



Poverty & Equity Global Practice Working Paper 149

THE ECONOMICS OF THE GENDER WAGE GAP IN ARMENIA

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April 2018

ABSTRACT

In Armenia, the proportion of women among employed workers increased from 45 to 48 percent between 2008 and 2015. This evolution was accompanied by a fall in the gender earnings gap; however, the difference in average wages of men and women is still among the largest in comparison with countries in the Europe and Central Asia region. This study documents the gender wage gap in Armenia through stylized facts and further investigates its sources. The paper finds that the gender wage gap in hourly pay is 20 percent on average. Looking at the different percentiles, the disparity in wages in Armenia in 2015 shows an inverted U-shaped form with a larger differential in wages between men and women in the middle of the distribution. Using a reweighted, re-centered influence function decomposition, the analysis estimates the contribution of each covariate on the wage structure and composition effects along the wage distribution. The decomposition shows that the wage gap in Armenia is mostly driven by the wage structure effect (unexplained component), which accounts for almost all the wage gap in the middle part of the distribution (30th to 55th percentiles) and is even greater at the top, but better endowments of women offset it to some extent. In the bottom part of the distribution however, the composition effect is larger, consistent with lower endowments among women, for example, of skills and human capital.

This paper is a product of the Poverty and Equity Global Practice Group. It is part of a larger effort by the World Bank to provide open access to its research and contribute to development policy discussions around the world. The authors may be contacted at lrchamussy@worldbank.org.

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The Economics of the Gender Wage Gap in Armenia

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Key words: Gender wage gap, wage inequality, Armenia

JEL Codes: J16, J31, J71

The findings, interpretations and conclusions in this paper are entirely those of the authors. They do not necessarily represent the view of the World Bank Group, its Executive Directors, or the countries they represent. This study was prepared as an input to Armenia's Systematic Country Diagnostic. The authors thank Mercy Tembon, Laura Bailey and Genevieve Boyreau for their support and valuable comments from Tamoya Lois Christie, Ana Maria Munoz Boudet, Elizaveta Perova and Josefina Posadas.

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I. Introduction

Gender disparities are detrimental to economic progress. Estimates have shown that GDP losses due to low female labor force participation can be up to 27% of GDP in certain regions of the world (Cuberes and Teignier, 2012; Elborgh-Woytek, et al. 2013). These gaps have become politically more salient in recent years, leading to the explicit inclusion of gender equality as a key dimension in the context of the MDGs and SDGs. The World Economic Forum defines gender gap as “the difference between women and men as reflected in social, political, intellectual, cultural, or economic attainments or attitudes”. It then follows that gender disparity is something to be addressed from several fronts. For instance, for the purpose of the Global Gender Gap Index, four different areas are analyzed to assess discrepancies between men and women; health, education, economy, and politics. The World Bank’s Country Gender Assessment addresses gender equality from an opportunities framework, which consists mainly of rights, resources, and voice, and the World Development Report on Gender considers three pillars: assets, opportunities, and agency (World Bank, 2012). The benefits of reducing the gender gap and ultimately achieving gender equality are large, which has led to the notion that, while designing policy, taking gender into account is also “good economics”.

This paper focuses on the resources and economic opportunities dimensions of the gender gap in Armenia, which involves labor force participation and wages. Overall, women’s average labor force participation tends to be lower than men’s for all age groups, especially in wage-earning employment. Additionally, within wage-earning employment, on average, wages are usually lower for women. Wage inequalities are a result of several underlying factors such as unequal educational attainment, characteristics of jobs performed by each group (which may include shorter hours for women), different subject specialization in higher education, the nature of occupational choice, economical sector differences, unpaid family work, and discrimination, among others. Gender gaps are manifested “before the market” (endowments and agency), and “in the market” (access to economic opportunities and fair remuneration). These are the main aspects analyzed in this paper, using existing data for Armenia.

This paper greatly complements the scarce literature on the gender wage gap in Armenia, by presenting stylized facts and investigating the sources of the wage gender gap across the wage distribution through an empirical analysis based on the data of the most recent Armenian Labor Force Survey (LFS) available.¹ The paper is organized as follows: Section II presents a brief overview of the existing literature, section III describes the overall context of gender inequality in labor income in Armenia and stylized facts as obtained from a first analysis, and section IV describes the methodology for the remaining analyses. Main findings of the incidence and sources of the disparities in wages for women and men across the distribution are presented in section V. Finally, section VI concludes.

¹ The Armenia Labor Force survey is publicly available at: <http://www.armstat.am/en/?nid=212>.

II. Existing Literature

The state of gender equality in the world varies both across and within global regions. Nevertheless, several common trends arise worldwide. An average gender participation gap in the labor market still prevails, despite its decrease in the past decades, which was mostly drawn by a decrease in the labor force participation rate of men. Average female labor force participation rates remain at around 50 percent (Elborgh-Woytek, et al. 2013). Even when women manage to join the labor force, they are usually overrepresented in lagging economic sectors and occupations with low wages (ILO 2010). Furthermore, several factors hinder women's participation in paid work, and thus women account for most unpaid work. The global gender wage-gap is another matter for concern, since it remains significant even for similar characteristics and occupations among men and women.

In the case of Europe and Central Asia (ECA), most of the countries had a clear advantage in terms of gender equality compared to other regions due to the legacy of the Soviet Era. Nevertheless, reversals during transition and rapid progress in other countries have undermined the relative advantage of the ECA region. According to the World Economic Forum, Eastern Europe and Central Asia, as a region, has a pending average gender gap of 29.4%, just below the Latin America region (29.8%). Despite progress in the region, it is estimated that with the current rate it would take 128 years to fully close the global gender gap in Eastern Europe and Central Asia (World Economic Forum 2017). However, there has been major progress towards closing the gender gap in education in the region. According to the World Development Indicators and the IMF, as of 2011 the gender literacy gap had decreased and was among the lowest among several other world regions. Similarly, the ratio of female to male enrollment in tertiary education had been increasing, to the point that female enrollment surpassed male enrollment at this educational level. In terms of voice and agency, the share of seats in the National Parliament held by women showed an increasing trend that was among the highest relative to other regions.

Gender gaps, the economic costs associated to them, and policies that have succeeded at addressing these issues have been thoroughly reviewed in the literature (see World Bank, 2012; Elborgh-Woytek, et al. 2013). Although the evidence is scarcer in the case of Armenia, there are certain established facts. Despite the country's socialist legacy and overall performance, gender gaps persist in Armenia. The country ranks as the third lowest within the region on the global gender gap index and is globally ranked 97 of 144 countries. Of the four sub-indexes within the global index, Armenia performs best at educational attainment, ranking 42 of 144. The country's lowest rank is within the health and survival sub-index, ranking 143, just above China. The main underlying factor for such low performance is the high sex ratio at birth of boys to girls (113 to 100).

