

Female Wages in the Apparel Industry Post-MFA

The Cases of Cambodia and Sri Lanka

Yevgeniya Savchenko

Gladys Lopez Acevedo

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Abstract

The end of the Multi-fiber Arrangement/Agreement on Textiles and Clothing in 2005 was a major policy change that affected the allocation of global apparel productions well as the lives of workers involved in this sector. Since the apparel industry is often the major female employer in developing countries, this policy change was expected to have major implications for women. This paper analyzes the wages and working conditions of women in the apparel sector in Cambodia and Sri Lanka following the phase-out the Multi-fibre Arrangement. In both countries, apparel is a major source of exports, and women constitute 70 to 80 percent of the workers employed in the apparel industry. The

paper finds that after the removal of the Multi-fibre Arrangement, apparel prices declined as a result of the increased competition. The theoretical model suggests that a decrease in prices would lead to a decrease in apparel wage premiums relative to other industries in the short run and the widening of the male-female wage gap in the long run. The empirical findings support these theoretical predictions. Wage premiums in the apparel sector relative to other industries went down post-Multi-fibre Arrangement in Cambodia and Sri Lanka and the male-female wage gap increased. The paper finds mixed results in terms of working conditions in Cambodia and Sri Lanka.

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FEMALE WAGES IN THE APPAREL INDUSTRY POST-MFA: THE CASES OF CAMBODIA AND SRI LANKA¹

Yevgeniya Savchenko² and Gladys Lopez Acevedo³

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Contact information: ys244@georgetown.edu, gacevedo@worldbank.org

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²Consultant, PRMPR

³Senior Economist, PRMPR

1. Motivation

The Multi-fibre Arrangement (MFA) was the major policy governing the textile and apparel trade between industrialized and developing countries since 1974. Its goal was to help industrialized countries adjust to the rising production capacity of developing countries. Under this arrangement, textile and clothing quotas were negotiated bilaterally.⁴ After the termination of the MFA/ ATC on January 1, 2005, the trade in textile and clothing was no longer subject to quotas, and is governed now by general rules of the World Trade Organization (WTO) and the General Agreement on Tariffs and Trade (GATT). The result of the end of the Multi-fibre Arrangement (MFA) was a dramatic redistribution of the allocation of global apparel production (Staritz 2011; Lopez Acevedo and Robertson 2012). For example, in 2000 China contributed to 24.8 percent of world apparel exports, Cambodia's share was 0.6 percent, and Mexico's was 4.6 percent. In 2008, the Chinese market share of world apparel exports increased by 50 percent, as compared to 2004, and it constituted 38.8 percent of the global apparel trade. The Cambodian market share doubled over the same time period and accounted for 1.2 percent of world apparel exports. However, the Mexican share declined threefold in that period, and in 2008 it constituted only 1.4 percent of world apparel exports (Lopez Acevedo and Robertson 2012).

The end of the MFA had significant implications not only for exports, but also for apparel workers, female in particular. Apparel is perhaps the most prominent labor-intensive and female-intensive globalized manufacturing sector in many developing countries. Due to its low-skill labor requirements, the apparel industry is often seen by economists as a "gateway" into manufacturing for workers whose alternative is agriculture or the informal labor market (including domestic service, construction, and child care). The apparel industry is also a major source of formal employment for women who constitute a major share of the apparel employment in many countries.

Apparel is the key manufacturing industry in Cambodia and Sri Lanka. In Cambodia apparel exports accounted for 70 percent of total manufacturing exports, and the sector employed around 325,000 workers in 2008, which represented almost 30 percent of total industrial employment. In Sri Lanka the apparel sector contributed 40 percent of the country's total exports and employed 270,000 workers, or 13 percent, of its industrial employment in 2008.⁵ Female workers dominate the apparel sector employment in both countries, making up 83 percent of apparel employment in Cambodia and 73 percent in Sri Lanka.⁶

The goal of this paper is to analyze the post-MFA changes in female wages and working conditions, such as the use of child labor and working hours, in the apparel industry in Cambodia and Sri Lanka. The MFA phase-out was a major concern for both Cambodia and Sri Lanka because of the expected competition from cheaper Chinese products. Women workers

⁴On January 1, 1995, the MFA was replaced by the Agreement on Textiles and Clothing (ATC), which brought the MFA under the rules of the World Trade Organization (WTO). As a transitional instrument, the ATC established a timeframe to eliminate quotas and integrate clothing and textiles into the 1994 rules of the General Agreement on Tariffs and Trade (GATT).

⁵Authors' calculations using data from World Development Indicators from 2009.

⁶Data from household surveys.

were expected to be affected the most by the MFA phase-out, since they constitute the majority of apparel industry employment in both countries.

The theoretical model developed by Robertson and Trigueros-Argüello(2011) predicts that a negative price shock to a specific sector would lead to (i) a decrease in wages in that sector relative to other sectors in the short run, and (ii) a relative decrease of wages to a sector-specific factor (in our case, female workers) in the overall economy in the long run. Our empirical analysis supports the model predictions. We find that the apparel wage premium dropped immediately following the MFA phase-out in both countries. Even though the industry wage premium improved in the following years, it never regained its pre-MFA phase-out levels. Furthermore, the male-female wage gap widened in the post-MFA period in both countries. In terms of working conditions, which can be considered as another measurement of worker compensation, the results depend on the measurement used.

The rest of the paper is structured as follows. Section two describes the apparel industry structure as well as export and employment trends in Cambodia and Sri Lanka. Section three presents a simple theoretical model on how the wages and working conditions of the females could have changed after the MFA phase-out. Section four describes the data and presents the empirical findings. Section five presents the conclusions.

