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Chapter 4

Garment Industry in Pakistan in the Post-MFA Period

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Abstract

Pakistan's knitwear exports have been struggling in the post-MFA period. The poor performance seems to be closely related to a particular feature of the garment industry in Pakistan, which is that most sewing operators have been males hired at piece rates. Recently, a few surviving knitwear factories have adopted a strategy to shift from male piece rate operators to female salaried ones. Female participation in the workforce is very limited in Pakistan and has several obstacles to overcome. Hiring female operators at fixed rates requires effort and expertise on the management side; moreover, there are socioeconomic and cultural reasons at the household level which prevent women from working outside their homes.

Keywords: *Garment industry, post-MFA, female labor participation, piece rate*

1 Introduction

The textile and garment industry in Pakistan is important in two respects: (1) foreign exchange earnings and (2) employment creation. Textiles and garments constitute around 60 percent of Pakistan's total exports, and the share of garments in particular has been growing in export earnings. The importance of the garment industry in employment creation should be underscored since it is labor intensive, while the upstream textile industry is capital intensive. Due to its importance, Pakistan was much concerned with the quota phase-out that started in January 2005. Specifically, Pakistan was alarmed by the potential for dominance of Chinese garment exports in the

international market.

As expected, China has displayed a spike in its garment exports since the quota phase-out. Garment exports of Vietnam, India and Bangladesh also have expanded rapidly, following China. Pakistan's garment exports, especially woven wear exports, have shown consistent improvement; however, its knitwear exports have grown at a sluggish pace in the post-MFA period.

This chapter explores the reason behind the poor performance of Pakistan's knitwear industry. Trade data imply that Pakistan's knitwear manufacturer-exporters produce the lowest quality garment products and have made less improvement in quality since the quota phase-out compared with competing countries. Interviews with manufacturers-exporters in Pakistan suggest that the industry's poor performance is closely related to a particular feature of Pakistan's garment sector, i.e., the hiring of male sewing operators at piece rates. The interviews also reveal a specific feature of surviving knitwear factories in the intensified international competition, which is that they hire, and intend to hire, more female sewing operators at fixed rates.

The chapter is structured as follows. Section 2 overviews the international trade of garments across countries before and after the quota phase-out. Section 3 describes the characteristics of Pakistan's garment industry, and the section also provides a simple empirical estimation using a survey of workers in Pakistan's garment sector conducted by the author. Section 4 explores the reason behind the lack of competitiveness of Pakistan's knitwear industry based on the latest interviews of garment manufacturer-exporters conducted by the author. Section 5 points out household-specific factors that prevent female labor participation in Pakistan. Section 6 concludes the chapter.

2 International Trade of Garments

Tables 1-1 and 1-2 show Pakistan's garment exports before and after 2005 as well as those of South Asian and South East Asian countries that are important players in the international garment export market. The figures are taken from the import data of the US, EU, Canada and UAE. There are three main reasons why import data of these four countries is used instead of export data of garment exporting countries: (1) The latest export data of some garment exporting countries such as Bangladesh and Vietnam is not reported yet (as of February 10, 2012), (2) import data of these four countries is

generally more reliable than those of garment exporting countries, and (3) these four countries constitute over 90 percent of the export destinations of all South Asian countries and a substantial share of other garment exporting countries.

As expected prior to 2005, Tables 1-1 and 1-2 show that Chinese garment exports, both those of knitwear and woven wear, have drastically increased since the quota phase-out. Among South Asian countries, garment exports of India and Bangladesh have expanded rapidly since 2005 despite the fact that both countries were worried about Chinese dominance over the garment exporting market after the quota phase-out. In contrast, Pakistan's exports of garments, especially those of knitwear, experienced sluggish growth from 2005 until 2009. Only in 2010 did Pakistan's knitwear exports record higher growth than those of India and Bangladesh. Pakistan's solid performance in 2010 may be mainly attributed to the higher international price of cotton, increase in labor costs especially in China and in other countries, and currency depreciation of the Pakistan rupee. Additionally, although it is too early to reach a firm conclusion, Pakistan's performance in 2010 may reflect a drastic change observed in a few surviving knitwear factories since 2005, which is discussed in Section 4. Good performance due to this change is plausible, considering the fact that Pakistan outperformed India in 2010, though the competitive environment of India is similar to that of Pakistan. India also faces a higher international price of cotton and the Indian rupee moves similarly to the Pakistan rupee.

Price competition has intensified in the garment exporting market since 2005 (Tables 2-1 and 2-2). The increase in the inflation-adjusted price of garments since 2004 is negative or marginal in both the US and EU markets, and increase in the price of woven wear in the US market is negative even in nominal terms. Garment manufacturer-exporters in Pakistan say that price decrease is the biggest change since the quota phase-out. In the quota regime, they had to pay extra for purchasing quotas but were protected by quotas in terms of market share, and they could sell their garment products even though they were not internationally competitive. Since the quota phase-out, international buyers have started to negotiate prices aggressively. The first reaction of garment manufacturer-exporters in Pakistan to the intensified price competition was to decrease their profit margin in response to the price cuts. However, lowering profit margin had its limitations as factory prices negotiated by international buyers sometimes became lower than production costs. The next reaction of garment manufacturer-exporters could have been to shift their product line from low-priced garments to high-priced garments; however, this type of shift did not occur in the

knitwear industry in Pakistan. Tables 2-1 and 2-2 closely examine how major garment exporting countries have shifted their product lines (unit prices as measured by price over weight) since 2004. It is striking to see that Pakistan is the only country that lowered its unit (nominal) price for knitwear in the EU market. Pakistan's unit price for knitwear in the EU market was higher than that of Bangladesh and Vietnam in 2004, but it became lower than the unit price of these countries in 2010. Though it is not as obvious as in the EU market, a similar occurrence can be observed in the US market. From these data, it seems that Pakistan's knitwear industry focuses on price competition without making an effort to shift its product line toward higher-priced garments. On the other hand, the unit price of Pakistan's woven wear products has increased more rapidly than that of the competitors' average. Pakistan's woven wear industry has increased its unit price in the EU market, while the inflation-adjusted unit price has decreased in the US market. The difference in performance between these two industries is likely to be related to the fact that Pakistan's woven wear industry has grown in the post-MFA period, while its knitwear industry has been stagnant. The fact that Pakistan's unit price of woven wear is still the lowest among major exporting countries may or may not be a positive factor for the future of Pakistan's woven wear industry. It may provide room for Pakistan's woven wear industry to grow if it keeps making efforts to upgrade its garment products.