In addition to the existing high sex ratio at birth, other factors further push toward demographic imbalances and their consequences. For instance, low fertility in the country potentially threatens the size of the labor force. Furthermore, higher life expectancy for women relative to men represents an opposite demographic imbalance at older age groups. This represents a challenge since for certain age groups more households are expected to have a woman as the household head (Khitarishvili, 2015). Even more, this exposes women to poverty at old ages and highlights the importance of not only integrating women to the labor force on an equal basis, but also guaranteeing equal wages. Despite the government's commitment to promote gender equality, and the current law mandate of equal pay for equal work, gender wage gaps remain a challenge in Armenia.

The potential economic and social benefits of narrowing the gender gap in all fronts has been widely documented in the literature. The benefits of increasing female labor force participation include, but

are not limited to, an increase in the country's GDP (Aguirre et al, 2012), a labor force with better skills (Steinberg and Nakane, 2012), and poverty reduction in developing economies (Heintz, 2006), among others. Higher female labor force participation could also translate into higher school enrollment rates among children, particularly among girls, potentially encouraging future labor force participation (Miller, 2008). There is also extensive evidence pointing to the promising macroeconomic gains resulting from women's use of their full potential within labor markets (Loko and Diouf, 2009; Dollar and Gatti, 1999). Overall, opportunities for women promote growth, while growth also helps to tackle the existing disadvantages of women (Stotsky, 2006).

III. Setting the stage: Earnings and the gender pay gap in Armenia

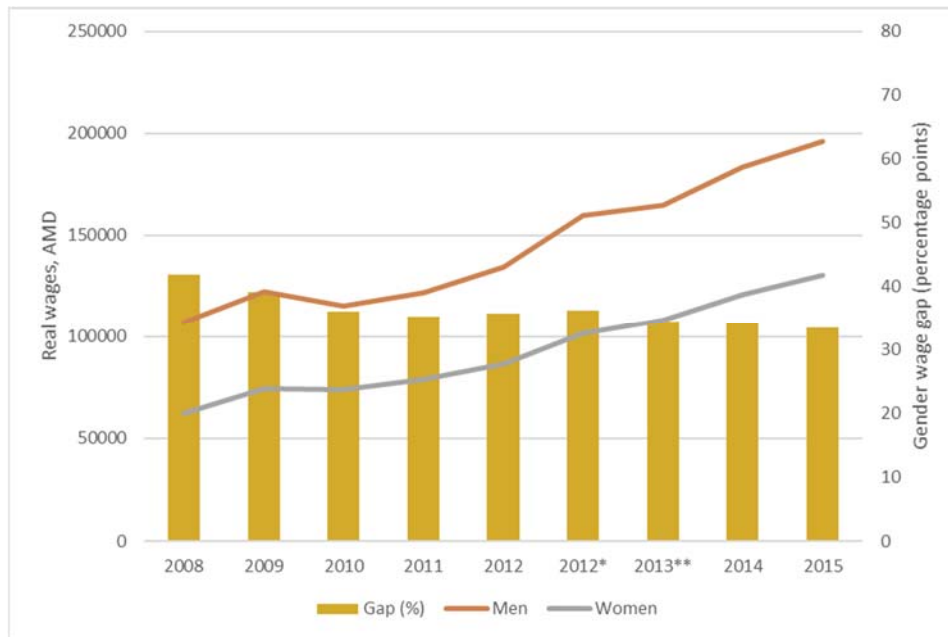
Behind the difference in earnings by gender there is a complex interplay between economic and institutional mechanisms. The existing literature on the prevalence of gender wage differentials in Armenia is very scarce. This study presents a series of stylized facts describing a range of outcomes in the gender wage gap analyzed with the most recent available data in Armenia. To set the stage, we use data from the National Statistical Service of the Republic of Armenia and the UNECE statistical database, to identify the latest trends on gender wage gap differentials in Armenia and placing them in the international context.

Labor earnings adjusted only for changes in the cost of living (inflation) show an increasing trend between 2008 and 2015 for both women and men in Armenia; however, wages for women have grown relatively more so that the difference with men's wages has closed over this period. Despite this progress, women in Armenia still earn 33 to 20 percent less than men on average (Figure 1).²

Among comparator countries, it is clear that Armenia -despite closing the gap- still shows a marked difference between men's and women's average earnings from employment. Just below Georgia and with a similar level to Israel, the gender gap is some ten percentage points higher than in Estonia, Belarus, Ukraine, and Spain in the most recent year. The dynamics over the past decade in Armenia have been similar to those in Georgia although with relatively lower levels (Figure 2).

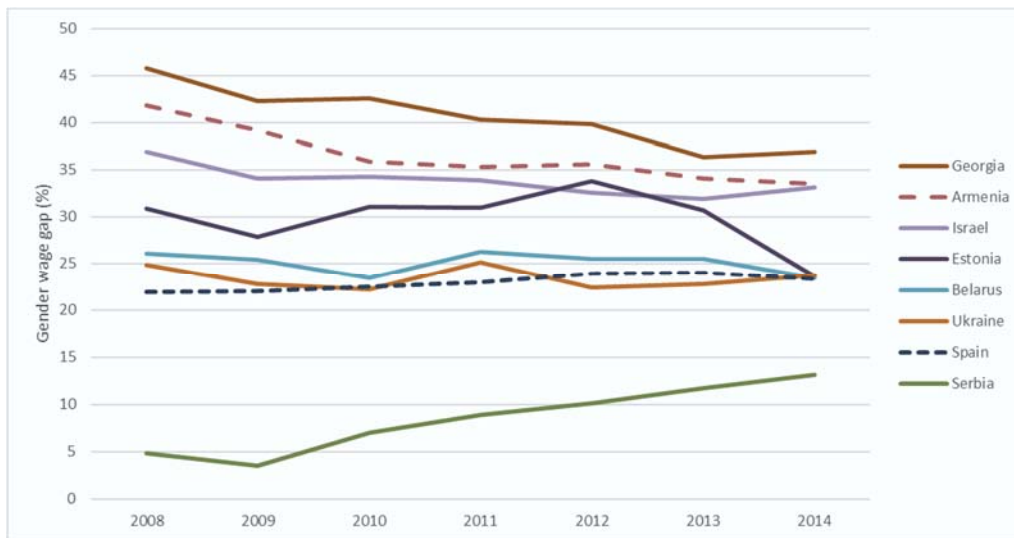
² The average gender gap in earnings estimated without controlling for any socioeconomic characteristic is around 33 percent, while the estimation controlling for observable characteristics such as education, age and experience is around 20 percent.

Figure 1: Trends in real wages and the unadjusted gender wage gap, 2008-2015



Source: Author's elaboration based on NSS of RA (2016)

Figure 2: The unadjusted gender pay gap in monthly earnings, selected countries 2008-2014



Source: Author's elaboration based on UNECE Statistical Division Database (2016) and NSS of RA (2016) for 2013 and 2014 data for Armenia.

