

Gender occupational intensity and wages in the Northern Triangle of Central America

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Abstract

This paper aims to explore the relationship between gender occupational intensity and wages in the Northern Triangle of Central America using national surveys carried out in 2004. A harmonized occupational classification at the 2-digit-level is built with the objective of analyzing the occupational distribution across countries. Then, quantile regressions are estimated to explore in detail which factors are affecting the wages of both females and males; in particular, this paper pays special attention to female occupational intensity (the share of females within each occupation). The comparative analysis suggests that women are always at a disadvantage when compared to men in the labor market. Females are overrepresented in certain occupations, and they are much more likely to be working in part-time jobs than men in all countries. Findings also reveal wage penalties for working in female-dominated occupations along the distribution across countries. However, the effect of this variable is higher at the lower quantile of the distribution for women, especially in El Salvador and Honduras.

Keywords: gender occupational intensity, wages, quantile regression, Northern Triangle of Central America

JEL Classification: J16, J21, J62, J82

1. Introduction

Patterns of employment among men and women have changed over the past decades: women's labor force participation has been growing across countries. Besides, women have experienced high educational levels, and more often they are better educated than men. Despite women's

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progress, gender differences persist in the labor market, generally, in earnings and occupations. In this regard, women continue to be disadvantaged in the labor market; as a result, they remain concentrated in low-paying occupations (Gradín 2020) and part-time jobs (Blau and Khan 2017). Research has concluded that although women's labor force participation has increased in the past decades, nevertheless, there exists a large concentration of women in certain jobs and fields across Latin American countries. Particularly, in Central America, working women are overrepresented among unpaid family workers and in the informal sector, and underrepresented in managerial positions and overrepresented in occupations such as domestic workers, salespeople, textile workers, clerks, and education professionals (Deutsch et al. 2005; International Labor Organization (ILO) and United Nations Development Programme (UNDP) 2019).

Gender differences in occupations are likely to be related to any differences in work intensity. Part-time workers tend to receive lower pay rates in relation to full-time workers; in particular, it is observed a wage penalty among female workers (Blau and Khan 2017). On the other hand, high-level jobs often demand long hours. Generally, more men report working long hours (Cortes and Pan 2019), while women remain underrepresented among "overworkers" (i.e., 50 hours or more per week). Cha and Weeden (2014) suggest that the wage premium for overwork, even though the wage returns to overwork differ modestly by gender. They find that overworking men earn 10 percent more and overworking women earn 8 percent more than their full-time counterparts in the United States.

Scholars have extended this approach by analyzing the reasons for these wage differentials often based on diverse theories; human capital (Tam 1997), gender roles (Lips 2012), and devaluation theory (England 2010; Perales 2013). Nonetheless, these theories do not offer a conclusive explanation/argument of the wage differentials between male and female occupations. Then, literature also argues that occupational distribution is an important feature in explaining wage differentials. Over the past decades, the number of working women has been rising in most countries. However, this trend has also led several occupations to be more "feminized". Therefore, it is interesting to know what is the effect of occupational feminization (the share of females within each occupation) on wages; literature has addressed this question incorporating

this variable into earnings equations (Macpherson and Hirsch 1995). Thus, it is observed that female-dominated occupations pay less than jobs with a higher proportion of men (Bayard et al. 2003). Although the topic is of considerable interest, a few studies have examined the role of occupational feminization in wage differentials, especially in Latin American countries. For instance, Espino (2013) incorporates control variables of occupational segregation into earnings equations. Her results show that feminization (the variable is computed at the 3-digit level of occupational categories) has a negative and significant impact on women's earnings in Uruguay. For Brazil, Salardi (2013) investigates this issue using quantile regressions. She constructs the variable female occupational intensity at the 3-digit level of occupational categories. Her results show that female-dominated occupations reduce female wages, mainly in the highest paid jobs, whereas, it has a positive impact on wages for male workers, but it is only on low-paid jobs. Likewise, Addison, Ozturk, and Wang (2018) find that feminization (FEM) plays an important role in explaining the gender differentials in pay between 1993-2010 in the U.S., FEM coefficients remain significant and negative for both genders, although in the presence of the human capital and occupational controls they are significantly reduced to females (For example, by 2010 the FEM coefficient was -0.151 for females in the standard model and -0.075 in the expanded model; the corresponding values for males were -0.181 and -0.125).

In this context, this paper contributes to the literature in several ways. First, a harmonized data at the 2-digit-level is built with the objective of proposing a new typology of occupations, which permits a consistent and comparable analysis of the occupational structure and occupational distribution in three countries of Central America: Guatemala, El Salvador, and Honduras, the region is known as the Northern Triangle of Central America (this term is used with respect to economic integration and their challenges). The countries of the Northern Triangle also share similar employment conditions characterized by a low unemployment rate, but with a rapid extension of the informal sector, the persistence of precarious employment in the agricultural sector, and the massive incorporation of women into the labor market in precarious conditions (ILO 2015).

