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Abstract

In recent years, Bangladesh has become the second largest garment exporter in the world. This paper examines the competitive factors of the Bangladeshi garment industry by analyzing macroeconomic and industrial-specific factors. Based on a survey of 70 firms in the country, this study reveals that, although the Bangladeshi garment industry has various impediments such as insufficient infrastructure, corruption and labor unrest, factors such as labor cost, market access policy and technological development have been significantly contributing to the creation of the export competitiveness of the Bangladeshi garment firms in the post-MFA period.

Key Words
Bangladesh, Garment Industry, Global Value Chain, Competitive Factors,
Industrial Upgrading, Multi-Fiber Arrangement

1. Introduction

The Bangladeshi garment industry has expanded its export capacity significantly in recent years, and has been world's second largest exporter since 2011 (WTO, 2012).[1] What are the major competitive factors in the success of the Bangladeshi garment firms? This paper attempts to answer this question by examining the macroeconomic and industry-specific factors of the Bangladeshi garment industry.

When the Multi-Fiber Arrangement (MFA) ended in December 2004, it was predicted that all least developed countries (LDCs) would lose their global garment market share due to fierce competition with China and India. Dowlah (1999) and Nordas (2004) assumed that LDCs would face both international challenges, such as competition with China and India after the MFA, and domestic challenges, including a lack of basic infrastructure and skilled labor, labor unrest, and political instability, which may put the LDCs' performance at risk. In this event, their prediction was accurate for sub-Saharan African countries. However some Asian countries, particularly Bangladesh, Vietnam and Cambodia, have achieved remarkable growth by increasing their share of the world's exports of textile and garment

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[1] According to WTO , the largest exporting country was China, accounting for US$154 billion and 37.3% of the world trade, followed by Bangladesh (US$ 20 billion and 4.8%) and Turkey (US$ 14 billion and 3.5%) in 2011 (WTO, 2012, p.132) .

products in the post-MFA era (see Ahmed, 2009; Bakht *et al*., 2009; Goto *et al*., 2011; Natsuda *et al*., 2010).

In the case of Bangladesh, the garment industry has achieved tremendous growth in the post-MFA era. Bangladeshi garment exports grew 2.4 times, from US$7.9 billion in 2005 to over US$19 billion[2] in 2011 (BGMEA 2013). The number of firms increased by over 22 percent, from 4,220 firms in 2005 to 5,150 firms in 2010 (BGMEA, 2012). In addition, employment in the sector grew by over 80 percent, from approximately 2.2 million workers in 2005 to 4 million in 2012 (BGMEA, 2013). Consequently, Bangladesh has become one of the leading garment export countries in the world.

This paper analyzes the competitive factors of the Bangladeshi garment industry in the perspective of macroeconomic factors (labor costs, labor productivity, interest rates, corporate tax, exchange rates, infrastructure and market access policy), and industry-specific factors (technological development, compliance with international labor standards, lead time, labor unrest, and corruption). This analysis uses data collected via a survey questionnaire of 70 garment firms in Bangladesh in 2012. The sample firms are located in

[2] There is a gap of US$ 1 billion between WTO (2012) and BGMEA (2013) in the value of exports in 2011.

major garment producing cities such as Dhaka, Narayngong and Chittagong. The paper is

organized as follows: the next section sets out the theoretical concept of the global value

chain (GVC) as it will be used in this paper. The third section provides an overview of the

Bangladeshi garment industry. The fourth section presents the survey of Bangladeshi

garment firms and empirical findings. The fifth section analyzes the findings of the survey.

The sixth section concludes.

2. Global Value Chain (GVC) Theory

The concept of GVC was developed by Gereffi (1999), and was influenced by various

existing approaches, such as Porter's value chain concept,[3] French *filière* approach,[4] and

Wallerstein's concept of world-systems theory.[5] GVC analysis delineates the various

stages of production activity, from raw material production to the final retail sales. GVC is

a process through which a firm can uphold its position by adding value during different

stages of the life cycle of its product or service. Such activities cover design, production,

marketing, distribution, and logistics in bringing the product or service from the producer

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[3] The concept emphasizes value-added activities through the sequential and inter-connected
structure of economic activities (see Porter, 1990 and Henderson *et al.,* 2002)

[4] The approach focuses particularly agricultural commodity chains from production to consumption
by identifying agent and activities, but in general, the analysis is based on the domestic value chain
(see Kaplinsky and Morris, 2001; Raikes *et al.,* 2000).

[5] The theory stresses how a hierarchical commodity chain is organized by identifying actors and
activities across space (see Hopkins and Wallerstain, 1986 and Blair, 2005).

to the final consumer. The theory focuses not only on input–output relations of the chain across countries, but also on exercise control (governance) within the chain. In this context, leading economic actors can influence other firms within the chain, upgrading their products, production processes, and economic functions.

There are two types of GVC: the *buyer-driven value chain* and the *producer-driven value chain*. The former is common for labor-intensive industries such as the garment industry, where power (governance) is exercised at the retail end. In contrast, the latter is characterized by technology and capital-intensive industries such as the automotive and electronics industries,[6] where power is exercised at the production end. In the garment industry particularly, global buyers and traders play a very important role in the GVC. Global buyers from developed countries source their products from well-established international garment manufacturing companies that are typically located in Hong Kong, Taiwan, and Korea. These firms organize production through their own foreign direct investment (FDI), joint ventures or contract manufacturing in some labor abundant developing countries such as Bangladesh, Vietnam, and Cambodia (Nadvi and Thoburn, 2004). Therefore, this pattern of manufacturing is termed as *'triangular manufacturing'*

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[6] See the example of the automotive GVCs (Natsuda and Thoburn, 2013) and the electronics industry (Sturgeon and Kawakami, 2010).

where global buyers possess strong power to control and influence the international market of garment and apparel products (Gereffi, 1999).

One of the most significant aspects of the GVC concept is related to the issue of *industrial upgrading*. The GVC analysis has been assisting the local producers by rendering advice, advocating technological and financial support from the global buyers on how to improve their production processes, and helping them to attain consistency and high quality (Humphrey and Schmitz, 2002). Therefore, the role of the international buyers in industrial upgrading has great importance. Moreover, Kaplinsky and Morris (2001) also argue that firms can upgrade their position through participating in the GVC, as well as emphasizing increases in the efficiency of manufacturing and raising their competiveness by focusing on more value added activities. In particular, they opine that local firms can be upgraded in the following four areas:

(i) *process upgrading* by raising efficiency in transforming input into output in the internal process through introducing modern production system and technology;

(ii) *product upgrading* which can be conducted by development of new products or improving existing ones;

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(iii) *functional upgrading* by shifting lower value added activities to higher value added activities; and

(iv) *volume based upgrading* through achieving economies of scale and diversifying export markets by providing insightful information regarding emerging market.