We proceed to assess the existing gender wage gap by characteristics. We base the following empirical analysis on the data of the most recent Armenian Labor Force Survey (LFS) available for 2015. This data set includes information on the state of economic activity, employment status, employment characteristics, work hours, earnings, education, and other demographic characteristics.

The sample for the analysis includes all wage workers (57 percent of the total individuals engaged in employment). Own-account workers in a farm and self-employed in general are not included given that their wages are not comparable to the rest of wage workers.

The dependent variable for the analysis is the logarithm of hourly wage, which is constructed from the reported earnings and hours of work. Table 1 shows that the gender wage gap in hourly pay is 20 percent on average for the whole sample and it is greatest among young workers (15 to 30 years old). The highest share of employed women is located within the same age group, in the 25-29 year old category. The age group from 45 to 54 years also exhibits a high gender wage gap in hourly pay. The gender wage gap is the lowest among the oldest age groups available (65 to 75 years old). For the education level category, the gender wage gap is very similar for all levels at around 28 percent and it diminishes substantially for those with tertiary and more education (18 percent). Women with tertiary/post-graduate education represent the highest share of the total employed women (Table 1).

Evaluating the distribution by location characteristics, it is first noted that employed women concentrate in urban areas. The wage gap in hourly pay is greatest for women in urban locations outside the capital city. The hours worked per week suggests that most employed women are not working full-time. In terms of occupation characteristics, the highest share of working women is in the *skilled agricultural; craft workers, operators & assemblers* occupations, while at the same time facing the second greatest wage gap. Women are underrepresented in managerial positions, in which the wage gap in hourly pay remains large. Participation of women in construction and real estate activities is very low and the characteristics of women in these sectors are very different. Table 1 shows the main descriptive statistics, including variables used for the distribution assessment. Covariates include potential experience constructed subtracting from age the years of schooling.

Table 1: Distribution of women and estimated gender wage gap by characteristics

	<i>% women</i>	<i>2015</i> <u><i>Mean hourly rate pay</i></u>		<i>Gender Wage Gap (M-W)/M</i>
		<i>Men</i>	<i>Women</i>	
Women	49.5	544.9	436.0	20.0
<i>Age</i>				
15-19	1.5	463.6	349.5	24.6
20-24	9.3	501.1	405.8	19.0
25-29	13.9	549.3	416.2	24.2
30-34	11.8	560.2	477.4	14.8
35-39	10.9	535.3	436.5	18.5
40-44	9.8	570.6	450.4	21.1

45-49	10.4	546.6	423.6	22.5
50-54	12.4	585.4	431.1	26.4
55-59	12.7	517.9	444.6	14.2
60-64	7.2	543.7	459.1	15.6
<i>Education level</i>				
Lower secondary or less	2.7	447.3	317.5	29.0
Upper secondary	32.1	476.5	342.9	28.0
Post-secondary non-tertiary	27.0	506.9	363.2	28.3
Tertiary, post-graduate	38.2	665.5	543.6	18.3
<i>Marital status</i>				
Never married	22.2	544.6	423.7	22.2
Married	67.7	540.7	445.6	17.6
Widowed	6.1	553.5	401.7	27.4
Divorced/separated	4.0	744.8	446.1	40.1
<i>Location</i>				
Urban-Yerevan	30.8	539.6	461.7	14.4
Other urban	39.3	542.9	400.2	26.3
Rural	29.9	552.4	459.2	16.9
<i>Hours worked per week</i>				
Less than 20 hours	6.3	825.6	764.2	7.4
21-40 hours	48.0	624.5	431.9	30.8
More than 40 hours	45.8	482.2	335.8	30.4
<i>Sector</i>				
Non-public	53.7	530.0	390.0	26.4
Public	46.3	570.4	472.1	17.2
<i>Type of job</i>				
Formal	86.8	559.5	443.1	20.8
Informal	13.2	461.8	380.6	17.6
<i>Occupation</i>				
Unskilled	12.3	373.0	328.5	11.9
Legislators, senior officials, managers	7.2	784.2	545.4	30.4
Professionals	19.4	696.4	578.7	16.9
Technicians professionals	17.9	592.8	428.1	27.8
Clerks	5.3	486.9	384.6	21.0
Service and sales workers	16.8	478.2	330.6	30.9
Skilled agricultural; Craft workers, Operators & assemblers	21.0	503.6	356.2	29.3
<i>Economic activity</i>				
Agriculture	1.9	475.5	401.6	15.5
Industry	19.0	551.2	389.0	29.4
Construction	4.7	503.4	603.6	-19.9

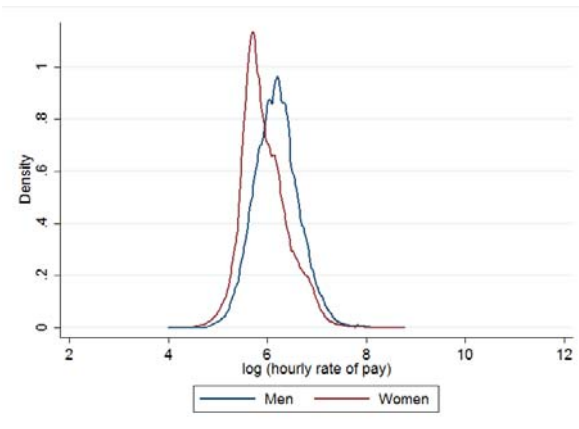
Trade, repair of motor, transport and storage	19.4	469.8	360.3	23.3
Information and communication	2.5	726.2	441.0	39.3
Financial and insurance activities	2.1	806.0	417.4	48.2
Real estate activities	0.3	438.7	680.1	-55.0
Professional, scientific and technical	2.3	651.9	503.7	22.7
Public administration; compulsory social security; Education; Human health and social work activities	43.7	571.9	470.1	17.8
Other services	4.1	517.9	421.9	18.5
<i>Type of job</i>				
Permanent	94.6	549.8	437.4	20.4
Temporary, seasonal	5.2	482.8	392.7	18.6
Occasional	0.2	510.3	494.3	3.1
<i>Time in current job</i>				
Up to 6 months	7.3	448.3	356.5	20.5
6-12 months	5.9	477.0	391.8	17.9
1-3 years	21.1	507.4	423.3	16.6
3-5 years	15.6	542.1	417.1	23.1
5 years and more	50.0	589.2	460.4	21.9

Source: Author's elaboration based on LFS 2015

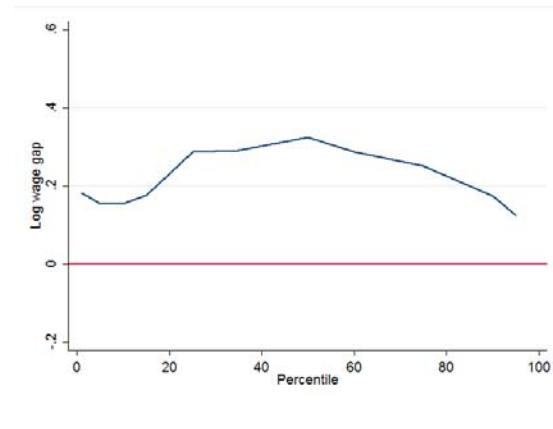
It is clear from Table 1 that the wage gap varies across the several categories within each characteristic. With this in mind, Figure 3a assesses the distribution of the wage gap and shows that it is not homogeneous across the wage distribution. In fact, looking at the different percentiles it is observed that the disparity in wages in Armenia in 2015 shows an inverted-U shaped form (Figure 3b). The gap is larger in the middle of the distribution with the bottom and the top of the distribution showing less differential in wages between men and women. The gap seems to increase quite substantially around the 20th percentile and expands even more until the 50th percentile where it starts to decrease.