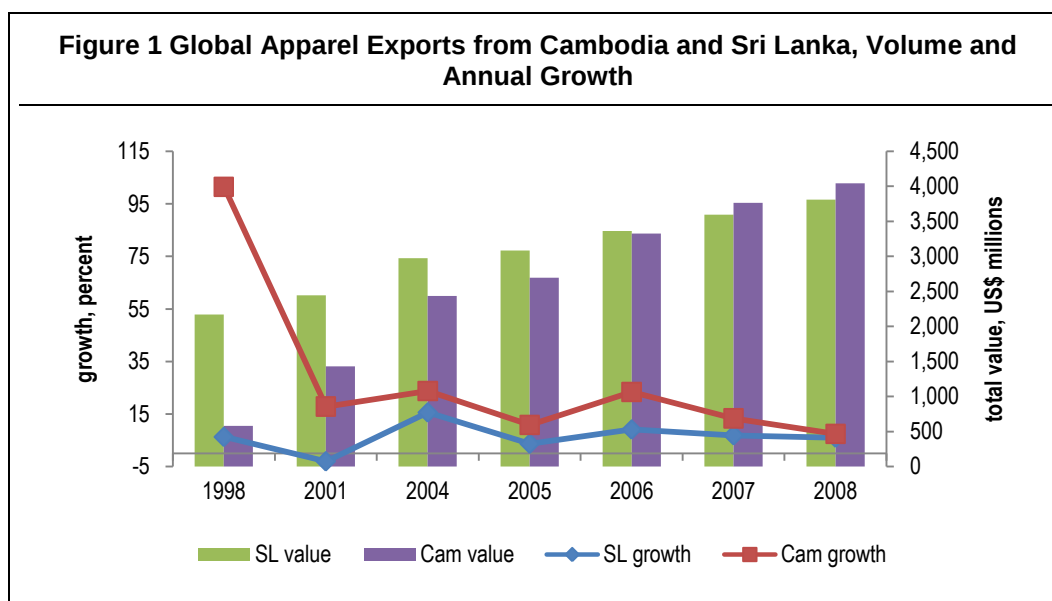
2. Description of the Apparel Industry in Cambodia and Sri Lanka

The Cambodian and Sri Lankan apparel industries thrived under the MFA system. Due to its decades of political and civil unrest, Cambodia was a latecomer to the apparel industry. The modern Cambodian industry was established only in the mid-1990s by investors from Hong Kong SAR, China; Malaysia; Singapore; and Taiwan, China who took advantage of unused quotas. Sri Lanka, on the other hand, has a longer tradition in the apparel manufacturing sector, but before 1977 the Sri Lankan apparel sector was very small with a few locally owned firms working for the domestic market. Trade liberalization in 1977, together with unused MFA quotas, immediately attracted foreign investors from East Asia. Foreign direct investments (FDI) played a major role in establishing and developing the apparel industry in both countries, but the patterns of development in the two countries have subsequently diverged. In 1999 approximately 80 to 85 percent of factories were locally owned in Sri Lanka (Kelegama and Wijayasiri 2004). By contrast, in Cambodia approximately 93 percent of apparel factories are foreign owned (Natsuda, Goto, and Thoburn 2009).

The end markets of both countries are highly concentrated in the United States and the European Union (EU), with 87 to 90 percent of total Cambodian and Sri Lankan apparel exports going to those two destinations. Export products in both Cambodia and Sri Lanka are highly concentrated in a few items, although each country specializes in different value-added products: the Sri Lankan apparel industry focuses on higher value-added products, such as lingerie, whereas the Cambodian industry focuses on lower value-added items, such as sweaters (Staritz and Frederick 2011a, 2011b).

Apparel exports grew remarkably in Cambodia and Sri Lanka during the MFA era. After the Cambodian apparel industry took off in the mid-1990s, exports quadrupled within a decade, growing from \$578 million in 1998 to \$2.4 billion in 2004 (see figure 1). According to the Garment Manufacturers' Association in Cambodia (GMAC), apparel accounted for only 3

percent of Cambodia's total exports in the early 1990s, but by 2003 it constituted 76.4 percent. Sri Lanka, already a seasoned apparel exporter in the mid-1990s, experienced a healthy but more moderate growth than Cambodia, with exports rising from \$1.7 billion in 1995 to \$3.0 billion in 2004 (figure 1). However, in the late 1990s export growth decelerated, and exports even declined in 2001 and 2002.⁷



Source: United Nations Commodity Trade Statistics Database (UN Comtrade).