In *functional upgrading* of garment production, there are three levels of production arrangements, such as *Cut, Make and Trim* (*CMT*), *Free on Board-1* (*FOB-1*), and *Free on Board-2* (*FOB-2*).[7]*CMT* is the lowest value-added activity, in which global buyers/traders provide all necessary intermediate materials to local producers, the latter of which engage themselves in the labor-intensive processes of cutting, sewing and trimming. In short, the local producers receive only a processing fee under the arrangement. *FOB-1* includes greater value added activities, where local producers take the responsibility of sourcing intermediate materials and production. Yet, design–the highest value-added activity in garment production–is not included in *FOB-1*. *FOB-2* is characterized by a perfect and complete production process, including the sourcing of intermediate materials, all levels of production, and design. Hence, *FOB-2* is considered as the highest value-added process

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[7] CMT, FOB-1, and FOB-2 are equivalent to Original Equipment Assembly (OEA), Original Equipment Manufacturer (OEM), and Original Design Manufacturer (ODM), respectively in the automotive or electronics industry.

that offers a completed garment to buyers/traders.

3. Overview of the Bangladeshi Garment Industry

The Development of the Garment Industry in Bangladesh

Traditionally, Bangladesh has a good reputation for the production of garments predominantly for domestic markets. The export-oriented garment industry of Bangladesh started when the first shipment of the Bangladeshi garment exports was made by Reaz Garments and Jewel Garments in 1977 (Staritz and Frederick, 2012a, p.214). In 1979, the Daewoo Corporation of South Korea entered into a joint venture agreement with Desh Garments of Bangladesh and started their operation in Chittagong (Quddus and Rashid, 2000). By exploiting the Daweeo's brand names and marketing networks, Bangladesh managed to overcome all the early entry barriers and build a reputation as a reliable supplier of quality garments in the international markets (Rock, 2001). Following Daewoo's reputation, many foreign investors, particularly from Korea, Taiwan, and many other East Asian countries, were attracted by the unused quota under the MFA and abundant cheap labor in Bangladesh. These foreign investors trained unskilled labor, and brought new machinery and technology that contributed greatly to improvement of garment productivity in the country (Staritz and Frederick, 2012a, p.215). Besides

international investors, many domestic investors were also attracted to the import substitution and back to back letters of credit (L/C) policies introduced by the Bangladeshi government in 1980. Under these policies, local producers were given special privileges (i.e. bank loan with low interest, import tariff exemptions and free warehouse facilities) in order to minimize their production costs and facilitate their exports (Ahmed, 2009). Hence, both domestic and international investors played a very important role in the development of the Bangladeshi garment industry in the early period of 1977-1985.

The growth of the Bangladeshi garment industry further accelerated during the period of 1986-2004, when many developed countries removed and relaxed their quota restrictions. During this period, Bangladesh became an attractive place for international buyers/investors to relocate to or subcontract production in, while garment exports by the most competitive countries, such as China and India, were facing constraints from the imposition of quotas under the MFA restrictions (Rock, 2003). The large-scale withdrawal of the UK and French quotas and the relaxation of the US quotas in 1986 enabled the EU and US markets to become the first and second largest export destinations of Bangladeshi products during that time (Rock, 2001). Moreover, the withdrawal of quota restrictions by

Australia in 2002 and Canada in 2003 also provided a considerable effect on the Bangladeshi garment exports (Haider, 2007).

Since the MFA phase out in 2005, garment exports by Bangladeshi firms have been facing fierce competition with China and India. Notwithstanding, Bangladesh has been able to successfully absorb the competition and increase its exports 2.4 times over during the period of 2005-2012 (BGMEA, 2013). Along with an abundance of cheap labor, the five year Post-MFA Action Program (2005-2010) and different support measures undertaken by the Bangladeshi government, including tax exemption for the import of capital machinery, support in market promotion and subsidies for utility charges, have greatly contributed to the enhancement of the quality and capacity of the industry during the post-MFA period (BIDS, 2011).

Export Trends and Products

With regards to the volume of exports, the garment industry accounted for a mere US$ 31.6 million in 1983, but increased to US$ 7,901 million in 2005 and US$ 19,090 million in 2011 (see Figure 1). Regarding the share of the country's export revenue, the industry accounted for less than 4 percent in 1978, but this increased to 77 percent in 2010

(see Figure 2).

In terms of export destinations, the EU is the largest market, accounting for 58.7 percent in 2010, followed by the US and Canada. In addition, exports to other countries such as Australia, Japan, and Brazil increased rapidly between 1995 and 2010 (see Figure 3).

With regards to garment products, woven garments, such as pants, trousers, jackets, and knitwear products, such as T-shirts, polo, shirts, and shorts, accounted for 85.8 percent and 14.2 percent of the total garment exports in 1993 respectively. However, knitwear exports have developed rapidly and finally overtook woven garment products in 2006 (see Figure 4). Indeed, Bangladesh has remained the second largest knitwear exporter in terms of volume since 2010.

Firms, Employment and Ownership of the Garment industry in Bangladesh

The industry has been influencing the economy of Bangladesh by creating employment opportunities, particularly for young, uneducated women, contributing to the reduction of poverty in the country over the last few decades (Ahmed, 2009). In this context, the garment industry is considered to be a driving force behind the socio-economic development of Bangladesh. The number of employees in the sector has also been rising continuously, from 0.04 million in 1984 to 4 million in 2012, or 100 times over during this period (see Figure 5).

<Insert Figure 5>

The number of firms has also increased dramatically along with an increment in garment exports in Bangladesh. The industry, which consisted of only 30 enterprises in 1980, reached 5,150 firms in 2010. Indeed, the average of 170 new garment firms was established every year during this period (see Figure 6).

<Insert Figure 6>

Although the Bangladeshi garment industry was initially led by foreign owned firms, the

industry is currently dominated by local entrepreneurs. For instance, in 2006, the number

of fully or partially owned foreign companies was only 83 in comparison over 4000

domestic firms (Dunn, 2008, p.4). The dominance of domestic firms is partly due to the

government's industrial policy, which limited FDI within the Export Processing Zone

(EPZ) until 2006 (*ibid.*). In other words, the local entrepreneurs were given opportunities to

make investments in the domestic industry under this regulation. After liberalizing FDI

policy in 2006, it was expected that aggregate FDI in the garment and textile sector would

increase considerably. In fact, FDI is still very low, and there has been no significant

increase within the era of liberalization (see Figure 7).

<Insert Figure 7>

Backward Linkages

Backward linkages in the Bangladeshi garment industry include cotton, yarn, weaving and

knitting, dying, printing, and finishing. As a raw material, cotton production is in a tenuous

position due to land constraints, and the country is overly dependent on cotton imports

from various countries. In 2012, Bangladesh's total cotton imports accounted for 697,000 metric tons, out of which 260,000 metric tons (or 37%) came from India, 180,000 metric tons (26%) from Uzbekistan, 41,000 metric tons (6%) from Australia, 34,000 metric tons (5%) from the US, and 31,000 metric tons (4%) from Malaysia (see Figure 8).

