Apparel and Women's Wages after the Multi-Fibre Agreement: Evidence from El Salvador

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Abstract: Latin American apparel exporters worried that the end of the Multi-Fibre Agreement (Agreement on Clothing at Textiles) would result in relocation to lower-wage countries, especially in South-East Asia. This paper examines changes in wages following the end of the MFA (ACT) in El Salvador, with a particular emphasis on the effects on women's economic opportunities.

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Introduction

It is well known that apparel production has shifted dramatically during the 2000-2009 decade (see in particular Brambilla, Khandelwal,and Schott (2007). While many changes characterize the decade, possibly two of the most important were China's entrance into the World Trade Organization (WTO) on November 11, 2001 and the end of the MFA/ACT on December 21, 2004. Perhaps the best evidence of this change is the change in U.S. apparel imports for consumption by country in 2000 and 2009. In 2000, the two main suppliers of apparel into the United States were Mexico and China with approximately equal shares each (of about 13%). By 2009, however, the pattern had changed dramatically. China surged to supply about 38% of U.S. apparel imports. Ranks and shares of other countries also changed dramatically.

These changes have significant implications for workers. Apparel is often seen as a "gateway" into manufacturing for workers whose alternatives might be in agriculture, the informal sector, domestic service, or low-productivity service work. Women are especially affected by changes in the garment sector because in most countries, the share of women in total employment in the apparel sector is often much higher than in other sectors – especially other manufacturing sectors. The focus on women, and especially women's wages, is especially important given Qian (2008), who shows a link between women's relative wages and the gender ratio among children. Ozler (2000, 2001) finds that the increase in industry-level exports creates opportunities for women. In the Salvadoran case, therefore, we are particularly interested in the effects of the shift in global apparel production on women.

The goal of this paper is to analyze and describe the effects of the changes in the apparel sector in El Salvador. El Salvador is an excellent case to focus on for several

reasons. First, El Salvador aggressively pursued liberalization policies that initially led to a significant expansion of the apparel sector. The end of the MFA (ACT), however, resulted in a great deal of anxiety as exports fell and the sector contracted. The contraction of the sector raised the possibility of the loss of what might have been considered to be "good" jobs (at least relative to domestic alternatives).

This paper fits into several recent bodies of literature. The first is the literature concerned with the effects of globalization on wages generally. The second is the relatively recent surge in papers concerned about the "Gendered" effects of globalization (Oostendorp et al. 2009, Do et al. 2011, Suaré and Zoabi 2009, Aguayo-Tellez et al. 2011, Rendall 2010). These papers tend to focus on employment and labor force participation and find that the effects of globalization differ for males and females. These effects are potentially quite significant because creating opportunities for women in manufacturing in particular is generally believed to have significant effects on development in the broad sense and for fertility and women's economic status. We also focus on employment and labor force participation, but add a specific emphasis on wages – both industry-specific and general equilibrium.

Liberalization and Trade in El Salvador

Like many developing countries, El Salvador undertook dramatic reforms in the early 1990s. Among Latin American countries, El Salvador's liberalization was particularly aggressive. El Salvador ranks 39th in the 2011 Index of Economic Freedom[1], making it the third-highest in Latin America (behind Uruguay (33rd) and Chile (11th)). El Salvador enjoyed

[1] See http://www.heritage.org/index/ranking., accessed June 4, 2011.

investment-grade risk rating until 2008 and consistently ranks well in quality of public policies.[2]

In 1989 El Salvador initiated reforms to foster its democratic system and individual freedoms. The development agenda had two important components. Peace Accords in 1992 helped resolve the 12-year-old civil war. Additional reforms covered the Judiciary, the Police, the Army, and the electoral system. They included disarmament and incorporated guerrillas into the political system. The socio-economic agenda also played an important role. The social agenda sought to make El Salvador a country of owners, prioritizing targeting of social expenditure towards poorest households, decentralization of social services, subsidies to demand, and private and communal participation in project execution.[3]

The liberalization program of El Salvador included two stages. The first stage was unilateral liberalization, which began in 1989. Officials sought to eliminate anti-export bias in the economy and to promote exports. Average tariff was reduced from around 21.9% in 1991, to 5.7% in 1994. Most export licenses were eliminated. In 1991, legislation established free trade zones.

The second stage focused on obtaining better access to international labor markets mainly through free trade agreements. El Salvador enjoyed preferential access to U.S. and European markets through the Caribbean Basin Initiative (CBI) and the Generalize System of Preferences (GSP). El Salvador has signed seven trade agreements and is member of the Central American Common Market[4].

[2] The index is the average of six indicators describing the quality of public policies: 1) stability, 2) adaptability, 3) coordination and coherence, 4) implementation and effectiveness of application, 5) public interest orientation, and 6) efficiency. The scale ran from 1 to 4; higher values indicate better quality of public policies.
[3] For a description of initial reforms see Rivera-Campos (2000).
[4] In 2011, El Salvador had functioning Free trade agreements with the United States, Mexico, Dominican Republic, European Union, Chile, Colombia and Taiwan. El Salvador also is a member of the Central American Market, which includes Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panama.

Foreign Direct Investment (FDI) has also been important. In 1999 the government further revised the foreign investment law,[5] giving freedom to invest in almost all sectors of the economy. The new law granted freedom to repatriate profits, warranty for national treatment and non-discrimination to FDI; access to domestic financing; registration through a single window to simplify all paperwork; intellectual property protection; tax incentives; and restrictions in very few activities. The government also signed Bilateral Investment Treaties (BTI) with the United States, some European countries, and some South American countries. Several of these treaties were enhanced within the framework of Free Trade Agreements (FTA). El Salvador has also signed the Multilateral Investment Guarantee Agreement (MIGA).

Table 1 contains a summary of foreign investment into El Salvador. The table shows rising foreign investment over the sample period. The share that has gone into the tradable sector, however, rises between 2000 and 2005 and then falls. The table also shows that most of the investment has been dedicated to the non-tradeable sector. Interestingly, however, the share that has gone into the maquila sector has risen consistently, but does not stand out compared to other sectors, such as non-maquila industry. The maquila's share of total investment, rose from 8.0% in 2000 to 10.2% in 2003but falls to 7.4% by 2008. This may reflect a relative "cooling" of the maquila sector relative to the other receiving sectors of the economy following the end of the MFA/ACT.

Exports increased dramatically in the period immediately following reforms. The ratio of exports to GDP increased from 10.8% in 1990 to 22.4% in 2000. After 2000, however, the rate of growth of exports declined considerably. Total exports remained close to 20% of GDP between 2000 and 2010. On the other hand, trade liberalization and abundance

[5]Ley de Inversión Extranejera (Decreto Legislativo no. 732, Noviembre 1999).

of foreign exchange (due to remittances), have led to even faster growth in total imports. Imports as percentage of GDP increased from 23.3% in 1990 to 40.1% in 2010.