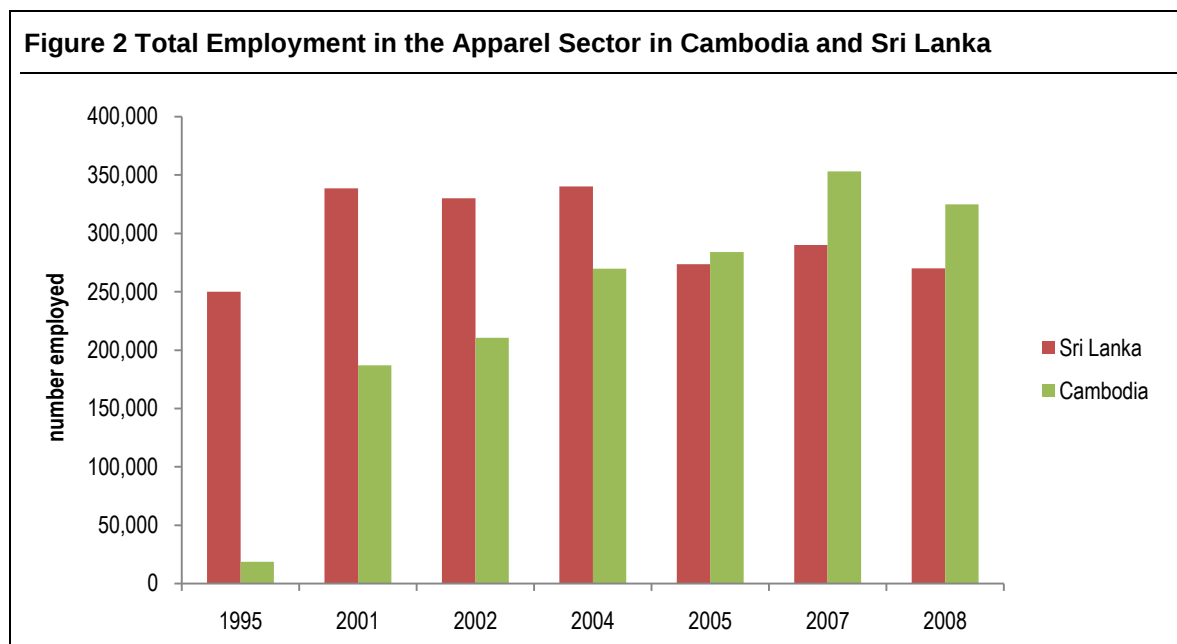
Note: The growth rate reflects the change from the previous year.

Despite pessimistic expectations for the apparel sectors post-MFA, both countries continued increasing apparel exports, though growth slowed somewhat. Sri Lanka expected that exports would decrease by half and that 40 percent of firms would close in 2005 (Kelegama and Epaarachchi 2002). However, Sri Lankan apparel exports grew 6 percent annually on average, and their value increased by approximately \$1 billion over 2005–08. In Cambodia immediately after the MFA removal, total apparel exports increased to \$2.7 billion in 2005 and to \$4.0 billion in 2008, a rise of almost 14 percent annually.

In both countries employment in the apparel sector grew under the MFA. The post-MFA dynamics were quite different: while in Cambodia the number of workers in the industry continued to grow because of industry expansion, in Sri Lanka's sector employment declined because of industry consolidation. Given that women represent the major share of employment in apparel manufacturing, the general employment trends are directly applied to women. Employment in Cambodia's apparel sector mushroomed from fewer than 19,000 workers in 1995 to approximately 270,000 in 2004 (Staritz and Frederick 2011a). Growth continued after the MFA phase-out, with operating employment reaching 353,017 workers in 2007 (see figure 2).

⁷This decline in Sri Lanka's exports was related to lower demand in developed countries but more importantly to the bomb attacks at the Colombo International Airport in July 2001 that triggered the imposition of war-risk insurance charges (Kelegama and Wijayasiri 2004). The reduction in orders and escalating insurance costs hit the industry severely, and as a result several small- and medium-sized enterprises closed in the early 2000s.

After 2007, however, employment declined to 324,871 in 2008. Employment levels in Sri Lanka's apparel sector increased from 102,000 in 1990 to 340,367 in 2004, accounting for more than a third of manufacturing employment in 2004 (Staritz and Frederick 2011b). As the industry started consolidating⁸ firms after the end of the MFA, employment declined by approximately 20 percent to 270,000 in 2008 (see figure 2).



Source: Kelegama 2005a, 2005b, 2006, 2009; Tait 2008; Barrie 2009; Saheed 2010; Garment Manufacturers' Association in Cambodia (GMAC).

Note: Operating employment numbers are presented for Cambodia..

3. Description of the Data and Methodology

3.1. Methodology

The paper follows the theoretical model from Robertson and Trigueros-Argüello (2011), which uses a simplified version of the model used in Do, et al. (2011). The model decomposes the different wage effects of trade liberalization to provide the theoretical ground for the MFA phase-out implications for women in apparel manufacturing.

Assume that there are two factors, males (m) and females (f), and two industries, apparel manufacturing (a) and another (b). The output of the two goods (y_a, y_b) can be summarized with linear homogeneous, differentiable, and positive and declining marginal product production functions:

⁸Consolidating the apparel industry in Sri Lanka means concentrating apparel production in a smaller number of plants, mostly the larger enterprises. This phenomenon was accompanied by a decrease in the number of small firms and overall employment.

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

Assume that there is full employment of both males and females, and that males are fully mobile between industries.

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

Assume that females are a relatively industry-specific factor. In other words, women work in a specific industry—apparel in our case—and are very unlikely to move to other industry. The main reason for this assumption is to account for the strong social pressure that women in developing countries often face to enter particular industries (such as apparel manufacturing) and avoid others (such as heavy industry). Males, however, seem more likely to move freely between industries.

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

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

This representation assumes that good b is the numeraire and that women are paid the difference between the value of the output and the payment to men. The main implication of equation (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 the price of apparel will directly affect women's wages in apparel manufacturing and will not affect women's wages in industry b , in other words one will observe a change in female wages in apparel relative to other industries.

As Mussa (1974) shows, the effect of a price shock on men, the factor with greater mobility, is a function of the relative factor intensity of each sector and the degree to which factors can be substituted in each industry. In general, however, the per-worker wage rate declines, but not as much as the apparel price decreases.