<Insert Figure 8>

Regarding intermediate materials such as yarn and fabric production, although Bangladesh has achieved remarkable development in the last few decades, it is not enough to meet the demand in the country. The gap between domestic demand and supply is still large (see Figure 9 and 10), and thus intermediate materials are imported from various countries. On the contrary, Bangladesh is self-sufficient in dyeing, printing, and finishing, and the local suppliers are well qualified to do these activities by maintaining both quality and quantity (Habib, 2009).

<Insert Figure 9 & 10>

Unavailability of intermediate materials, such as yarn and fabric, cause a tremendous negative impact on the growth of the garment industry in Bangladesh. Table 3 shows that

the Bangladeshi garment firms' high dependence on imported raw or intermediate materials. All of the surveyed firms reported that the majority of their imported intermediate materials came mostly from India, Central Asia, Pakistan, China and Thailand. Overdependence on imported intermediate materials causes longer lead-time and foreign currency disbursement. Additionally, firms need to open a back-to-back letter of credit (L/C) for which they need to pay high interest rates along with different commissions and charges for the middlemen involved. Hence, paying these charges increases the production cost.

4. Survey of Garment Firms and Empirical Findings in Bangladesh

This study assesses the competitiveness of the Bangladeshi garment firms by examining both macroeconomic and industry-specific factors. In macroeconomic factors, this study focuses on the labor cost, labor productivity, interest rate, exchange rate, market access and diversification policy, and corporate tax rate, which are deemed to be important factors of the economy (Fagerberg, 1988; Marsh and Tokarick, 1994 and Cockburn *et al.,* 1998). In industry-specific factors, this study employs technological development, compliance with international labor standards, lead time, corruption, and labor unrest, which can be viewed the most important factors of the garment industry (Dowlah, 1999; Jin, 2004; Tewari, 2006

and Yang and Mlachila, 2007). This study collects primary data through a questionnaire survey conducted in 2012.

Sampling and Target Respondents

With the assistance of BGMEA, 110 questionnaires were distributed. Of those, 70 qualified questionnaires were returned, leading to a 63.6 percent response rate. Out of the total of 70 samples, 50 firms are located in the capital city of Dhaka, while the rest of the 20 firms are located in Narayngonj and Chittagong. During the time the survey was conducted, the primary focus was on directors, representative directors, general managers or division heads in garment firms.

Questionnaire Measurement

Three types of questions were included in the questionnaire of this study, including dichotomous format questions, closed format questions and rating scale questions. In the dichotomous format questions, the respondents are requested to answer a number of simple questions by responding with a YES or NO. In closed format questions, respondents are presented with multiple choice options, and he or she is asked to choose a particular one for his/her answer. Regarding the rating scale questions, we have requested the respondent

to rate a particular issue on a scale that ranges from -5 to 5 where -5 is for extremely unfavorable and 5 is for extremely favorable. From this range, mean value is calculated to know how each of the variables influences the competitiveness of the Bangladeshi garment firms. This research employs the following criteria to measure the variables by using a scale of 11 levels ranging from -5 to 5 (see Table 1).

<Insert Table 1>

Data Analysis and Testing Method

We utilize a number of techniques to analyze and test data. Firstly, descriptive statistics are used to present background information such as the types of ownership, process of production, initial capital, present capital, and major export markets, etc. Different statistical estimations, such as mean, standard deviation, and percentage, are applied to test the importance of both macroeconomic and industry-specific factors. Finally, to use the mean value in ranking the strength and weakness of the ranking format questions, the following rank calculation procedure has been followed.

Range of the satisfaction level = (Maximum value-Minimum value)/level

$$= \{5-(-5)\}/11 = 10/11 = 0.90$$

<Insert Table 2>

General Profile of the Firms

Table 3 shows the general profile of 70 firms, and includes information on ownership, the year of establishment, capital, the number of employees, and so on. Of those, 68 firms (or 97%) are based on domestic capital. In regards to the year of establishment, 49 firms (70%) were founded within the period of 1985-2005. However, it is worth noting that 19 firms (27%) were established in the post-MFA era. In regards to capital, 47 firms (68%) were established with capital amounts between Taka 5 million (US$ 64,000) and 20 million (US$ 256,000). However, 54 firms (77%) had a current capital rate of over Taka 20 million in 2012. In regards to employment, 45 firms (64%) employed over 1000 workers in 2012. In general, most of the firms conduct export-oriented business.

<Insert Table 3>

Macroeconomic Factors

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Respondents have viewed the labor cost as 'extremely favorable' (score 4.38), labor productivity as 'average' (0.27), interest rate as 'unfavorable' (-0.57), corporate tax as 'favorable' (0.94), infrastructure as 'extremely unfavorable' (-4.43), the market access policy as 'quite favorable' (2.32), and exchange rate as 'favorable' (0.48) in the export of garment products in Bangladesh (see Table 4).

<Insert Table 4>

Industry- Specific Factors

Regarding industry-specific factors, the respondents identified technological development (3.78) as 'highly favorable', compliance with international labor standards (0.31) as 'average', and lead-time (-3.66), labor unrest (-3.27), and corruption (-3.85) as 'highly unfavorable' in the export of garment products in Bangladesh (see Table 5).

<Insert Table 5>

5. Discussion and Analysis of Findings

This section analyzes the effect of the significant variables in the survey, including labor

cost, labor productivity, infrastructure, market access policy in macroeconomic factors, and

technological development, lead time, corruption and labor unrest in the industry-specific

factors. In contrast, our survey results revealed that some other factors, such as corporate

tax, exchange rate, labor productivity, compliance with international labor standards, and

interest rates, have relatively little influences on the Bangladeshi garment firms.

5.1 Macroeconomic Factors

Labor Costs (Extremely Favorable)

The empirical results from the survey confirm that labor costs have a strong positive effect

on the garment export performance of Bangladesh. In the survey, 68 firms responded

positively towards the contribution that labor costs have on growth in the garment industry.

It is also found that the mean value and standard deviation are 4.38 and 0.86 respectively.

The mean value of 4.38 indicates that labor costs in Bangladesh are highly favorable to

garment exports, whereas the value of standard deviation of 0.86 denotes that the views

among the firms are almost uniform.

These finding are very much identical to our expectation and existing literature. One

argument could be related to the labor-intensiveness of the garment industry. Without any

doubt, Bangladesh possesses abundant and cheap labor. Compared to other major textile and garment manufacturing nations, Bangladesh offers a very low cost of production, which can induce major garment producers and buyers to produce or source their products from Bangladesh (see Table 6). In consequence, garment production has been rapidly increasing in Bangladesh. A number of existing studies, such as Yang and Mlachila (2007) and Ahmed (2009), have also confirmed labor cost is one of the most significant competitive factors in both the MFA and post-MFA period. However, the lower labor cost is compensated with the labor productivity. The survey has also found that the mean value for labor productivity is 0.27, which falls under the 'average' category. This finding has similarities with those of KOICA and KIEP (2006). They argue that although Bangladesh has managed to improve its labor productivity, the country still lags behind in comparison with China and India.

