

# An Empirical Analysis of the Competitiveness of the Bangladesh Ready-made Garment Sector: The Impact of the MFA Phase-out and the Rana Plaza Collapse on Export Competitiveness

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## Abstract

The objective of this study is to examine the competitiveness of the Bangladesh ready-made garment (RMG) sector. Specifically, it analyzes how the competitiveness of the top five RMG commodities was affected by two events: the Multi-Fibre Arrangement (MFA) phase-out in 2004 and the Rana Plaza collapse in 2013. The RMG sector is the most important contributor to the Bangladesh economy since its beginnings in the early 1980s. At present, Bangladesh is the world's second largest RMG-exporting country, behind China. The top five RMG commodities accounted for more than 80% of the country's total exports in 2015. Currently, the sector employs over 4 million workers, with the majority being women who migrated from rural areas. This employment has contributed to the reduction of rural poverty. Thus, it is critically important for the Bangladesh economy to maintain its competitiveness in the export of RMG to the world market. The empirical analysis employs the normalized revealed comparative advantage (NRCA) index, which is built on Balassa's revealed comparative advantage (RCA) index (Balassa, 1965). Data were obtained from the UN Comtrade and classified by the three-digit level of the Standard International Trade Classification (SITC) revision 3 for the period from 1995 to 2015. Empirical evidence reveals that the top five RMG commodities achieved significant competitiveness in terms of the NRCA value and export share. They continue to remain competitive in the world market even after the MFA phase-out and the Rana Plaza collapse. The study also confirms the significant presence of Bangladesh's RMG sector in the world market. After discussing the status of the Bangladesh RMG sector in the world market, some policies for maintaining competitiveness are presented.

**Keywords:** Competitiveness, MFA phase-out, Rana Plaza collapse, Normalized Revealed Comparative Advantage (NRCA), Bangladesh RMG

## 1. Introduction

The ready-made garment (RMG) emerged as the most vibrant export item of Bangladesh in the early 1980s and is still considered as such today.<sup>1</sup> Over time, the percentage of RMG exports within the country's total exports has increased, and RMG exports have become the country's most significant economic contributor. For instance, in 1980, the RMG sector's contribution was only 0.2% (US \$1.7 million) of Bangladesh's total exports, but by 2015 this had

increased to 84.2% (US \$26,719.5 million; United Nations, 2020). By 2015, the top five export commodities of Bangladesh were all in the RMG sector, and they accounted for 83.3% of the country's exports. At present, Bangladesh is the world's second largest RMG-exporting country, behind China. The sector currently employs over 4 million workers, with the majority being women who have migrated from rural areas; this migration has contributed to the reduction of rural poverty in Bangladesh. In 1991, the poverty rate was 56.7%, but the rate had dropped to 24.3% by 2016 (Ministry of Finance, 2018).<sup>2</sup> The increased employment in the RMG sector should have contributed to this reduction (Bakht et al., 2009). Thus, it is critically important for its economy that Bangladesh maintain its competitiveness in the export of RMG to the world market.

Previous studies related to the analysis of Bangladesh's RMG exports have tended to focus on export share and not on competitiveness, while the number of detailed studies that investigate the export competitiveness of Bangladesh's RMG sector or products are limited. Furthermore, two relatively recent events that greatly impacted RMG export competitiveness—the Multi-Fibre Arrangement (MFA) phase-out in 2004 and the Rana Plaza collapse in 2013—have not been analyzed extensively. In particular, study of the impact of the Rana Plaza collapse is virtually non-existent.

The MFA was an agreement under which developed countries controlled the limit of clothing imports from developing countries. It posed a ceiling or quota on imports of clothing from exporting countries. Fortunately, Bangladesh benefited from the MFA due to low or zero rates imposed on the exports of RMG from Bangladesh to the US and the EU (Ahmed, 2009). Exports from Bangladesh under quotas ensured a guaranteed market, especially in the US, and improved their competitive strength vis-à-vis their competitors (Bhattacharya and Rahman, 2000). However, several researchers anticipated that the sector's growth would decline after the full abolishment of the MFA at the end of 2004, due to competitive pressures and domestic bottlenecks (Dowlah, 1999; Rock, 2001). In addition, the growth of the sector was challenged by another incident, the Rana Plaza collapse in 2013.