In the long run, both males and females are mobile between industries, and the problem postulated in equations 1 and 2 reduces to the Stolper-Samuelson theorem, in which the effect of the change on the returns to each factor depends on the relative factor intensities within a particular industry. Defining θ_{ij} as the share of factor i in industry j , this result is expressed as

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

and

$$\hat{w}^m = \frac{-\theta_{mb}}{\theta_{ma} - \theta_{mb}} \hat{p}_a \quad (5)$$

In other words, if apparel manufacturing is female-intensive, and the price of apparel decreases, the long run effect is a real decrease in the relative wages of women (in every industry).

The results in equations (3) and (5) can be straightforwardly applied to the empirical estimation through the traditional Mincerian wage equation. The Mincerian equation that is used regresses the log of the wages for worker k at period t on a set of worker characteristics such as years of education (edu_{kt}), gender (using a dummy variable gen_{kt} that equals the value of one if the worker is female); age_{kt} ; age_{kt}^2 ; industry (ind_{jkt}) and i occupational ($occup_{ikt}$) dummies, hours (h_{kt}) worked; and a remaining match-specific component that is captured in the residual term ε_{kt} .

$$\log(wage_{kt}) = \beta_0 + \beta_1 gen_{kt} + \beta_2 age_{kt} + \beta_3 age_{kt}^2 + \beta_4 edu_{kt} + \beta_5 h_{kt} + \sum_j \delta_j ind_{jkt} + \sum_i \lambda_i occup_{ikt} + \varepsilon_{kt} \quad (6)$$

We correct for the possibility of selection bias that comes from the censoring of female wages by using the two-step Heckman approach. Participation is defined as having positive wage value, and the variables used in the selection correction equation are gender, age, age squared, years of education, and a series of dummies for marital status.

In our case, the effect of a decrease in industry j 's price would have two effects on wages. In the short run, the decrease in price would affect the industry-specific component of the wage and would show up as a contemporaneous decline 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 (1987).

In the long run, the price decrease would affect the "general" component of wages. In our apparel industry application, as long as industry j is female-intensive, any decrease in the price of industry j will affect β_1 , which represents the economy-wide returns to females.

One problem with applying this approach is that how does one determine what timeframe constitutes "the long-run." Robertson (2004) provides one of the very few estimates of what the relevant timeframe is for the long-run and suggests that the Stolper-Samuelson effects begin to emerge in three to five years.

Working conditions can fit into this model too. The most straightforward way is to redefine the variable w as compensation that includes working conditions such as bonuses, no mandatory overtime or unpaid overtime, or no use of child labor. Working conditions can be either substitutes or complements for wages. A compensating differential approach even suggests that wages and working conditions are substitutes: in this case, firms with poor working conditions need to pay workers higher wages to compensate them for enduring the poor conditions (and, consequently, pay them less for better conditions).

We construct the country-specific measures of working conditions using the information from the household and labor force surveys. Conditions are considered favorable to the worker if he or she (i) is older than 14 years, (ii) works no more than 40 hours a week (or less than six days a week), (iii) has a low ratio of in-kind compensation over cash work, and (iv) has a high

ratio of benefits over cash pay.⁹ These measures do not reflect all aspects of job quality. Unfortunately, we could not create a more comprehensive index of working conditions due to the data availability.

To empirically analyze working conditions, dummy variables equal to one for each good working condition are averaged across all conditions for each worker. The empirical model is presented in equation (7) where the dependent variable—the average working conditions (wc_{kt}) of individual k in period t —is a function of (i) years of education (edu_{kt}); gender (using the dummy variable $female_{kt}$ that equals the value of one if the worker is female); age_{kt} , age_{kt}^2 ; j industry (ind_{jkt}), and i occupational ($occup_{ikt}$) dummies; and p marital status dummies ($married_{pkt}$); (ii) $year$ dummy equal to the value of one for the year 2005 and beyond, the TG dummy that is equal to the value of one for the textile and garment sector, and their interactions with female dummy; and (iii) a remaining match-specific component that is captured in the residual term ω_{kt} .

$$wc_{kt} = \gamma + \theta_1 female_{kt} + \sum_p \alpha_p married_{pkt} + \theta_2 age_{kt} + \theta_3 age_{kt}^2 + \theta_4 edu_{kt} + \sum_j \vartheta_j ind_{jkt} + \sum_i \mu_i occup_{ikt} + \alpha * year + \Phi * year * TG + \psi * year * TG * female + \omega_{kt} \quad (7)$$

The coefficient of interest in this regression is ψ which shows the change in working conditions for women in the post-MFA textile and garment industry relative to men and compared to other industries.

3.2. Data Description

The paper used household and labor force surveys to carry out the analysis. The Cambodian data come from the Cambodia Socio-Economic Survey (CSES) which was collected by the National Institute of Statistics. The data in this paper include data from the 1996, 1999, 2004, 2007, 2008, and 2009 surveys, which contain roughly 12,000 households each. These are cross-sectional household surveys that contain detailed household and individual information including wage, education, age, marital status, gender, location, industry, occupation, some working conditions, and the hours worked.

The Sri Lankan data come from household and labor force surveys. The Sri Lanka Household Income and Expenditure Surveys (HIES) were carried out by the Sri Lankan Department of Census and Statistics. The paper used the 2002 and 2006 HIES data, which cover about 22,000 households each and contain similar information as CSES. The Sri Lankan Labor Force Survey Sri Lanka (LFS) is conducted quarterly by the Department of Census and Statistics. We used annual data for 2002 and 2008 covering approximately 60,000 individuals each. These surveys contain information about work-related activities (for example, employment status, occupation, industry, and wages), household characteristics (for example, size and location), and individual demographic characteristics such as age, gender, and education, among others.