<Insert Table 6>

Market Access Policy (Quite Favorable) and Diversification

The survey results revealed that the Bangladesh's market access policy plays very important role in the growth of its garment industry in both the MFA and post-MFA period.

Of the firms surveyed, 68 out of 70 opine that the time-demanded market access policy has been providing preferential access for the sector in the major apparel markets. The mean value for the market access (2.32) indicates that the relevant policy is quite favorable to the growth of the country's garment industry. In addition, the low standard deviation (1.28) also confirms that there is no high dispersion among the responses. By the same token, two recent studies conducted by Ahmed (2009) and Staritz and Frederick (2012a, p.237) reported similar findings.

Bangladesh has successfully incorporated the 'Everything But Arms' (EBA) agreement through which it gets quota and tariff free access to the EU market. This preferential access enables Bangladesh to increase its garment exports to the EU countries (Staritz and Frederick, 2012a, p.237). Furthermore, Bangladesh was successful in becoming eligible for the Generalized System Preference (GSP) in 2011, which has been providing a variety of export opportunities in the international market. Further, the country has also been enjoying duty free access to Canada, Australia, New Zealand, Norway, and Japan since the 'Rules of Origin' (ROO) changed from double to single transformation (Staritz and Frederick, 2012b, p.77). Bangladesh was also successfully able to enter the regional markets through effective diplomatic relations by forming trade agreements with its

neighboring countries. Among these, the most important trade agreement was made with India, allowing duty free access of 46 garment products in September 2012 (BTT, 2011).

The Bangladeshi garment exports are largely concentrated in two major markets, the EU and the US. However, our survey results show that the situation has started to change gradually since the MFA phase out in 2005. In the MFA period, only 21 out of 52 firms have exported to a third country (beside the US and the EU), while 66 out of 69 firms have exported to at least a third country in the post-MFA period (see Table 3). This finding provides an indication of the export diversification of the Bangladeshi garment industry in the post-MFA period. The findings of this study reflect those of BGMEA (2012), which showed the export of Bangladeshi garments to the US and the EU markets accounted for 98.1 percent in 2001, while exports to other markets was only 1.9 percent in the same year. However, there was a significant increase in exports to other markets to 15.5 percent in 2010, whereas exports to the US and the EU decreased to 84.5 percent in the same period (see Table 7).

<Insert Table 7>

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This trend was partly created by a Bangladeshi government incentive, providing a package of three-year incentives for searching new garment markets in 2008. Under this scheme, garment exporters have been provided with small cash incentives for exports to the new markets excluding EU, US and Canada during 2009-2012 (Staritz and Frederick, 2012a, p.241).

Infrastructure (Extremely Unfavorable)

All the surveyed firms acknowledge that their performance in garment exports is severely impeded due to the poor infrastructure. The mean score of the infrastructure is found -4.43, which denotes that infrastructure is extremely unfavorable to garment industry growth. World Economic Forum (WEF) also supports our findings. According to WEF (2012), Bangladesh is ranked as having the lowest performance in infrastructure, including roads, railroads, port facilities and power supplies, in comparison with other major garment exporting nations (see Table 8).

<Insert Table 8>

5.2 Industry-Specific Factors

Technological Development (Highly Favorable) and Industrial Upgrading

A firm can raise its efficiency in transforming input into output in its internal process by introducing a modern production system and technology. The survey confirmed that there have been significant changes in the Bangladeshi garment firms. All of the surveyed firms reported that they have purchased new machinery and technology in order to increase efficiency, and helped them to cope with the post-MFA competition. Moreover, respondents were asked what level of contribution the newly adopted technology and machinery made to their export performance. Most of the respondents rated it as 'highly favorable', with a mean value of 3.78. In addition, the low standard deviation (0.568) also confirms that there is no high dispersion among the respondents. Therefore, the result of the questionnaire survey confirms that technology has had a strong positive contribution to the growth of the garment industry of Bangladesh in the post-MFA period.

Some existing studies, such as Staritz and Frederick (2012a, p.229) and Saheed (2008), revealed that most of the garment firms in Bangladesh have invested in new computerized cutting and spreading machinery, high-quality sewing machines, and barcode-enabled inventory management systems, which facilitate the sustainability and the continuity of export growth. Particularly, Saheed (2008) concluded that technological upgrading plays a

very crucial role for Bangladesh in fostering its garment exports in the post-MFA period.

In the perspective of industrial upgrading of the GVC concept, a firm (and also industry) can upgrade its position in the global garment value chain by engaging in greater value added function. In regards to the functional upgrading of Bangladeshi garment firms, there has been significant progress in the last 7-8 years. In the past, the majority of firms were engaged in CMT operation. For instance, a study conducted by the World Bank in 2005 found that 75 percent (more than 2000) of garment firms in Bangladesh were engaged in CMT production, while only 25 percent (nearly 1000) of firms were engaged in FOB production (World Bank, 2005, p.15). However, our survey has found a completely different result. Out of the 70 firms surveyed, 68 reported their level of production arrangement. According to our survey result, 85 percent (or 56 firms) and 6 percent (or 4 firms) are engaged in FOB-1 and FOB-2 arrangements, respectively. In contrast, only 9 percent (or 6 firms) are engaged in the traditional CMT arrangement.

Although our survey indicates remarkable evidence that the Bangladeshi garment firms accomplished an outstanding functional upgrading from CMT to FOB-1, there are still limitations shown in upgrading from FOB-1 to FOB-2. Only four surveyed firms can offer

finished products by providing all necessary production materials, including design and branding. Therefore, while we can reach the conclusion that the country has been progressing rapidly in upgrading process of production, they are still far away from including designing and branding. One of the underlying factors for having less FOB-2 firms in the Bangladeshi garment industry might be related to the size of the firms. As it has shown in Table 3, most of the firms are medium sized in terms of the employed capital. Therefore, it is very difficult for a medium sized company to afford the very sophisticated technology needed for the design process. It is also a huge burden for them to bear the high costs involved in international branding and advertising. Another factor could be the origin of the existing firms. Most of the garment firms in Bangladesh are owned by domestic entrepreneurs who have limited capital, less experience, and little knowledge to carry out all the necessary processes of production.

