12.94	0.00	0.072	11.25	0.00	0.085	14.37	0.00
Lower vocational training	0.033	5.39	0.00	0.051	6.71	0.00	0.069	11.44	0.00	0.071	12.32	0.00
Upper vocational training	0.049	7.20	0.00	0.028	4.06	0.00	0.061	8.76	0.00	0.090	12.47	0.00
Higher education 1	0.094	10.18	0.00	0.095	11.05	0.00	0.102	12.25	0.00	0.111	13.81	0.00
Higher education 2	0.204	23.09	0.00	0.198	22.86	0.00	0.207	23.86	0.00	0.231	28.07	0.00
Tenure	0.017	28.20	0.00	0.017	26.24	0.00	0.014	24.32	0.00	0.010	18.06	0.00
Tenure^2	0.000	-12.71	0.00	0.000	-10.62	0.00	0.000	-7.16	0.00	0.000	-0.93	0.35
Permanent contract	0.038	8.26	0.00	0.026	5.45	0.00	0.002	0.37	0.71	0.033	5.95	0.00
Full-time job	-0.033	-4.00	0.00	-0.007	-0.98	0.33	-0.027	-4.78	0.00	0.014	2.55	0.01
Supervisory role	0.131	36.22	0.00	0.136	25.11	0.00	0.125	26.11	0.00	0.143	26.52	0.00
Manufacturing	-0.138	-14.13	0.00	-0.127	-15.32	0.00	-0.069	-4.16	0.00	-0.063	-4.11	0.00
Production of electricity, gas and water	-0.049	-3.87	0.00	0.024	2.05	0.04	0.079	4.26	0.00	-0.003	-0.16	0.87
Hospitality	-0.127	-11.44	0.00	-0.073	-6.53	0.00	-0.019	-1.03	0.30	-0.023	-1.33	0.18
Construction	-0.051	-4.94	0.00	-0.057	-6.13	0.00	-0.033	-1.94	0.05	-0.086	-5.38	0.00
Financial intermediation	-0.001	-0.09	0.93	-0.006	-0.51	0.61	0.128	7.01	0.00	0.060	3.49	0.00
Trade	-0.117	-10.96	0.00	-0.152	-15.81	0.00	-0.085	-4.90	0.00	-0.126	-7.81	0.00
Real estate and rental	-0.174	-15.61	0.00	-0.182	-17.49	0.00	-0.134	-7.88	0.00	-0.162	-10.19	0.00
Transport and communications	-0.112	-10.03	0.00	-0.126	-12.77	0.00	-0.054	-3.12	0.00	-0.098	-6.12	0.00