Second, this study analyzes what factors affect wages at the different parts of the distribution. We pay special attention to female occupational intensity, which is an indicator of the proportion

of female workers in each occupation (Macpherson and Hirsch 1995; Baker and Fortin 2003). We employ quantile regressions, specifically; the quantile method focuses on the effects of gender and individuals and household variables, and job-related characteristics for each country on different quantiles along the distribution and not only on the average of variables. For each country, quantile regressions are estimated using two specifications; the first one uses all sample, and the second, wage equations for female and male workers are estimated separately. For this task, we use data from the national surveys carried out in 2014.

In doing so, this study provides a novel contribution by focusing on women of the Northern Triangle of Central America. In fact, the existing literature focused on this topic in Central America is very scarce. Moreover, most of the studies have involved cross-international comparisons using only indices to examine gender differences in the occupational distribution (e.g., Deutsch et al. 2005; Tenjo Ribero and Bernat 2005; ILO and PNUD 2019). Third, this is a relevant issue since gender composition in occupations may have a negative impact on women's life, shaping women's opportunities in the labor market, earnings, and work experiences as well. Therefore, a comparative perspective is particularly interesting, and it becomes an opportunity of promoting public policies that protect women's employment.

After this introduction, section 2 provides the context of the study. Section 3 describes the data and presents the empirical approach. Section 4 discusses the main results. Section 5 draws conclusions.

2. The context

The Northern Triangle of Central America has experienced overwhelming economic, political, and security challenges in recent years. A combination of domestic challenges, including anemic economic growth, high rates of violence, and few jobs in the formal economy and migration have been observed (Runde and Schneider 2019).³ After the global financial crisis, on average,

³ The migration phenomenon has been reported since the 1980s in the region. Approximately 96,813 individuals emigrated from Central America's Northern Triangle in 2013 (Orozco and Yansura 2015). In the summer of 2014, record numbers of migrants, most of them unaccompanied minors from the Northern Triangle nations attempted to cross the U.S.-Mexican border (Lorenzen 2017).

the economy (region) has been slowly growing in recent years. In 2014, the economy of Guatemala grew by 3.4 percent, while El Salvador and Honduras grew by 1.7 and 3 percent respectively (International Monetary Fund (IMF) 2014). The region has also experienced important progress in education, but it still reports low levels of educational attainment in relation to other Latin American countries. The average years of schooling for an individual in El Salvador was 6.5 years; in Guatemala, 5.6 years; and Honduras, 5.5 years in 2014 (UNDP 2015). However, Guatemala and Honduras have maintained its position as the most unequal countries in Latin America, and they also have a high incidence of poverty (see the report of these indicators in SEDLAC (Socioeconomic Database for Latin America and the Caribbean) and The World Bank 2019).⁴

One of the most important sectors of the economy is still agriculture. However, during the period from 2000 to 2015 the sectors that have shown the highest economic growth in El Salvador were commerce and manufacturing industries, while in Guatemala it was the commerce sector (ILO and PNUD 2019). In Honduras, finance, communication, agriculture, and manufacturing industries showed the highest growth during the period 2010-2014 (Secretariat of Finance (SEFIN) 2014 p. 4). In addition, the labor market is characterized by unequal relations between men and women in the region. For instance, the female labor force participation rates are low, and women are more commonly employed in the informal market than men across countries. Table 1 summarizes that some labor market indicators generally score relatively similar results in urban areas across countries during the period analyzed. Even though El Salvador is the only country where the unemployment is higher for males than it is for females, women have been having a higher underemployment rate than men in recent years (Beneke de Sanfeliú et al. 2015, p. 13).

⁴ According to the World Bank in 2014, the Gini coefficient was 0.486, and the incidence of poverty 59.29 percent in Guatemala. In Honduras, the Gini coefficient was 0.504 and the incidence of poverty 62.8 percent. Whereas, El Salvador reported the lowest Gini coefficient (0.418) and the incidence of poverty 31.8 percent (see the report of these indicators in SEDLAC (Socioeconomic Database for Latin America and the Caribbean, CEDLAS at Universidad de La Plata and World Bank 2014).

Table 1. Some indicators of labor market by gender and country (2014)

Ratio (mean)	Guatemala		El Salvador		Honduras	
	Women	Men	Women	Men	Women	Men
Unemployment	4.2	3.9	4.6	8.5	8.3	6.9
Participation in the labor force	48.5	79.0	54.1	77.8	45.2	68.5
Informal employment	52.3	47.7	57.1	46.8	59.6	56.4

Note: Participation rate based on the working-age population.

Source: INE (2014a) and ILO (2015).

Gender inequality in the labor market requires special interest once, women have historically faced greater obstacles to access the labor market and lower returns to their work in the region (e.g., Tenjo Ribero and Bernat 2005; Enamorando Izaguirre and Ñopo 2009). Besides, working women are underrepresented in managerial positions and overrepresented in other occupations like service workers, clerks, and administrative personnel. For instance, Lopez-Lepe (2016) finds that women are primarily employed as salespersons and services workers (43.7 percent), while men are more frequently employed in agriculture and as laborers (26.4 percent) in Guatemala.