3 Features of Pakistan's Garment Industry

3.1 Overview

Traditionally, Pakistan's textile industry (in the broad sense, including both the upstream textile industry and the downstream garment industry) has grown with the upstream textile industry, such as cotton yarn and fabric, by making use of its main agricultural product, raw cotton. As for made-ups, Pakistan has been better at producing towels, bed sheets and home-textiles (curtains, furniture fabrics, etc.) than garments. Those home-textiles are cheaper than garment products in unit price measured by the value per weight. Among garments, Pakistan's garment exports mainly consist of woven wear such as denims and chinos, and low-priced knitwear such as polo-shirts and T-shirts which are typically sold at discount stores such as Walmart. These low value-added garment products are relatively cheap and have the lowest profit margin among garment products. Due to the low profit margin, Pakistan's garment industry has been struggling

in the face of intensified price competition in the international market following the quota phase-out.

The reasons for the low profit margin of Pakistan's garment products lie not only in the low-priced products but also in the high production costs. First, fabric is not necessarily cheaper in Pakistan than in other competing countries despite the fact that Pakistan is endowed with raw cotton, which is one of the Pakistan's major agricultural products. Fabric constitutes around 50 to 60 percent of the production cost of garments, and thus it is essential to procure fabric at a cheap price. Pakistan's raw cotton is short fiber and is for producing coarse-count yarn. Coarse-count yarn can be used for producing towels, bed sheets, denims, chinos and low-priced T-shirts, but not for high-priced garment products such as ladies' blouses and fashionable shirts. If they are to produce high-priced garments, they have to import fine-count yarn/fabric from the US, Egypt or China.

Second, Pakistan's labor cost seems higher than other garment exporting countries. Although labor cost only constitutes 10 to 20 percent of the garment production costs, labor cost is one of the important factors that determine international competitiveness because the garment industry is highly labor intensive. It is well known that the recent increase in wages in China is one of the main reasons why international buyers have started to look to other countries as garment suppliers ("China-Plus-One"). Table 3 compares wages in the garment industry across countries in 2006.[1] The high wage in Pakistan compared to other garment exporting countries is striking considering the fact that the unit price of Pakistan's garments for export is the lowest, as shown in the previous section (Tables 2-1, 2-2). The high labor cost in Pakistan's garment industry seems to be closely related to a specific feature of sewing operators in Pakistan's garment industry. The majority of sewing operators in Pakistan are males hired at piece rates, while that in other garment exporting countries such as Bangladesh and China is female.

3.2 Male Piece Rate Sewing Operators

The reason why Pakistan's garment manufacturer-exporters mainly hire male sewing operators at piece rates is related to the path along which Pakistan's garment industry has evolved. Pakistan's industrialization began with the development of its upstream textile industry, such as spinning and weaving, shortly after its independence in 1947.

[1] Due to the data availability, it is only possible to compare the data from 2006 across garment exporting countries.

Pakistan's downstream garment industry is relatively young (the major surviving factories were established after 1990), as shown in Figure 1. The garment industry was started mainly by the owners of the upstream textile industry.[2] However, since the upstream textile industry is capital intensive, those owners did not know how to manage production workers in the labor-intensive garment industry. The easiest way for them to deal with this labor-intensive nature of the garment industry was actually not to manage them and instead to outsource such management. They had subcontractors who were in charge of finding and supervising operators. Owners provided subcontractors with fabrics and sewing machines, and in return for lump-sum remuneration, subcontractors did CMT (cut, make and trim) for the owners. Subcontractors were usually skilled operators[3] and knew and/or trained other sewing operators in their neighborhood. The subcontractors were at the same time teachers of other sewing operators, and their relationship followed a sort of an apprentice system.[4] The subcontractors-cum-teachers picked up and supervised operators to complete subcontracted work, and then took commission from the lump-sum remuneration and paid piece rates from the remainder to each operator. In this so-called cell-manufacturing system where a complete garment product is made by a team of five to six operators, some experienced operators had the skill to complete a finished garment product, such as a shirt or a pair of trousers.

The current garment industry in Pakistan is still largely tied to this tradition. When garment factories started exporting, they were forced to directly hire these operators, not via subcontractors-cum-supervisors, due to quality and labor compliance required by international buyers. It should be noted, however, that this change may have had only a small impact, just altering the method of payment to operators from indirect payment to direct payment, because it is still a supervisor's job to find, train if necessary, and place operators in the factory. Most exporting manufacturers have also adopted the assembly-line system and given up the cell-manufacturing system. Even so, they

[2] A typical case is the establishment of the garment division of Masood Textile Mills, Ltd., which is the leading textile and knitwear factory in Pakistan. According to the manager, they started their garment division in 1995 because of an intention to move to a value addition field.

[3] These skilled sewing operators can be traced back to tailors in the biradari (caste) system, though sewing operators in the current garment industry are not necessarily from the tailor caste. The caste system is denied among Muslims, but in reality castes exist as a biradari system in Pakistan. Biradari literally means brotherhood and is a group of male kin in the patrilineal society. It used to (and still now to some extent) determine one's profession in the village society.

[4] This informal relationship is called ustaad-shagrid, which literally means teacher-student. According to Amjad (2005), ustaad-shagrid is observed in most industries in Pakistan. Though ustaad-shagrid can provide cheap on-the-job training, it sacrifices quality and productivity.

continue to hire operators at piece rates in the sense that earnings of operators are determined by the pieces completed.[5] This is because the piece rate remuneration system is an easy way to incentivize workers when management skills are lacking in the human resource and supply-chain. Hiring operators at fixed rates requires efforts on the side of factory owners and managers, but hiring them at piece rates does not require such efforts since workers themselves have incentives to work and owners can simply lay off workers when they do not have orders.