Education	-0.165	-12.83	0.00	-0.177	-13.39	0.00	-0.142	-7.09	0.00	-0.191	-10.25	0.00
Health	-0.138	-10.80	0.00	-0.150	-12.06	0.00	-0.068	-3.80	0.00	-0.129	-7.76	0.00
Other social and services activities	-0.176	-15.26	0.00	-0.182	-17.02	0.00	-0.144	-8.10	0.00	-0.175	-10.61	0.00
Directors and managers	0.678	50.03	0.00	0.627	44.47	0.00	0.585	33.06	0.00	0.492	27.97	0.00
Technical and scientific professionals	0.436	42.27	0.00	0.383	36.85	0.00	0.377	40.01	0.00	0.365	36.42	0.00
Technical and associated professionals	0.222	29.07	0.00	0.182	22.08	0.00	0.202	27.34	0.00	0.179	21.15	0.00
Office and administrative staff	0.058	9.16	0.00	0.059	8.46	0.00	0.055	8.35	0.00	0.030	4.01	0.00
Caterers and vendors	0.077	11.05	0.00	0.035	4.76	0.00	0.028	4.50	0.00	-0.001	-0.16	0.87
Skilled workers in manufacturing and construction	0.088	16.08	0.00	0.080	12.28	0.00	0.089	14.52	0.00	0.082	11.18	0.00
Operators of plant and machinery	0.063	11.57	0.00	0.059	8.99	0.00	0.068	10.36	0.00	0.068	8.88	0.00
Workplace size 50-199	0.077	25.08	0.00	0.083	25.28	0.00	0.097	26.88	0.00	0.101	26.57	0.00
Workplace size 200 or more	0.149	36.02	0.00	0.156	38.41	0.00	0.148	41.98	0.00	0.146	41.76	0.00
National sectoral collective agreement	0.001	0.31	0.76	-0.012	-3.23	0.00	-0.031	-7.95	0.00	-0.021	-5.41	0.00
Firm collective agreement	0.049	12.25	0.00	0.076	16.02	0.00	0.044	10.96	0.00	0.037	8.45	0.00
Public ownership	0.055	8.60	0.00	0.119	14.22	0.00	0.108	16.52	0.00	0.070	10.91	0.00
National market	0.063	19.15	0.00	0.061	16.17	0.00	0.043	12.31	0.00	-0.013	-3.83	0.00
International market	0.103	22.63	0.00	0.077	15.24	0.00	0.102	19.25	0.00	-0.012	-2.56	0.01
% of women in the establishment	-0.156	-21.89	0.00	-0.098	-11.16	0.00	-0.089	-10.90	0.00	-0.075	-9.31	0.00
% of permanent contracts in the establishment	0.054	8.58	0.00	0.019	2.50	0.01	0.013	1.61	0.11	0.029	3.71	0.00
% of workers with higher ed. in the establishment	0.075	8.08	0.00	0.073	7.27	0.00	0.055	5.95	0.00	0.089	9.54	0.00
% of full-time jobs in the establishment	-0.112	-8.04	0.00	0.024	2.15	0.03	0.020	1.99	0.05	0.001	0.11	0.91
% of foreign workers in the establishment	0.041	2.91	0.00	0.013	1.13	0.26	-0.011	-0.93	0.35	0.015	1.13	0.26
% of skilled jobs in the establishment	0.140	14.08	0.00	0.137	12.30	0.00	0.092	10.11	0.00	0.065	6.94	0.00
% of unskilled jobs in the establishment	-0.078	-9.18	0.00	-0.006	-0.63	0.53	-0.002	-0.18	0.86	0.015	1.41	0.16
Cons	1.980	114.92	0.00	1.884	114.55	0.00	1.911	70.14	0.00	1.888	60.57	0.00
R2		0.5299			0.4976			0.5437			0.5204	
N		176350			210461			166066			160014	

Tables 2 ~~to 4~~and 3 show that the gender wage gap increases as individuals age. This pattern can be better appreciated in Figure 1. Thus, irrespective of the estimated model, Figure 1 shows how the gender wage gap is low at labour market entry, e.g. for individuals aged 18-21, and then increases by age up to retirement. Looking, for example, at the results for the 2014 wave, the observed gender wage gap at the beginning of their careers is under 4%, whereas this figure rises to almost 21% during their late fifties[9]. The figures range from 4.5 to 25% for individuals belonging to the 2010 wave; from 10 to 29% for the 2006 wave, and from 11 to 33% for individuals belonging to the 2002 wave. These trends are consistent with the age dynamics of the gender wage gap documented for other countries (see Manning and Swaffield, 2008, for the UK; Del Bono and Vuri, 2011, for Italy; Barth et al., 2017, and Goldin et al., 2017, for the US, and Albrecht et al., 2018, for Sweden) and also agrees with previous evidence for the case of Spain (De la Rica, ~~2017~~2016; Anghel et al., ~~2018~~2019).