For Central American countries the existing literature related to occupational distribution is very scarce. Nonetheless, the common previous finding of these studies is that the region reports gender differences in the occupational structure. Tenjo, Ribero, and Bernat (2005) use national surveys from six Latin American countries (including Honduras) to analyze the distribution of male and female labor force by occupations and sectors. Their results suggest that there is an important segregation problem, the Index Dissimilarity calculated at one-digit occupational categories for Argentina (0.4903), Brazil (0.5625), Uruguay (0.5888), Colombia (0.5412), and Costa Rica (0.5620). While the highest level of occupational segregation tends to be displayed in Honduras (the ID was 0.6471 in 1998). Later, Carrillo, Gandelman, and Robano (2014) used a pooled data to show wage differentials by gender in twelve countries of Latin America. For Honduras, the largest differences were observed at the bottom of the wage distribution (coefficient of the binary variable female was -0.285).

3. Data and Empirical Strategy

3.1 Data

We use micro data sets from three national surveys carried out in 2014. The surveys are representative at the national level, and their sample design allows using expansion factors. In general terms, the questionnaire of three surveys contains demographic and socio-economic information about the respondents. Despite some minor divergence in the questionnaires the three surveys include a compatible employment section; therefore, comparisons for the purposes of this study are possible through the use of a set of harmonized variables.

For each country, the analysis is restricted to individuals who live in urban areas (the urban population represents 49, 42, and 53 percent of the total population of Guatemala, El Salvador, and Honduras respectively) because the labor market characteristics in rural areas may differ from the urban in terms of occupations, productivity, and remuneration. For example, agriculture is the predominant sector in rural areas. Working individuals are classified as those who reported positive hours and earnings, and our sample only includes working individuals aged between 16 to 60 years, in order to avoid the influence of retirement decisions in the labor market participation. Observations from which there is any missing value in occupational codes and the explanatory variables are also excluded. Check the detailed description of the data sources in the appendix.

The dependent variable is *wages*, which are computed using the labor income; this variable is in nominal terms expressed in local currency obtained from the main job (Guatemalan quetzals, Honduran Lempiras, United States dollar in El Salvador). Earnings are standardized to a monthly frequency, and then the natural logarithm of the variable is used.

Human capital variables are used as control variables: age, age squared, and educational attainment. Four dummy variables are generated for each level of education; no education, primary, secondary, and tertiary (including master or doctoral degree). Marital status and the number of children under 14 years old in the household are also included in order to capture the

effect of the division of household labor. Work experience is commonly employed in the specification of earnings equations; however, it is not reported in the three samples. Besides, occupational tenure is only reported by the Guatemalan sample. Guatemala and Honduras are multiethnic countries, nonetheless, this paper does not distinguish the indigenous population because this information is only provided by the Guatemalan sample (the indigenous population represented around 39 percent for Guatemala in 2014 (INE 2014b)). Despite the labor market being characterized by the larger size of the non-formal sectors, formal and informal patterns are not included because indicators made to indicate formality, such as having a writing contract, as well as payment of direct taxes, have a low response rate across samples from Honduras and El Salvador.

We also control by the variation in working hours, thus, a set of dummy variables is constructed, which adopt standard cut points according to the literature (Cha and Weeden 2014): less than 35 hours (part-time), 35 hours or more but less than 50 hours (full-time), and 50 hours or more (overwork). Furthermore, we use several variables to capture job characteristics; self-employment is included in the model as a single dummy variable and a dummy variable for each economic sector. Finally, we include the main control variable named *female occupational intensity*, which captures the proportion of female workers in each occupation (Macpherson and Hirsch 1995; Baker and Fortin 2003). We constructed this variable using the harmonized classification of occupational categories described in the next section.

Harmonized Classification of Occupational Codes

The classification used in the three surveys is directly comparable to the International Standard Classification of Occupations (ISCO-08) released by the ILO. ISCO-08 is a hierarchical structure of classification of occupations obtained by means of statistical censuses and surveys, as well as from administrative records. For Guatemala, the survey reports a classification at the 2-digit level, for El Salvador at the 4-digit level. Honduras survey uses the National Occupational Classification based on ISCO-08; here occupations are described by a 7-digit level.

We then built a harmonized occupational classification at the 2-digit-level in order to have enough observations in each category (as a maximum of 2,544 and minimum 13 observations).

Further, members of the armed forces (Major 0) are omitted from the sample. As a result, 34 groups of occupations are generated. Thereby, the variable *female occupational intensity* (foccup2) allows us to know the degree of the feminization of each 2-digit occupational group.

3.2 Empirical strategy

First, we present a descriptive analysis of the workforce and occupational structure by gender. Second, we employ the Quantile Regression (QR) to analyze what factors may affect wages along the distribution. The QR estimates conditional quantile functions (among them the conditional median function) and obtains statistical inference about the parameters estimated. The QR assumes that possible differences in terms of the impact of the exogenous variables along the conditional distribution are unimportant. However, exogenous variables may influence parameters of the conditional distribution of the dependent variable other than the mean. The QR poses this question at any quantile of the conditional distribution of the dependent variable, a random Y (Koenker and Bassett 1978).