Factory owners who continue to hire male sewing operators at piece rates often complain about the lack of quality operators. The literature notes that it is difficult to control products' quality with a piece rate remuneration system (Lazear 1986, Freeman and Kleiner 1998, Baland et al. 1999). Moreover, contract theory says that while the piece rate remuneration system is optimal for the type of work which is completed individually and is not different across individuals, the salaried (fixed rate) remuneration system is optimal for the type of work which is done by a team and is different across individuals (Itoh 1991, Bolton and Dewatripont 2005). Applying this theoretical schema to the garment industry in Pakistan, salary payment seems to be optimal for current exporting manufacturers because they have adopted the assembly-line system, while the piece rate payment was optimal when the industry originated with the cell-manufacturing system. The piece rate operators do have experience in stitching but do not seem to fit into the work that is usually produced on the assembly line. Why then do factory owners not switch from piece rates to a salaried system? As explained above, it is easier to continue hiring piece rate operators in order to resolve workers' incentive problem, due to lack of appropriate human resource management. Since factory owners can lay off piece rate workers easily and do not have to make payment when they have no orders, it is easier for them to hire piece rate operators when there is a deficiency in supply-chain management, which is necessary to secure constant orders.

According to a survey conducted by the author in 2006, sewing operators are

[5] The number of pieces completed depends on other operators in the same assembly line, and is identical across all the operators in the same line. In this sense, it is different from the piece rate system in the conventional sense (i.e., the number of pieces completed does not depend on other operators). However, it is still called a "piece rate" system in the sense that the earnings of operators are determined by the number of pieces completed, not by the time they work. In this so-called "piece rate" system in Pakistan's garment industry, the piece rate is typically determined by the level of stitching work and the sewing speed of an operator, which is tested on the day he starts working. For example, if Operator A sews twice as fast as Operator B, the piece rate of Operator A is twice that of Operator B.

able to earn more under the piece rate system (Table 4), and they themselves seem to prefer being hired at piece rates because they are able to earn more (Tables 5-1 and 5-2). Estimation of the Mincer-type earnings equation supports this point with a significantly positive effect of piece rate status on earnings (Table 6; for summary statistics, see Appendix Table A.1).[6] The fundamental reason for the difference in earnings may not be the payment system itself but the type of work which is closely linked with the piece rate system. The typical work assigned to an individual operator in the factories that adopt the salaried system is simpler, and thus a salaried operator earns less. The piece rate remuneration system is very closely intertwined with male operators in the apprentice system, and thus it is said that hiring female operators is indispensable in order to shift from a piece rate to a fixed rate remuneration system. In order to do so, factories must commit to provide training, transportation, and special facilities (female-exclusive floors, female supervisors, etc.). Training is essential because while males have at least an opportunity to learn stitching skills in the apprentice system in their neighborhoods, females do not have such an opportunity as they cannot easily walk around in their neighborhoods and the training opportunity in the formal training institute is very limited. Transportation (and additionally female-exclusive floors) is necessary in the culture where females usually neither work nor walk around freely outside their homes.

4 Interviews: Change in Pakistan's Knitwear Industry in the Post-MFA Period

The focus of this section is the knitwear industry, which accounts for 60 percent of Pakistan's garment exports. Pakistan's knitwear industry can be a useful case study for clearly understanding the features and problems in Pakistan's garment industry. The knitwear industry recorded sluggish growth in the post-MFA period. As mentioned in Section 2 however, Pakistan's knitwear exports showed equivalently good or even better

[6] A caveat in interpreting the estimation result is that the RHS variable named "piecerate" may be endogenous. The endogeneity problem may not be too serious since dropping this variable does not largely disturb the estimation results. It is also interesting to see how the change in earnings between 2004 and 2006 is explained by the same RHS variables. The estimation results (Appendix Table A.2) show that the coefficient of piece rate status has a significantly negative effect on growth in earnings. This may reflect recent factories' efforts to shift from the piece rate to the salaried payment system, or the decline in orders after the quota phase-out.

performance in 2010 as compared with Bangladesh and India, whose exports have continued to record high growth since the quota phase-out. The main reason why Pakistan's knitwear exports grew in 2010 in value terms may be the high international price of cotton and finished cotton products. However, the higher international price cannot fully explain the relatively good performance of Pakistan's knitwear exports as compared with India and Bangladesh. In order to explore the reasons behind the growth in 2010 as well as the reasons behind the poor performance after the quota phase-out, the author conducted interviews with garment manufacturer-exporters in Lahore,[7] Pakistan, during November and December 2011. Twelve garment manufacturer-exporters were interviewed. The facts found by these interviews are as follow: (1) Knitwear manufacturer-exporters have suffered severely since the quota phase-out. In terms of the number of factories, around 90 percent of factories have closed since 2005. In fact, out of 15 knitwear factories where the author conducted the survey in 2006, only two survive. However, the surviving knitwear manufacturer-exporters are growing rapidly. The relatively good performance achieved by Pakistan's knitwear industry in 2010 may be the consequence of the shakeout of factories, i.e., efficient factories survived and inefficient ones have closed. (2) Woven wear (mainly denim wear) manufacturer-exporters have been growing since the quota phase-out, especially in the EU market. The difference in performance between knitwear and woven wear industries is consistent with the trade data shown in Section 2 (Tables 1-1 and 1-2).

Although the causality cannot be known,[8] there is one distinct feature shared by surviving knitwear factories. That it, those surviving knitwear factories have tried to shift from male piece rate sewing operators to female salaried operators.[9] In these factories, the current share of female operators is 15 to 25 percent out of total sewing operators, while the share was less than 10 percent in 2005.[10] Furthermore, they are

[7] Lahore is Pakistan's second largest city and is one of the three major cities of the garment industry in Pakistan. It is a three-hour drive from Pakistan's largest textile city, Faisalabad.

[8] The positive relationship between export orientation and the share of female employment in developing countries is often pointed out (see Wood 1991, Çağatay 2001, Siegmann 2005).

[9] This feature is not observed in the woven wear industry, which has shown a consistently good performance since the quota phase-out. One reason why such a shift was not observed in the woven wear industry may be because the woven wear industry has already hired a larger percentage of female workers than the knitwear industry. The study by Haque (2009) based on 150 garment factories shows that the share of female workers is 24.0 percent in the woven wear industry, while it is 14.1 percent in the knitwear industry.