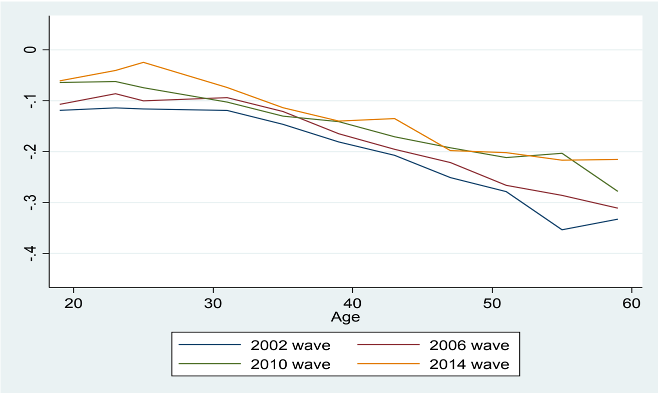
Focusing on the comparisons by model,~~ we should mention that the observed gender wage gap is, generally, smaller than the gender wage gap for individuals with homogeneous human capital endowments, which is consistent with the fact that women's human capital outpaces men's. In particular, this result is mainly due to the higher educational level attained by women and not to gender differences in tenure, which is higher for the case of men (see Table A1 of the Appendix). Nonetheless,~~ the most interesting findings emerge when we look at the results provided by Model ~~3~~2. First, we find that the gender wage gap estimated by this model is notably smaller than for ~~the other~~Model 1~~s~~. Given that Model ~~3~~ 2 compares equally productive individuals working at very similar firms, the results suggest that the segregation of women by both occupation and firm plays a key role in explaining the gender wage gap for the case of Spain. This is consistent with previous empirical evidence for both the case of Spain (see, for example, Murillo and Simón, 2014) and the international context (Blau and Kahn, 2017). Secondly, focusing on the age dynamics of the gender wage gap, it stands out that the trend highlighted by Model 2~~3~~ is also flatter than for Model~~s~~ 1~~ and 2~~. Looking, for example, at the individuals ~~born between 1937 and 1984~~belonging to the 2014 wave, women and men earn an almost equal wage at entry, then the gender wage gap increases up to 1~~6-17~~0-12% during the early stages of their career. Finally, it levels off until just before retirement, when there is another slight increase; the pattern for the other macrocohorts is similar. Although an analysis of the causes behind this finding is outside of the scope of this paper, the rather flat profile of the gender wage gap throughout the lifecycle documented by Model ~~3~~ 2 is compatible with an

[9] Throughout this section log points are interpreted in terms of percentages, although actually they are not absolutely equivalent.

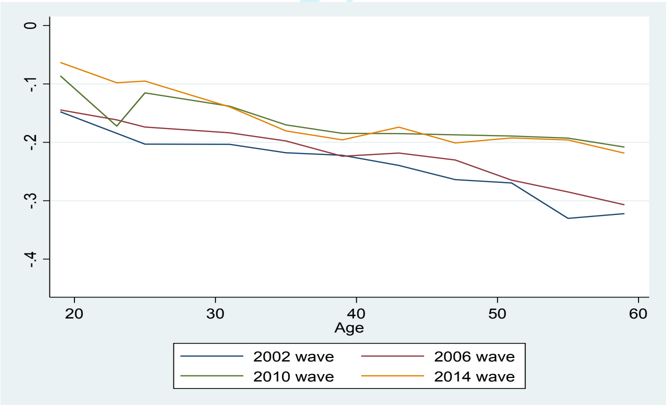
unequal promotion of men and women to better paid jobs. This is consistent with the hypothesis defended by the job-shopping theory and might help to explain why the gender wage gap does not close throughout the workers' career.