⁹ For exact definitions please refer to empirical section.

4. Empirical Findings¹⁰

4.1. Labor Force Characteristics

Labor force employed in the apparel sectors of Cambodia and Sri Lanka share a number of characteristics. First, the share of labor force employed in the textiles and apparel industry was relatively small and remained stable after the end of the MFA: 5 percent in Cambodia and 6 percent in Sri Lanka (see table 1).

Second, the apparel sector is female-dominated. The share of employment in apparel is 83 and 73 percent of women in Cambodia (2009) and Sri Lanka (2008), respectively. In both countries, this share was much higher than the proportion of females in the total labor force: 50 percent in Cambodia and 34 percent in Sri Lanka. Moreover, the share of females in apparel remained relatively stable in both countries after MFA removal.

Third, the labor force working in apparel was more educated than the country average. In Cambodia an average person had 6 years of education, while an apparel sector employee had 6.5 years of education. In Sri Lanka, where the population is more educated on average than in Cambodia, the average person had 8.8 years of education compared to 10.3 years for an apparel sector worker.

Fourth, the men working in apparel sector are more educated than the women workers. In Cambodia in 2009, women had on average 6.4 years of education while men had 7.3 years. This gap was smaller for Sri Lanka, with 10.2 and 10.5 years of schooling for female and male workers in 2008, respectively. But these differences are representative of the gender education gap in general in these countries, rather than a gap that is specific to the apparel industry.

¹⁰The empirical analysis for the four subsections was conducted by Elisa Gamberoni, Ana Luisa Gouvea Abras, and Yevgeniya Savchenko.

Table 1 Labor Force Characteristics for Cambodia and Sri Lanka

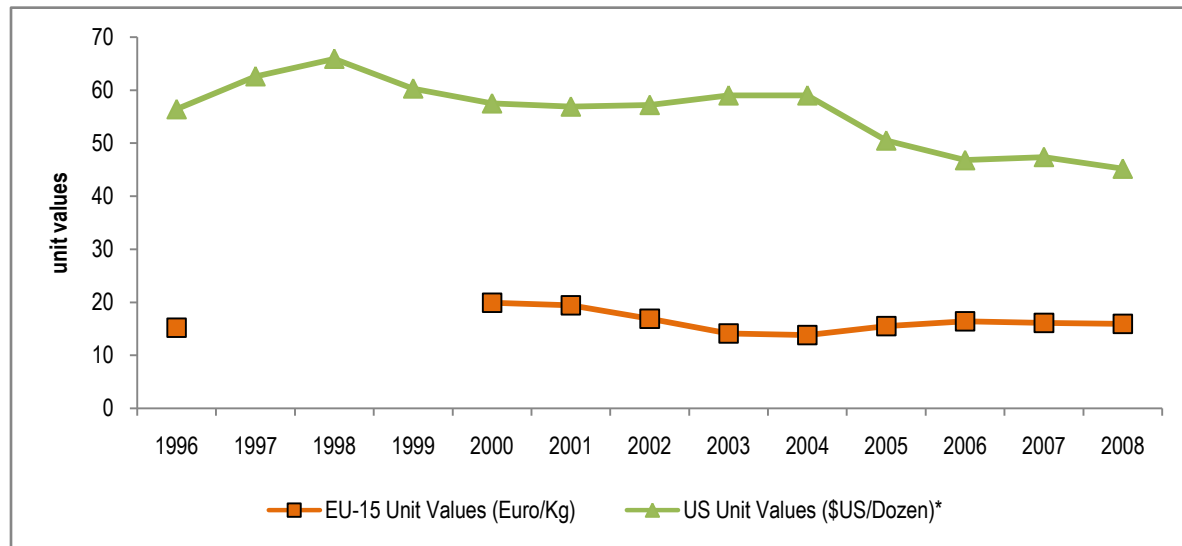
	Cambodia				Sri Lanka		
	2004	2007	2008	2009	2002	2006	2008
<i>Employment and Education</i>							
Females in labor force (percent)	50	49	48	50	32	31	34
Years of education	5.51	6.07	6.05	5.98	8.44	8.56	8.81
Years of education for females in T&G	6.12	6.26	5.8	6.39	10.03	10.01	10.18
Years of education for men in T&G	7.55	8.62	7.22	7.28	10.2	10.33	10.46
Average years of education in T&G	6.39	6.67	6.10	6.55	10.08	10.11	10.26
<i>Employment Share of the Industry</i>							
Agriculture (percent)	58	49	43	53	20	12	18
T&G (percent)	4	5	6	5	6	6	6

Source: Authors' calculations are based on Cambodia Socio-Economic Surveys and the Sri Lankan 2002 and 2006 Household Income and Expenditure Surveys and the 2002 and 2008 Labor Force Surveys. *Note:* T&G = textiles and garments.

4.2. Unit Values

In both Cambodia and Sri Lanka, unit values show declining trends following the end of the MFA. Sri Lankan apparel export unit prices to the United States declined sharply after the MFPhase-out from \$59 to \$42 per dozen items over the 2004–08 period (see figure 3). A slight rise in EU unit values over 2004–05 was followed by a moderate decrease (Staritz and Frederick 2011b). In spite of this decline, Sri Lanka's apparel exports have generally experienced higher unit values than those of other Asian apparel exporter countries, reflecting the higher value-added production that Sri Lanka specializes in. Unit values of apparel exports from India and Sri Lanka to the EU are higher than those of Asian competitor countries, including Bangladesh, Cambodia, China, Pakistan, and Vietnam (Tewari 2008).