Figure 3: The wage distribution for men and women and the wage gap by percentile, 2015

a) Wage distribution



b) The wage gap by percentiles of wage distribution



Source: Author's elaboration based on LFS 2015

A similar pattern of a larger gap in the center of the earnings distribution is found for the case of the Russian Federation by Atencio and Posadas (2015). Likewise, Khitarisvili (2017) finds that between 2008 and 2012 the gender wage gap in Georgia showed the same kind of inverted-U shape across the wage distribution, however in more recent years the gap widened at the bottom end resulting in a flat curve until the 80th percentile at which it slopes downwards. In contrast, with data from 2007, Chistofides et al. (2013) find that in the majority of European countries the wage gap is wider at the top and/or at the bottom of the wage distribution. Consistent with this evidence, Selezneva and Van Kerm (2016) find that the bottom of the wage distribution reveals a larger gender gap in the case of Germany.

IV. Methodology

To further investigate the sources of differences on the wage distribution, as documented in the previous section, we perform additional empirical analyses in what follows. Based on the methodology developed by Fortin, Lemieux, and Firpo (2011), we compute the wage structure and the composition effects at different percentiles of the wage distribution. The traditional Oaxaca-Blinder decomposition (1973) and several extensions have been widely used in understanding how the mean wage gap can be decomposed into: i) the composition effect, measuring the part of the gender wage gap due to differences in characteristics between men and women, and ii) the wage structure effect, typically referred as the unexplained component, accounting for the differences in returns to these characteristics, which may be attributed to discrimination but also to occupational segregation, differences in employers, statistical discrimination and others.

The methodology proposed by Firpo, Fortin and Lemieux -FFL hereafter- is based on the estimation of re-centered influence functions (RIF) and allows computing a detailed composition for distributional statistics such as median, variance, quantiles, and percentiles. Previous decomposition

methodologies -for example, Machado and Mata (2005), which is based on conditional quantile estimations- could only disentangle the composition and the wage structure effect. However, the RIF decomposition allows understanding the contribution of covariates and analyzing the links between the gender wage gap and factors such as occupational and industry segregation, participation in the informal sector and so on.

A RIF-regression is a standard regression where the dependent variable is replaced by the re-centered influence function of the statistic of interest. The purpose of estimating this regression model is to explain the determinants of the proportion of workers earning less than a certain wage. The idea of this method is that the partial effect of a variable X on outcome variable y at a cutoff can be computed from the marginal density of y at that value. The implementation requires computing counterfactual propositions based on changing either the mean values of a covariate or the return to the covariate estimated with a linear probability model and inverting the cumulative density function (CDF) -which measures proportions- to obtain quantile effects.

Two notes are in order regarding the application of the RIF decomposition to wage differentials when the two groups for the decompositions are men and women. First, the FFL method implicitly takes as fixed (or at least ignorable) the self-selection of workers into the labor force. This means that the model assumes that unobservables are equally distributed in the two groups identified for the decomposition; if selection into the labor force is non-random, the assumption would be violated and therefore the method is not valid for identification. For the case of Armenia, this does not result in a concern for the study given relatively high participation of women in the labor force and the proportion of women among the total number of workers (48 percent in 2015).

Second, the FFL method can be applied only if there is common support, this means that enough observations for men and women for each combination of observable characteristics is needed so that a counterfactual can be built for each observation in the sample.

The gender wage gap across the distribution

In order to analyze the impact of various characteristics on the earnings for men and women by percentile we estimate the RIF regression computing unconditional quantile treatment effects. Table A1 shows the estimates for the 10th, 50th and 90th percentiles and indicates the statistical significance for the coefficients.

The estimates of the RIF regression for each percentile and each covariate indicate clear differences in impacts on men and women. The effect of experience is positive and decreasing along the wage distribution with larger magnitudes for women.³ The impact of being married reduces earnings at the top of the distribution for women and has a positive impact for men at the bottom of the distribution.

Education appears to have a positive impact for women at the bottom of the distribution. In turn, the effect of urban location is negative and decreasing along the wage distribution for men.

³ The results on experience need to be taken with caution. Given data limitations, experience is typically constructed subtracting from age the years of schooling and therefore represents an imperfect measure of work experience.

Figure 4. Returns to characteristics across quantiles (unconditional wage distribution) by gender, 2015

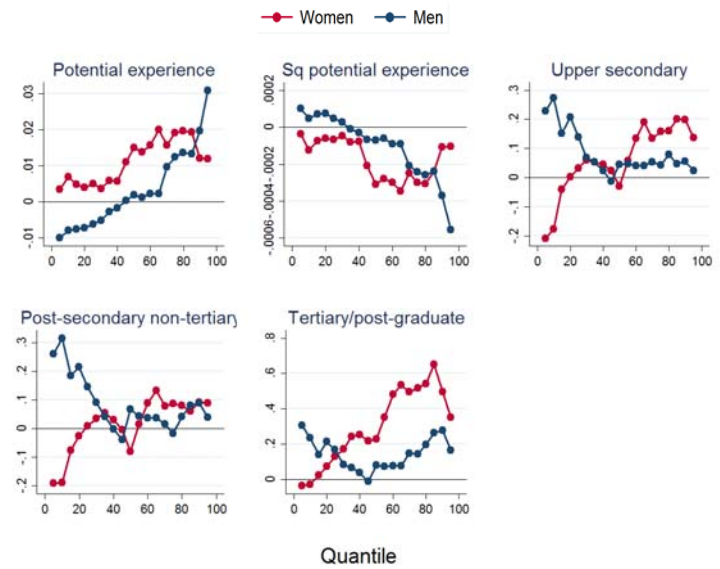
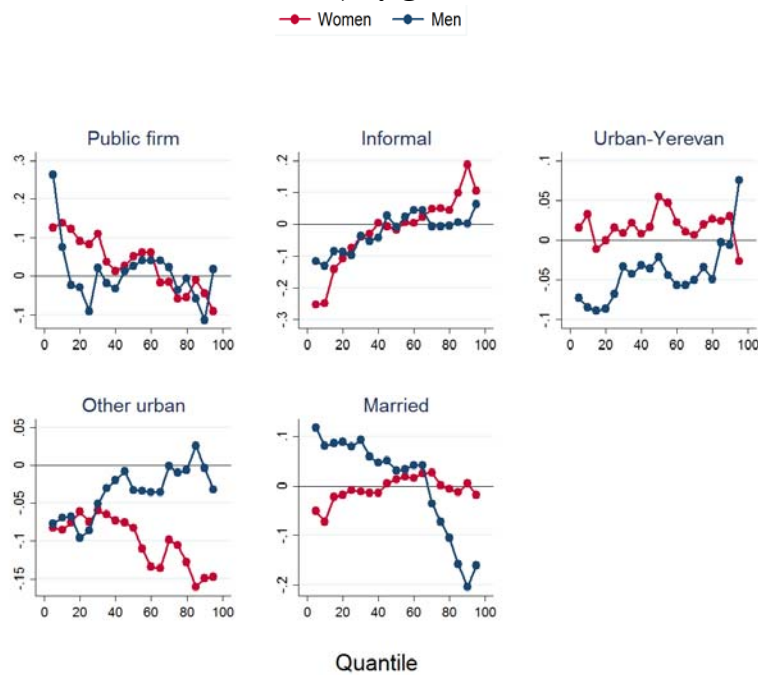