Lead Time (Highly Unfavorable)

The mean value for lead time is -3.66, which is found 'highly unfavorable' under the survey criteria. Therefore, it suggests that a long lead time is one of the major obstacles to the rapid growth of garment exports in Bangladesh. Nuruzzaman and Hoque (2009) also come up with the similar findings. There might be many reasons behind such a longer lead

time in the country. The first generic reason is related to a poor infrastructure. According to Nordas *et al.* (2006), infrastructure has a strong correlation with lead time in garment exports for any country. The second reason is the sector's overdependence on imported intermediate materials. As we examined, Bangladesh imports 80 percent of intermediate materials from abroad and it is apparent that the necessary import processing time causes the lead time to be longer

Labor Unrest (Highly Unfavorable)

Most of the surveyed firms' viewed their exports as being greatly challenged by the recent labor unrest. The mean value for the labor unrest is found to be 'highly unfavorable' at -3.27. Labor unrest derives from the low labor cost of the Bangladeshi garment industry. Although the Bangladeshi economy had been facing a high inflation, there was no initiative to adjust price hikes with the minimum wage of garment workers until 2006. In that year, the government increased the minimum wage from Taka 930 (which is equivalent to US$16) to Taka 1662 in 2006 (US$24) per month. However, this wage rise was not sufficient to meet daily expenses, and thus workers were demanding a minimum wage of Taka 5000 (US$72). In response, the Bangladeshi government again raised the minimum wage to Taka 3000 (US$43) in 2010 (AMRF, 2012). However, there still exists

dissatisfaction among the workers because their real income is much lower than what is necessary to maintain their daily lives in Bangladesh. Furthermore, long working hours, delays in promotion, irregular payment of salary, very low overtime payment, lack of paid leave, lack of medical and maternity benefits, an absence of job protection, and an absence of housing facilities often lead to frequent labor unrest in the sector (Kamal, Billah and Hossain, 2010).

This frequent labor unrest can be minimized if firms properly comply with international labor standards (Khan, 2006). However, this study has found the mean value for compliance with international labor standards is (0.31) which lies under the 'average' category. Moreover, the high standard deviation of 2.51 indicates that few firms are performing well while the majority are yet struggling to comply with international labor standards. Therefore, the performance of the Bangladeshi garment firms in maintaining compliance is not satisfactory, and the country needs to improve further if it really wants to minimize the labor unrest as well as maintain its current export growth in the long run.

Corruption (Highly Unfavorable)

The majority of the surveyed firms respond that corruption impedes the performance of

garment exports in Bangladesh to great extent. The mean value for corruption is -3.85, which indicates that corruption is highly unfavorable to garment export growth. The most imperative argument regarding the negative impact of corruption is that it reduces efficiency, transparency, and fairness within the industry, which ultimately weakens confidence among various stakeholders. Consequently, all parties lose confidence in market outcomes, which eventually leads to less involvement by the efficient entrepreneurs. This argument is supported by Quddus (2006). He asserts that one of the important reasons for having less FDI in Bangladesh's garment sector is corruption. He also claims that the country has been losing goodwill within the international business community, and corruption often discourages foreign investment in Bangladesh. In addition, according to a survey conducted by Mckinsey & Company, 57 percent of international buyers stated that while corruption exists in Bangladesh, it is at manageable level. In contrast, 33 percent considered corruption as a big threat to the Bangladeshi garment industry (Mckinsey & Company, 2011, p. 16).

The Role of International Buyers

In buyer driven GVCs, the role of buyers and traders has significant governance power. Generally speaking, of the total gross revenue from sales at the retail level, 60 percent will

be distributed at the retail end through buyers and traders, 20 percent to the producer, and 20 percent for logistics and insurance (Natsuda *et al.,* 2010). In Bangladesh, the intermediaries for channeling the export of garment products are highly concentrated among international buyers and traders. According to Table 3, among the entire sample, 55 firms export through international buyers, 11 firms export both directly and through international buyers, and 3 firms channel their exports through both international traders and buyers. The most popular international buyers for Bangladeshi garment products include Wal-Mart, H & M, JC Penny, GAP, Adidas and Kohl's.

International buyers, the most powerful players in the garment GVC, play a very important role not only in channeling Bangladeshi garment exports, but also in facilitating the creation of international competitiveness in terms of compliance to international labor rules and labor training. All of the surveyed firms who export through the international buyers acknowledged that their buyers always create pressure to comply to international labor standards. In response to this, local firms have taken many effective measures to comply with the imposed requirements. Therefore, international buyers contribute greatly to the improvement of labor condition and the factory environment in Bangladeshi garment firms. Moreover, international buyers can help enhance the skill of local workers by providing

different professional and vocational training. For example, 31 (or 45%) out of the 69 surveyed firms who export through international buyers informed us that they receive technical and financial support from their buyers, which eventually helps them to increase their productivity as well. In this regard, international buyers have been contributing to strengthening the competitive factors of the garment industry in Bangladesh.

6. Conclusion

This study set out to assess competitive factors of the Bangladeshi garment industry in the post-MFA era by examining macroeconomic and industrial-specific factors. Since the 1990s, the Bangladeshi garment industry has been rapidly expanding, becoming one of the main driving forces of economic development in the country, which has grown to be the second largest garment exporter in the world. By conducting a questionnaire survey of 70 firms in Bangladesh, the study built empirical evidence regarding the effects of labor costs and market access policy in macroeconomic factors, and technological development in industry-specific factors, which have strongly contributed to the creation of the export competitiveness of the Bangladeshi garment firms. In contrast, infrastructure, lead time, labor unrest, and corruption have contributed negatively to the industry in the post-MFA period.

In the perspective of the industrial upgrading of the Bangladeshi garment firms, this study found that there was a significant evidence of *functional upgrading* from lowest production arrangement of CMT to FOB-1. Although the Bangladeshi garment firms have been upgrading their production activities effectively, it might be necessary for Bangladeshi garment firms to conduct further *functional upgrading* from FOB-1 to the highest value added production arrangement of FOB-2, in order to strengthen its competitiveness. In addition, it also might be important for the Bangladeshi garment industry to improve various impediments, such as insufficient infrastructure, corruption, labor unrest, and labor productivity, in order to create a future sustainability the industry.