Figure 1. Changes in the gender wage gap by age

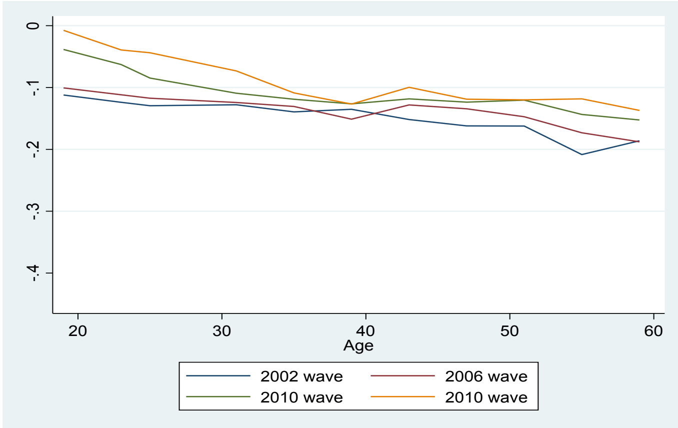
Model 1

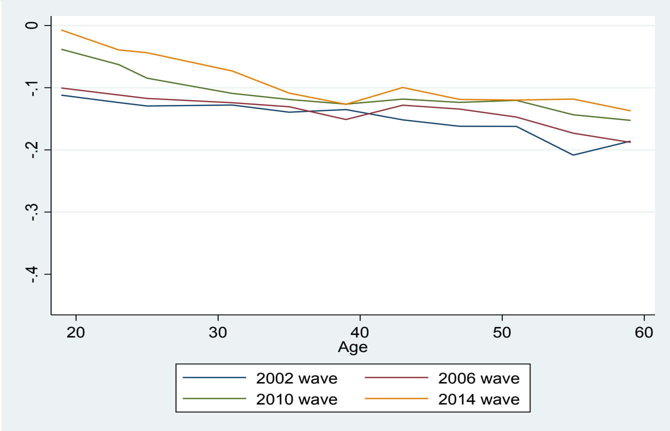


Model 2



~~**Model 3**~~

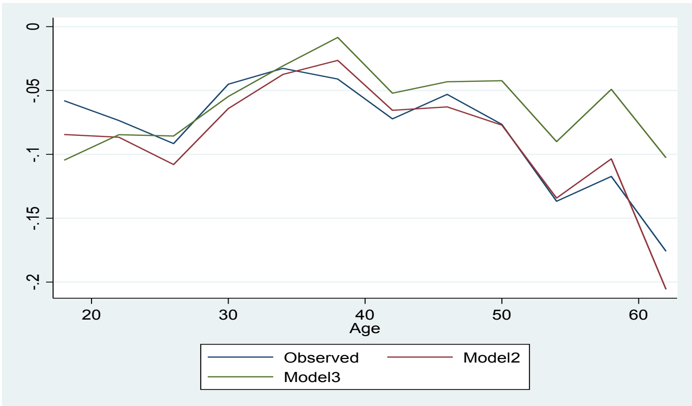


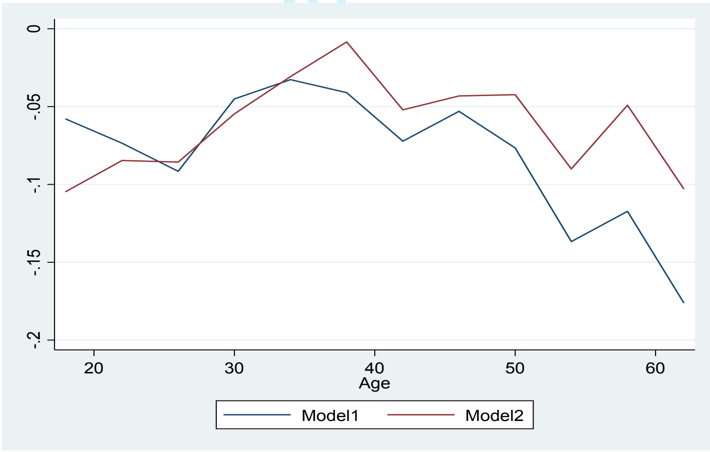


Finally, note that while the trend of the gender wage gap by age is upward for all the analysed waves, the age dynamics of the gender wage gap changes notably across generations. Thus, the gender wage gap is lower for younger generations throughout their careers. For example, upon labour market entry, women belonging to the oldest generation (e.g., belonging to the 2002 wave) earn wages that are around 11% lower than the earnings of equally productive men working at very similar firms, whereas women and men from the youngest generation (e.g., belonging to the 2014 wave) earn an almost equal wage at this stage. This difference between the gender wage gap for the oldest and the youngest generation is observed throughout their careers, although it is smaller in size during their late thirties. The reason for this is the sharp increase in the gender wage gap for the youngest generation up to the late thirties, when it reaches a value of around 11.5%, probably coinciding with childbirth and the raising of children. The age-profile of the youngest generation is indeed consistent with evidence provided by the OECD (2018) suggesting that the gender wage gap is generated mainly in the first half of workers' careers and then tends to level off. Although the analysis of the reasons behind this pattern are beyond the scope of this research, this result would suggest that motherhood constitutes a permanent wage penalty for women (at least for younger cohorts), as the wage gap emerges with the birth of the first child and then remains throughout their career.