The earnings equation may be calculated as follows (see Pereira and Martins 2004);

$$\ln w_i = x_i \beta_\theta + u_{\theta i} \text{ with } \text{Quant}_\theta(\ln w_i / x_i) = x_i \beta_\theta \quad (1)$$

where; x_i is the vector of exogeneous variables, β_θ corresponds to the parameters vector, and $\text{Quant}_\theta(\ln w_i / x_i)$ is the θ -th conditional quantile of $\ln w_i$ given x . The θ -th quantile regression, $0 < \theta < 1$ is defined as the solution to the problem:

$$\min_{\beta \in \mathbb{R}^k} \left\{ \sum_{i=y \geq x_i \beta} \theta |\ln w_i - x_i \beta_\theta| + \sum_{i=y < x_i \beta} (1 - \theta) |\ln w_i - x_i \beta_\theta| \right\} \quad (2)$$

Then, it can express (2) as:

$$\min_{\beta \in \mathbb{R}^k} \left(\sum \rho_\theta(\ln w_i - x_i \beta_\theta) \right) \quad (3)$$

The quantile estimator is asymptotically normally distributed. The first quantile is obtained by setting ($\theta=0.10$) and so on, it is continuously increasing from 0 to 1; one traces the entire distribution of y , conditional on x . Therefore, the QR can generate different solutions (i.e. distinct β 's) at different quantiles, which is very useful because it permits to compute several regression curves corresponding to different conditional quantiles in the wage distribution.

Two different specifications for wage equations are explored. We first estimate a quantile regression is estimated using all sample data for each country at different quantiles, namely $\theta = \{0.1, 0.5, 0.9\}$. The control variables previously described are included, plus a binary variable that identifies the individuals' gender (it takes on the value of 1 for female and 0 for male) due to the interest of capturing the effect of this binary variable on wages along the distribution. We then estimate an equation for female (f) and male (m) workers separately for each country at different quantiles (10th, 50th, and 90th). These findings provide a complete view of how wages vary along the distribution. Furthermore, it is possible to include comparisons across not only gender but also across countries. This study does not address selectivity in participation due to the following consideration; the most widely used method of calculating sample selectivity when estimating wage equations is Heckman's correction (1979), nonetheless, this traditional method cannot be used for QR according to Buchinsky (2001); therefore, any selection correction within quantile framework could become more complex. Further, few studies have addressed this issue. These studies rely on the validity of instruments and the correct identification of the intercept of the wage equation (Albretch et al. 2009; Chzhen et al. 2013).

4. Results

4.1 Descriptive analysis

The female proportion in each sample is 38, 52, and 56 percent for Guatemala, El Salvador, and Honduras respectively. The workforce in the region remains young; the largest population is aged 16 and 24 years for both women and men. As it is expected, it is observed a decrease in participation of older people in the samples. There are differentials in schooling levels between men and women, but differences in education levels among countries are also important. On average Salvadorian workers are more educated (22.84 percent for women and 13.3 percent for men), and Guatemalan workers are less educated (8.66 percent for women and 20.15 percent for men).

Table 2. Composition of the workforce by gender and country - demographic and educational characteristics (2014)

Variable	Guatemala		El Salvador		Honduras	
	Female	Male	Female	Male	Female	Male
<i>Age groups (%)</i>						
16-24	20.77	26.94	13.59	18.44	16.87	25.70
25-29	17.46	16.19	12.91	14.96	16.16	14.48
30-34	15.20	13.90	14.97	14.68	16.20	13.26
35-39	12.60	12.53	17.03	14.27	13.21	12.73
40-44	11.64	10.23	12.69	11.33	12.29	10.69
45-49	8.47	7.01	11.51	10.12	9.52	9.53
50-54	8.39	6.76	9.73	9.19	8.91	7.61
55-60	5.48	6.44	7.58	7.01	6.85	6.00
Total	100	100	100	100	100	100
Table 2. (Continued)						
<i>Educational attainment (%)</i>						
No Education	8.86	13.33	6.15	3.69	4.55	4.32
Primary	37.11	32.28	40.30	42.33	32.86	41.94
Secondary	45.31	41.78	30.71	33.82	39.58	38.96
Tertiary	8.72	12.61	22.84	20.15	23.00	14.78
Total	100	100	100	100	100	100
Observations	2,031	3,874	6,674	7,486	1,785	2,311

Source: Authors' calculation based on ENCOVI (2014), EHPM (2014), and EPHPM (2014).

Table 3 reports job-related characteristics, which present similarities among countries. Important gender differences in working hours are also revealed, in particular, women are more likely than men to be working part-time, between 23-27 percent of employed women work part-time, far higher than the share of employed men (9-17 percent). While the proportion of men engaged in overwork is higher than women in Guatemala and Honduras, in El Salvador, gender differences among overworkers are quite modest. In the Northern Triangle as well as the rest of the countries in Central America, the largest concentrations of female employment are found in commerce and services.