The Rana Plaza was a building situated in the Savar municipality of Dhaka district that contained five RMG factories and several shops. On April 24, 2013, the building collapsed due to several irregularities and negligence on the part of the building owner and factory management; the collapse resulted in more than 1,000 deaths and 2,500 severe injuries. After the collapse, Bangladesh faced enormous criticism from foreign buyers, trade unions, and retailers regarding labor rights, factory environments, and safety issues. Following the incident, the US suspended the Generalized System of Preferences (GSP) facilities in Bangladesh.<sup>3</sup> There was also fear of repercussions from the EU, whether or not the EU continued providing GSP benefits to Bangladesh. Overall, feedback from different stakeholders regarding the Rana Plaza accident weakened Bangladesh's confidence in the sector (Barua and Ansary, 2017).

While the overall export volume of RMG products has constantly been increasing, this does not necessarily mean that the overall export competitiveness or the competitiveness of each RMG product has been increasing. Export competitiveness is a measurement of the change in exports in one country compared to changes in world exports, and is not judged by looking only at export volume.

As noted earlier, there has been a lack both of RMG product-wise research and analysis of the impact of two major events on product-wise export competitiveness. These deficiencies call for more detailed studies. Therefore, this study empirically analyzes the competitiveness of Bangladesh's RMG sector by focusing on how the competitiveness of the top five RMG products was affected by two events: the MFA phase-out in 2004, when Bangladesh lost preferential access to the world market, and the Rana Plaza collapse in 2013, when the Bangladesh RMG sector was criticized for lack of workplace safety and human rights concerns. In this era of globalization, as the market becomes more dynamic and more competitive due to newcomers and new products, a detailed investigation

of product-wise competitiveness rather than simple analysis of the competitiveness of the sector as a whole is appropriate.

This analysis employs the normalized revealed comparative advantage (NRCA) index as a measurement of export competitiveness, which is built on Balassa's revealed comparative advantage (RCA) index. The RCA is widely used for its simplicity, but it has several disadvantages, such as an inability to state the extent of comparative advantage of a commodity or a country, the ambiguity of results for countries that have a relatively large portion of a specific commodity compared to their total export volume, and an asymmetric distribution of the index value, among other things. The NRCA rectifies these problems, allowing for a detailed examination of export competitiveness. Data for the analysis were obtained from the United Nations Comtrade (UN Comtrade) and classified by the three-digit level of the Standard International Trade Classification (SITC) revision 3 for the period from 1995 to 2015.

The organization of the paper is as follows: The next section describes the development of the Bangladesh RMG sector, including the key milestones before and after the MFA phase-out, and the measures taken after the Rana Plaza collapse. The third section presents the literature review. The fourth section includes the empirical analysis of the competitiveness of Bangladesh's RMG sector using the NRCA index. The fifth section discusses findings, and the sixth section concludes the study.

## 2. Development of Bangladesh's RMG sector

For almost the last four decades, the switch from jute products, Bangladesh's traditional industry, to RMG products initiated a substantial move from the reliance on the primary product to the manufactured product in the export structure. When the country gained independence in 1971, the RMG industry was almost non-existent. However, in 1978, a breakthrough was made by the former bureaucrat Noorul Quader of Dosh Garments Bangladesh (Younus and Yamagata, 2014). The company made an agreement with Korea's company "Daewoo Corporation" for technical and commercial cooperation. The Korean company was looking for a place for RMG production with cheap labor. As part of the agreement, employees of Dosh garments were sent to South Korea for intensive training and to gain experience in the RMG production process and marketing. After training, they returned to Bangladesh and contributed to a positive transformation of the RMG sector.<sup>4</sup> Figure 1 exhibits the value of Bangladesh's RMG exports, total exports (in millions, US\$), and RMG exports as a percentage of total exports from fiscal year (FY) 1983 to 2015. It shows that Bangladesh's total exports have mostly depended on the RMG sector since the 1990s. In FY1983, the share of Bangladesh RMG exports value (US\$31.6 million) was only 3.9% of its total export value (US\$811 million). This share in FY2015 has increased to 82% (US\$28,094.2 million) of total exports (US\$34,257.2 million). So, the trend of RMG export growth indicates the importance of RMG for the growth of the overall export sector and the foreign earnings of Bangladesh. In 1983, Bangladesh was ranked 49<sup>th</sup> in the world market (share 0.1%); in 2015, they were ranked 2<sup>nd</sup> (share 5.7%; United Nations, 2020).