The reforms seemed to have contributed to a change in the composition of exports as well. In 1991, traditional exports, mainly coffee, sugar, cotton and shrimp, amounted to nearly 27% of total exports. Their share in total exports declined steadily over the 1990-2005 period, and were 7.6% in 2010. Non-traditional exports, which include some agricultural products and many kinds of light manufacturing, increased from US$287 million in 1990 to US$1.6 billion in 2005, and reached US$3.0 billion in 2010.

Perhaps more significantly, maquila exports (mainly apparel) grew from US$137 million in 1991 to US$1.9 billion in 2004, reaching just past 58% of total exports; by 2010 maquila has declined to US$1.1 billion[6]. "Maquila", also sometimes referred to as export processing, refers to activities involving the assembly of imported intermediate inputs and exporting the finished goods. In the case of apparel, for instance, this means importing cut and uncut fabric for assembly (sewing) into garments. After the first round in economic reforms and liberalization, maquila exports took off with great success, increasing from close to zero en 1990, to over $1.6 billion in 2000. After that, growth in maquila (mostly apparel and textile) slowed down. After January 1st 2005, maquila exports slowed and even decreased. The resulting loss in employment has been considerable. Employment growth fell in 2001, 2002, 2004 and 2005, possibly suggesting that even before the expiration of MFA/ACT, some companies started to shift elsewhere in the world.

[6] These statistics are subject to classification revisions. Over the 2005-2010 there was a change in classification in many active exporting factories were reclassified from maquila to the non-traditional sector. We will investigate these changes in future drafts.

To put the change in El Salvador's apparel exports in context, figure 1 shows the bivariate relationship between apparel wages[7] and the change in U.S. apparel imports[8] for all countries with data for both variables. There is a clear and strong negative relationship between the change in U.S. apparel imports and the apparel wage, showing a clear shift of apparel production to low-wage countries.

El Salvador's place on this graph, however, is interesting for several reasons. First, the change in U.S. apparel imports from El Salvador is clearly negative. Second, El Salvador falls below its predicted value. In this cross section, El Salvador seems to have a smaller change in apparel exports to the United States as would be expected by its initial wage. That said, however, the negative change in exports to the United States suggests that there are potentially significant effects on workers both in the apparel sector and throughout the economy as a result of the end of the MFA (ACT). The following sections are focused on identifying and describing these changes.

Figure 2 shows the change in prices (unit values) and quantity of U.S. apparel imports from El Salvador over the 1989-2010 period. Both the price and quantity lines show the rise and fall U.S. apparel imports from El Salvador. Unit values rise until 1995, level off until the early 2000s, and drop sharply until 2005. The graph suggests that unit values recover somewhat between 2005 and 2010.

The change in quantity follows a similar pattern, rising until the early 2000s and then falling. Together these movements imply several different phases of apparel production. Rising price and quantity suggests that the first period was characterized by rising demand

[7] Log of apparel wages (or manufacturing wages) contained in the ILO's LABORSTA database. Using log GDP per capita generates similar results.

[8] Log of total U.S. apparel exports in 2008 minus log of total apparel exports in 2004, generated from data contained in the OTEXA database. COMTRADE data generates similar results, but not for El Salvador because the El Salvador data entries for HS 61,62, and 63 seem inaccurate.

(1989-2000). The second period, 2000-2005, might best be described as falling demand, since prices and quantities are both falling. The final period, since 2005, might reveal falling supply, since the quantity falls but prices rise. These periods happen to coincide with significant events. The first period captures the period immediately following liberalization and suggests that production was shifting towards apparel. The second period coincides with China's entrance into the World Trade Organization (WTO) and a significant surge in Chinese apparel exports to the world. The last period coincides with the end of the MFA/ACT, in which factors of production shift out of apparel. A very simple trade model suggests that wages in particular would be affected by the changes in unit values, so we briefly sketch out that theory in the next section.

Theory

El Salvador's globalization experience during the 1995-2011 period is largely characterized the growth of assembly-based apparel exports. Therefore, it makes sense to begin with a very simple and canonical trade model and focus on the effects of trade liberalization on labor's wages that emerge from that model. The model follows Do et al. (2011) that adapts Mussa (1974) to "engender trade." The two main differences from Do et al. (2011) are that this application is greatly simplified and it uses the model to decompose the different wage effects of trade liberalization.

Assumes there are two factors, males (m) and females (f), and two industries, apparel (a) and other activities (b). Output of the two goods (y) can be summarized with linear homogeneous, differentiable, and positive and declining marginal product production functions:

$$\begin{aligned} y_a &= X(m_a, f_a) \\ y_b &= Z(m_b, f_b) \end{aligned} . \qquad (1)$$

We assume full employment of both males and females and that males are fully mobile between industries.

$$M = m_a + m_b \qquad (2)$$

We assume that females are relatively specific. The main reason for this assumption is to capture the fact that women in developing countries often face strong social pressure to enter particular industries (such as apparel) and avoid others (perhaps heavy industry). Males, however, seem more likely to be able to move freely between industries.

Mussa (1974) shows that a change in output prices will have two effects on the returns to each factor: a short-run effect and a long-run effect. Interpreting women as the specific factor, the short-run implications for women's wages are straightforward:

$$\begin{aligned} w_a^f &= p_a y_a - w^m m_a \\ w_b^f &= y_b - w^m m_b \end{aligned} \qquad (3)$$

This representation assumes that good *b* is numeriarre and that women are paid the difference between the value of output and the payment to men. The main implication of (3) is that the wages of women in the short run are directly related to the price shock in a given industry. In particular, a change in price to apparel will directly affect women's wages in apparel and will not affect women's wages in industry *b*.

As Mussa (1974) demonstrates, the effect of a price shock to men, the mobile factor, is a function of the relative factor intensity of each sector and the degree of factor substitutability in each industry. In general, however, the per-worker wage rate rises, but not as much, as the apparel price increases.

In the long run, both males and female are mobile between industries and this problem reduces to the familiar Stolper-Samuelson theorem, in which the effect of the change on the returns to each factor depends on the relative factor intensities. Defining θ_{ij} as the share of factor *i* in industry *j* this very well-known result is expressed as

$$\hat{w}^f = \frac{\theta_{fb}}{\theta_{ma} - \theta_{mb}} \hat{p}_a \tag{4}$$

and

$$\hat{w}^m = \frac{-\theta_{mb}}{\theta_{ma} - \theta_{mb}} \hat{p}_a . \tag{5}$$

In words, if apparel is female-intensive and the price of apparel increases, the long run effect is a real increase in the relative wage of women (in every industry).

