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14 End-of-working-life gender wage gap: The role of health shocks, parental education and personality traits

- We show that intra-occupation wage disparities between men and women account for a large part of the gender wage gap.
- Women sorted into jobs in which they were less discriminated in terms of pay or their characteristics were more rewarded.
- Adding parental education, health shocks and non-cognitive skills helps explain the gap only marginally.

14.1 Introduction

In the last decade, the unadjusted gender pay gap, defined as the raw percentage difference between male and female average gross hourly earnings, decreased in most European Union (EU) countries. Despite this progressive reduction, the average gender wage gap in 2014 in the EU (weighted by the number of employees) still stood at 16.6 per cent, indicating that women earned, on average, 84 per cent of that of men. This figure masks substantial variations across countries: although the gap is relatively narrow in Italy (6.1), Belgium (6.6) and Slovenia (7.0), it becomes significantly larger in countries such as Austria (22.2), Germany (22.3) and Estonia (28.1) (Source: Eurostat).

Starting from the seminal works by Blinder (1973) and Oaxaca (1973), a large body of literature has investigated the gender wage gap to quantify the part that can be explained by differences in individual characteristics, such as education or job experience, and the so-called unexplained part. The latter component can be attributable to gender discrimination, justified by, for instance, a supposedly lower attachment to work by women.

Much of this body of literature has treated the distribution of men and women into different working sectors and occupations as exogenously given. This approach does not acknowledge two potentially relevant factors. First, differences in individual characteristics may lead women to prefer jobs that pay lower wages on average. Second, to some extent, women might be prevented

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from entering certain top-paid jobs, which might occur even if their skills match those of their male colleagues (gender occupational segregation). Brown, Moon and Zoloth (1980) propose a modified Oaxaca decomposition in which the occupational choice is explicitly modelled.

In this chapter, we estimate the overall gender wage gap at the end of the working life for a set of European countries and quantify the part of the gap that can be explained by parental education, non-cognitive skills and health shocks that occurred during life, in addition to standard individual characteristics. Then, we assess how the explained part of the gap changes when accounting for the endogeneity of occupational attainment.

Our baseline results suggest that the overall end-of-working-life wage gap is approximately 28 per cent, and approximately one-fifth can be explained by standard personal and job characteristics. Adding parental education, health shocks and non-cognitive skills among the explanatory variables only marginally increases the explained share of the gap. Instead, accounting for the endogeneity of job attainment raises the explained part of the total wage gap to about 50 per cent. Interestingly, the actual distribution of women across occupations helps reduce the wage penalty by 22 per cent, suggesting that either preferences or social norms about occupational choices led women to sort into jobs in which their characteristics were more rewarded or less discriminated in terms of pay.

The chapter is organized as follows. The next section describes the data and sample definitions. The following sections illustrate the methodological approach and the decomposition results. The last section concludes.

14.2 Data and descriptive statistics

We use retrospective information on wages collected through SHARELIFE Waves 3 and 7 for 15 European countries. Respondents are asked to report the amount, after taxes and contributions, of their monthly wages at the end of their main job. We restrict our sample to retired employees who reported valid amounts and whose main job corresponds with their last job before retirement.

In SHARELIFE, wages are mostly reported in pre-euro currencies – also for countries currently in the euro area – and refer to different points in time. Therefore, we converted amounts in euro and express them in real terms. To account for cost of living differences across European countries, we used purchasing power parity (PPP)-adjusted exchange rates from Eurostat with Germany as a reference for relative prices (base year 2014).

We obtain hourly wages by dividing monthly wages by average monthly hours worked provided by Eurostat by gender, occupation (the nine aggregate categories in ISCO 2008) and employment contract (full- or part-time).

We eliminate from the sample individuals without information on occupation, whose overall job tenure is longer than 50 years and whose age at the end of their main job is younger than 40 years. We also eliminate those who changed from full-time to part-time (or vice versa) during their careers (approximately 500 individuals, mainly women) and those with no information on parental education and personality traits (the so-called Big Five collected in Wave 7). We end up with a sample of 5,464 observations from Wave 7 and 2,060 observations from Wave 3 for 15 countries (Austria, Germany, Sweden, Spain, Italy, France, Denmark, Greece, Switzerland, Belgium, Czech Republic, Luxemburg, Slovenia, Estonia and Croatia).