Bangladesh's RMG sector grew significantly under the MFA agreement. During the period from FY1985 to 2004, when MFA was in place, Bangladesh RMG exports grew by almost 49 times (from US\$131.5 million in FY1985 to US\$6,417.7 million in FY2004) in terms of export volume. The MFA agreement came into force in 1974. It was an arrangement under which developed countries controlled the import of clothing from the developing countries. In the mid-'80s, as the RMG exports increased, most European and North American countries considered Bangladesh a competitive exporter and imposed quotas on RMG exports; however, due to diplomatic initiatives, the European countries withdrew the quotas for Bangladesh (Younus and Yamagata, 2014). In 1995, when the World Trade Organization (WTO) was formed to promote open and non-discriminatory trade worldwide, it was decided that MFA

would be gradually abolished by the end of 2004. The MFA phase-out was anticipated to have a devastating impact on Bangladesh's RMG export; however, as Figure 1 indicates, the garments industry showed an extraordinary export performance during the post-MFA period. In FY2004, RMG exports were valued at US\$6,417.7 million. They increased to US\$28,094.2 million in FY2015 by recording an almost 15% average annual growth rate during the period.

Another event that shocked the RMG sector of Bangladesh was the Rana Plaza collapse, which killed more than 1,000 workers, mostly women. It was a deadly accident in the industrial history of Bangladesh. It treated as one of the fatal industrial tragedies in the world. Five RMG factories were in the Rana Plaza building. The building also had shops and other establishments. The local authority (Savar municipality) approved to construct a five-story commercial building in 2005. Later, the owner extended the structure to nine stories, ignoring the structural design of the building. Furthermore, the building transformed from commercial to industrial use. Power generators were positioned on the top floors of the building. Consequently, the building collapsed on April 24, 2013.<sup>5</sup> Following the accident, Bangladesh faced international criticism over its failure to ensure workers' safety and possible temporary suspension of business with international buyers. After the Rana Plaza collapse, retailers formed two groups. They initiated changes to address the sector's safety issues. H&M, Adidas, Benetton, Tesco, and others formed the Accord on Fire and Building Safety in Bangladesh.

On the other hand, Walmart, Gap, Target, and others formed the Alliance for Bangladesh Worker Safety ("The Guardian", 2016). In addition, the US postponed the GSP facilities in Bangladesh (Ansary and Barua, 2015).<sup>6</sup> Despite these backlashes, the RMG export grew by almost 14% from US\$21,515.7 million in FY2012 to US\$24,491.9 million in FY2013. It further increased to US\$28,094.2 million in FY2015.