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Tables

Table 1. Criteria of Measuring Competitive Factors

Unfavorable										Favorable
-5	-4	-3	-2	-1	0	1	2	3	4	5
Extremely Unfavorable	Highly Unfavorable	Quite Unfavorable	Relatively Unfavorable	Unfavorable	Average	Favorable	Relatively Favorable	Quite Favorable	Highly Favorable	Extremely Favorable

Table 2. Satisfaction Level Calculation

Range of Mean Score	No	Satisfaction level
(-5.00) – (-4.10)	1	Extremely Unfavorable
(-4.09 – (-3.19)	2	Highly Unfavorable
(-3.18) – (-2.28)	3	Quite Unfavorable
(-2.27 – (-1.37)	4	Relatively Unfavorable
(-1.36) – (-0.46)	5	Unfavorable
(-0.45) – (0.44)	6	Average
(0.45) – (1.35)	7	Favorable
(1.36) – (2.26)	8	Relatively Favorable
(2.27) – (3.18)	9	Quite Favorable
(3.19) – (4.1)	10	Highly Favorable
(4.11) – (5.00)	11	Extremely Favorable

Table 3. General Profile of the Surveyed Firms

Details	Frequency	Percentage	Details	Frequency	Percentage
Types of Ownership			**Major Markets (after MFA)**		
Sole Proprietorship	2	3%	**First Destination**		
Partnership	61	86%	US	18	26%
Shareholding Company	8	11%	EU	48	70%
Origin of Firms			Others	3	4%
Domestic	68	97%	**Second Destination**		
Joint Venture	0	0%	US	47	71%
Totally Foreign Owned	2	3%	EU	13	19%
Year of Establishment			Others	7	10%
Before 1985	2	3%	**Third Destination**		
1985-2005	49	70%	US	0	0%
2006-2011	19	27%	EU	2	3%
Capital at the Time of Establishment (in Taka)			Others	64	97%
5 million (or US$ 64,000) -10 million (US$128,000)	13	19%	**Major Markets (Before MFA)**		
10 million (US$128,000) -20 million (US$256,000)	34	49%	**First Destination**		
More than 20 million (more than US$256,000)	23	33%	US	28	58%
Current Capital (in Taka)			EU	18	38%
5 million (US$ 64,000) -10 million (US$128,000)	2	3%	Others	2	4%
10 million (US$128,000) -20 million (US$256,000)	14	20%	**Second Destination**		
More than 20 million (more than US$256,000)	54	77%	US	18	39%
Employees at the Time of Establishment			EU	23	50%
1-100	5	7%	Others	5	11%
101-500	25	36%	**Third Destination**		
501-1000	35	50%	US	0	0%
More than 1000	5	7%	EU	4	16%
Employees (Current)			Others	21	84%
1-100	0	0%	**Export Medium**		
101-500	7	10%	Directly and International Buyers	11	
501-1000	18	26%	International Buyers and Traders	3	
More than 1000	45	64%	International Buyers only	55	
Sales			**Profitability**		
Domestic Sales only	1	2%	Bearing net loss	1	
Export only	56	80%	Bearing net profit	69	
Both Domestic Sales and Export	13	18%	**Major International Buyers**		
Use of Imported Raw or Intermediate Materials			GAP, H & M, Wall Mart, JC Penny, PVH and VF Matalan		
No use of imported raw or intermediate materials	0	0%			
1%- 20%	10	14%			
21%-50%	17	24%			
51%-80%	41	59%			
More than 80%	2	3%			

Table 4. Macroeconomic Factors Affecting the Export of Bangladeshi Garment

Variable	T.R	Mean	S.D	Level
Labor Cost	68	4.38	0.86	Extremely Favorable
Labor Productivity	70	0.27	1.27	Average
Interest Rate	68	-0.57	2.32	Unfavorable
Corporate Tax	68	0.94	1.17	Favorable
Infrastructure	70	-4.43	1.09	Extremely Unfavorable
Market Access Policy	68	2.32	1.28	Quite Favorable
Exchange Rate	67	0.48	1.51	Favorable

Note: T.R= Total Respondents and S.D= Standard Deviation

Table 5. Industry-Specific Factors Affecting the Growth of Bangladeshi Garment

Variable	T.R	Mean	S.D	Level
Technological Development	68	3.78	0.57	Highly Favorable
Compliance with International Labor Standards	70	0.31	2.51	Average
Lead-time	70	-3.66	1.39	Highly Unfavorable
Labor Unrest	68	-3.27	0.88	Highly Unfavorable
Corruption	67	-3.85	0.97	Highly Unfavorable

Note: T.R= Total Respondents and S.D= Standard Deviation

Table 6. Garment Manufacturing Labor Cost in Selected Countries in 2010

Country	Wage (per hour)
India	US$ 0.51
China (remote/inland areas)	US$ 0.55-0.80
China (prime coastal areas)	US$ 1.08
China (other coastal/core areas)	US$ 0.86-0.94
Pakistan	US$ 0.37
Bangladesh	US$ 0.22
Cambodia	US$ 0.33

Source: ILO (2011), adopted from UNCTAD (2013, p.13)

Table 7. The Market Share in the US, EU and Other Countries in 2001-2010

Year	US	EU	US & EU	Others
2001	42.7%	55.4%	98.1%	1.9%
2004	30.6%	64.2%	94.9%	5.1%
2008	29.9%	58.5%	88.4%	11.6%
2010	25.8%	58.7%	84.5%	15.5%

Source: BGMEA (2012)

Table 8. Different Aspects of infrastructure for Some Selected Countries in 2012

Country	Overall Infrastructure	Road	Rail Road	Port Service	Electricity Supply
Bangladesh	2.8	2.8	2.5	3.3	1.8
Cambodia	4.2	4.0	2.3	4.2	3.6
China	4.3	4.4	4.6	4.4	5.2
India	3.8	3.5	4.4	4	3.2
Vietnam	3.2	2.7	2.6	3.4	3.1

Note: Scale 1= underdeveloped, 7= extensive and efficient by international standard
Source: Data compiled from WEF (2012)

Figures

Figure 1. The Export Trends of Garments in Bangladesh, 1983-2011
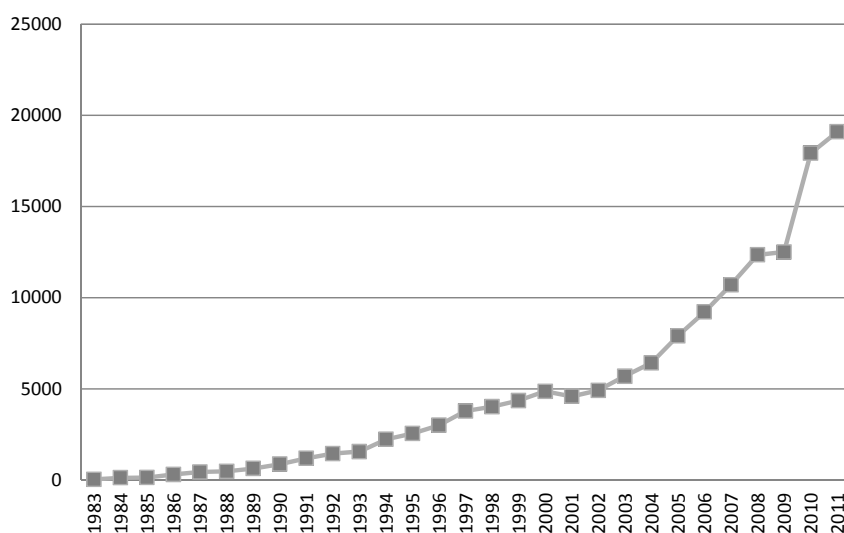
Unit: US$ Million
Source: BGMEA (2013)