Figure ~~3~~ 2 provides a more accurate picture of the changes in the gender wage gap for individuals for a given age but belonging to different generations. As a matter of example, the change in the gender wage gap for those individuals aged 18-21 is calculated ~~and~~ as the gender wage gap for individuals born between 1981 and 1984 and belonging to the 2002 wave, minus the gender wage gap ~~por~~ for individuals born between 1993 and 1996 and belonging to the 2014 wave. This is striking evidence that the average gender wage gap for each age has notably dropped for the youngest generation, as compared to the oldest one.~~:~~

Figure 2. Changes in the gender wage gap by birth year





~~6.~~ Conclusions

The aim of this research is to provide new evidence of the evolution of the gender wage gap by age, taking into account changes in age profiles across generations and focusing on the Spanish case. To accomplish our aim, we use the WSS, which provides overlapping, matched employer-employee microdata, containing rich information on both wage determinants and workers' and firms' characteristics. In fact, thanks to the information provided by the WSS, we can focus particularly on the role that segregation by occupation and firm plays, following on from previous research highlighting that segregation continues to be a key factor in explaining the gender wage gap and might also play a major role on its evolution throughout workers' careers. Our data analysis has some noteworthy limitations. Unobserved workers heterogeneity cannot be controlled for as we rely on cross-sectional surveys. Moreover, given that the WSS focuses exclusively on wage earners, we cannot rule out a possible sample selection bias regarding the composition of the workforce. Finally, and despite its wealth of information, the WSS does not provide data on some specific personal characteristics, such as civil status or number of children, which are crucial for exploring whether family constraints derail individuals wage dynamics, as the literature suggests. In fact, family constraints reinforced gender inequalities during the Covid-19 lockdown in Spain, with possibly even more negative effects for mothers, who bore the brunt of the additional childcare burden during the lockdown (Farré et al. 2020). Unfortunately, no WSS data is available to test this hypothesis.

~~on~~

Our results suggest that the gender wage gap in Spain increases with age. In particular, the gender wage gap is low at labour market entry and then increases by age up to ~~the~~ retirement. This finding is consistent with previous research. The ~~observed gender wage gap by age is, generally, smaller than for individuals with homogeneous human capital endowments due to Spanish women's higher educational attainment and despite Spanish men's longer job tenure. Moreover, the~~ gap age profile is lower for equally productive individuals working in very similar firms, as compared to the observed one, which suggests that the segregation of women both by occupation and by firm plays an important role in explaining the gender wage gap for the case of Spain. In particular, the gender wage gap age profile for equally productive individuals working at very similar firms is rather flat. This is compatible with an unequal promotion of men and women to better paid jobs and the possibility of segregation constituting a permanent wage penalty for women, as suggested by previous papers. This could help to explain why the gender wage gap does not vanish throughout workers' careers.

Another important finding of this research is that the gender wage gap age dynamics changes notably across generations. In particular, we find that the gender wage gap is lower for the youngest generation, as compared to the oldest one, for any given age. This difference between the gender wage gap for the oldest and youngest generation is observed, indeed, throughout the life cycle. However, its magnitude is smallest in the late thirties because of the sharp increase in the gender wage gap for the youngest generation up to the late thirties, probably coinciding with childbirth and the raising of children. The age profile of the youngest cohort of individuals is consistent with previous evidence documenting that the gender wage gap is mainly generated in the early career. It suggests that motherhood could constitute a permanent wage penalty for women, as the wage gaps appears at ages propitious t~~wi~~o ~~h~~ the birth of the first child and continues throughout the lifecycle.

All in all, our results document a still sizeable gender wage gap in the Spanish economy that is persistent throughout the lifecycle. Nonetheless, there is a marked narrowing trend as new generations enter the labour market. This trend is consistent with other observed changes in the role played by women in society. In this regard, it is important to note that gender inequalities at work matter not only from an individual perspective but also because they imply a loss of productive resources and potential economic growth. Labour market institutions can boost efforts to narrow the gender wage gap in several ways (Blau and Kahn, 2017; Boll and Lagemann, 2019; Kim, 2013; OECD 2023; Polachek, 2014). Our results suggest that equal employment policies targeting the reduction of gender occupational segregation, as well as policies aimed at fostering female engagement in the labour force and avoiding long childcare breaks could be especially useful.