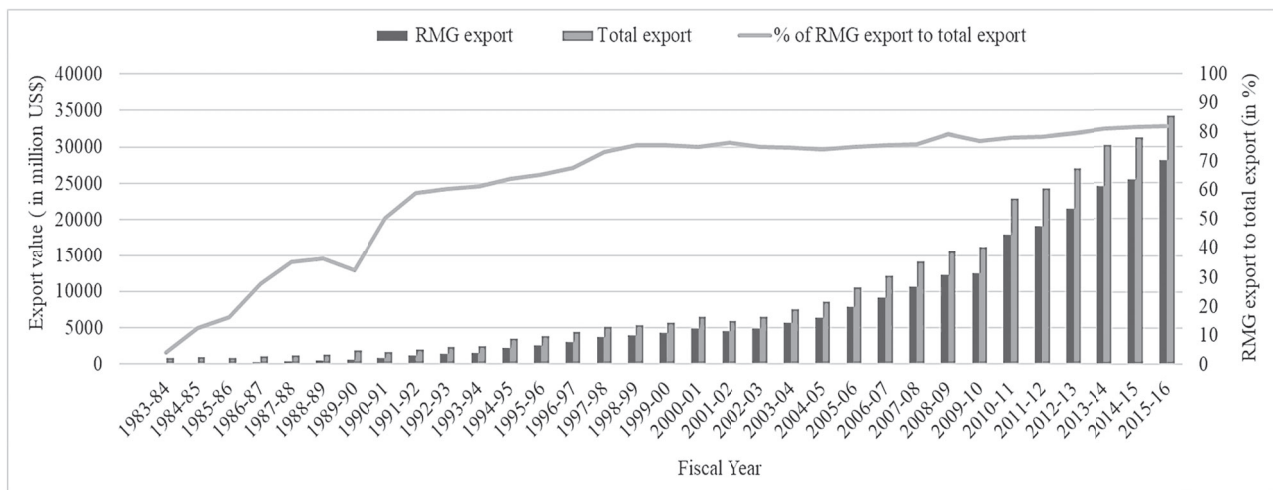


Figure 1. RMG export from Bangladesh (FY1983–2015)

Note: The fiscal year in Bangladesh ends in June.

Source: (BGMEA, 2020)

With the increasing RMG exports in Bangladesh, the number of factories and workers has also increased. Figure 2 shows the increasing number of workers along with the growing number of RMG factories between FY1984 and FY2015. In FY1984, the industry consisted only of 384 factories with 0.1 million workers; it increased to 4,107 factories with 2 million workers in FY2004. In FY2012, it further increased to 5,876 factories with 4 million workers. However, after the Rana Plaza incident in 2013, due to the lack of safety measures and the work environment issues, the number of factories dropped to 4,328 in FY2015.

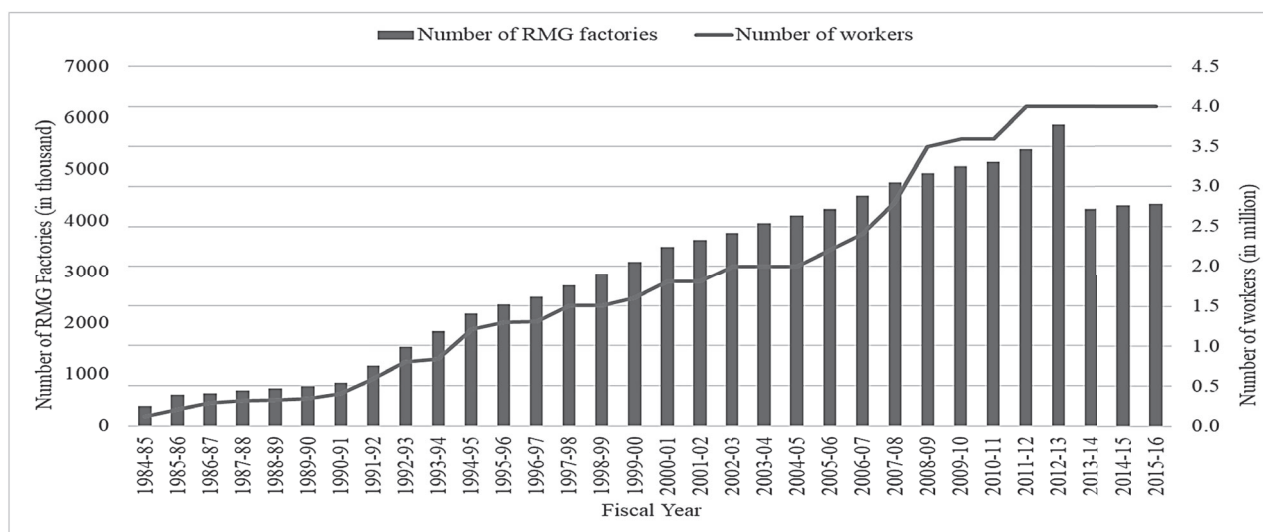


Figure 2. Number of RMG factories with workers (FY 1984–2015)

Note: The fiscal year in Bangladesh ends in June.

Source: BGMEA (2020)

### 3. Literature Review

Several studies examine Bangladesh RMG sector export competitiveness in the post-MFA period. Generally, these studies have found continued export competitiveness for the RMG sector. They can be categorized by the type of data and empirical method they use, as Table 1 shows below.