Figure 3 Unit Values of Sri Lanka's Apparel Exports to the EU-15 and the United States

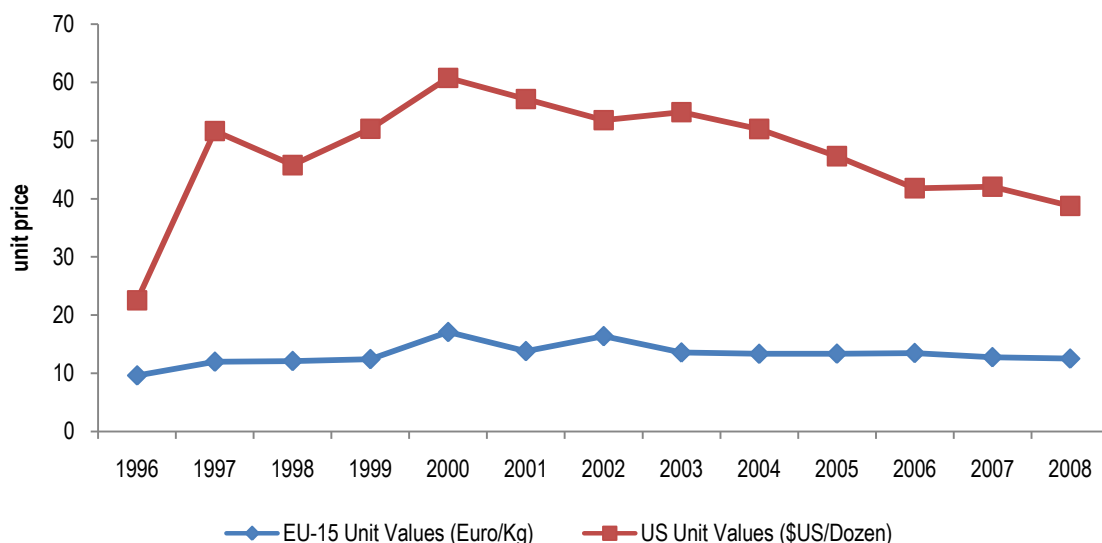


Source: EU-15: Eurostat; United States: U.S. International Trade Commission (USITC).

Note: For products exported to the United States, volume data were "not available" for four products, and for five products the volumes were reported in "numbers." Both sets are measured in numbers that were converted into dozens.

On the other hand, the unit prices of Cambodia's main export products are lower than the world average. For EU-15 exports, unit prices in 2005 were lower than in India, Sri Lanka, and Vietnam, but higher than in Bangladesh, China, and Pakistan (Tewari 2008). One of the reasons for the low prices of Cambodian apparel exports is that Cambodian apparel manufacturers concentrate on the production of basic products, while other countries export higher-value products. Unit prices went down after the end of the MFA, with U.S. import prices experiencing sharper declines than those of the EU. Between 2004 and 2008 the average price of apparel exports to the United States fell by 25 percent, from \$52 to \$39 per dozen, while the average price of apparel exports to the EU-15 declined by 7 percent, from €13.4 to €12.5 per kilogram between 2004 and 2008, according to the U.S. International Trade Commission (USITC) and Eurostat data (Staritz and Frederick 2011a) (see figure 4).

Figure 4 Unit Values of Cambodia's Apparel Exports to the EU-15 and the United States



Source: EU-15: Eurostat; United States: U.S. International Trade Commission (USITC).

Note: For the U.S. values, only products measured in dozens are included.

The declining trends in unit values were expected. After the MFA phase-out, the competitive pressure in apparel exports increased, which inevitably lead to a decrease in apparel prices. According to the simple model described in Section 3.a, the decline in apparel prices should have resulted in apparel manufacturing wages decreasing in the short run and infemale wages in all industries declining in the long run (in approximately three to five years). The next subsection provides empiricalevidencefor these theoretical results.

4.3. Wages

In this section, the paper investigates the changes in wage levels, as well as the male-female wage differential and apparel sector premiums before and after the MFPhase-out. The analysis shows that, on average, wages were higher in textiles and garments than in agriculture in both countries (see table 2). In Cambodia, wages paid in apparel manufacturing were higher than the average wages in the economy. However, in Sri Lanka apparel wages were slightly lower than the economy-wide average.

Table 2 Wage Levels for Cambodia and Sri Lanka

	Cambodia				Sri Lanka		
	<u>2004</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2002</u>	<u>2006</u>	<u>2008</u>
Mean log wage in T&G	12.24	12.45	12.53	12.45	8.35	8.75	8.86
Mean log wage in agriculture	11.05	11.6	11.72	11.61	7.82	8.31	8.68
Mean log wage	11.74	12.31	12.47	12.22	8.34	8.83	8.94

Source: Authors' calculations based on Cambodia Socio-Economic Surveys and the Sri Lankan 2002 and 2006 Household Income and Expenditure Surveys and the 2002 and 2008 Labor Force Surveys. *Note:* T&G = textiles and garments.

Tables 3 and 4 present the results of wage regressions for Cambodia and Sri Lanka, respectively. The regression analysis was carried out using the methodology described in section 3.a. For our analysis, we used six rounds of the Cambodian Socio-Economic Surveys that covered the 1996–2009 period, the Sri Lankan 2002 and 2006 HIESs, and the 2002 and 2008 Sri Lankan Labor Force Surveys.