The results in equations (3) and (5) can be straightforwardly applied to empirical estimation through the traditional Mincerian wage equation. This equation is the most fundamental tool used in wage studies to decompose (or explain) an individual *k*'s wages as a function of observable characteristics. While there are slight variations across studies, the basic form of the Mincerian wage equation is

$$\ln wage_k = \alpha + \beta_1 female_k + \beta_2 age_k + \beta_3 age_k^{\,2} + \beta_4 education_k + \sum_j \delta_j industry_{jk} + \varepsilon_k \tag{6}$$

in which the subscript *k* indicates the individual, ln*wage* is the log of earnings and the other variables are self-explanatory observable demographic characteristics.

This equation can be applied to our model with repeated cross-section data, which would add a time subscript to each term in equation (6). In our case, the effect of an increase in industry *j's* price would have two effects. In the short run, the increase in price would affect the industry-specific component of the wage and would show up as a

contemporaneous increase in the estimated industry-specific coefficient δ_j as implied by equation (3). The estimated coefficients on the industry dummy variables are interpreted as "inter-industry wage differentials" following Krueger and Summers (1988).

In the long run, the price increase would affect the "general" component of the wage. In our application, as long as industry *j* is female-intensive, an increase in the price of industry *j* will affect β_1, which is the economy-wide returns to being female.

One problem with applying this approach is that knowing when the long-run is. Robertson (2004) provides one of the very few estimates of when the relevant timeframe is for the "long-run" and suggests that Stolper-Samuelson effects begin to emerge in three to five years. The next section describes the data used to implement this model.

The key exogenous variable in this model is the output price. The output price can be considered to be a function of two components. The first is the international price. The second is the demand for the output given the international price. When the demand goes up at a given international price, this is the equivalent of having the demand-adjusted price increase.

Working conditions can fit into this model. The most straightforward way is to redefine the variable *w* as compensation that includes working conditions. Working conditions can be either substitutes or complements for wages. A compensating differential approach would suggest that wages and working conditions are substitutes: firms with poor working conditions need to pay workers higher wages to compensate them for enduring the poor conditions (and pay them less for better conditions).

This approach is appealing theoretically but empirical support is quite mixed. An alternative perspective is that wages and working conditions are complements. That is, firms

with good working conditions may also have higher wages for several reasons. First, working conditions might be correlated with productivity: better working conditions may increase worker productivity and possibly wages. Second, improvements in working conditions may be a form of rent sharing so that more profitable firms might have more money available to invest in both wages and working conditions. Third, better working conditions might create a queue of workers that allows firms to select the most productive at a given wage.

Analyzing plant-level data from Cambodia's BFC program, Warren and Robertson (2010) show that wage compliance (that is, compliance with wage laws) is positively correlated with working conditions. This result suggests that working conditions and wages are more likely to be complements than substitutes in Cambodian apparel firms – as long as wage compliance is a good proxy for wages (a measure that is not available in the plant-level data). In any case, the analysis that follows analyzes changes in the unit values and changes in wages and working conditions.

Data

El Salvador has a history of collecting labor market and expenditure data through household surveys. El Salvador conducts the *Encuesta de Hogares de Propósitos Múltiples* approximately annually. The survey covers basic demographic information as well as labor market experience, housing, and other indicators. While data are roughly available from 1989 until the present, survey and sample changes restrict the sample used here to 1995-2010. This period covers the process of trade liberalization, rising globalization, and the period following the end of the MFA(ACT).

To analyze the surveys together, the analysis focuses on workers with positive wage earnings (earnings from paid labor). The sample was further restricted to several key variables: age, gender, education, occupation, sector of employment, geographic area and remittances.

Table 2 contains sample characteristics. These simple statistics reveal several important features of the survey data. The first column contains the sample size. These numbers represent the number of workers in the sample who are between 15 and 65 years old (inclusive) and have positive earnings from wages. The sample size increases over time. The mean sample age increases from about 33 years to about 35 years over the 12-year period covered by the surveys. The female share of the sample increases as well, rising from about 36.3 percent to 38.0 percent in 2009. The mean education level also increases over time from 7.68 years to 8.70 years.

Analysis

Stylized Facts

Sauré and Zoabi (2009) find trade-related effects on women's labor force participation(LFP) in the United States and argue that participation is a critical dimension of the effects of globalization on labor markets. It is no surprise that in El Salvador, women's participation in the labor force are lower than women in the United States and that their labor force participation rates are much smaller than men. Table 3 contains some summary statistics describing women's labor force participation calculated by the authors from household surveys. In El Salvador, labor force participation rates are about 39% for women and 68% for men. The values for men have changed very little over time, but the overall labor force participation rate for females has increased from 35.3% in 1997 to 40.8% in 2009.

Rising female LFP is a global phenomenon, and is also consistent with Do et al. (2011) who find a link between female LFP and globalization.

In El Salvador, remittances play a significant role in labor market outcomes because migration is significant. Participation in the labor force is smaller for those individuals living in households that receive remittances, about 43% for the former and 55.6% for the latter. Labor force participation is smaller regardless of sex if you live in a household receiving remittances. For women the difference in labor force participation between those receiving remittances and those that does not receive is about 10% to 12.3%. For men the difference is about 11% to 13.1%. In both cases there is a positive trend in this difference.

The differences for females between remittances and no remittances over time are especially interesting for this study. Over time the difference between males with remittances and males without remittances remains relatively constant. For women, however, the LFP increases for women no receiving remittances, but remains relatively constant (and, in fact, is lower in 2009 than in 1997) for women receiving remittances. These figures contribute to the hypothesis that the reservation wage is higher for those receiving remittances. Remittances may also help explain the shift out of apparel. Rising reservation wages may make it more difficult to attract workers into apparel and make production more difficult on the margin.

Table 4 shows the evolution of employment across industries between 2000 and 2009.[9] Apparel is one of the larger sectors of the economy. The share of workers in apparel rises between 2000 and 2003, but starts falling in 2004 until it reaches 5.0% in 2009. The shares of workers in sales and services increase, consistent with the focus of foreign direct

[9] Our analysis actually spans 1998-2009, but we present 2000-2009 to save space.

investment in the non-traded sector. These shares are consistent with the pattern of apparel exports as well.

Table 5 shows the distribution of female employment over time. Table 5 shows that apparel is especially important to women, following sales and domestic service. Table 5 also shows that there is a clear negative trend in the importance of apparel to women, falling from 15.2% in 2000 to 8.7% by 2009. This may be the result of both the decline of the sector and the possibility of the sector becoming more male-intensive, as suggested by Soulé and Zoabi (2009). As the sector declines (or as males move in), women may shift out of apparel and into sales and domestic service. The female employment shares of both sales and domestic service increase through the sample period.

The main reason we focus on women when looking at the effects of the end of the MFA/ACT is that apparel is female-intensive, both in El Salvador and in most countries. Table 6 shows the share of workers in each industry that are female. Table 6 shows that the sectors that females concentrate in (as shown in Table 5) are also very female-intensive. That is, the female shares of total employment in these industries (apparel, domestic service, and sales) are much higher than in other industries. About 90% of workers in domestic service, for example, are female. Interestingly, the share of females in financial intermediation and education are also quite high – around 50% and 60%, respectively- throughout the sample.