As per the table, several studies measure post-MFA export competitiveness using export data, mainly from government sources, and apply descriptive and simple presentation methods. For example, Ahmed (2009) concluded that after the MFA phase-out, the Bangladesh RMG industry’s continued growth is the result of the safety measures levied against China in the US and the EU markets until the end of 2008. However, Yamagata (2007) pointed out that this growth was not exclusively the outcome of the agreement. Similarly, Yunus and Yamagata (2012) concluded that the post-MFA competitiveness of the Bangladesh RMG sector continued because of low-cost labor, Bangladesh’s government policy, the role of industrial associations, and technology transfer in the industry. In addition, Staritz, and Frederick (2012) pointed out that, along with low labor costs, long experience, and local entrepreneurship of the sector, the presence of a backward linkage for the knitted items and increased production strength led to the post-MFA competitiveness of the sector.

Another type of study has measured the export competitiveness of the Bangladesh export sector by using the “Revealed” Comparative Advantage (RCA) and NRCA indexes. For instance, Nath (2012) examined the dynamics of trade patterns and the competitiveness of Bangladesh from 1972 to 2010 using the RCA index, which measures export competitiveness by dividing the share of a country’s export of the commodity of interest in its total exports by the share of world exports of the same commodity in world total exports. He concluded that Bangladesh enjoyed a strong comparative advantage in garments and gained over time, while traditional commodities, such as leather and tea, lost their comparative advantage. Ullah and Inaba (2012) studied the comparative advantage of Bangladesh’s 97 export products, including RMG products from 1990 to 2007, using the NRCA index and applied it to the UN SITC data. The NRCA is based on the RCA index. It overcomes the limitations of the RCA index, such as the inability to state the extent of comparative advantage of a commodity or a country, the ambiguity of results for countries having

a relatively large portion of a specific commodity to the total volume of export, and the asymmetric distribution of index values. The NRCA index is measured by deducting the share of a country's export of the commodity of interest in its world exports by the share of world exports of the same country's commodity in the world's total exports. It can explain the exact state of the comparative advantage across time, commodities, and countries. SITC is a commodity classification system developed and maintained by the United Nations. It categorizes the imports and exports of a country to allow comparisons across various countries and years. They concluded that Bangladesh gained competitiveness in labor-intensive products, including RMG. In contrast, competitiveness was lost for primary products, including jute and tea. Similarly, using UN SITC, Sarker (2018) measured the export competitiveness of Bangladesh's five key sectors, including the RMG, from 1980 to 2013, by employing the NRCA index. He found that, among the export sectors of Bangladesh, RMG gained more competitiveness and became internationally competitive compared to other sectors. This also pointed out the importance of export diversification of Bangladesh products for continued competitiveness.

A couple of studies used firm-level data to assess the export competitiveness of the Bangladesh RMG sector. Fukunishi and Yamagata (2013) examined the determinants of competitiveness for low-income countries before and after the MFA phase-out by using data collected in 2002 and 2008 among four countries, including Bangladesh. This study concluded that the Bangladesh RMG sector maintained competitiveness exclusively, taking advantage of low labor costs after the MFA phase-out. Alam and Natsuda (2016) surveyed 70 garments firms in Bangladesh using a questionnaire. They found that three factors, such as low labor costs, technological developments, and market access policy, significantly contributed to the increased export competitiveness of the sector in the post-MFA period.

**Table 1. Summary of literature on post-MFA export competitiveness of the Bangladesh RMG sector**

		Type of data		
		Export volume, Market share, and other macro variables taken mainly from government data	United Nation's SITC data	Firm-level data
Empirical Method	Descriptive/Simple calculation/tabulation	Ahmed (2009), Yamagata (2007), Yunus & Yamagata (2012), Staritz & Frederick (2012)		
	RCA/NRCA index	Nath (2012): data sort by HS code	Ullah & Inaba (2012), Sarker (2018)	
	Others: Factor decomposition/ Rank calculation			Fukunishi & Yamagata (2013), Alam & Natsuda (2016)

Source: Author's compilation of various studies.