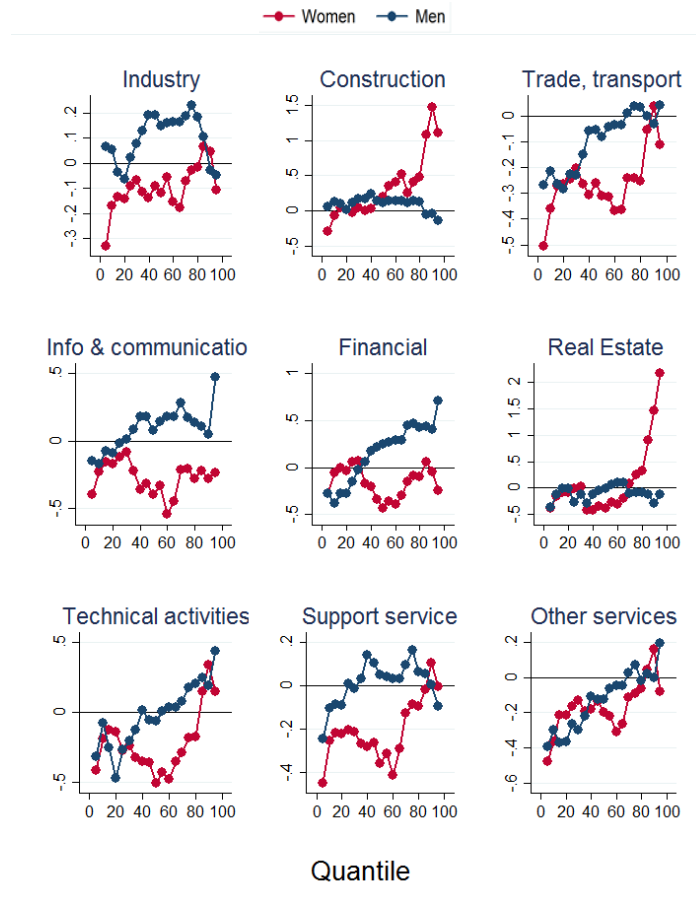
Figure 4 (cont.). Returns to characteristics across quantiles (unconditional wage distribution) by gender, 2015



Source: Authors' elaboration based on LFS 2015

Estimates of the RIF regression are described for all percentiles in Figures 4 and 5 and suggest three main results (see also Table A1). First, the impact of education is important at the bottom of the distribution and has a positive effect for women. Second, looking at the coefficients for economic activity and occupation it is observed that women at the top of the wage distributions have lower returns than men, especially in information and communication activities and in the financial sector, which are among the better paid on average. Third, working in the public sector has a negative impact on earnings except for women between the 20th and 40th percentiles, and working in the informal sector has a negative impact on earnings in the first half of the distribution both for men and women; for men the effect is close to zero in the upper part of the distribution but for women it is positive and large.

Figure 5. Returns by economic sector and occupation across quantiles (unconditional wage distribution) for men and women, 2015



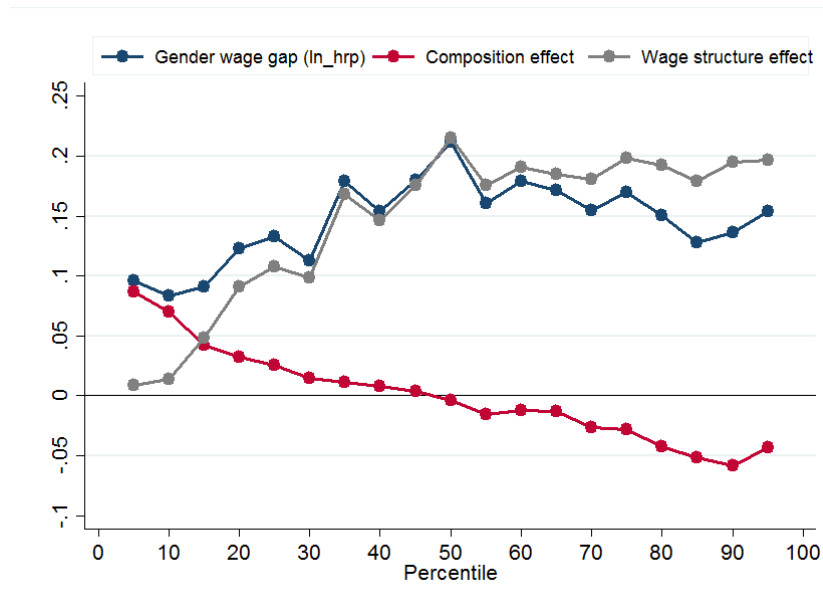
V. Factors driving the gap across the wage distribution

In order to explore the different sources of gender wage gap we test whether observed characteristics -for example human capital- have an impact along the wage distribution. For this purpose, we use the methodology proposed by FFL to decompose changes into the wage structure and composition

effects. In this section we present only the general concept of the decomposition; a detailed exposition of the RIF-regression method applied in this study is included in the Annex. We analyze the effect of the difference in educational attainment, experience, regions, marital status and job-related characteristics such as sector of economic activity and occupation on the gender wage gap.

The wage gap along the distribution is driven mostly by the wage structure effect (Figure 6). The decomposition shows that in 2015, the wage structure (unexplained component) accounts for almost all the wage gap in the middle part of the distribution (30th to 55th percentiles); in the top of the distribution the wage structure is greater, but better endowments of women offset to some extent the effect of the wage structure. In the bottom part of the distribution however, the composition effect is larger consistent with lower endowments among women in terms for example of skills and human capital.

Figure 6: Decomposition of the gender wage gap by percentile, 2015



Source: Author’s elaboration based on LFS 2015

The results of the decomposition showing a stronger wage structure effect at the top of the distribution suggest a ‘glass ceiling’ phenomenon, which refers to ‘unseen’ barriers (discrimination) that keep women from advancing beyond a certain level in the corporate hierarchy and obtaining higher wage, irrespective of their qualifications or achievements. In fact, the negative composition effect in the top 40 percent of the distribution indicates that for a large proportion of wage levels women are overqualified in comparison to men in the same percentile of earnings.