One of the main messages of Table 6, however, is the falling share of female employment. This seems consistent with Ozler (2000), who finds that the female share of employment at the plant level rises with industry-level exports rise in Turkey. Another possible explanation is that the apparel (and textile) sector experienced significant upgrading

over time. Upgrading in the apparel and textile sectors has been linked with rising capital intensity and a falling demand for women. Together these forces may have significant implications for wages, and we explore those formally with the following regression analysis.

Estimation Issues

The first estimation issue relates to sample selection. As is well known, female wages are often censored and therefore when estimating wage equations that include females it is important to correct for the possible selection bias. To address this issue, we employ the two-step Heckman approach in which a selection (probit) equation is estimated in the first stage and from that equation a selection correction variable (the "inverse of the Mills ratio") is generated. This selection correction variable is then included in the second-stage wage equation to control for possible selection effects.

The second estimation issue relates directly to our estimates of interest – the inter-industry wage differentials. The estimated coefficients on the industry dummy variables are sensitive to the omitted industry, so Krueger and Summers (1988) suggest an approach that normalizes the differentials (and approximated the resulting standard errors) so that the differential estimates do not depend on the omitted industry. Haisken-DeNew and Schmidt (1997) describe a method that adjusts the differentials and their standard errors so that they measure the difference between each industry's wage and the overall mean, rather than the omitted industry. These differentials are then adjusted by raising *e* to the power of the estimated coefficient and subtracting one to adjust for the constant with the log dependent variable.

Main Results

Tables 7A and 7B contain the main results. Table 7A contains the demographic variables and other controls, and table 7B contains the industry-specific estimates. Each year represents a separate estimation, so that the results for each year are divided across the two tables.

Table 7A shows that many of the estimates of the demographic characteristics are very similar to standard wage equation results. Age has a significant positive but nonlinear effect on log earning. The "returns" to education are relatively constant, hovering around 5.5%. Interestingly, the coefficient on education rises between 2000 and 2002 and falls for the rest of the sample. The dummy for urban regions is consistently large and significant. "Remittances", "Public Sector" and "Water" are all additional controls to capture some of the idiosyncratic dimensions of the Salvadoran labor market.

The gap between male and female earnings, holding all other observable demographic characteristics constant, is about 14% on average across all years. The changes over time, along with the 95% confidence interval, are shown in figure 3. There is a slight positive trend in the female dummy coefficient, suggesting a modest closing of the overall wage gap between demographic-adjusted male and female wages. The size of the confidence interval relative to the change in the coefficient over time raises the possibility that the change over time may not be statistically significant. This increase may be modest especially relative to other countries over this time period, in which the gains to women in other countries have been large.

One possible reason for the relatively modest fall in the male-female wage gap may be the decline of economic opportunities in the apparel sector. Table 7B shows the industry-

specific component of wages. In 2000, apparel workers earned nearly 11% more than the average, holding demographic characteristics constant. This wage premium increased to 11.21% in 2002. After 2002, however, the apparel wage premium declines dramatically. By 2009, the estimated wage premium in apparel is -2.39, which is not statistically significant from zero. This change is the opposite of that estimated for transport and communications, a sector that received significant foreign direct investment (more than 20% of foreign investment went into communications in 2004, 2005, and 2006).

The theory described above suggests that the change in the industry wage premium might be explained by changes in apparel prices. Figure 4 graphs the unit value of apparel against the estimated change in the apparel wage premium. The two series follow closely together. The drop in apparel prices for El Salvador, representing a contraction of demand for El Salvador apparel products, may have contributed to the drop in the apparel wage premium. Combined with the availability of remittances, these forces may help explain the relative decline in apparel production and the subsequent shift of women into other sectors.

Conclusions

One concern about the end of the MFA/ACT was that apparel production would shift between countries and these shifts would have significant effects on workers – especially women – who may see apparel as a gateway into manufacturing. El Salvador was not one of the countries that seems to have benefited from the end of the MFA/ACT in terms of apparel production. Apparel exports to the United States fell after the end of the MFA/ACT, and this drop in volume was accompanied by a sharp drop in unit values. Following the drop in quantity and prices, this paper documents a drop in the apparel wage premium and finds a

very small decline in the wage gap between males and females. Compared to other countries, this modest decline in the male-female wage gap may be at least partially explained by the loss of otherwise high-paying apparel jobs that were available to women.

This research is limited in several ways, and we hope to address these shortcomings in later drafts. El Salvador may have had some success in upgrading apparel (and textile) production. The change in the textile wage premium offers some suggestion of upgrading. This paper also could be expanded to examine changes in working conditions. Robertson and Trigueros-Argüello (2009) find that, within manufacturing, working conditions in apparel are relative high and are particularly "better" than in agriculture. Anecdotal evidence also has suggested that working conditions in apparel may be preferred to domestic service. As a result, expanding this study to incorporate working conditions seems like a potentially fruitful area for future research.