To my knowledge, there is only one study that analyzes the impact of the Rana Plaza incident on export competitiveness. Kathuria et al., (2016) found that Bangladesh's export sector is growing; however, labor standards and safety compliance issues can affect future exports following a series of fatal accidents in the RMG sector, including the Rana Plaza collapse in 2013.

As noted, in the existing literature, several studies analyze the impact of the MFA phase-out on the export competitiveness of the overall RMG sector using export data. Only one study pointed out the impact of the Rana Plaza incident on the overall growth of the sector. These studies tend to be descriptive and do not use rigorous empirical methods. A couple of studies employ United Nations data by applying either the RCA or NRCA indexes to

analyze the overall RMG sector's export competitiveness. In the era of globalization in which the market has become more dynamic and more competitive through the entry of newcomers and new products, a detailed investigation of product-wise competitiveness, rather than simply analyzing the competitiveness of the sector as a whole, is appropriate. At present, Bangladesh is the second largest RMG-exporting country in the world. It is critical for Bangladesh to maintain its existing position in the international market.

Hence, this paper aims to fill the existing gap by using SITC 3-digit level data and applying the NRCA index. The study investigates the impact of both the MFA phase-out and the Rana Plaza incident on each top-five RMG commodity of Bangladesh. The top five RMG commodities accounted for more than 80% of the country's total exports. To the best of my knowledge, this is the first study to cover the impact of both the MFA phase-out and the Rana Plaza collapse on export competitiveness, particularly the RMG commodity-wise export competitiveness.

## 4. Empirical Analysis

This section examines the competitiveness of Bangladesh's RMG sector by focusing on how the competitiveness of the top five RMG products was affected by the MFA phase-out and the Rana Plaza collapse. The study period includes the years 1995 to 2015, with five-year intervals. The data were obtained from the UN Comtrade<sup>7</sup> and were classified by the three-digit level SITC revision 3.<sup>8</sup> The top five RMG commodities accounted for 83.3% of the country's total exports in 2015. A brief explanation of Bangladesh's top five RMG commodities is listed in the appendix.

### 4.1. Methodology

The analytical tool employed in this analysis is the NRCA index developed by Yu et al. (2009), which is built on Balassa's RCA index. Balassa's RCA index, introduced by Balassa in 1965, is used to measure comparative advantage in the empirical trade literature. The index is calculated by dividing the share of a country's exports of the product of interest by its total exports, and dividing that number by the share of world exports of the same product by total world exports:

$$RCA_{ij} = \frac{\frac{X_{ij}}{X_i}}{\frac{X_{wj}}{X_w}},$$

where  $RCA_{ij}$  represents the RCA index of commodity  $j$  in country  $i$ ;  $X_{ij}$  denotes the export of commodity  $j$  by country  $i$ ;  $X_i$  is country  $i$ 's total export;  $X_{wj}$  is commodity  $j$ 's world export; and  $X_w$  denotes total world export. According to the value of the index,  $RCA > 1$  indicates that country  $i$  has a comparative advantage in the export of commodity  $j$ ;  $RCA < 1$  indicates comparative disadvantage for commodity  $j$  of country  $i$ ; and  $RCA = 1$  indicates a neutral comparative advantage of commodity  $j$  in country  $i$ .

The concept of "comparative advantage" was first introduced by David Ricardo in 1817 (Ricardo, 1817). It states that countries are mutually interdependent and can benefit from the exchange of products. Countries with high comparative advantage for a particular commodity tend to focus on production factors and produce more products to export their abundant products to countries with lower comparative advantage (Fakhrudin and Hastiadi, 2016). However, this theoretical notion is not consistent with the RCA index, and there is a question as to the usefulness of the RCA index for measuring comparative advantages at all (French, 2017). Siggel (2006) points out that the RCA index may be more appropriately used to measure competitiveness rather than comparative advantage. He defines

“competitiveness” as the ability to export. He argues that because the RCA index is used to calculate the export share of a particular commodity in a country’s total export relative to the share of the same commodity in world exports, the RCA index is actually measuring the results of competition and hence competitiveness. Following Siggel (2006), this paper therefore employs the RCA index as a measure of competitiveness, rather than comparative advantage.