[10] An exception is the foreign-owned factory where the percentage of female operators was 100 percent from the beginning. One of the two surviving knitwear factories where the author

planning to increase the share of female operators. These female operators are hired at fixed rates, which means that these factories have increased their proportion of salaried workers. One of the factories has completely shifted their payment method from piece rate to salaried even for male operators.[11] The shift in payment method from piece rates to salaried due to concern over quality is pointed out in the case study by Siegmann (2005) on the garment sector in Pakistan. The current share of female operators (15 to 25 percent) seems relatively high compared with the share in the author's previous survey in 2006[12] and that reported in the more comprehensive study by Haque (2009).[13] The replacement of male operators by female operators after the quota phase-out is also reported by Siegmann (2009). The managers of these factories say that females are more suited to being sewing operators hired at fixed rates on the assembly line. In order to hire operators at fixed rates, managers have to deal with the incentive problem of operators, and they say that females have less such problem.[14] The interviews with

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conducted the survey in 2006 hired all females for sewing operators from the beginning (the operation started in 2001). They have grown rapidly during 2006 to 2011, with a 77.9 percent increase in the number of sewing operators, while many knitwear factories have closed over the same period. The fact that the owner of this factory is a foreigner (Belgian) may explain the difference in strategy compared to other factories where owners are dominantly Pakistanis. This owner explained the reasons why they hire all females for sewing operators, including that females are more easily trained and disciplined, are more suitable to the European system, and have better working behavior.

[11] A human resource manager at a surviving knitwear manufacturer-exporter who supplies for NIKE says that all the sewing operators have shifted from piece rates to a salaried basis since 2007 due to a request from NIKE. Precisely speaking, they pay Rs.7,500 as a base salary and additional incentive payments at piece rates. He says that NIKE prefers salary payment to piece rates because of the quality concern and the issue of labor compliance. It is usually said that the piece rate system invariably compromises quality. Salaried workers have fringe benefits such as medical and old age pensions while piece rate workers do not have such benefits. Salaried workers are also protected by the minimum wage law. From the perspective of owners/managers, as long as they have constant orders, they are able to hire operators at fixed rates.

[12] The survey conducted by the author in 2006 covers 22 garment factories in Lahore. It shows that the share of female workers (except for one factory that exclusively hires female sewing operators) is zero to 15 percent of total production workers, depending on the size of the factories. Note that the base figure is the total production workers, not total sewing operators. The share of females out of total sewing operators is smaller than 15 percent since most of the production workers in the finishing department were females even in 2006. Usually, larger factories had a higher share of female production workers. See Makino (2008).

[13] The study by Haque (2009) is based on 150 factories in Karachi, Lahore and Faisalabad, among which 50 factories are in Lahore. It shows that the share of female sewing operators is 12 percent out of total sewing operators in Lahore. Note that the study says that this figure may be an over-estimation due to purposive sampling to limit all male units to 20 percent or less, and that the dispersion is skewed toward the lower end (in terms of the share of female workers) with very few firms showing a high proportion of female workers.

[14] One of the managers related an episode. While most male workers did not return on time

managers in 150 factories reveal that they think that women workers provide better quality work, do not waste time, work harder, and are more responsible, productive, loyal, honest and punctual than male workers (Haque 2009). Another advantage in hiring female workers is that managers can save labor cost. Female workers are assigned to more specialized and narrow work in the assembly line and accept working at lower wages. The interviews reveal that the earnings of male piece rate sewing operators are around Rs.12,000 to Rs.13,000 (about $133 to $144) on average, while those of female sewing operators on a salaried basis are Rs.7,840 (about $87).[15] These wages cannot be simply compared since the type of stitching work, number of working hours, and the educational level are usually different between male piece rate operators and female salaried operators. However, there is evidence of gender discrimination in wages, such that female workers in Pakistan's garment sector earn about 14 percent less than their male counterparts when controlling for the educational level, experience, marital status, work hours, city, and size and type of firm (Haque 2009). The estimation of the Mincer-type earnings equation in Section 3 also supports this view, showing that male workers earn 30.4 percent more than females when controlling for these characteristics (see Table 6). A caveat to these results is that neither study controls for the difference in stitching speed between male and female operators, which is explained below.

Why then did other factories, especially closed ones, not adopt the strategy of shifting from male piece rate operators to female salaried operators? There is one obvious disadvantage in hiring female workers. According to the managers, the efficiency rate calculated based on stitching speed[16] is lower for female operators than

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immediately after Eid holidays whether or not they were hired at piece rates or fixed rates, all the female workers returned on time. On a daily basis, male workers go out to lunch and do not come back to their workplace on time, but female workers bring their lunch as they cannot freely move about outside, and start work after lunch break on time. This type of behavioral problem is more likely to be ignored when factories hire workers at piece rates since managers do not have to pay for workers who do not work and so have less incentive to correct workers' behavior. Though the potential problem may be the same for male fixed rate workers, managers have more incentive to correct workers' behavior because they have to pay salaries to workers who do not return on time.

[15] Abras (2011) reports the similar gender wage gap in Pakistan. She also reports the widening wage gap after the quota phase-out.

[16] The efficiency rate is calculated as follows. Suppose that a sewing operator works for 8 hours (480 minutes) per day. Suppose that the factory has 300 sewing machines. Then it has 14,400 (= 480*300) available minutes. Further suppose that a polo-shirt requires 11 minutes to make. If the factory produces 1,000 polo-shirts per day, the minimum total time required to produce them is 11,000 (= 11*1,000) minutes. Then, the efficiency rate of this factory is 76% (=

for male operators.[17] Female operators' efficiency rate is around 35 to 50 percent while male operators' is around 80 percent. In order to bear the lower efficiency rate of female operators, factories must have a higher profit margin. This means that factories have to produce medium- to high-quality garment products since the profit margin and the quality of products are positively correlated. Conceptually, it may be most profitable to hire male operators who have higher efficiency rates and produce medium- to high-quality garment products. However, efficiency here simply means the stitching speed, and does not take quality into account. Mangers say that as long as they have a high profit margin, they prefer female workers because the working behavior and better quality work of female workers more than compensate for their low efficiency. Besides, as long as they keep hiring male operators at piece rates, it seems difficult to attract any orders for medium- to high-quality garment products since it is usually believed that controlling quality is difficult with the piece rate system (Lazear 1986, Freeman and Kleiner 1998, Baland et al. 1999). Another disadvantage in hiring operators at fixed rates (whether female or male[18]) is that factories must have constant orders and must deal with the incentive problem of workers, as mentioned in the previous section. In order to have constant orders, the factories must develop appropriate supply-chain management and must recognize the concept of industrial engineering so that they can deploy their operators at the right time and place. The factories also have to seriously consider human resource management in order to mitigate the incentive problem of salaried workers, though females innately seem to have less such problem. Moreover, the factories must be committed to providing potential workers with training since females do not have sufficient training opportunities. They must provide transportation, and preferably, floors exclusively for women and female supervisors.