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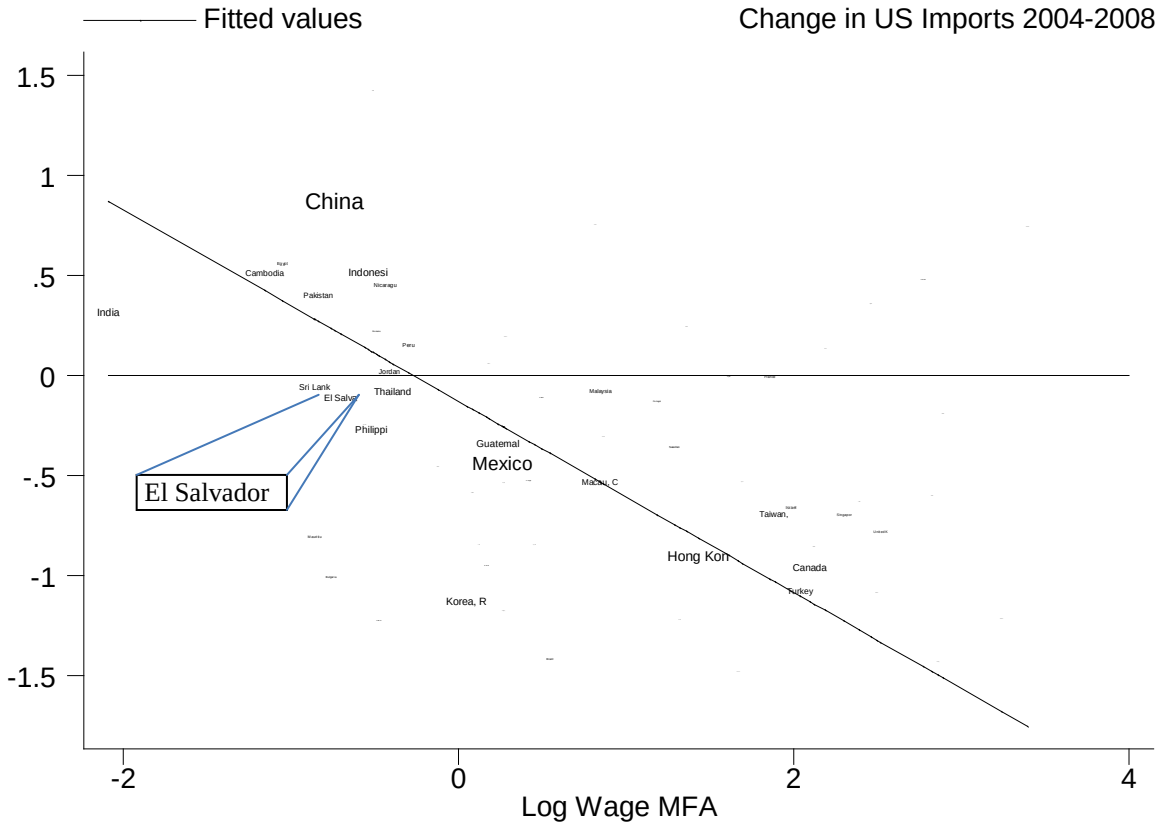
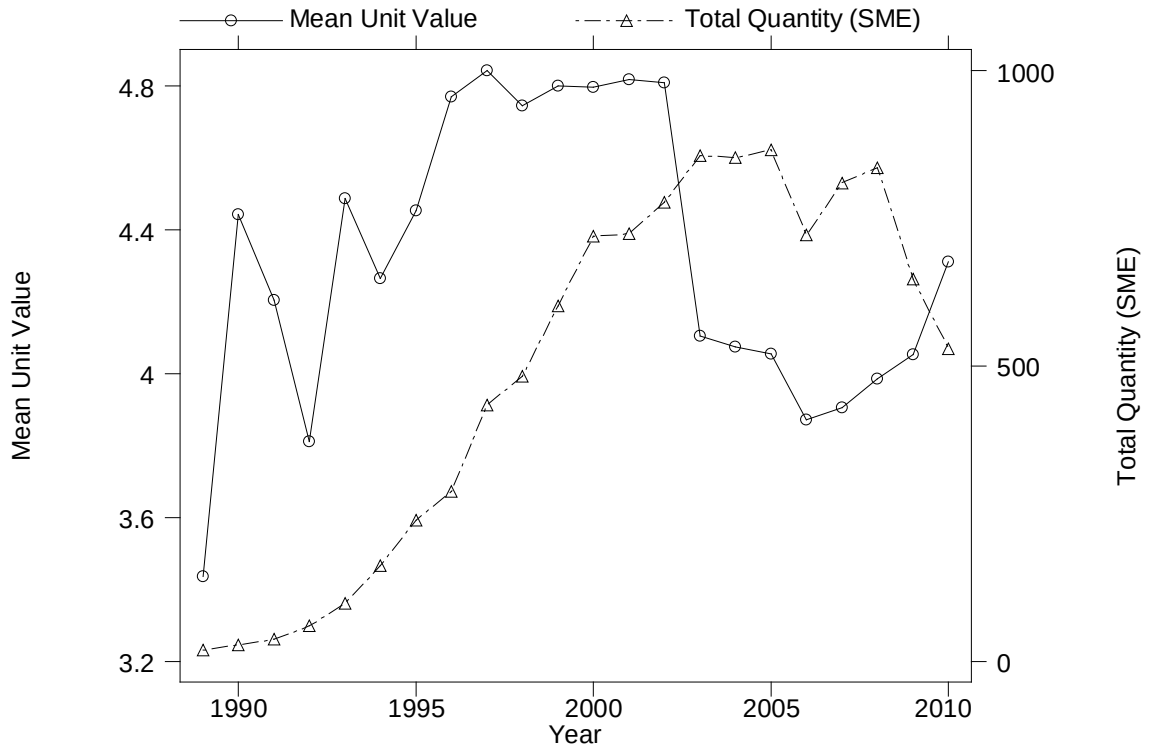
Figure 1: Log Change in U.S. Imports as a Function of Apparel Wage



Notes: The apparel wage is the log of the hourly wage in apparel (or manufacturing) for each country as found in the LABORSTA database of the ILO (http://laborsta.ilo.org/). The U.S. import data are for all apparel categories and are from the OTEXA database (http://otexa.ita.doc.gov/). The change in imports is the difference in the log of total imports in 2008 minus the log of total imports in 2004. The horizontal line denotes zero and the slope (standard error) of the fitted line is -0.476 (0.064) with an adjusted R-square value of 0.453. The only other variable included in the regression was the square of the log wage, which was statistically insignificant. The regression and graph use 2004 U.S. import values as weights.

Figure 2: U.S. Apparel Imports from El Salvador: Unit Value and Total Quantity



Notes: Authors' elaboration using data from OTEXA (http://otexa.ita.doc.gov/). SME stands for "Square Meter Equivalent", the common units used to measure various types of apparel. Unit value is calculated by dividing total (nominal) value of each product by the quantity imported of that product. The value here is the simple (unweighted) average across all products and months within a given year for U.S. imports from El Salvador. The quantity is the sum across all products and months within each year for U.S. imports from El Salvador.

Figure 3: The Change in the Female Wage Gap over Time
(95% Confidence Interval)