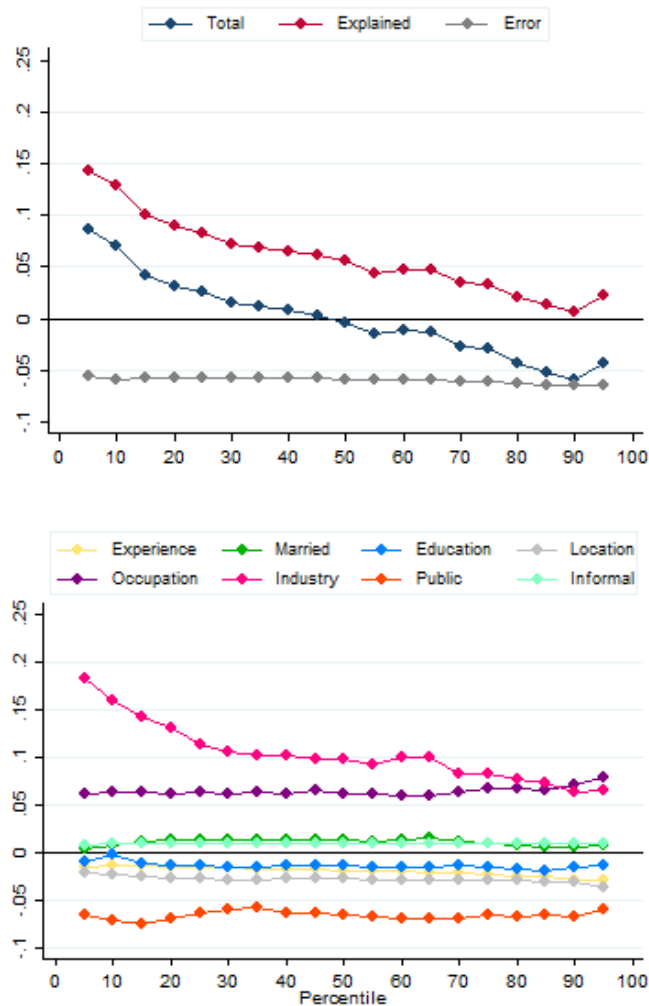
As mentioned in the previous section, one of the advantages of the RIF method is that it allows computing a detailed decomposition of the gender wage gap across the distribution. Table A2, in the annex, reports the aggregate decomposition at different percentiles (percentiles 10th, 50th and 90th are

reported following the standard literature). The coefficients for the variables need to be interpreted as the effect of a category relative to the base group.

The results of the decomposition of the effects of characteristics -composition effect- and prices -wage structure effect- are presented in figures 7 and 8 respectively (see also Table A2).

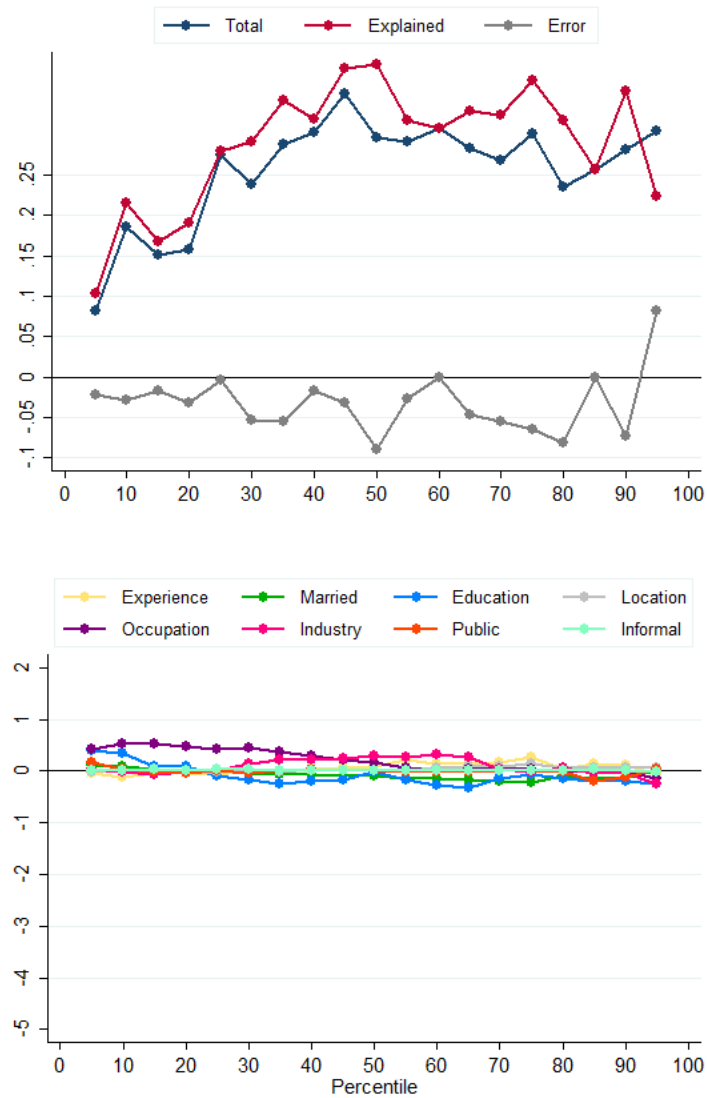
Figure 7 shows that the importance of the characteristics effect decreases along the earnings distribution. The effect of industry is higher at the bottom confirming the hypothesis that women in the bottom percentiles are employed in low-wage economic sectors. The effect of occupation is also significant and persists along the distribution to increase for the top 40 percent. This is striking and means that even when women are in relatively better paid industries, they tend to be in occupations with lower salaries than men. Regarding skills and human capital, the results indicate that all women are more educated than men holding similar jobs in each percentile.

Figure 7. The composition effect decomposed by percentile, 2015



The decomposition of the wage structure effect shows consistent impact of experience, industry and occupation along the distribution indicating that across the different percentiles returns to experience and education are lower for women relative to men, which contributes to a wider gender gap at any point of the wage distribution (Figure 8).

Figure 8. The wage structure effect decomposed by percentile, 2015



VI. Conclusions and further recommendations

This paper documents and analyzes the wage inequality between men and women in Armenia for 2015. The general trends presented identify that the gender wage gap has closed in recent years, but estimate that, nevertheless, the average gender wage gap on hourly pay remains at 20 percent. When analyzing the gender wage gap across different characteristics, several red flags are identified. Our findings suggest that most employed women are not working full-time, and that women are underrepresented in some occupations and economic sectors associated to higher wages. On the other hand, women are overrepresented, relative to men, in the agriculture and service sectors.