11,000/14,400).

[17] The study by Haque (2009) shows that the majority of managers and workers rate women as more productive in work than men but think that men can stitch more garments than women in a given time.

[18] Though the payment system, whether piece rate or salaried, is conceptually independent of the sex of operators, the piece rate system is closely intertwined with male operators in the context of Pakistan's garment industry. Most managers who realize the importance of shifting from piece rate to fixed rate say that it is necessary to start with female workers and train them in order to make such a shift.

5 Household Factors Preventing Female Labor Participation

Factory-side obstacles to hiring female workers are discussed in the previous section. Additionally, there may be household-specific factors that prevent women from working outside their homes. The study by Haque (2009) implies that labor supply-side factors such as religious, social and cultural restrictions, rather than the lack of training opportunities and the transportation problems, are behind the lack of female labor participation. The majority of managers are not against hiring women (Table 7-1). On the other hand, the majority of male workers/supervisors are against the women of their household working outside their homes (Table 7-2). The study also shows that such strong resistance to women working outside is negatively correlated with the educational level of respondents (Table 8). This negative correlation is expected to be more pronounced if the sample is restricted to male respondents because female respondents are less educated and are more willing to allow their female household members to work in the same factory, which attenuates the negative correlation between education and resistance to female labor participation.

According to the qualitative interviews conducted by the author with human resource managers in Pakistan's garment industry, the main reason why women work outside the home is financial.[19] In other words, as long as male members of the household earn enough to support the entire family, female members do not work outside the home. This is consistent with the study by Haque (2009) which shows that the majority of respondents (both managers and workers/supervisors) agree that a female should stay at home if her husband/father earns enough. This is also supported by empirical work suggesting that economic need is an important factor that pushes women into the labor market in Pakistan (Sultana et al. 1994, Khan et al. 2005, Ahmad and Hafeez 2007, Khan and Khan 2009).

6 Concluding Remarks

Pakistan's garment industry is unique in the sense that mainly male sewing operators

[19] A female manager explains that young (pre-marriage) women work for their dowries. Young women's labor force participation in order to save for their dowry is also pointed out by Khan et al. (2005) and Khan and Khan (2009). Though it is not a topic of this study, it is an interesting point because dowries are usually said to be prepared by the bride's parents.

have been hired at piece rates, while in other garment exporting countries such as China and Bangladesh mainly female operators are hired on a salaried basis. This chapter explores why Pakistan exhibits such a feature and how it is related to the performance of its garment (especially knitwear) exports in the post-MFA period.

Though Pakistan's woven wear exports have grown rapidly, its knitwear exports have suffered and many factories have closed since the quota phase-out. The latest interviews conducted by the author have revealed that the surviving knitwear factories have increased, and are planning to further increase, the percentage of female operators out of total sewing operators. These female operators are hired at fixed rates. In order to do so, it is indispensable for the factories to make efforts to improve their management skills related to human resources and the supply chain and to provide special facilities (training, transportation, female-exclusive floors etc.). The relatively good performance of Pakistan's knitwear exports in 2010 may be attributable to the fact that these factories have made such a shift in recent years.

On the other hand, there seem to be household-specific factors that prevent women from participating in the labor force in Pakistan. The previous study shows that financial compulsions are the main reason why women work outside the home. An increase in female labor participation due to financial necessity does not, by itself, signify enhanced status for women, but an increase in female labor participation due to other socioeconomic and cultural reasons may imply a higher status of women in the household. According to the previous study, the level of education is correlated with resistance to female labor participation. There may be other socioeconomic and cultural factors which prevent women from working outside the home. It is important not only from an academic perspective but also from a policy perspectives to pinpoint these socioeconomic and cultural factors in the context of Pakistan, where female labor force participation is very limited and female bargaining status is very low within the household. Exploring such household-specific factors is a topic for future research.

References

Abras, Ana Luisa Gouvea. 2001. "Success and Upgrading after the End of the MFA" In *Sewing Success? Employment and Wage Effects of the End of the Multi-fibre Arrangement*, edited by Gladys Lopez Acevedo and Raymond Robertson, 58-96. Washington, D.C.: World Bank.

Ahmad, Eatzaz, and Amtul Hafeez. 2007. “Labour Supply and Earning Functions of Educated Married Women: A Case Study of Northern Punjab.” *Pakistan Development Review* 46 (1) (Spring): 45-62.

Amjad, Rashid. 2005. “Skills and Competitiveness: Can Pakistan Break out of the Low-level Skills Trap?” *Pakistan Development Review*, 44 (4) Part I (Winter): 387-409.

Baland, Jean-Marie, Jean Drèze, and Luc Leruth. 1999. “Daily Wages and Piece Rates in Agrarian Economies.” *Journal of Development Economics* 59 (2) (August): 445-461.

Bolton, Patrick, and Mathias Dewatripont. 2005. *Contract Theory*. Cambridge: The MIT Press.

Çağatay, Nilüfer. 2001. *Trade, Gender and Poverty*. New York, NY, UNDP. (http://www.beta.undp.org/content/dam/aplaws/publication/en/publications/poverty-reduction/poverty-website/trade-gender-and-poverty/TradeGenderandPoverty.pdf, downloaded January 2012)

Freeman, Richard B., and Morris M. Kleiner. 1998. “The Last American Shoe Manufacturers: Changing the Method of Pay to Survive Foreign Competition.” *NBER Working Paper Series*. No.6750.

Haque, Ehsan-ul. 2009. *Current Status and Prospects of Female Employment in the Apparel Industry in Pakistan*. UNDP-Pakistan. (http://www.genprom.org.pk/pdf/21172.pdf, downloaded December 2011)

Itoh, Hideshi. 1991. “Incentives to Help in Multi-Agent Situations.” *Econometrica* 59 (3) (May): 611-636.

Khan, Rana Ejaz Ali, and Tasnim Khan. 2009. “Labor Force Participation of Married Women in Punjab (Pakistan).” *Journal of Economic and Social Research* 11 (2): 77-106.