In both countries, working in apparel pays a positive premium compared to the economy average; however, the premium dipped immediately after the MFA phase-out. This result is in line with theoretical predictions that a decrease in price for apparel leads to a decline in the relative wages in apparel in the short term. In Cambodia, the wage premium for working in apparel was negative in 1996, most likely because the industry was just established and had operated for only three years. In 1999, the apparel wage premium increased significantly, coinciding with Cambodia signing trade agreements with the United States and the EU and significantly increasing its exports. The apparel wage premium declined considerably in 2004, compared to 1999. However, the premium went up over 2007–08.¹¹ Even though the apparel industry premium in Sri Lanka was lower than in Cambodia—in 2002, it was 0.196—the industry premium was still positive as compared to the economy average. The premium went down in 2006 to 0.05, but it increased to 0.08 in 2008. The increase in the apparel wage premium in 2008 might be associated with the industry switch to manufacturing higher-value goods, such as lingerie.

The change in the female relative wages represents the long run effect of the price shock. In both countries, the wage gap behaved in the manner predicted by the theory—it widened in the three to five years following the MFA phase-out, but then exhibited a declining pattern. In Cambodia the female wage gap decreased over time; in 1996 female wages were 26.6 percent lower than those of males, but in 2009 women were paid only 11.5 percent less than men (see table 3).¹² The wage gap went up after the MFA phase-out, from 12.0 to 13.3 percent over 2004–08; however, it decreased in 2009 to 11.5 percent. The gender wage differential in Sri Lanka also increased after the end of the MFA. In 2002, women earned 40 percent less than men (see table

¹¹Robertson, et al. (2009) also document a positive wage premium for the Cambodian apparel sector in 2004.

¹²More careful analysis of wage premiums from 2009 onward is needed for several reasons: 1) this is the time of financial crisis, and 2) the Chinese apparel safeguards were lifted at the end of 2008. Therefore, the changes in 2009 and after are influenced not only by the MFA phase-out, but by other events as well.

4). The gender difference went up to 55 percent in 2006, and even though it decreased in 2008 to 44 percent, it was still higher than the pre-MFA phase-out level.

Table 3 Wage Premium Regressions for Cambodia

	1996	1999	2004	2007	2008	2009
Female	-0.266***	-0.141***	-0.120***	-0.128***	-0.133***	-0.115***
Hours	0.010***	0.011***	0.016***	0.014***	0.017***	0.017***
Age	0.059***	0.044***	0.038***	0.052***	0.066***	0.056***
Education	0.053***	0.042***	0.009***	0.079***	0.066***	0.050***
Textiles and apparel	-0.301***	0.781***	0.287***	0.354***	0.374***	0.130**
Hazard	-0.000	0.094	-0.085	0.362**	0.132	0.040
Constant	10.640***	9.973***	10.747***	9.942***	9.930***	10.394***
Number of observations	4,706	3,000	7,068	2,294	1,287	3,800

Source: Authors' calculations based on Cambodian Socio-Economic Surveys.

Note: The grand mean effects of the industries are calculated; additional controls include age squared, hours of work, industry, and occupation dummies. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4 Wage Premium Regressions for Sri Lanka

	2002		2006		2008	
Female	-0.401	***	-0.553	***	-0.443	***
Age	0.111	***	0.154	***	0.118	***
Education	0.040	***	0.039	***	0.041	***
Textiles and apparel	0.196	***	0.050	***	0.082	**
Hazard	0.525	***	0.790	***	0.528	***
Constant	6.070	***	5.742	***	6.181	***
Number of observations	12,213		17,828		14,998	

Source: Authors' calculations based on the Sri Lankan 2002 and 2006 Household Income and Expenditure Surveys and the 2002 and 2008 Labor Force Surveys.

Note: The grand mean effects of the industries are calculated; additional controls include age squared, industry, and occupation dummies. Hours worked were not available in the Sri Lankan surveys.

4.4. Working Conditions

Working conditions directly impact a worker's well-being through the number of hours that are worked overtime, a hazardous work environment, social benefits, or workplace

discrimination. But they also have an indirect impact on employment and wage opportunities through the demand side: buyers might pay lower prices or refuse to buy at all if they know that producers exploit child labor or mistreat employees.

The Cambodian and Sri Lankan governments had different strategies to improve working conditions in the apparel sector. Sri Lanka, as a part of its Five-Year Strategy, designed an international image-building campaign, *Garments without Guilt*, in 2006 and a local image-building campaign *Abhimani* (“pride”) in 2008 to improve the image of the apparel sector and working conditions. Despite these efforts, working conditions are still far from ideal. As mentioned earlier, labor costs in Sri Lanka are lower than in China and India. Besides low wages, issues such as the lack of appointment letters, long working hours, high work intensity, and, in particular, how the right of association and collective bargaining (as many firms are reluctant to recognize trade unions) have been problematic in parts of the apparel sector, particularly in smaller firms (Staritz and Frederick 2011b).

Cambodia has a good record of labor compliance because of the *Better Factories Cambodia* program that began in 1999. Through this program, compliance with international labor standards was directly linked to the apparel export quotas that Cambodia received from the United States. In 2004, the Foreign Investment Advisory Service survey of the 15 largest U.S. and EU buyers of Cambodian apparel, Cambodia was rated the highest on “level of labor standards” and “protecting the rights of workers to organize unions” among Asian apparel-exporting countries, including Bangladesh, China, Thailand, and Vietnam (Staritz and Frederick 2011a). The MFA phase-out coincided with the expiration of the U.S. quotas in 2004, which eliminated the incentive motive of *Better Factories Cambodia* (Staritz and Frederick 2011a). But, the Cambodian government encouraged the apparel sector to continue with the program to maintain its reputation for compliance with good labor standards in order to remain attractive to the foreign investors.