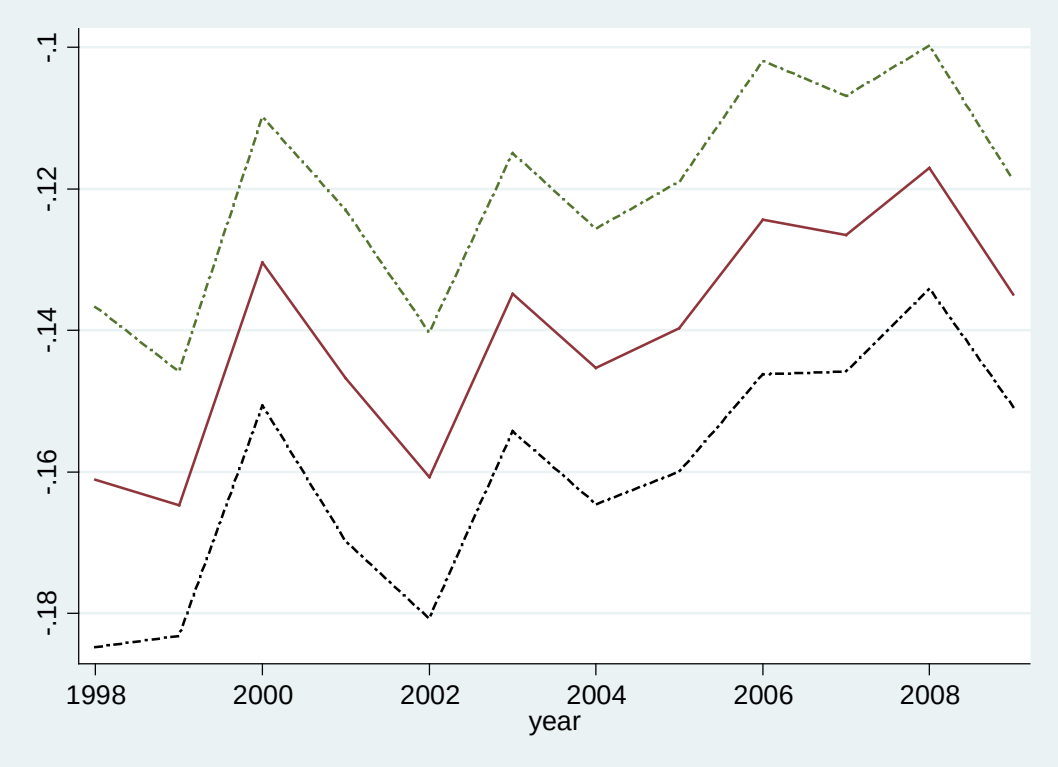
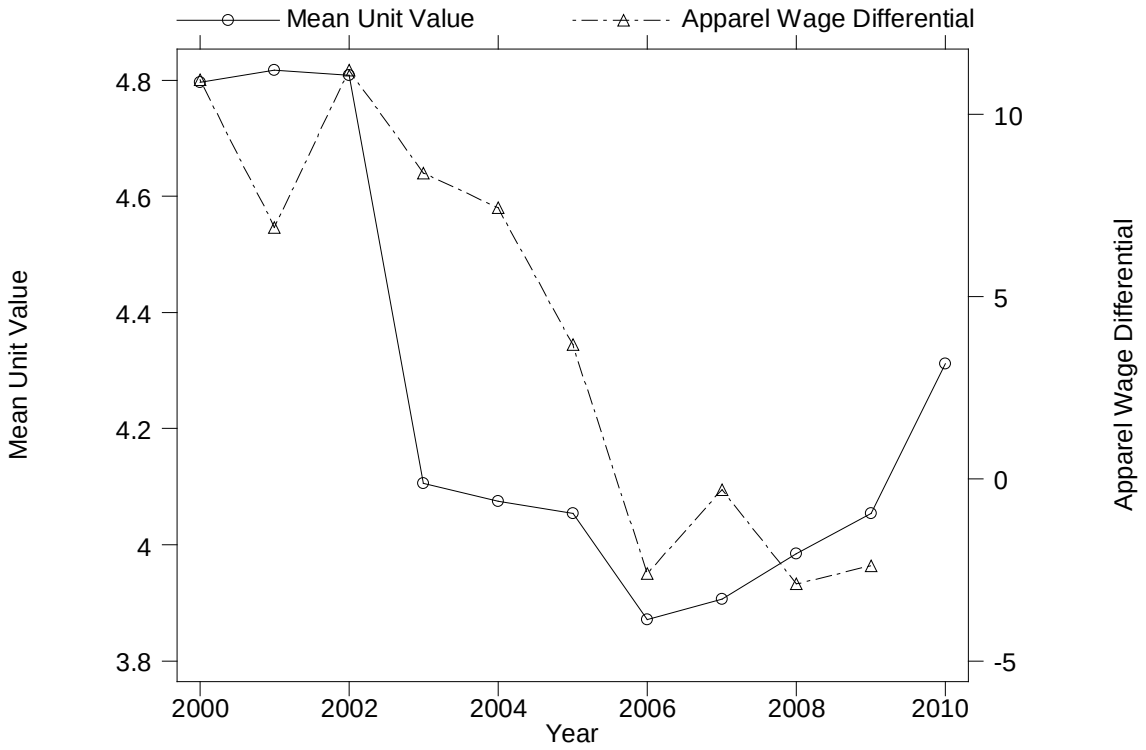


Figure 4: Apparel Unit Value and Apparel Wage Differential



Notes: The wage differential is shown in Table 7B. The apparel unit value is taken from figure 2. Both sources and calculation are explained in the text.

Table 1: **El Salvador: Foreign Direct Investment (position data)**

	US$ Millions									
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009/III**
INVERSION EXTRANJERA TOTAL	**1,973.0**	**2,252.1**	**3,133.6**	**3,275.5**	**3,655.4**	**4,166.4**	**4,407.8**	**5,916.2**	**6,701.2**	**6,878.7**
Equity Capital and Reinvested Earnings	1,973.0	2,252.1	2,459.9	2,589.3	2,996.0	3,508.0	3,735.1	5,182.5	5,721.4	5,891.1
1 Industry	336.5	401.1	447.8	496.1	536.9	853.5	870.2	891.6	919.7	936.6
2 Sales	169.1	190.2	225.9	239.2	278.3	305.0	356.3	397.3	411.9	430.8
3 Services	70.0	90.0	109.4	110.9	110.8	125.2	137.1	177.2	184.2	192.5
4 Construction	12.2	12.3	12.3	12.4	12.4	12.4	12.4	12.3	12.3	12.3
5 Communications	291.0	352.6	401.2	411.3	746.0	793.8	793.9	860.6	917.4	927.9
6 Electricity	806.9	821.5	848.2	848.2	800.2	800.2	847.6	847.6	879.5	879.5
7 Agriculture and Fishing	10.0	40.0	48.5	46.8	68.6	67.1	67.7	69.6	69.6	69.6
8 Mines and "Canteras"	0.0	0.0	0.0	0.0	0.0	1.5	29.5	37.8	42.5	43.3
9 Financial	120.4	161.8	173.9	161.1	148.1	250.4	321.9	1,489.4	1,858.9	1,902.5
10 Maquila	156.9	182.6	192.7	263.3	294.7	298.9	298.5	399.1	425.4	496.1
	1,973.1	2,252.1	2,460.0	2,589.2	2,996.1	3,508.1	3,735.0	5,182.5	5,721.5	5,891.1
Change over previous year (FLOWS)		**279.0**	**207.9**	**129.2**	**406.9**	**512.0**	**226.9**	**1,447.5**	**539.0**	**169.6**
Intercompany Transactions	0.0	0.0	673.7	686.2	659.4	658.4	672.7	733.7	979.8	987.6
Flujos			262.3	12.6	-26.8	93.3				
	1,973.1	2,252.1	3,133.7	3,275.4	3,655.5	4,166.5	4,407.7	5,916.2	6,701.3	6,878.7
Tradable/Non-tradable grouping										
Tradable Sector	503.4	623.7	689.0	806.2	900.2	1,221.0	1,265.9	1,398.1	1,457.2	1,545.6
Non Tradable Sector	1,469.6	1,628.4	1,770.9	1,783.1	2,095.8	2,287.0	2,469.2	3,784.4	4,264.2	4,345.5
Shares (%)										
Tradable Sector	25.5	27.7	28.0	31.1	30.0	34.8	33.9	27.0	25.5	26.2
Non Tradable Sector	74.5	72.3	72.0	68.9	70.0	65.2	66.1	73.0	74.5	73.8

Notes: Elaborated by the authors using data from the Banco Central de Reserva de El Salvador.