Khan, Shahzad Farid, Saira Akhtar, Amna Afzaal and Anila Kausar. 2005. “A Sociological Study of Working Women in Informal Sector of Readymade Garments Industry in Faisalabad (Pakistan).” *Journal of Agricultural and Social Sciences* 1 (1): 60-61.

Lazear, Edward P. 1986. “Salaries and Piece Rates.” *Journal of Business* 59 (3) (July): 405-431.

Makino, Momoe. 2008. “Competitiveness of the Garment Industry in Pakistan with Particular Focus on Piece Rate Workers.” In *Globalization Employment and Mobility: The South Asian Experience*, edited by Hiroshi Sato and Mayumi

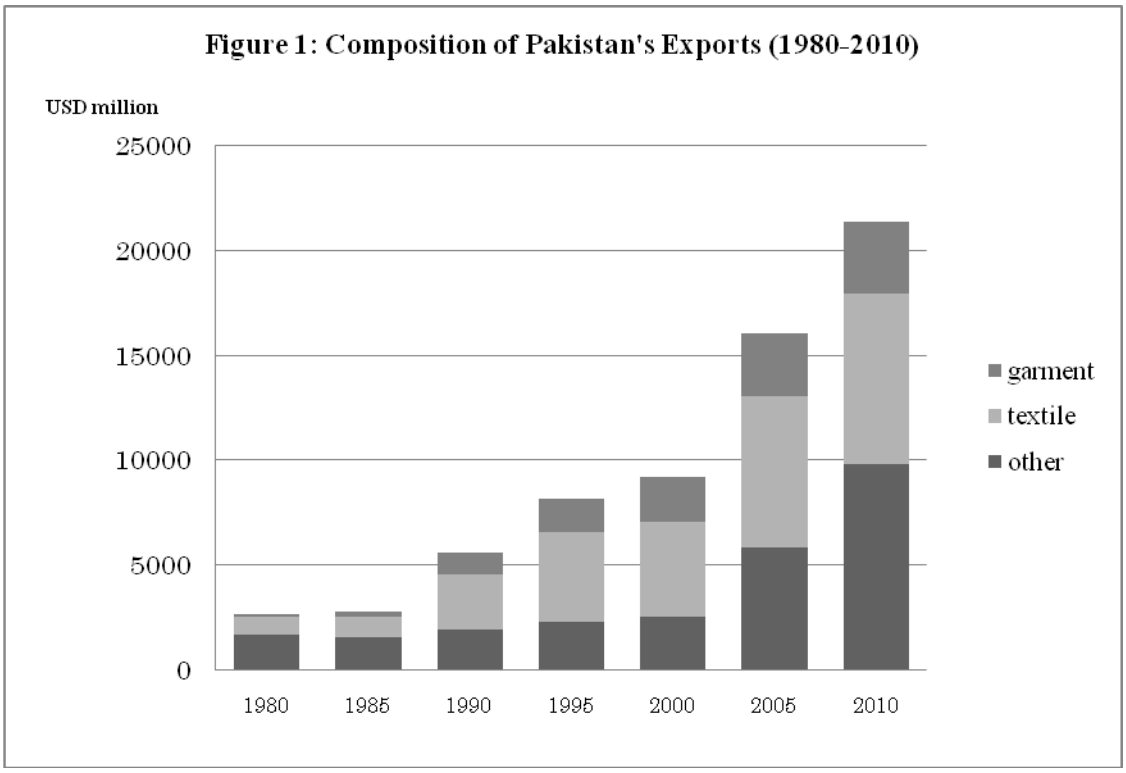
Murayama, 94-123. Palgrave Macmillan IDE-JETRO Series.

Siegmann, Karin Astrid. 2005. "The Agreement on Textiles and Clothing: Potential Effects on Gendered Employment in Pakistan." *International Labour Review* 144 (4): 401-421.

----------. 2009. *The Trade and Gender Interface: A Perspective from Pakistan*. Sustainable Development Policy Institute. (http://repub.eur.nl/res/pub/17857/Siegmann2009.pdf, downloaded February 2012)

Sultana, Nargis, Hina Nazli and Sohail J. Malik. 1994. "Determinants of Female Time Allocation in Selected Districts of Rural Pakistan." *Pakistan Economic Review* 33 (4) Part II (Winter): 1141-1153.

Wood, Adrian. 1991. "North-South Trade and Female Labour in Manufacturing: An Asymmetry." *Journal of Development Studies* 27 (2): 168-189.



Source: United Nations, COMTRADE Database.

Table1-1: Exports of Knitwear Products (HS code 61) to USA, EU, Canada and UAE

Year 2010	2010	2009	2008	2007	2006	2005	2004	2003	2002	2004-2010
Exports (USD million)				Growth (year-to-year)						Growth
Pakistan	1,758	0.139	-0.103	-0.019	0.043	0.157	-0.046	0.188	0.286	0.048	0.153
Bangladesh	6,800	0.133	-0.006	0.188	0.085	0.321	0.044	0.295	0.297	0.069	1.004
India	4,345	0.014	-0.050	0.049	0.139	0.206	0.247	0.219	0.170	0.076	0.731
Sri Lanka	1,492	0.004	-0.103	0.067	0.100	0.217	0.134	0.204	0.065	0.000	0.459
China	34,399	0.140	0.012	0.191	0.307	0.154	0.568	0.315	0.237	0.133	2.251
Vietnam	4,179	0.154	0.007	0.292	0.467	0.319	0.066	0.044	1.174	3.372	2.095
Indonesia	3,337	0.114	0.014	0.069	0.106	0.456	0.087	0.116	0.085	-0.064	1.114
Thailand	1,572	0.029	-0.172	-0.005	-0.014	0.116	-0.048	-1.000	0.024	-0.008	-0.111
Cambodia	2,474	0.137	-0.145	0.060	0.184	0.391	0.207	0.331	0.185	0.118	1.049