Figure 14.1 shows average hourly wages by gender and country. Despite being PPP-adjusted, hourly wages are lower in southern and eastern European countries, and men's wages are statistically significantly higher than women's in most countries. Additionally, Figure 14.1 reports the net hourly wage by gender based on Eurostat and OECD information: we used OECD tax statistics to obtain net hourly wages from Eurostat gross hourly earnings data, in reference

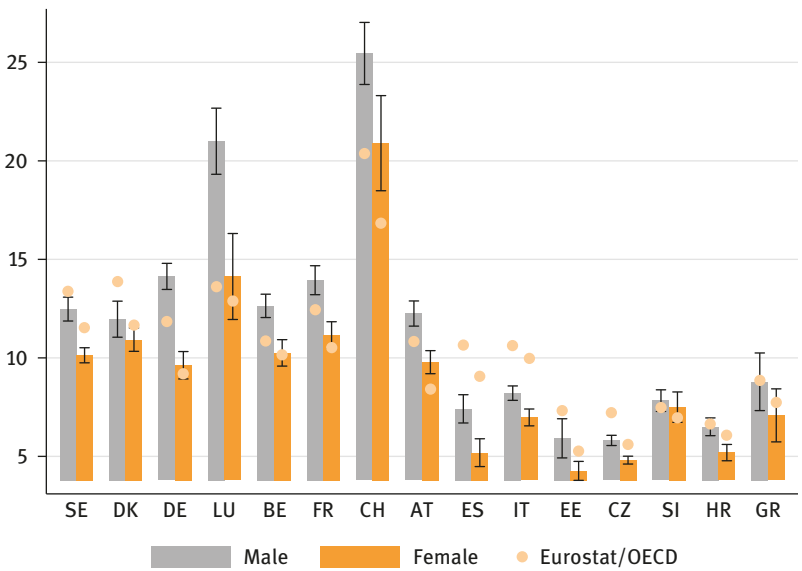

Figure 14.1: Hourly wage (PPP adjusted) by country and gender.
Source: SHARE Wave 3 release 6.1.1, Wave 7 release 0.

to 2014. Although SHARELIFE wages are not directly comparable with those computed from official 2014 statistics because they refer to end-of-working-life wages for older cohorts, Figure 14.1 is somewhat reassuring about the extent of the measurement error in SHARELIFE data due to delayed recall. Most countries ranking high in wage gaps computed by Eurostat for 2014 (Germany and Estonia, for instance) still present some of the largest gaps, whereas others ranking low (Slovenia and Italy) still remain in the lowest part of the distribution of the end-of-working-life wage gap.

Figure 14.2 shows the observed distribution of men and women into four aggregate occupational categories constructed by combining the nine major ISCO 2008 categories according to the type of work (blue or white collar) and skill level required (low or high) to fulfil tasks. The presence of women turns out to be higher with respect to men (about twice as high) in low-skilled, white collar occupations, whereas the proportion of women employed in high-skilled, blue collar occupations is about one-third that of men's. Instead, the proportion of men and women in high-skilled, white collar work is about the same (40%). The distributional differences in the occupations of men and women previously highlighted are not negligible and suggest that explicitly modelling occupational attainment in the decomposition analysis of the wage gap is worthwhile.

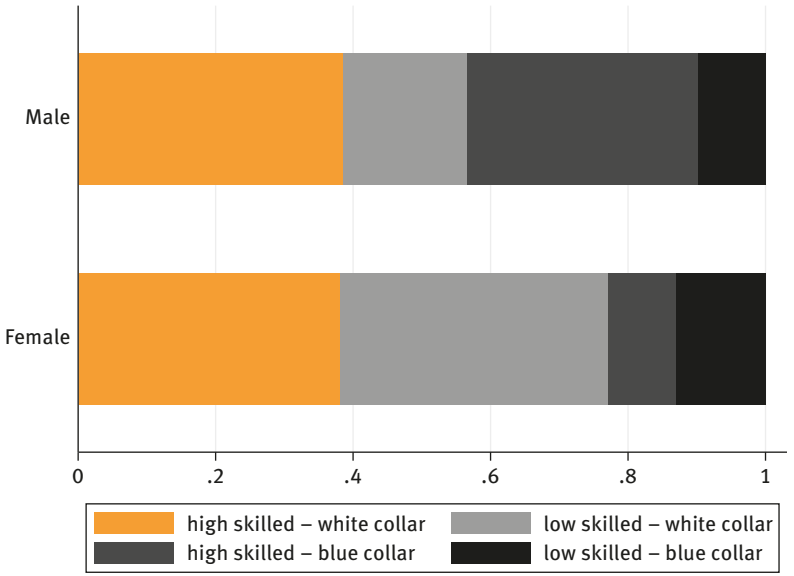

Figure 14.2: Observed male and female occupation distributions.
Source: SHARE Wave 3 release 6.1.1, Wave 7 release 0.

14.3 Empirical methods

The traditional approach to investigating the determinants of the gender wage gap is the Oaxaca (1973)-Blinder (1973) decomposition that distinguishes between the 'explained' and 'unexplained' components of the gap. The former relates to differences in demographic characteristics, human capital and other observables between men and women. The latter can be attributed to discrimination against women in the labour market (Oaxaca and Ransom, 1994).