Table 5 Working Conditions Regressions for Cambodia and Sri Lanka

	Cambodia		Sri Lanka			
	Household Surveys		Labor Force Surveys		Household Surveys	
	1	2	3	4	5	6
Female	0.031*** (0.002)	0.032*** (0.002)	0.066*** (0.002)	0.059*** (0.004)	0.010*** (0.003)	0.038*** (0.004)
Year dummy	0.045*** (0.002)	0.046*** (0.003)	-0.009*** (0.002)	-0.014*** (0.003)	-0.451*** (0.003)	-0.435*** (0.003)
Female*T&G		-0.036*** (0.012)		-0.029* (0.015)		-0.008 (0.014)
Female*year		-0.001 (0.004)		0.015*** (0.005)		-0.060*** (0.005)
Year*T&G	-0.052*** (0.008)	-0.069*** (0.018)	0.023*** (0.009)	0.01 (0.017)	-0.030*** (0.009)	-0.062*** (0.016)
Year*T&G*female		0.022 (0.020)		0.01 (0.020)		0.085*** (0.020)
Constant	0.779*** (0.016)	0.779*** (0.016)	0.737*** (0.015)	0.739*** (0.015)	0.630*** (0.029)	0.631*** (0.029)
R-squared	0.09	0.091	0.122	0.123	0.559	0.561
Number of observations	84,724	84,724	49,348	49,348	34,585	34,585

Source: Authors' calculations based on Cambodia Socio-Economic Surveys and the Sri Lankan 2002 and 2006 Household Income and Expenditure Surveys and the 2002 and 2008 Labor Force Surveys

Note: Standard errors in parentheses. Additional controls include age, age squared, marital status, education, industry, and occupation dummies. T&G = textiles and garments; MFA = Multi-fibre Arrangement. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

We measure working conditions as an average of two dummies—a dummy for a worker above age of 14, and a dummy for a workweek that is less than or equal to a 40 hours (see table 5, columns 1–4). We have to use such a narrow measure of working conditions due to the lack of a more comprehensive measurement in the data. Thus, a reader should keep in mind that this measure of working conditions reflects only two specific aspects of the job quality. In both cases, regressions are pooled across different survey years.

The results show that the working condition index in the Cambodian textile and garment industry deteriorated post-MFA by 5.2 percent, compared to other industries (table 5, column 1). Even though the post-MFA changes in female working conditions relative to male working conditions and compared to other industries are positive (see table 5, column 2), they are not significant, suggesting that women's working conditions were not affected differently than those of men as a result of the MFA phase-out. These findings are not far from the theoretical predictions that working conditions in apparel sector should deteriorate as a result of declining prices on apparel.

On the other hand, working conditions in Sri Lanka improved by 2.3 percent post-MFA as compared to other industries, which might be a sign of the impact of the *Garments without Guilt* campaign. Similar to Cambodia, in Sri Lanka the post-MFA changes in female working conditions relative to male working conditions and compared to other industries are positive,

but not significant. Using Sri Lanka's household survey, we can also employ an alternative measure of working conditions (table 5, columns 5–6): the share of bonuses and allowances over cash earnings and the share of food stamps over cash pay. Favorable working conditions correspond to having a higher-than-average performance pay ratio and a lower-than-average food stamps ratio. Our dependent variable represents an average between those two variables. The analysis shows that this index of working conditions in textile and garment industry compared to other industries worsened in the post-MFA period by 3 percent. However, the working conditions improved for women in the post-MFA period by 8.5 percent relative to men and compared to other industries (see table 5, column 6).

5. Conclusions

Despite gloomy post-MFA expectations, the apparel industries of both Cambodia and Sri Lanka managed to increase export volumes, maintain world market shares, and grow at a healthy rate, outcomes that may eventually have poverty-reducing implications. The resilience of the industries in these two countries can be explained by several factors. The United States and the EU established safeguard quotas against imports from China from 2005 until the end of 2008, which mitigated the impact of the MFA phase-out. Other factors such as proactive policies, industry ownership, and background were also important.

Under the assumption that women are more apparel-specific labor input than men and that the apparel sector is a female-labor intensive sector, the simple theoretical model predicts that a negative price shock will translate into a relative decline in apparel wages compared to other industries in the short run and a relative decrease in female wages compared to male wages across all industries in the long run.

The increased competition in apparel exports after the MFA phase-out drove down the unit values of apparel both in Cambodia and Sri Lanka. The empirical results of the post-MFA changes support the theoretical predictions. Workers, the majority of whom are female, in the apparel industry were receiving a premium comparable to that of an average worker. This premium decreased in both countries right after the MFA phase-out, but it slightly recovered in the following years. Male-female wage differentials were declining under the MFA in both countries. The gap, however, widened right after the MFA phase-out but later decreased. Finally, in terms of a very narrow measurement of working conditions, we found mixed results. In Cambodia, working conditions—measured as an average index of no child labor and no mandatory or unpaid overtime work—worsened in the post-MFA period. In Sri Lanka results are mixed and depend on how working conditions are measured. If we measure working conditions the same way as in Cambodia, we find that the working conditions in Sri Lanka improved. But if we measure working conditions as an average of the share of bonuses and allowances over cash earnings and the share of food stamps over cash pay, we find that working conditions declined in Sri Lanka.

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