Source: United Nations, *COMTRADE Database.*

Table1-2: Exports of Woven Wear Products (HS code 62) to USA, EU, Canada and UAE

Year 2010	2010	2009	2008	2007	2006	2005	2004	2003	2002	2004-2010
Exports (USD million)				Growth (year-to-year)						Growth
Pakistan	1,243	0.054	-0.077	0.070	0.086	0.139	0.028	0.138	0.112	0.041	0.324
Bangladesh	5,645	0.068	0.044	0.102	0.006	0.252	0.016	0.204	0.175	-0.088	0.574
India	5,017	0.016	-0.052	0.080	-0.052	0.075	0.338	0.071	0.123	0.121	0.418
Sri Lanka	1,461	-0.005	-0.106	0.029	-0.032	0.009	-0.033	0.116	0.050	-0.043	-0.136
China	37,507	0.073	-0.071	0.100	0.170	0.156	0.473	0.227	0.282	0.163	1.186
Vietnam	3,968	0.122	-0.091	0.130	0.202	0.223	0.077	0.186	0.765	0.663	0.826
Indonesia	2,887	0.054	-0.129	-0.027	-0.032	0.119	0.071	0.094	0.059	-0.118	0.037
Thailand	905	0.001	-0.269	0.008	-0.074	-0.028	-0.028	0.053	0.067	-0.019	-0.354
Cambodia	922	0.189	-0.243	-0.039	0.004	0.014	-0.004	0.131	0.244	0.141	-0.123

Source: Same as Table 1-1.

Table 2-1: Change in Unit Price (Value/Weight = USD/Kg) of Knitwear (HS code 61) Imported to the US and EU 2004-2010

	EU				US			
	Year		Change	Change (inflation adjusted[1)])	Year		Change	Change (inflation adjusted)
	2010	2004			2010	2004		
World	17.6	15.4	0.14	0.02	17.7	15.4	0.15	0.00
Pakistan	9.9	10.1	-0.02	-0.14	9.2	10.2	-0.10	-0.25
Bangladesh	12.5	9.7	0.29	0.17	11.6	11.7	-0.01	-0.16
India	19.3	15.0	0.29	0.17	17.1	15.5	0.10	-0.05
Sri Lanka	23.2	16.8	0.38	0.26	30.4	23.1	0.32	0.17
China	16.9	13.5	0.26	0.14	17.6	19.0	-0.08	-0.23
Vietnam	16.9	8.9	0.90	0.78	17.8	15.9	0.12	-0.03
Indonesia	20.3	16.1	0.27	0.15	18.6	17.6	0.06	-0.09
Thailand	23.6	18.3	0.29	0.17	18.8	20.0	-0.06	-0.21
Cambodia	18.3	16.8	0.09	-0.03	15.8	16.4	-0.04	-0.19

Source: Same as Table 1-1.

Note 1: The deflator is the CPI in both the EU and the US.

Table 2-2: Change in Unit Price (Value/Weight = USD/Kg) of Woven Wear (HS code 62) Imported to the US and EU 2004-2010

	EU				US			
	Year		Change	Change (inflation adjusted[1)])	Year		Change	Change (inflation adjusted)
	2010	2004			2010	2004		
World	23.4	18.4	0.27	0.15	19.2	19.5	-0.01	-0.16
Pakistan	13.1	10.8	0.21	0.09	10.1	9.2	0.10	-0.05
Bangladesh	14.6	11.5	0.26	0.14	14.2	14.2	0.00	-0.15
India	30.9	24.3	0.27	0.15	29.2	23.8	0.23	0.08
Sri Lanka	30.8	19.1	0.61	0.49	30.4	24.4	0.25	0.10
China	18.7	13.8	0.36	0.24	18.5	20.0	-0.08	-0.23
Vietnam	25.1	21.4	0.17	0.05	18.5	16.2	0.14	-0.01
Indonesia	26.6	20.9	0.27	0.15	25.1	21.7	0.16	0.01
Thailand	35.2	26.4	0.33	0.21	35.7	28.9	0.24	0.09
Cambodia	18.8	17.1	0.10	-0.02	15.6	17.1	-0.09	-0.24

Source: Same as Table 1-1.

Note 1: The deflator is the CPI in both the EU and the US.

Table 3: Wages in Garment Industry of Major Exporters in 2006 (USD)

	Annual wage per worker	Share of female worker over total workers in the sector
Pakistan	1,901	0.105
India	1,246	0.449
Sri Lanka	1,077	0.772
China	1,844	n.a.
Indonesia	1,323	0.793
Thailand	1,909	0.782
(1996 price)		
Pakistan	1,883	
Bangladesh[1)]	320	
Vietnam[2)]	597	

Sources: UNIDO, INDSTAT4 2011, INDSTAT3 2006.

Note 1: Bangladesh data is 1998 data, deflated with the 1996 price.

Note 2: Vietnam data is 2000 data, deflated with the 1996 price.

Table 4: Average Monthly Earnings of Pakistan's Sewing Operators（USD）[1]

	Fixed rate worker [2]						Piece rate worker											
	Aug. 2006		Dec. 2004		% change		Aug. 2006		Dec. 2004		% change		Annual average[3]					
													2005		2004		% change	
	Male	Female	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Knitwear	109.0	75.7	100.9	57.6	8.0	31.5	121.1	-	166.2	-	-27.1	-	117.4	-	132.5	-	-11.4	-
Woven (Denim) wear	103.4	90.3	80.9	76.9	27.8	17.5	100.8	99.5	114.3	100.9	-11.8	-1.4	103.6	102.3	104.8	96.1	-1.2	6.5

Source: Makino (2008).

Note 1: Earnings are calculated at the August 2006 price level and converted into US dollars at the average exchange rate in August 2006 (1USD = 60.33 Pakistan Rupees).

Note 2: Earnings for the workers paid at fixed rates include basic wages and salaries, cost-of-living allowances and other guaranteed and regularly paid allowances as well as averaged out overtime payments, bonuses and gratuities and other irregularly paid allowances.

Note 3: Annual average is calculated as annual earnings divided by 12. The intention is to take into account the seasonal fluctuation of piece rate workers' earnings.

Table 5-1: Why Prefer Piece Rate Status?

		Number of piece rate workers
Total (number of sewing operators)		171 (153)
Willing to stay at piece rate status		122
Reasons (one choice)	Higher earnings	96
	Freedom	23
	Shorter working hours	2
	On-time payment	1

Source: Same as Table 4.

Table 5-2: Why Prefer Fixed Salary Status?

		Number of piece rate workers
Total (number of sewing operators)		171 (153)
Willing to be hired at fixed salary status		47
Reasons (multiple choices)	Higher earnings	20
	Shorter working hours	1
	Better working environment	2
	Job security	31
	Other[1]	11

Source: Same as Table 4.