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Annex

Table A1. Descriptive statistics by gender (average values)

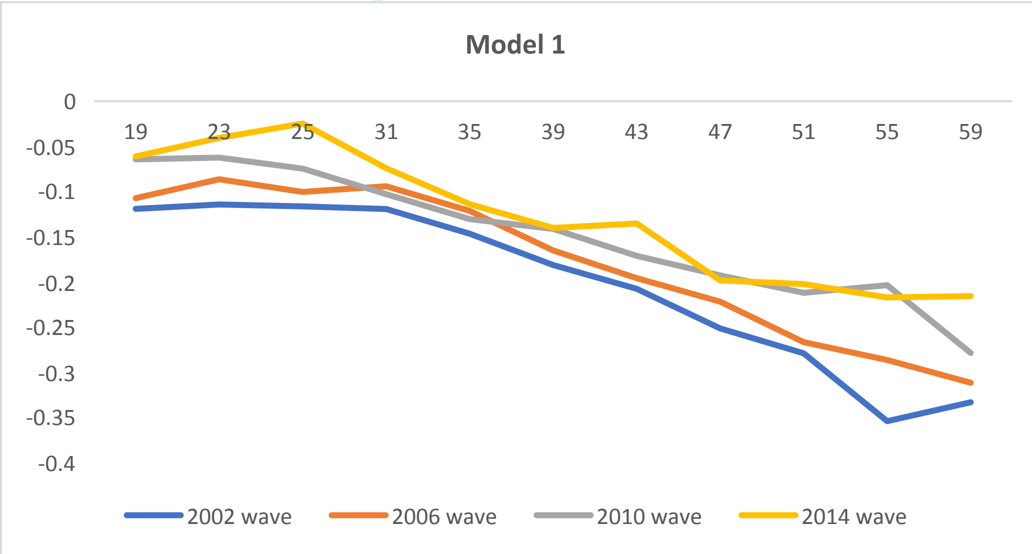
	2002		2006		2010		2014	
Variable	Women	Men	Women	Men	Women	Men	Women	Men
Log of gross hourly wage	2.17	2.37	2.15	2.32	2.21	2.38	2.21	2.35
Age	36.23	38.27	36.99	38.57	39.01	40.32	40.97	41.75
Primary education	0.21	0.29	0.20	0.31	0.15	0.22	0.16	0.19
Lower secondary	0.24	0.30	0.23	0.29	0.27	0.31	0.22	0.28
Upper secondary	0.12	0.10	0.13	0.10	0.13	0.11	0.13	0.11
Lower vocational training	0.09	0.06	0.09	0.06	0.11	0.08	0.12	0.10
Upper vocational training	0.08	0.09	0.09	0.08	0.08	0.09	0.07	0.09
Higher education-1	0.12	0.06	0.12	0.06	0.12	0.07	0.12	0.07
Higher education-2	0.13	0.10	0.14	0.10	0.15	0.12	0.17	0.14
Tenure	6.24	7.75	5.71	6.52	6.97	**8.25**	8.08	8.94
Tenure Square	107.08	154.70	94.61	123.52	117.29	156.71	136.77	171.69
Permanent contract	0.74	0.73	0.74	0.70	0.79	0.78	0.79	0.80
Full-time job	0.78	0.95	0.70	0.92	0.68	0.89	0.64	0.85
Supervisory tasks	0.20	0.28	0.14	0.21	0.14	0.20	0.11	0.17
Mining and quarrying	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing	0.15	0.28	0.11	0.22	0.10	0.24	0.09	0.24
Production of elect., gas and water	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01
Hospitality	0.07	0.04	0.09	0.05	0.10	0.06	0.11	0.07
Construction	0.02	0.19	0.03	0.23	0.03	0.15	0.02	0.10
Financial intermediation	0.04	0.05	0.03	0.03	0.03	0.03	0.03	0.02
Trade	0.20	0.16	0.22	0.18	0.24	0.18	0.22	0.20
Real state and rental	0.20	0.11	0.20	0.11	0.19	0.12	0.19	0.13
Transport and communications	0.04	0.07	0.03	0.06	0.05	0.11	0.05	0.12