Figure 2. Share of Manufacturing Export in Bangladesh in 2010
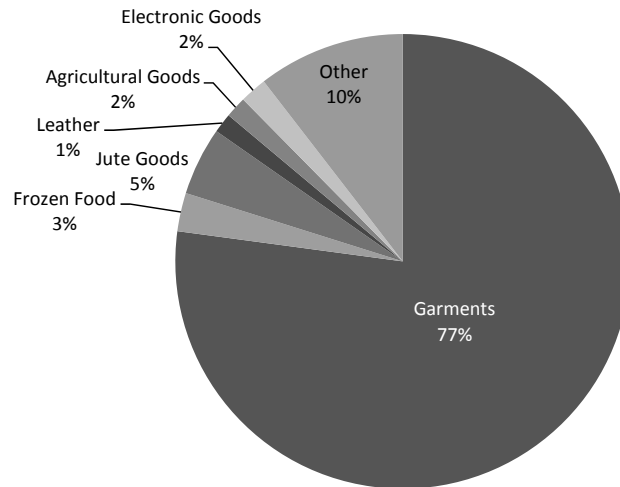
Figure 3, Export Destination of Bangladeshi Garment (in percentage), 1995-2010

	95	00	05	10
■ EU	53.3	51	59.8	58.72
■ USA	41.8	42.9	30.2	25.82
■ Canada	2.6	2.1	4.5	4.99
■ Others	2.3	4	5.5	10.47
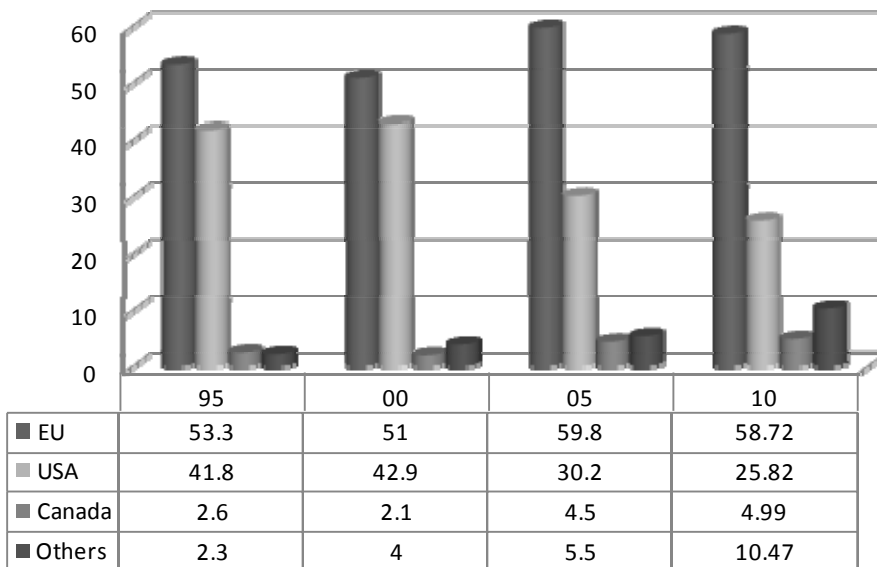
Figure 4. The Export Trend of Knit and Woven Products, 1992-2010
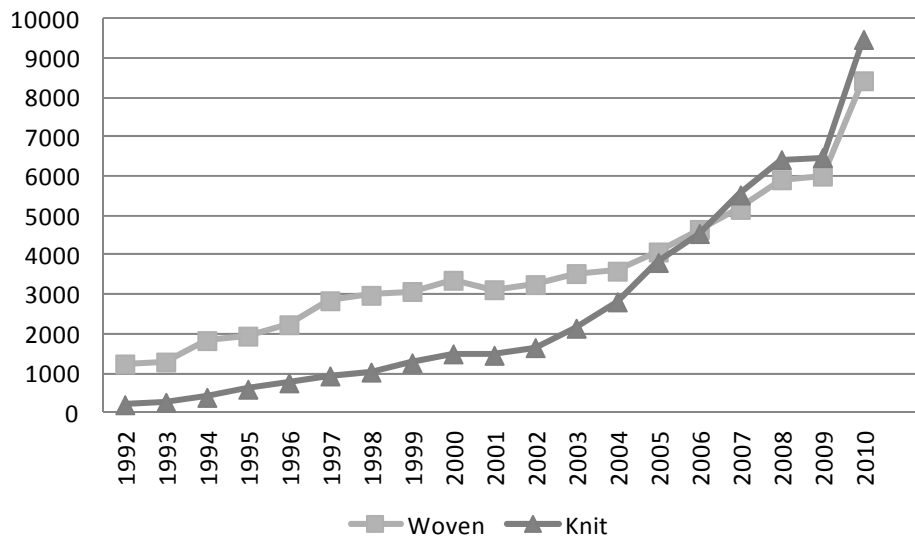
Unit: US$ Million
Source: BGMEA (2013)

Figure 5. Employment in the Garment Sector in Bangladesh, 1984-2012
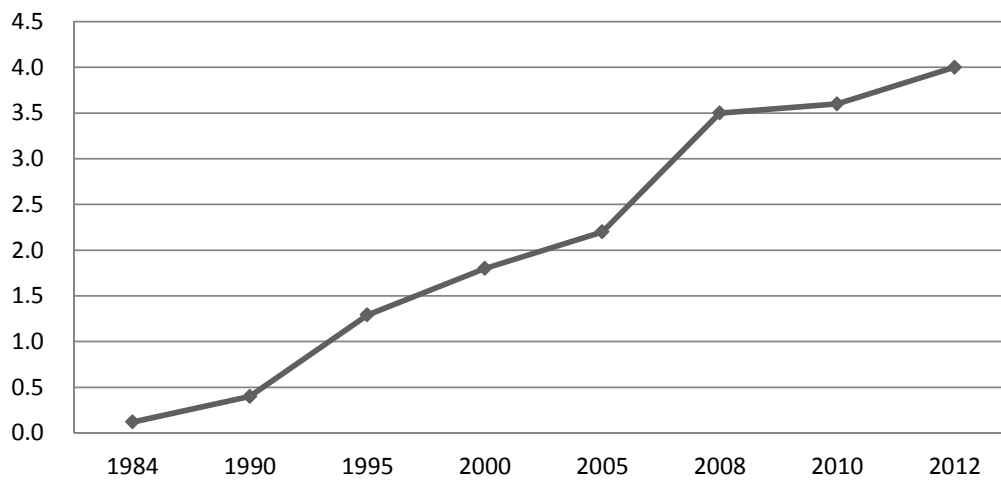
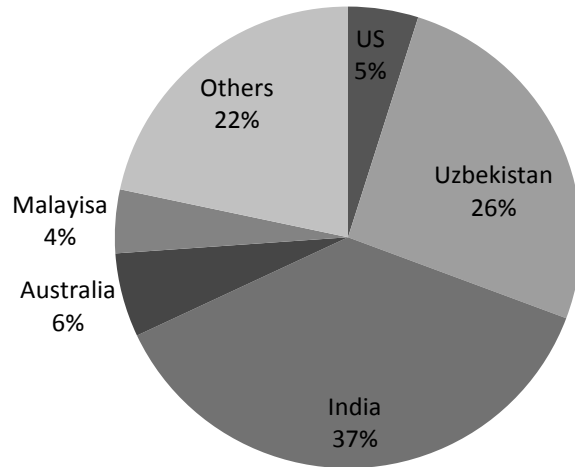Unit: Million