Moving to occupational structure, occupations are classified according to the female occupational intensity rate for each country. The most female-dominated occupations across

countries are elementary occupations with low qualifications such as personal care workers, cleaners and helpers, personal services workers, and food preparation assistants. Professionals and associate professionals, sales workers, general and keyboard clerks also included in the top 10 occupations. In Honduras the distribution varies only modestly in relation to Guatemala and El Salvador, in the top ten of female-dominated jobs is reported stationary plant and machine operators, this occupation is likely concentrated in the Maquila industry, which has been highly feminized in Central America. Table 12, Table 13, and Table 14 in the online appendix provide complete descriptive information.

Table 3. Composition of workforce by gender and country - job related characteristics (2014)

Variable	Guatemala		El Salvador		Honduras	
	Female	Male	Female	Male	Female	Male
Self-employment (%)	27.86	15.09	32.35	16.90	38.24	31.98
<i>Working hours (%)</i>						
Part-time	27.04	9.79	23.80	12.94	27.23	17.02
Full-time	42.01	45.15	45.85	56.30	42.04	41.14
Overwork	30.95	45.06	30.35	30.76	30.72	41.84
<i>Economic sector (%)</i>						
Agriculture, Forestry, Hunting and Fishing	2.27	13.61	0.87	6.22	1.18	7.25
Mining and Manufacturing	16.76	18.86	17.26	17.36	21.73	19.20
Construction	0.19	13.01	0.34	10.51	0.89	12.47
Commerce	35.91	31.76	27.81	22.94	34.40	29.87
Transport and Communication	0.52	1.60	1.75	9.10	0.95	9.00
Finance and Insurance Services	3.38	2.25	2.32	1.57	5.83	6.68
Other Services	40.96	18.92	49.65	32.30	35.03	15.52
Female occupational intensity (mean)	0.61	0.25	0.66	0.32	0.60	0.30
Observations	2,031	3,874	6,674	7,486	1,785	2,311

Note: Other services sector includes community, social and personal services, and others.

Source: Authors' calculation based on ENCOVI (2014), EHPM (2014), and EPHPM (2014).

4.2 Quantile Regression Results

The results of quantile regressions using all sample for each country are presented in Table 4. The “gender” dummy is always negative and significant. It has a large impact on wages at the bottom of the distribution in all countries, which would suggest the existence of the sticky floor effect. Although this effect is larger in Guatemala (coefficient was -0.40). In addition, we observe that the effect of age, education, and sectors remains positive and significant across samples. Meanwhile, part-time and self-employment have a negative impact on wages, but the magnitude of this effect varies at the different part of the wage distribution in the three samples. For example, the effect of part-time is larger in the lower part of the distribution, and it tends to decrease moving up to the upper part of the distribution. Focusing on the coefficient of the relevant variable *foccup2* it is negative and statistically significant along the wage distribution in the three countries. But the effect of *foccoup2* varies for different quantiles; in particular, individuals have lower returns at the bottom of the distribution in El Salvador and Honduras. Nonetheless, the main objective of this study is to observe the effect of female occupational intensity on wages of both females and males, for that, the second specification are estimated.

Table 5, Table 6, and Table 7 present the results for 10th, 50th, and 90th quantiles separately for women and men. These results show that the magnitude of wage differentials does not remain constant along the distribution in the three countries. Furthermore, our findings reaffirm what previous researches conducted in Central American countries have pointed out, the strong relationship between educational attainment and wage rates (Tenjo Ribero and Bernat, 2005; Ñopo Atal and Winder 2010). We find that the effect of educational attainment is positive and statistically significant at the one percent level along the wage distribution in all countries (e.g. secondary and tertiary levels). In general, the returns to education are higher for women than for men at the bottom quantile and at the mean of the wage distribution. Meanwhile, in the top part of the distribution men tend to have a higher return to education than women. Furthermore, wage rates increase for individuals with tertiary education along the wage distribution in all countries, but these returns to education are higher for Honduran worker.

Table 4. Quantile Regression Results, 2014 (using all sample)