Table 2: **Sample Characteristics for Employed Workers**

Year	Sample size	Mean age (years)	Female Share	Mean education (years)
1998	10,877	33.22	36.3	7.68
1999	14,861	33.45	36.9	7.85
2000	13,833	33.70	37.0	7.71
2001	10,443	33.86	36.4	8.21
2002	13,531	34.07	38.0	8.58
2003	14,451	33.43	37.6	8.38
2004	14,290	33.90	35.6	8.31
2005	13,894	34.33	37.2	8.54
2006	14,119	34.28	38.2	8.52
2007	14,708	34.78	37.4	8.69
2008	14,580	34.64	37.3	8.66
2009	16,644	34.93	38.0	8.70

Notes: Authors' calculations based on Multipurpose Household Survey data. The definition of Working Population is age>15 years old = 16 years or older. The definition of employed workers includes only full and part time wage workers, and with a positive wage rate (no missing values).

Table 3: **Labor Force Participation (Percent)**

	Total			Remittances		Women		Men	
Year	MEN	WOMEN	ALL	NO REMI	REMITT	NO REMI	REMITT	NO REMI	REMITT
1997	68.5	35.3	50.9						
1998	69.6	39.3	53.5	55.3	45.9	40.7	33.9	71.4	61.6
1999	68.1	39.1	52.6	54.9	43.6	40.9	32.5	70.4	58.2
2000	67.7	38.7	52.2	54.6	42.9	40.9	30.8	69.7	58.7
2001	69.2	39.5	53.3	55.7	44.4	41.6	32.0	71.4	60.5
2002	65.8	38.6	51.2	54.0	41.4	41.1	30.5	68.5	55.7
2003	68.3	40.4	53.4	56.3	42.9	43.2	31.4	70.6	58.6
2004	66.5	38.6	51.7	54.6	41.7	41.3	30.0	68.9	57.2
2005	67.4	39.5	52.4	55.9	41.9	42.8	30.5	70.4	57.3
2006	67.0	40.4	52.6	56.4	41.1	44.1	29.8	70.0	56.5
2007	68.0	40.0	52.9	56.2	44.0	43.3	32.2	70.6	60.2
2008	68.7	40.4	53.5	56.7	43.9	43.6	31.7	71.2	60.1
2009	68.7	40.8	53.7	56.5	44.0	43.5	32.0	70.9	60.1

Notes: Authors' calculations based on household surveys as described in the text.

Table 4: **Industry Employment Shares**
All Workers

Industry	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Agriculture, food	14.3	13.5	11.4	11.9	14.9	14.2	14.4	11.8	13.2	14.8
Agriculture other and	0.3	0.4	0.3	0.4	0.3	0.2	0.2	0.4	0.3	0.7
Mining	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1
Manufacturing other	12.4	12.0	12.5	11.2	10.9	11.0	10.5	10.9	12.2	11.3
Apparel	**7.6**	**7.0**	**7.6**	**8.6**	**7.3**	**5.9**	**5.9**	**5.9**	**6.0**	**5.0**
Textiles	**1.0**	**1.0**	**1.0**	**0.6**	**0.6**	**0.7**	**0.7**	**0.9**	**1.1**	**0.4**
Utilities	0.6	0.8	0.8	0.4	0.7	0.5	0.7	0.7	0.9	0.5
Construction	7.3	8.1	8.6	9.3	8.9	8.4	9.3	8.6	8.1	7.1
Sales	16.0	16.0	16.8	17.5	18.0	17.8	18.8	19.4	19.3	19.7
Transport and communications	5.9	6.1	5.4	5.4	6.1	5.9	5.5	5.6	5.0	4.9
Financial Intermediation	2.1	2.4	2.2	1.8	1.3	1.9	1.7	2.1	2.1	1.9
Services	5.7	6.5	6.6	7.0	6.4	7.7	7.0	7.5	6.9	7.7
Government and Defense	9.6	7.2	7.7	7.2	6.6	7.0	6.7	7.1	7.2	7.4
Education	5.3	6.4	7.1	5.8	5.8	6.8	5.9	6.4	5.5	5.8
Social services and health	4.4	4.5	4.3	4.8	4.2	4.2	4.4	4.7	4.4	4.4
Domestic services	7.5	8.1	7.5	7.8	7.8	7.6	8.3	7.8	7.9	8.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes: Author's calculations based on Multipurpose Household Survey data.

Table 5: Distribution of Female Employment across Industries										
Industry	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Agriculture, food	3.6	2.5	1.8	3.1	3.2	4.1	4.6	2.9	4.1	4.0
Agriculture other and	0.0	0.1	0.0	0.1	0.2	0.0	0.0	0.1	0.0	0.2
Mining	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manufacturing other	9.3	7.9	9.9	8.1	9.0	7.9	7.5	8.1	9.7	9.0
Apparel	**15.2**	**13.5**	**14.6**	**15.9**	**13.8**	**12.0**	**10.7**	**10.6**	**10.4**	**8.7**
Textiles	**1.3**	**1.0**	**1.0**	**0.6**	**0.6**	**0.7**	**0.5**	**1.0**	**1.3**	**0.4**
Utilities	0.1	0.1	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.1
Construction	0.3	0.6	1.0	0.6	0.7	0.5	0.9	0.7	0.6	0.5
Sales	17.6	17.9	18.5	20.5	20.9	20.7	23.6	24.0	23.0	23.9
Transport and communications	1.6	2.3	1.7	1.8	2.0	1.7	1.3	1.5	1.0	0.9
Financial Intermediation	2.8	3.4	3.0	2.6	1.8	2.4	2.4	2.9	2.8	2.8
Services	4.4	5.4	5.4	5.5	4.9	6.5	6.3	6.1	5.5	6.2
Government and Defense	7.9	5.4	5.8	5.3	4.8	5.6	4.8	4.9	5.0	5.1
Education	9.1	11.2	11.5	9.6	10.7	12.4	10.0	10.7	9.3	10.4
Social services and health	8.2	8.2	7.7	7.8	7.5	7.0	7.4	8.1	8.0	7.9
Domestic services	18.8	20.4	17.9	18.6	19.8	18.3	19.7	18.2	19.1	20.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes: Author's calculations based on Multipurpose Household Survey data.