Figure 6. Number of Garment Factories in Bangladesh, 1984-2010
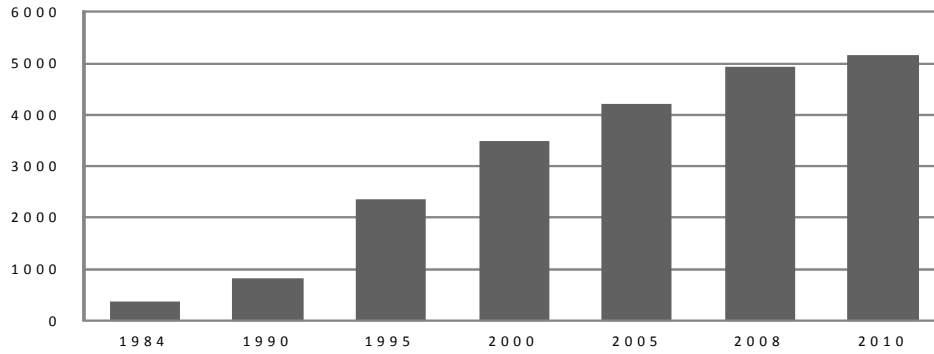
Figure 7. The Trend of Investment in the Bangladeshi Garment Sector, 2006-2010
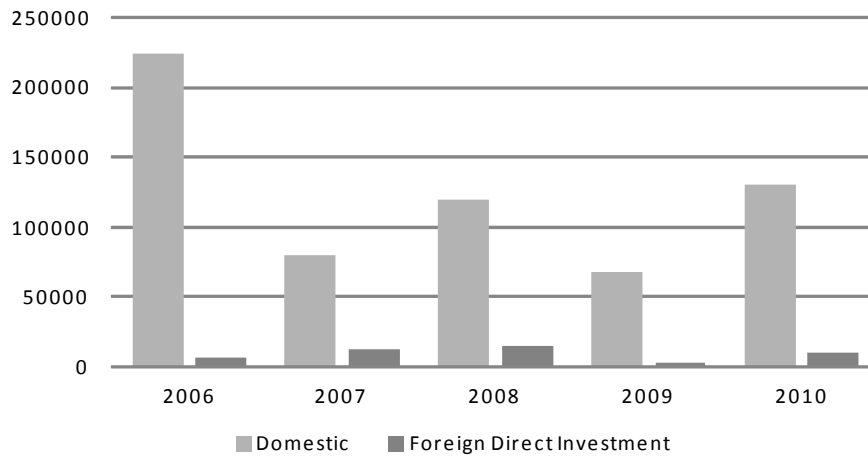
Unit: US$ Million

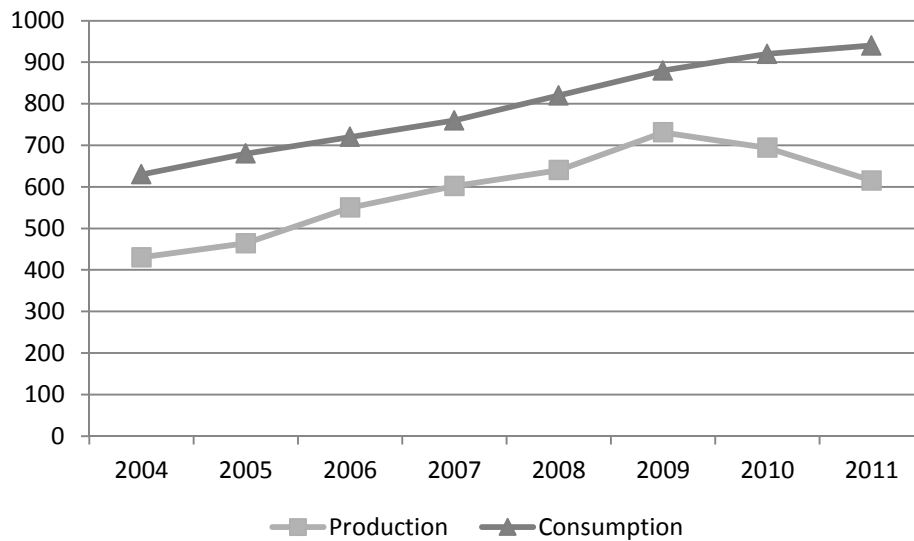Figure 8. Major Origin of Cotton Import in Bangladesh in 2012

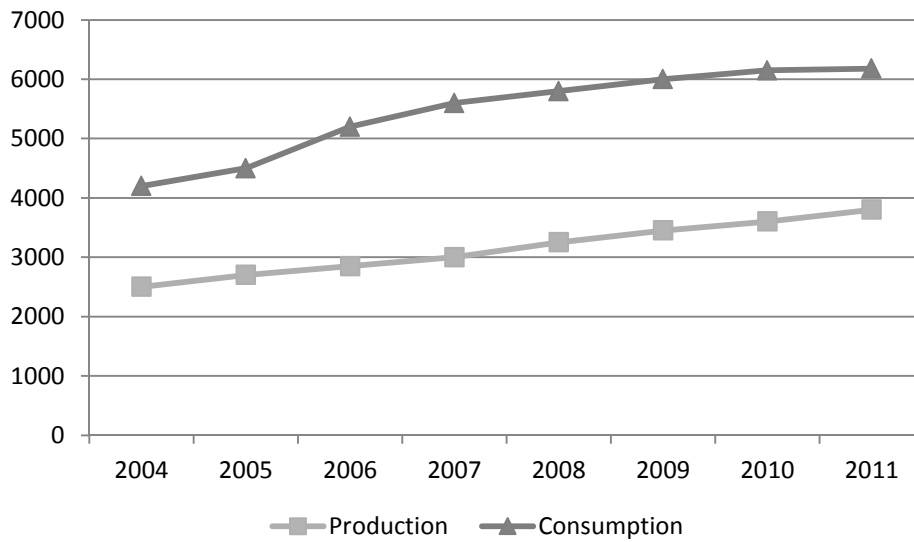Source: BCDB (2013), adopted from USDA (2013, p.6)

Figure 9. Yarn Consumption and Production in Bangladesh, 2004-2011

Unit: Thousand Tons

Source: BTMA (2013), adopted from USDA (2013, p.8)

Figure 10. Fabric Consumption and Production in Bangladesh, 2004-2011

Unit: Million Meters

Source: BTMA (2013), adopted from USDA (2013, p.8)