Education	0.07	0.02	0.07	0.03	0.05	0.02	0.07	0.03
Health	0.14	0.03	0.14	0.03	0.16	0.04	0.17	0.05
Other social and servicies activities	0.05	0.03	0.06	0.03	0.05	0.02	0.05	0.03
Directors and managers	0.01	0.03	0.01	0.03	0.02	0.03	0.02	0.03
Technical and scientific professionals	0.14	0.09	0.14	0.08	0.17	0.11	0.19	0.13
Technical and associate prof.	0.16	0.15	0.15	0.14	0.13	0.16	0.13	0.15
Office and administrative staff	0.20	0.08	0.22	0.08	0.18	0.08	0.17	0.08
Caterers and vendors	0.21	0.09	0.24	0.09	0.31	0.14	0.31	0.15
Skilled workers in manuf. and const.	0.03	0.25	0.03	0.27	0.02	0.23	0.02	0.20
Operators of plant and machinery	0.07	0.19	0.04	0.16	0.03	0.15	0.03	0.16
Elementary occupations	0.18	0.11	0.17	0.15	0.15	0.10	0.14	0.10
Workplace size less than 50	0.38	0.47	0.25	0.33	0.22	0.31	0.22	0.29
Workplace size 50-199	0.23	0.25	0.18	0.19	0.14	0.16	0.13	0.16
Workplace size 200 or more	0.39	0.28	0.31	0.21	0.34	0.26	0.35	0.27
Sub-national sectoral collect. agree.	0.36	0.32	0.40	0.36	0.29	0.26	0.29	0.28
National sectoral collective agree.	0.44	0.47	0.48	0.51	0.49	0.54	0.49	0.51
Firm collective agreement	0.20	0.20	0.12	0.13	0.22	0.20	0.22	0.22
Public ownership	0.12	0.06	0.09	0.03	0.12	0.06	0.12	0.06
Local market	0.49	0.45	0.58	0.55	0.55	0.48	0.50	0.51
National market	0.39	0.40	0.33	0.34	0.36	0.38	0.36	0.35
International market	0.11	0.15	0.09	0.11	0.09	0.14	0.14	0.14
% of women in the firm	0.62	0.23	0.68	0.22	0.68	0.26	0.66	0.29
% of indef. contracts in the firm	0.75	0.72	0.74	0.70	0.79	0.78	0.79	0.80

% of work. with higher educ. in firm	0.32	0.26	0.34	0.25	0.34	0.29	0.36	0.32
% of full-time jobs in the firm	0.81	0.94	0.74	0.90	0.71	0.86	0.69	0.83
% of foreign workers in the firm	0.03	0.04	0.07	0.10	0.08	0.09	0.07	0.07
% of qualified jobs in the firm	0.32	0.27	0.31	0.24	0.32	0.30	0.35	0.32
% of non-qualified jobs in the firm	0.18	0.12	0.16	0.15	0.14	0.11	0.13	0.10
Observations	63213	113179	83552	126909	69693	96373	67008	93006
Weighting factor	2450400.47	4136824.03	4698206.95	6710314.41	4379903.63	5202222.72	4125273.58	4596027.26