The standard method entails estimating separate wage equations by gender, where the log-hourly wage is regressed on a set of covariates. In our baseline specification, we include among the controls dummies for education (ISCED categories 3 to 4, and 5 to 6), self-assessed cognitive skills when children (doing better than schoolmates in math or language), being a public employee, being in full-time contracts, having children, living without a partner, number of residence changes, overall job tenure (also squared), cohort and country dummies. We first treat occupational distribution as exogenous and control for occupational categories in the wage equation.

Following Brown, Moon and Zoloth (1980), we then propose an alternative decomposition in which we model occupational attainment by estimating a multinomial logit model. This decomposition allows for disentangling of the intra and inter-occupation explained and unexplained part of the gap. In the occupation equation, we control for education, school performance, cohort and country dummies.

To understand the role of parental education, health shocks and non-cognitive skills in explaining wage differentials, we compare the decomposition results excluding (baseline) and including these controls.

Parental education (two dummies indicating ISCED categories 3 or 4, and 5 or 6 for each parent) and non-cognitive skills are included in both the wage and the occupation equation. Health shocks (left a job because of ill health or disability; took a temporary leave of absence from a job for 6 months or more because of ill health or disability; had a physical injury that led to a permanent handicap, disability or limitations; any other period of ill health or disability that lasted longer than one year) are included only in the wage equation because they do not likely determine individuals' employment in a specific occupation.

14.4 Results

Table 14.1 reports the result of the standard Oaxaca-Blinder decomposition. Approximately 21 per cent of the overall end-of-working-life gender wage gap (which is 0.281) is explained by differences in educational attainment, job characteristics and family structure between men and women. Including parental education, health shocks during working life and non-cognitive skills does not significantly increase the explained wage differential (in line with Cobb-Clark and Tan, 2011).

Table 14.1: Standard Oaxaca-Blinder decomposition.

	Wage gap	Unexplained	Explained
Panel A: Baseline			
Gap	0.281	0.221	0.060
Std. Error	0.012	0.023	0.022
%	100.0	78.78	21.22
Panel B: Including Parental Education, Health Shocks and Non-cognitive Skills			
Gap	0.281	0.219	0.062
Std. Error	0.012	0.024	0.022
%	100.0	77.93	22.07

Note: Bootstrapped standard errors based on 100 replications.
Source: SHARE Wave 1–6 release 6.1.1.

Table 14.2 shows the results of the decomposition when occupational attainments are explicitly modelled. Allowing for an endogenous occupational choice increases the explained component from approximately 21 per cent to 49 per cent (Column 2, Panel A). The wage differential is larger intra-occupation (columns 3 and 4) than inter-occupation (column 5 and 6). The disparity in the characteristics of men and women employed in a specific occupation (column 4, explained intra-occupation wage gap) accounts for 50 per cent of the gap. The unexplained intra-occupation differential in column 3 amounts to approximately 70 per cent, indicating that a large proportion of the wage gap is the result of differences in the wage returns to productivity-related characteristics. The fact that men and women are differently distributed by occupation (see Figure 14.2) is because they have different (observed and unobserved) characteristics that reduce women's wage penalty. More precisely, column 5 (unexplained inter-occupation) shows that the gap decreases mainly because men and women with the same characteristics have very different propensities for entering certain occupations.

Table 14.2: Decomposition modelling of occupation attainment.

	Total		Intra-occupation			Inter-occupation	
	Wage gap	Unexpl.	Expl.	Unexpl.	Expl.	Unexpl.	Expl.
		(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Baseline							
Gap	0.281	0.142	0.139	0.201	0.140	−0.059	−0.002
Std. Error	0.012	0.026	0.024	0.026	0.024	0.008	0.003
%	100.0	50.57	49.43	71.53	50.02	−20.95	−0.600
Panel B: Including Parental Education, Health Shocks and Non-cognitive Skills							
Gap	0.281	0.137	0.143	0.196	0.145	−0.058	−0.002
Std. Error	0.012	0.027	0.026	0.028	0.025	0.008	0.003
%	100.0	48.98	51.02	69.82	51.73	−20,84	−0.710

Note: Bootstrapped standard errors based on 100 replications.
Source: SHARE Wave 1–6 release 6.1.1.

14.5 Conclusions

Our exercise shows that within occupations' wage differentials the predominant explanation for the overall women's wage penalty and occupational segregation does not represent a disadvantage for women. The portion of the overall gender wage gap that can be explained by differences in men's and women's characteristics increases by including parental education, health shocks and non-cognitive skills. However, regardless of whether occupational attainment is treated as exogenous or endogenous, the increase is modest.

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