When analyzing differences along the wage distribution, we find that the wage gap is larger around the middle of the distribution. Overall, the estimates of the RIF regression show that the same characteristics have different impacts on the wage distribution of women and men. Education and experience remain important factors for women, especially at the bottom of the distribution. Nevertheless, the RIF results still indicate that for some occupations and economic activities women have lower returns than men.

The decomposition exercise finds that the wage gap is mostly driven by wage structure effects, and thus provides evidence of a strong role of unexplained components -sometimes representing gender discrimination- in the price of skills, particularly for the medium range of the wage distribution. This empirical analysis further confirms that women are employed in low wage sectors and occupations even in the better-paid industries.

Taken together, our findings suggest that occupational and industry segregation are important contributors to the gender pay gap in Armenia. Occupational segregation may also include women taking on jobs with less working hours, and implicitly lower pay. Furthermore, women in Armenia tend to concentrate in less productive jobs, with lower earnings prospects even within industry. In order to establish a clear direction regarding policy recommendations, it is important to understand the possible factors behind these outcomes. When taking certain jobs, women may be greatly influenced by the demand of their time for childcare and household responsibilities, which at the same time may limit their engagement at work and further compromise wages.

Sector and industry segregation could also start from the schooling years, since most women opt for social sciences, education, and health care as fields of study, compared to men who more likely opt for technical specializations. Tertiary education for women may not be the problem itself, since enrollment rates at this level are already higher for women than for men. Thus, policies that facilitate balancing the demand of time for family and work, for example expanding childcare services, as well as providing maternity and paternity leave are of great importance.

Our findings suggest that skills-enhancing policies are important for women in low-wages activities. However, greater gender equality in pay would mostly come from policies that would help break the glass ceiling, for example increasing women's presence in management and decision-making positions.

References

- Aguirre, DeAnne, Leila Hoteit, Christine Rupp, and Karim Sabbagh, 2012, "Empowering the Third Billion. Women and the World of Work in 2012," Booz and Company.
- Atencio, A. and J. Posadas (2015) "Gender gap in pay in the Russian Federation: twenty years later, still a concern." *World Bank Policy Research Working Paper Series* No. 7407. Washington, D.C.
- Christofides, L. N., A. Polycarpou and K. Vrachimis (2013) "Gender Wage Gaps, 'Sticky Floors' and 'Glass Ceilings' in Europe." *Labour Economics* 21: 86-102
- Cuberes, D., and M. Teignier, 2012, "Gender Gaps in the Labor Market and Aggregate Productivity," Sheffield Economic Research Paper SERP 2012017.
- Dollar, D., and R. Gatti, 1999, "Gender Inequality, Income, and Growth. Are Good Times Good for Women?" World Bank Gender and Development Working Paper No. 1 (Washington).
- Elborgh-Woytek, K. et al. (2013). "Women, Work, and The Economy: Macroeconomic Gains from Gender Equity". IMF Staff Discussion Note. International Monetary Fund.
- Firpo, S., N.M. Fortin and T. Lemieux (2009) "Unconditional Quantile Regressions." *Econometrica*, Econometric Society, vol. 77(3), pages 953-973, 05.
- Fortin, N., Th. Lemieux and S. Firpo. (2011) "Decomposition Methods in Econometrics." In *Handbook of Labor Economics*, ed. O. Ashenfelter and D. Card, Vol. 4A, 1-102. San Diego: Elsevier North Holland.
- Heintz, J., 2006, "Globalization, Economic Policy and Employment: Poverty and Gender Implications," International Labour Organization, Geneva.
- Hiromi, H. (2016) "Glass Ceilings or Sticky Floors? An analysis of the gender wage gap across the wage distribution in Japan". *RIETI Discussion Paper Series* 16-E-099.
- Huffman, M.L., J. King and M. Reichel T. (2017) "Equality for whom? Organizational Policies and the gender gap across the German earnings distribution" *ILR Review*, 70 (1), January 2017, pp. 16-41
- International Labour Organization (ILO), 2010, "Women in Labour Markets: Measuring Progress and Identifying Challenges", Geneva.
- Khitarishvili, T. (2015). "Gender and Employment in South Caucasus and Western CIS." UNDP Background Paper.
- Khitarishvili, T. (2016) "Two tales of contraction: gender wage gap in Georgia before and after the 2008 crisis". *IZA Journal of Labor and Development*, 2016, 5:14.
- Loko, B., and Mame A. Diouf, 2009, "Revisiting the Determinants of Productivity Growth: What'sNew?" IMF Working Paper 09/225 (Washington).
- Machado, J.A. and J. Mata (2005) "Counterfactual Decomposition of Changes in Wage Distributions Using Quantile Regression." *Journal of Applied Econometrics* 20 (4): 445-65

Miller, G., 2008, "Women's Suffrage, Political Responsiveness, and Child Survival in American History," *The Quarterly Journal of Economics* (August): 1287-326.

Ngai, L. R. and B. Petrongolo (2017) "Gender Gaps and the Rise of the Service Economy." *American Economic Journal: Macroeconomics* (Forthcoming).

Oaxaca, R. (1973) "Male-female wage differentials in urban labor markets." *International Economic Review* 14, 693-709.

Sattar, S. (2012). "Addressing the Gender Gap in Europe and Central Asia." World Bank Europe and Central Asia Knowledge Brief Vol. 54 (No. 71408). Washington, D.C.

Selezneva, E. and P. Van Kerm. (2016) "A distribution-sensitive examination of the gender wage gap in Germany." *Journal of Economic Inequality*, Mar 2016: 21-40.

Steinberg, C., and M. Nakane, 2012, "Can Women Save Japan?" IMF Working Paper 12/48 (Washington).

Stotsky, J. (2006.) "Gender and Its Relevance to Macroeconomic Policy: A Survey," IMF Working Paper 06/233 (Washington). World Bank. (2016). "Armenia Country Gender Assessment 2016." World Bank, Washington, D.C.

World Bank. (2011). "World Development Report 2012: Gender Equality and Development." World Bank, Washington, D.C.

World Bank Group. 2015. "Why Should We Care About Care? The Role of Informal Childcare and Eldercare in Aging Societies." World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/>

World Economic Forum. (2017). "The Global Gender Gap Report 2017." World Economic Forum, Geneva, Switzerland.