Table 6: Women's Share of Employment within Each Industry										
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Agriculture, food	9.24	6.81	6.14	9.81	7.62	10.73	12.13	9.08	11.68	10.29
Agriculture other and	3.65	11.48	4.67	4.20	19.14	3.13	0	13.37	3.32	10.03
Mining	0	0	2.75	7.41	5.78	2.65	0	0	5.7	5.54
Manufacturing other	27.65	23.90	29.91	27.12	29.57	26.66	27.37	27.83	29.72	30.13
Apparel	**73.56**	**70.75**	**73.00**	**69.04**	**66.97**	**75.10**	**69.48**	**67.50**	**65.30**	**65.68**
Textiles	**51.28**	**36.73**	**37.02**	**36.59**	**37.91**	**37.33**	**29.17**	**41.34**	**47.11**	**30.78**
Utilities	3.99	3.24	14.12	12.52	13.08	14.52	13.08	9.79	8.98	5.34
Construction	1.66	2.88	4.33	2.45	2.84	1.99	3.63	2.97	2.52	2.72
Sales	40.63	40.73	41.95	44.00	41.24	43.10	47.87	46.32	44.66	46.12
Transport and communications	10.24	13.76	11.57	12.45	11.76	10.87	8.97	10.03	7.57	7.20
Financial Intermediation	50.51	53.05	52.06	53.40	49.03	47.10	56.03	50.91	48.89	54.66
Services	28.21	30.12	31.04	29.36	27.12	31.65	34.02	30.57	29.85	30.51
Government and Defense	30.23	27.25	28.52	27.50	25.50	29.38	27.31	25.86	26.17	26.21
Education	63.44	63.87	61.47	61.78	65.08	68.37	65.33	62.62	63.47	68.92
Social services and health	68.71	66.79	67.52	60.84	63.57	61.49	64.72	65.13	67.62	68.80
Domestic services	93.23	91.57	90.97	89.16	90.90	90.37	90.38	87.43	90.38	91.11
Total	37.02	36.41	38.01	37.56	35.63	37.18	38.15	37.43	37.35	37.98

Notes: Author's calculations based on Multipurpose Household Survey data.

Table 7A: Waqe Equation Results Demographic Characteristics																				
	2000		**2001**		**2002**		**2003**		**2004**		**2005**		**2006**		**2007**		**2008**		**2009**	
Age	4.68	*	4.69	*	4.46	*	3.97	*	3.67	*	3.53	*	4.12	*	3.84	*	3.21	*	3.40	*
Age squared	-0.05	*	-0.05	*	-0.04	*	-0.04	*	-0.03	*	-0.03	*	-0.04	*	-0.04	*	-0.03	*	-0.03	*
Years of Education	5.28	*	6.69	*	6.42	*	5.87	*	5.70	*	5.39	*	5.59	*	5.31	*	5.40	*	4.94	*
Urban dummy	8.97	*	4.62	*	5.96	*	6.45	*	8.45	*	5.56	*	8.26	*	5.74	*	5.98	*	4.91	*
Female	**-13.05**	*****	**-14.67**	*****	**-16.07**	*****	**-13.48**	*****	**-14.53**	*****	**-13.97**	*****	**-12.43**	*****	**-12.66**	*****	**-11.71**	*****	**-13.49**	*****
Public sector dummy	47.86	*	47.43	*	42.13	*	41.01	*	35.14	*	37.76	*	30.62	*	54.41	*	50.51	*	47.95	*
Remittances	0.14		-0.62		1.95		-1.66		2.33		4.53	*	2.77	**	2.22		0.60		1.61	
Water dummy	8.72	*	6.49	*	5.48	*	2.69	**	0.36		5.00	*	-0.91		0.43		-6.61	*	-4.52	*

Notes: Author's calculations based on Multipurpose Household Survey data. Each year was estimated separately. The results for each year are split between tables 7A (demographic characteristics) and 7B (industry effects).

Table 7B: Wage Equation Results
Industry Effects

	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009	
Agriculture, food	-19.93	*	-16.72	*	-18.63	*	-15.03	*	-14.91	*	-17.28	*	-16.44	*	-12.41	*	-9.08	*	-10.33	*
Agriculture other and	16.06		36.69	*	25.38	*	14.85	**	35.44	*	16.04	**	38.71	*	10.60		10.71		-5.13	
Mining	22.86		32.49	**	37.31	*	22.48		31.26	**	19.01		6.41		47.46	*	15.07		51.44	*
Manufacturing other	10.26	*	11.02	*	7.32	*	7.64	*	0.59		6.06	*	7.56	*	8.04	*	4.62	*	4.83	*
Apparel	**10.95**	*****	**6.90**	*****	**11.21**	*****	**8.39**	*****	**7.43**	*****	**3.68**		**-2.61**		**-0.30**		**-2.89**		**-2.39**	
Textiles	**-16.90**	*****	**-20.42**	*****	**-28.41**	*****	**-4.34**		**-14.52**	*****	**-6.98**		**-9.78**		**-15.27**	*****	**-4.86**		**9.04**	
Utilities	53.74	*	46.16	*	47.90	*	49.53	*	58.62	*	36.98	*	43.02	*	36.56	*	38.38	*	29.89	*
Construction	17.61	*	21.23	*	17.58	*	17.50	*	16.87	*	16.91	*	11.91	*	17.45	*	15.20	*	16.88	*
Sales	-7.97	*	-7.63	*	-9.04	*	-7.78	*	-7.78	*	-2.64	**	-6.79	*	-6.13	*	-2.60	*	-4.43	*
Transport and communications	27.16	*	27.65	*	22.79	*	25.87	*	31.30	*	17.98	*	17.86	*	16.81	*	17.14	*	9.25	*
Financial Intermediation	67.83	*	57.69	*	56.64	*	59.37	*	63.41	*	49.46	*	38.98	*	38.15	*	41.89	*	40.02	*
Services	2.60		2.87		4.58	**	-2.44		-1.04		-3.92	**	-2.00		0.08		2.70		3.20	**
Government and Defense	20.05	*	9.81	*	9.04	*	15.68	*	19.80	*	9.29	*	17.17	*	2.89		6.29	*	11.64	*
Education	49.54	*	35.08	*	40.36	*	50.26	*	55.98	*	41.69	*	61.39	*	41.53	*	30.76	*	41.65	*
Social services and health	31.29	*	12.06	*	19.73	*	27.22	*	27.74	*	21.46	*	34.86	*	15.29	*	15.30	*	29.87	*
Domestic services	-49.50	*	-44.95	*	-46.07	*	-44.18	*	-43.34	*	-35.79	*	-34.93	*	-36.49	*	-34.96	*	-32.69	*
Constant	73.18	*	62.50	*	68.84	*	99.33	*	-75.54	*	-69.96	*	-71.04	*	-67.95	*	-63.61	*	-62.02	*

Notes: Author's calculations based on Multipurpose Household Survey data.