Dependent variable Log Monthly Wages	Guatemala			El Salvador			Honduras		
	q10	q50	q90	q10	q50	q90	q10	q50	q90
Gender	-0.40***	-0.18***	-0.08**	-0.15***	-0.11***	-0.13***	-0.29***	-0.16***	-0.20***
Age	0.10***	0.07***	0.08***	0.04***	0.03***	0.03***	0.07***	0.05***	-0.03**
Age squared	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	-0.00
Primary	0.23***	0.22***	0.15**	0.23***	0.19***	0.19***	0.48***	0.28***	0.30***
Secondary	0.59***	0.61***	0.58***	0.47***	0.40***	0.45***	0.83***	0.59***	0.64***
Tertiary	1.19***	1.09***	1.25***	0.80***	0.95***	1.09***	1.53***	1.19***	1.38***
Married	0.10**	0.07**	0.08**	0.08**	0.07***	0.08***	0.20***	0.12***	0.08**
Number of children under 14 years old	-0.03**	-0.04***	-0.04***	0.01	0.01	0.00	-0.03**	-0.04***	-0.03**
Part-time	-0.60**	-0.35***	-0.19***	-0.63***	-0.38***	-0.26***	-1.1***	-0.66***	-0.3***
Overwork	0.05	0.05**	0.11***	0.01	0.01	0.03	-0.17***	0.25	0.28
Self-employment	-0.32***	-0.03	0.21***	-0.68***	-0.23***	0.06***	-0.79	-0.45***	-0.08**
Mining and Manufacturing	0.41***	0.46***	0.08	0.36***	0.34***	0.13***	0.62***	0.33***	0.08
Construction	0.37***	0.40***	0.06	0.31***	0.37***	0.23***	-0.25**	0.12*	-0.01
Commerce	0.45***	0.58***	0.18**	0.35***	0.35***	0.21***	0.64***	0.38***	0.18
Transport and Communication	0.62***	0.58***	0.19*	0.43***	0.49***	0.35***	0.81***	0.52***	0.37**
Finance and Insurance Services	0.88***	0.65***	0.30**	0.54***	0.50***	0.50***	0.74***	0.46***	0.18
Other Services	0.54***	0.54***	0.18**	0.38***	0.44***	0.27***	0.57***	0.42***	0.24**
Female occupational intensity	-0.33***	-0.27***	-0.18**	-0.29***	-0.20***	-0.12**	-0.47***	-0.28***	-0.28***
Constant	4.48***	5.54***	6.17***	3.62***	4.20***	4.66***	5.61***	7.00***	7.84***
Observations	7,103	7,103	7,103	14,160	14,160	14,160	4,096	4,096	4,096

* p<0.10; **p<0.05; ***p<0.01.

Notes: The reference categories are: male, no education, unmarried, full-time, and agriculture, forestry, hunting, and fishery sector. Source: Authors' calculation based on ENCOVI (2014), EHPM (2014), and EPHPM (2014).

The effect of the variables associated with the division of household labor varies along the wage distribution across countries. For example, each additional child under 14 years old reduces women's earnings, but the effect is lower at the upper quantile of the distribution in Guatemala and Honduras. Meanwhile, this does not have an effect on Salvadorian women. We also observe a marriage wage premium at the mean and the upper quantile for both women and men in the three countries.

There are large gender differences in self-employment along the wage distribution; the effect is negative and statistically significant at 10th quantile for both men and women. Whereas it becomes positive for males at the upper quantile across countries. Our findings also reveal that the variation of working hours partially explains earnings. Working part-time reduces individual wages, but it is higher for both females and males at 10th quantile across countries, in particular, this effect is higher in Honduras than in Guatemala and El Salvador. Nevertheless, the magnitude of the coefficient tends to be decreasing when moving up along the wage distribution in all countries. While the overwork effect is positive and statistically significant only for men at the top of the distribution in Guatemala and Honduras.

We find that the female occupational intensity has a negative impact on wages along the distribution for women in the region. Moreover, women at the lower quantile experience greater negative penalties, but these penalties are larger in the Honduras sample. However, in the case of men, the results are heterogeneous across countries. For Guatemala and Honduras, female occupational intensity has a negative impact on male wages at the lower quantile, although this impact is quite modest and statistically insignificant. In spite of that, the effect of female occupational intensity becomes negative and statistically significant at the bottom and at the mean of the wage distribution for men in El Salvador, revealing a penalty for working in predominantly female jobs.

Table 5 Quantile Regression Results, Guatemala (2014)

	q10		q50		q90	
	Female	Male	Female	Male	Female	Male
Age	0.11***	0.09***	0.09***	0.05***	0.07***	0.07***
Age squared	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***
Primary	0.20	0.12	0.28*	0.14**	0.13**	0.18**
Secondary	0.65***	0.40***	0.93***	0.38***	0.64***	0.52***
Tertiary	1.24***	0.85***	1.28***	0.89***	1.12***	1.23***
Married	-0.01	0.18***	0.02	0.11***	0.10**	0.11**
Number of children under 14 years old	-0.05**	-0.04*	-0.04***	-0.03***	-0.04**	-0.02
Part-time	-0.52***	-0.78***	-0.34***	-0.29***	-0.11**	-0.20**
Overwork	0.04	0.07	0.00	0.08**	0.04	0.11**
Self-employment	-0.44***	-0.30*	-0.08**	0.02	0.16**	0.22***
Mining and Manufacturing	0.53**	0.44***	0.46***	0.47***	0.00	0.15**
Construction	0.61**	0.39*	0.38***	0.44***	-0.27	0.13*
Commerce	0.72***	0.42***	0.60***	0.48***	0.24**	0.13*
Transport and Communication	1.34***	0.63***	0.79***	0.56***	0.30**	0.09
Finance and Insurance Services	1.02***	0.85***	0.53***	0.77***	-0.01	0.40**
Other Services	0.68***	0.60***	0.59***	0.62***	0.04	0.27***
Female occupational intensity	-0.55**	-0.12	-0.74***	0.01	-0.52***	0.11
Constant	3.95***	4.82***	5.01	5.86***	6.41***	6.09***
Observations	2,676	4,427	4,427	2,676	2,676	4,427

* p<0.10; **p<0.05; ***p<0.01

Notes: The reference categories are: no education, unmarried, full-time, and agriculture, forestry, hunting, and fishery sector.