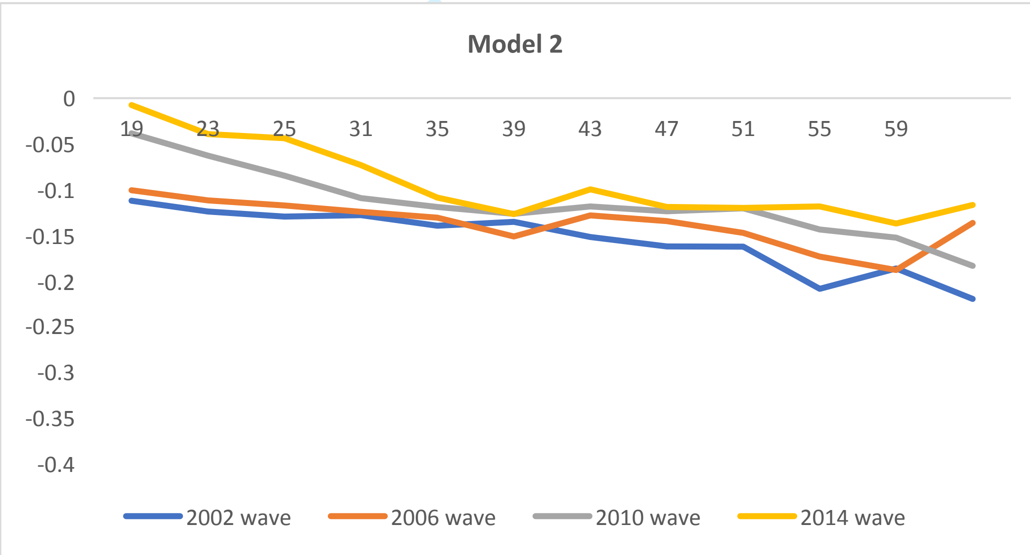
Model1

Age	2002 wave	2006 wave	2010 wave	2014 wave
19	-0.118947	-0.107117	-0.064226	-0.060965
23	-0.114087	-0.086235	-0.062289	-0.040572
25	-0.116198	-0.100237	-0.074476	-0.024628
31	-0.119107	-0.09396	-0.102713	-0.074025
35	-0.146398	-0.121178	-0.130274	-0.113721
39	-0.181013	-0.164894	-0.141119	-0.139985
43	-0.20728	-0.195477	-0.170863	-0.135071
47	-0.251033	-0.221479	-0.192474	-0.197991
51	-0.278568	-0.266218	-0.211686	-0.202031
55	-0.353538	-0.285944	-0.203265	-0.216818
59	-0.332622	-0.311089	-0.27816	-0.215342
61	-0.395847	-0.250427	-0.266977	-0.219959

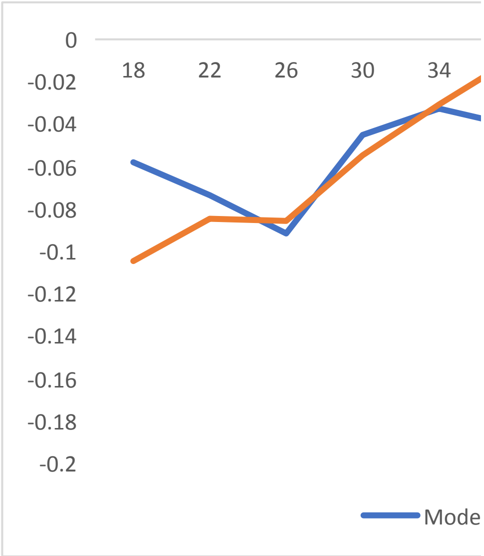


Model2

Age	2002 wave	2006 wave	2010 wave	2014 wave
19	-0.112118	-0.100636	-0.03847	-0.007538
23	-0.123895	-0.111724	-0.062837	-0.039273
25	-0.129429	-0.11728	-0.084704	-0.043785
31	-0.127864	-0.1242	-0.109234	-0.073175
35	-0.139404	-0.130626	-0.118941	-0.108685
39	-0.135173	-0.151168	-0.126409	-0.126713
43	-0.151753	-0.128131	-0.118359	-0.099664
47	-0.162039	-0.134368	-0.123631	-0.118882
51	-0.162291	-0.147244	-0.120386	-0.119946
55	-0.208375	-0.173161	-0.143548	-0.118333
59	-0.186109	-0.187834	-0.152471	-0.13701
61	-0.219419	-0.136334	-0.183268	-0.116726



Age	Model1	Model2
18	-0.057982	-0.10458
22	-0.073515	-0.084622
26	-0.09157	-0.085644
30	-0.045082	-0.054689
34	-0.032677	-0.030719
38	-0.041028	-0.00846
42	-0.072209	-0.052088
46	-0.053042	-0.043157
50	-0.076537	-0.042344
54	-0.136719	-0.090043
58	-0.117281	-0.049098
62	-0.175888	-0.102693




38
42
46
50
54
58
62
Model2