World Economic Forum. (n.d.). "Eastern Europe and Central Asia." Retrieved from http://reports.weforum.org/global-gender-gap-report-2016/eastern-europe-and-central-asia/?doing_wp_cron=1517603686.5173730850219726562500

World Economic Forum. (n.d.). "What is the Gender Gap?" Retrieved from <https://www.weforum.org/agenda/2017/11/the-gender-gap-actually-got-worse-in-2017/>

Annex
Table A1: RIF regression estimates, 2015

	<i>Women</i>			<i>Men</i>		
	<i>10th</i>	<i>50th</i>	<i>90th</i>	<i>10th</i>	<i>50th</i>	<i>90th</i>
Experience	0.019 (0.008)**	0.007 (0.003)**	0.028 (0.005)***	-0.005 (0.007)	0.008 (0.003)***	0.009 (0.005)*
Experience Squared	-0.000 (0.000)***	-0.000 (0.000)***	-0.001 (0.000)***	0.000 (0.000)	-0.000 (0.000)**	-0.000 (0.000)
Married	0.075 (0.075)	0.056 (0.030)*	-0.109 (0.054)**	0.118 (0.054)**	0.029 (0.023)	0.057 (0.042)
Primary	3.048 (0.840)***	0.372 (0.340)	0.584 (0.600)	-1.205 (1.375)	0.805 (0.575)	-0.090 (1.054)
Lower Secondary	1.650 (0.695)**	0.387 (0.281)	0.359 (0.496)	-1.169 (1.267)	0.327 (0.530)	0.252 (0.971)
Upper Secondary	1.628 (0.689)**	0.333 (0.279)	0.397 (0.491)	-1.161 (1.265)	0.385 (0.529)	0.367 (0.969)
Tertiary, post-graduate	1.574 (0.690)**	0.359 (0.279)	0.416 (0.492)	-1.121 (1.265)	0.391 (0.529)	0.333 (0.970)
Urban-Yerevan	-0.003 (0.077)	-0.054 (0.031)*	-0.020 (0.055)	0.041 (0.076)	0.024 (0.032)	0.044 (0.058)
Other urban	0.044 (0.065)	-0.030 (0.026)	-0.082 (0.047)*	-0.060 (0.065)	-0.099 (0.027)***	-0.168 (0.050)***
Legislators, senior officials, managers	0.188 (0.131)	0.645 (0.053)***	0.996 (0.094)***	-0.024 (0.155)	0.658 (0.065)***	0.472 (0.119)***
Professionals	0.180 (0.136)	0.633 (0.055)***	0.676 (0.097)***	-0.009 (0.115)	0.657 (0.048)***	0.781 (0.088)***
Technicians professionals	0.226 (0.128)*	0.521 (0.052)***	0.457 (0.091)***	-0.061 (0.112)	0.322 (0.047)***	0.285 (0.086)***
Clerks	0.110 (0.201)	0.312 (0.082)***	0.095 (0.144)	-0.016 (0.141)	0.258 (0.059)***	0.071 (0.108)
Service and sales workers	0.044 (0.117)	0.354 (0.047)***	0.173 (0.083)**	-0.141 (0.115)	0.091 (0.048)*	0.023 (0.088)
Skilled agricultural; Craft workers, Operators & assemblers	0.004 (0.094)	0.354 (0.038)***	0.186 (0.067)***	-0.303 (0.133)**	-0.053 (0.056)	0.116 (0.102)
Industry	1.510 (0.089)***	0.375 (0.036)***	-0.304 (0.063)***	1.200 (0.113)***	0.065 (0.047)	-0.257 (0.087)***
Construction	1.421 (0.105)***	0.360 (0.043)***	-0.381 (0.075)***	1.253 (0.525)**	0.345 (0.220)	0.552 (0.402)
Trade, repair of motor, Transport and storage, Accommodation and food services	1.267 (0.096)***	0.104 (0.039)***	-0.279 (0.069)***	1.020 (0.152)***	-0.180 (0.064)***	-0.198 (0.117)*
Information and communication	1.522 (0.205)***	0.361 (0.083)***	-0.148 (0.146)	1.150 (0.246)***	-0.185 (0.103)*	-0.528 (0.189)***
Financial and Insurance Activities	1.065 (0.297)***	0.419 (0.120)***	0.321 (0.212)	1.215 (0.223)***	-0.294 (0.093)***	-0.410 (0.171)**
Real Estate Activities	1.526 (0.449)***	0.269 (0.182)	0.524 (0.320)	1.100 (0.644)*	-0.365 (0.269)	1.339 (0.494)***
Professional, scientific and technical activities; Administrative and support activities	1.526 (0.220)***	0.085 (0.089)	-0.093 (0.157)	1.125 (0.229)***	-0.280 (0.096)***	0.130 (0.175)
Public administration; compulsory social security; Education	1.473 (0.098)***	0.293 (0.040)***	-0.380 (0.070)***	1.115 (0.140)***	-0.162 (0.059)***	-0.223 (0.107)**
Other services	0.904 (0.162)***	0.001 (0.065)	-0.340 (0.115)***	0.950 (0.179)***	0.019 (0.075)	-0.089 (0.137)
Observations	3,857	3,857	3,857	3,577	3,577	3,577
R-squared	0.171	0.137	0.074	0.162	0.140	0.066
Standard errors in parentheses						
*** p<0.01, ** p<0.05, * p<0.1						

Source: Authors' elaboration based on LFS 2015

Table A2: RIF decomposition, 2015

	<i>Percentile 10</i>	<i>Percentile 50</i>	<i>Percentile 90</i>
Men	5.656 (0.015)***	6.158 (0.011)***	6.805 (0.020)***
Women	5.450 (0.012)***	5.886 (0.013)***	6.600 (0.022)***
Gap	0.206 (0.019)***	0.271 (0.017)***	0.205 (0.030)***
<i>Composition effect</i>			
Experience	0.014 (0.004)***	0.002 (0.003)	-0.012 (0.005)**
Married	0.014 (0.007)**	0.005 (0.005)	-0.035 (0.010)***
Education	-0.004 (0.007)	-0.007 (0.005)	-0.027 (0.010)***
Location	0.003 (0.002)	0.001 (0.001)	0.000 (0.002)
Occupation	-0.040 (0.015)***	-0.048 (0.012)***	-0.030 (0.020)
Industry	0.054 (0.015)***	0.025 (0.012)**	-0.014 (0.021)
Public	-0.012 (0.010)	-0.004 (0.008)	0.017 (0.013)
Informal	0.002 (0.002)	0.000 (0.001)	-0.000 (0.001)
Total	0.031 (0.019)	-0.025 (0.015)*	-0.100 (0.026)***
Residual	-0.010	0.000	0.024
<i>Wage structure effect</i>			
Experience	-0.112 (0.060)*	0.092 (0.053)*	0.129 (0.077)*
Married	0.101 (0.027)***	-0.086 (0.023)***	-0.119 (0.034)***
Education	0.346 (0.139)**	-0.015 (0.121)	-0.202 (0.176)
Location	-0.025 (0.032)	0.014 (0.028)	0.063 (0.041)
Occupation	0.518 (0.061)***	0.173 (0.054)***	-0.024 (0.080)
Industry	-0.004 (0.151)	0.288 (0.134)**	-0.039 (0.201)

Public	0.030 (0.044)	0.013 (0.038)	-0.120 (0.055)**
Informal	0.022 (0.008)***	0.025 (0.007)***	0.023 (0.011)**
Total	0.215 (0.020)***	0.386 (0.017)***	0.354 (0.026)***
Residual	-0.029	-0.090	-0.073

Source: Authors' elaboration based on LFS 2015



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