Source: Authors' calculation based on ENCOVI (2014).

Table 6. Quantile Regression Results, El Salvador (2014)

	q10		q50		q90	
	Female	Male	Female	Male	Female	Male
Age	0.04***	0.04***	0.02***	0.04***	0.03***	0.05***
Age squared	-0.00***	-0.00***	-0.00	-0.00***	-0.00	-0.00***
Primary	0.22**	0.23***	0.22***	0.16***	0.15**	0.21***
Secondary	0.60***	0.37***	0.46***	0.34***	0.43***	0.41***
Tertiary	0.94***	0.59***	1.02***	0.83***	1.09***	1.02***
Married	0.03	0.15***	0.04**	0.13***	0.05**	0.11***
Number of children under 14 years old	0.03*	0.00	0.01	-0.00	0.00	0.01
Part-time	-0.63***	-0.66***	-0.50***	-0.22***	-0.34***	-0.16***
Overwork	0.01	0.01	0.01	0.02	0.02	0.00
Self-employment	-0.70**	-0.63***	-0.29***	-0.14***	0.05	0.13***
Mining and Manufacturing	0.35***	0.39***	0.44***	0.32***	0.46***	0.17***
Construction	0.31	0.36***	0.66***	0.38***	1.15***	0.21***
Commerce	0.40**	0.39***	0.50***	0.32***	0.63***	0.19***
Transport and Communication	0.45***	0.44***	0.51***	0.51***	0.66***	0.38***
Finance and Insurance Services	0.55**	0.48***	0.66***	0.38***	0.81***	0.70***
Other Services	0.40**	0.47***	0.57***	0.46***	0.70***	0.29***
Female occupational intensity	-0.61***	-0.16***	-0.44***	-0.09**	-0.55***	0.01
Constant	3.50***	3.64***	4.24***	4.09***	4.52***	4.37***
Observations	6,674	7,486	7,486	6,674	6,674	7,486

* p<0.10; **p<0.05; ***p<0.01

Notes: The reference categories are: no education, unmarried, full-time, and agriculture, forestry, hunting, and fishery sector.

Source: Authors' calculation based on EHPM (2014).

Table 7. Quantile Regression Results, Honduras (2014)

	q10		q50		q90	
	Female	Male	Female	Male	Female	Male
Age	0.05**	0.08***	0.05***	0.05***	0.03***	0.04***
Age squared	-0.00*	-0.00***	-0.00**	-0.00***	-0.00	-0.00*
Primary	0.21	0.68***	0.28***	0.21***	0.24**	0.17*
Secondary	0.71***	0.84***	0.75***	0.45***	0.60***	0.49***
Tertiary	1.41***	1.41***	1.35***	0.95***	1.15***	1.29***
Married	0.06	0.29***	0.09*	0.15***	0.08*	0.10*
Number of children under 14 years old	-0.04	-0.02	-0.04*	-0.03**	-0.02***	-0.01***
Part-time	-1.02***	-1.06***	-0.64***	-0.47***	-0.43***	-0.20***
Overwork	-0.29***	-0.05	-0.05	0.03	-0.04	0.10***
Self-employment	-1.05***	-0.58***	-0.79***	-0.24***	-0.26***	0.13**
Mining and Manufacturing	1.09	0.65	0.26	0.42***	-0.59***	0.25*
Construction	0.40***	-0.12***	0.10	0.22***	-0.73***	0.15
Commerce	1.25***	0.58***	0.47*	0.45***	-0.40***	0.26*
Transport and Communication	1.45***	0.84***	0.69*	0.61***	-0.17	0.36**
Finance and retail trade	1.39***	0.89***	0.39	0.53***	-0.27*	0.14
Other Services	1.30***	0.80***	0.39	0.53***	-0.17	0.29**
Female occupational intensity	-1.13***	-0.08	-0.69***	-0.04	-0.85***	-0.01
Constant	5.70***	5.05***	6.84***	6.90***	8.62***	7.54***
Observations	2,311	1,785	2,311	1,785	2,311	1,785

* p<0.10; **p<0.05; ***p<0.01

Notes: The reference categories are: no education, unmarried, full-time, and agriculture, forestry, hunting, and fishery sector.

Source: Authors' calculation based on EPHPM (2014).