Note 1: 'Other' includes lower workload at fixed rates (1 (number of respondents)), desire to use paid holidays (3), predictability and stability of earnings (5), protection under the legal minimum wage of 4,000 Pakistan rupees (1), and desire to be a supervisor, who is usually hired at fixed rates (1).

Table 6: OLS Estimation of Earnings Equation

variables	ln (monthly earnings in Aug 2006)
education	0.0386***
	(0.0117)
workexperience	0.0108
	(0.00951)
workexperience^2	0.000226
	(0.000413)
workhoursweek	-0.00182
	(0.00322)
male(dummy)	0.304***
	(0.0538)
married(dummy)	-0.00433
	(0.0325)
supervisor(dummy)	0.316***
	(0.0564)
helper(dummy)	-0.193***
	(0.0445)
knitwear(dummy)	0.163**
	(0.0651)
piecerate(dummy)	0.123***
	(0.0403)
Constant	8.060***
	(0.224)
Observations	315
R-squared	0.394

Source: The data is based on a survey conducted by the author in August 2006. Respondents were randomly selected from each factory on a list provided by the Small and Medium Size Enterprises Development Authority (SMEDA).

Note 1: Robust standard errors are in parentheses (*** p<0.01, ** p<0.05, * p<0.1).

Note 2: Factory size dummies are included in the RHS.

Note 3: The dummy variable "knitwear" = 1 if the factory mainly produces knitwear and = 0 if woven wear. The dummy variable "piecerate" = 1 if the respondent is paid at piece rates.

Table 7-1: Willingness of GM/Owners/Directors to Hire Female Employees[1) 2)]

Scale	%
1-definitely would not want to employ	5.7
2-would not want to employ	7.8
3-probably would not want to employ	14.9
4-might or might not want to employ	7.8
5-probably would want to employ	12.1
6-would want to employ	27.0
7-definitely would want to employ	24.8

Source: Haque (2009).

Note 1: The study is based on 355 GM/Owners/Directors of garment factories of different sizes.

Note 2: The question was how likely they were to hire women if they were looking for workers. The respondents answered on a 1 (strongly not willing to hire) to 7 (strongly willing) scale.

Table 7-2: Willingness of Workers/Supervisors to Send Daughter/Sister to Work in the Same Factory[1)2)]

Scale	%
1-definitely will not allow her to work	35.2
2-will not allow her to work	18.4
3-probably will not allow her to work	8.6
4-might or might not allow her to work	13.7
5-probably will allow her to work	8.5
6-will allow her to work	12.4
7-definitely will allow her to work	3.2

Source: Same as Table 7-1.

Note 1: The study is based on 2,662 Female/Male Workers/Supervisors of garment factories of different sizes.

Note 2: The question was how likely they were to allow a sister/daughter to work in their factory. The respondents answered on a 1 (strongly not willing to allow) to 7 (strongly willing) scale.

Table 8: Demographic Profiles of Workers/Supervisors

	Low Interest[1)]	High Interest
Designation:		
Supervisor	16.91	25.74
Workers	83.09	74.26
Gender:		
Male	74.34	35.88
Female	25.66	64.12
Educational Qualifications:		
Illiterate	14.31	11.23
Less than primary	12.26	6.24
School 5-9 years	30.19	30.73
Matric (10 years)	34.6	35.1
Intermediate (12 years)	6.7	12.32
Graduate	1.45	3.59
Post-graduate	0.06	0.31

Source: Same as Table 7-1.

Note 1: 'Low Interest' includes those who responded negatively (top three in the 1-7 scale) to the question in Table 7-2, and 'High Interest' includes those who answered positively (bottom three). Thus 'Low Interest' indicates those workers/supervisors who are not willing to allow their female household members to work in the same factory, and vice versa for 'High Interest'.

Table A.1: Summary Statistics of Workers in the Garment Industry in Lahore

Variables	Mean
earnings06 (Pakistan Rupee)	6168.9
	(2571.5)
education	3.479
	(1.619)
workexperience (years)	7.119
	(5.234)
workhoursweek (hours)	51.729
	(6.426)
male(dummy)	0.855
	(0.353)
married(dummy)	0.426
	(0.495)
supervisor(dummy)	0.066
	(0.249)
helper(dummy)	0.088
	(0.284)
n_employee < 200	0.088
	(0.284)
n_employee < 400	0.202
	(0.402)
n_employee < 600	0.524
	(0.500)
n_employee < 1000	0.634
	(0.482)
n_employee < 2000	0.776
	(0.418)
n_employee < 3000	0.861
	(0.346)
n_employee < 4000	0.940
	(0.238)
n_employee $\geq$ 4000	0.060
	(0.238)
knitwear(dummy)	0.590
	(0.493)
piecerate(dummy)	0.539
	(0.499)
Observations	315

Source: Same as Table 6.

Note 1: Standard deviations are in parentheses.

Note 2: The variable "education" takes discrete values: = 1 if no education, = 2 if below primary, = 3 if primary (5 years) completed, = 4 if middle (8 years) completed, = 5 if matric (10 years) completed, = 6 if intermediate (10 years) completed, = 7 if degree or post graduate. The variable "knitwear" = 1 if the factory mainly produces knitwear, = 0 if woven wear. The dummy variable "piecerate" = 1 if the respondent is paid at piece rates.

Table A.2: OLS Estimation of Earnings Equation (Growth in Earnings)

Variables	Growth in Earnings 2004-2006
education	0.00268
	(0.0171)
workexperience	-0.0492***
	(0.0147)
workexperience^2	0.00146***
	(0.000500)
workhoursweek	0.00306
	(0.00458)
male(dummy)	0.0648
	(0.0866)
married(dummy)	-0.0900**
	(0.0363)
supervisor(dummy)	0.124
	(0.0833)
helper(dummy)	-0.186***
	(0.0711)
knitwear(dummy)	-0.123
	(0.104)
piecerate(dummy)	-0.283***
	(0.0573)
Constant	0.560**
	(0.271)
Observations	290
R-squared	0.240

Source: Same as Table 6.

Note 1: Robust standard errors are in parentheses (*** p < 0.01, ** p < 0.05, * p < 0.1).

Note 2: Factory size dummies are included in the RHS.

Note 3: The variable "knitwear" = 1 if the factory mainly produces knitwear, = 0 if woven wear. The dummy variable "piecerate" = 1 if the respondent is paid at piece rates.