5. Conclusion

This paper contributes to the discussion on gender differences in the labor market of the Northern Triangle of Central America by examining the role of gender occupational intensity on wages of both females and males. It also makes several methodological and empirical contributions to the existing literature. We first propose a new typology of occupations across countries, which allow us a consistent and comparable analysis of the occupational structure. Our descriptive analysis shows that women's employment follows a similar pattern across countries. For instance, the share of women employed in self-employment is higher than men across countries. Women are more commonly employed in part-time jobs than men, they account for 27 percent of part-time workers in Guatemala and Honduras, and in El Salvador 23 percent. Gender differences are significantly present at the occupational distribution; working women are underrepresented in managerial positions and overrepresented in other occupations like personal care workers, cleaners and helpers, personal services workers, food preparation assistants, and professionals and associate professionals (including health and teaching).

We then estimate quantile earnings equations using as control variables; demographic characteristics, education, and job-related characteristics plus a binary variable that identifies the gender of individuals. The coefficient of gender is of specific interest once it suggests gender differences in earnings. In fact, women earn less than men along the wage distribution in all countries, but the largest differences are observed at the lower quantile. It would indicate the existence of a sticky floor effect (Kee 2006); here the largest effect is observed in the Guatemalan sample. Special attention is reserved for the relevant variable; the female occupational intensity coefficient is negative and statistically significant along the wage distribution across countries. Nonetheless, it varies across quantiles, particularly, female occupational intensity has a larger negative impact at the lower part of the wage distribution in El Salvador and Honduras. Thereby, the contribution of occupational segregation to the gender wage gap should be explored further in future studies.

In addition, we analyze the effect of this set of covariates on wages by gender at different points of the wage distribution. We find that educational attainment plays an important role in wage differentials. Individuals with tertiary education have the highest wage rates along the wage distribution in all countries, but these returns to education are higher for Honduran workers. Besides, the results show that there are differences in the returns to education by gender across quantiles, although the patterns are stable for all countries. In general, the returns to education are higher for women than for men at the lower quantile and at the mean of the distribution. On the contrary, at the upper quantile of the distribution men tend to have a higher return to education than women. Another important factor affecting wage differentials is worked hours, it is noted a wage penalty for part-time workers along the distribution across countries; but it is higher in the lower part of the wage distribution, particularly in Honduras. However, the magnitude of the coefficient tends to be decreasing when moving up along the distribution in all samples. Meanwhile, the overwork effect is positive and statistically significant only for men at the top of the distribution in Guatemala and Honduras.

These results are consistent with previous studies conducted in Central American countries (Tenjo Ribero and Bernat 2005; Ñopo Atal and Winder 2010; ILO and PNUD 2019). Nonetheless, this study also reveals gender differences in the occupational structure and its importance on wages. Generally, women are disproportionately represented in certain occupations, and this can translate into lower pay. In this respect, we go much further when addressing the question: how does female occupational intensity ($foccup2$) affect the distribution of wages? We observe that $ffocup2$ coefficients remain significant and negative for women along the wage distribution in all countries, although the coefficient effect is larger in the Honduras sample. While the $foccup2$ effect seems only relevant for Salvadorian men at the bottom and the mean of the distribution. Moreover, there are differences across female occupational intensity quantiles for women; the effect of this variable is larger at the lower quantile. Although the magnitude tends to decrease as one moves up to the mean of the distribution in El Salvador and Honduras. In sum, the coefficients of the main variable suggest a strong relationship between female occupational intensity and women's wages, and a weaker one between female occupational intensity and male wages in the region.

Later, our findings can contribute to understanding gender differences in the labor market, which becomes an issue with strong policy making implications. The results highlight the importance of promoting policies to increase the share of female participation in high-level jobs, as well as family policies that help to combat occupational segregation by gender since this phenomenon is usually linked to the household division of labor. Generally, women devote more time than men to unpaid activities (Molina 2015).

Finally, these results suggest new research focused on the analysis of the dynamic of gender inequalities in the labor market. The cross-country study shows that women face similar disadvantages in the labor market across countries; further, the wage penalty for working in female-dominated occupations is larger along the distribution for women. Besides, all over the region, female labor force participation has increased substantially in the past decades, although it continues to be low in relation to the rest of the Latin American countries. Therefore, exploring trends in employment and earnings throughout time can offer us a more accurate and complete understanding of the female occupational intensity and its importance to the evolution of pay gaps by gender in the Northern Triangle region.

Supplementary information

Supplementary information accompanies this study which is availability in at <https://data.mendeley.com/datasets/bbczrkf886/1>

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7. Appendix

Box 1. Data Sources

Country	Survey	Original sample size	Urban workers aged 16-60 (size)	Final sample size
Guatemala	National Survey of Living Conditions (Encuesta Nacional de Condiciones de Vida, ENCOVI)	54,822 individuals	8, 114 individuals	5, 905 individuals
El Salvador	Multi-Purpose Household Survey (Encuesta de Hogares de Propósitos Múltiples, EHPM)	80,164 individuals	16,295 individuals	14,160 individuals
Honduras	Multi-Purpose Household Survey (Encuesta Permanente de Hogares de Propósitos Múltiples, EPHPM)	24,023 individuals	4,707 individuals	4,096 individuals

Note: The year of 2014 was chosen because this is the last household survey available for Guatemala. The original sample size refers to the total sample at national level.

Source: ENCOVI (2014), EHPM (2014), and EPHPM.