Though Balassa’s RCA index has been widely used, it has several limitations. First, it can only indicate whether or not the country has a comparative advantage for a commodity, and it fails to express the extent of the comparative advantages and disadvantages (Yeats, 1985). Second, it can give some misleading outcomes for countries with a relatively large volume of a specific commodity to the total volume of export. For instance, China is the top exporter in the world, and Bangladesh is the second for SITC 845, such as T-shirts, jerseys, and so on. However, Bangladesh’s RCA value is 35.0, which is high compared to China’s 2.4 because the share of SITC 845 in the country’s total export is 31.7% in Bangladesh, whereas it is 2.1% in China. This concentration, or lack of product diversification, pushes the value of Bangladesh’s RCA for SITC 845 higher, which does not reflect the exact state of comparative advantage. Third, the measurement scale is less than, equal to, or more than one, but with no upper limit. As a result, the mean value of a country or export commodity is not the same. A similar RCA value may give a different interpretation for different commodities or countries, which creates confusion about the comparability of the RCA index across either countries or commodities.

Despite these weaknesses, the Balassa’s RCA index was widely applied in many studies, including Balassa’s (1977). As for a study on Bangladesh’s manufacturing sector, Kathuria (2013) used the Balassa’s RCA index to examine the competitiveness of the garment export sector between India and Bangladesh. Bangladesh is a country with a very high concentration of RMG commodities for its total export. This study’s objective is to analyze the competitiveness of the Bangladesh RMG sector in the world market, covering commodity-wise competitiveness over time. The RCA index is not appropriate to assess these issues. Hence, an alternative measure of comparative advantage—the NRCA index developed by Yu et al. (2009)—is applied. The NRCA index is measured by deducting the share of a country’s export of the commodity of interest in its world exports by the share of world exports of the same country’s commodity in total world exports.

$$NRCA_{ij} = \frac{X_{ij}}{X_w} - \left( \frac{X_i}{X_w} \times \frac{X_{wj}}{X_w} \right),$$

where  $NRCA_{ij}$  represents the revealed comparative advantage index of commodity  $j$  in country  $i$ ;  $X_{ij}$  denotes the export of commodity  $j$  by country  $i$ ;  $X_i$  is country  $i$ ’s total export;  $X_{wj}$  is commodity  $j$ ’s world export; and  $X_w$  refers to the total world export. According to the value of the index,  $NRCA_{ij} > 0$  indicates that country  $i$  has a comparative advantage in the export of commodity  $j$ ;  $NRCA_{ij} < 0$  represents comparative disadvantages of commodity  $j$  of country  $i$ ; and  $NRCA_{ij} = 0$  represents the neutral comparative advantage of commodity  $j$  in country  $i$ .

The NRCA covers all the limitations of the RCA index. First, if a country achieves comparative advantage in a commodity, in contrast, comparative advantages must lose by some other country and vice versa. Second, the NRCA value follows symmetrical distribution, and the values range between -0.25 and 0.25, with 0 being the neutral point for comparative advantage. Third, the NRCA index can explain the more concise scenario of the comparative advantages or disadvantages across time, commodities, and countries. Since this study uses five years of interval data, the use of NRCA indexes makes it possible to compare values in different time periods. Finally, the clarification of the extent of NRCA value is appropriate and more meaningful. The higher the NRCA values, the higher the comparative advantage and vice versa. For example, the NRCA value of a commodity of two countries, A and B, is



0.1, and 0.7 means that country B has a comparative advantage seven times higher than country A for the commodity.

## 4.2. Results

The present study emphasizes the competitiveness of the RMG sector of Bangladesh for the period from 1995 to 2015. It examines the impact of two critical events on RMG competitiveness—the MFA phase-out and the Rana Plaza collapse—and focuses on commodity wise RMG competitiveness in the world market. For a better presentation of the NRCA values, the result is rescaled by multiplying a constant 10,000.<sup>9</sup> This section calculates the NRCA values of the top five RMG commodities of Bangladesh in global market from 1995 to 2015.

Table 2 shows the NRCA analysis of the top 10 export commodities of Bangladesh from 1995 to 2015 along with export share. In 2015, five RMG commodities were on the top 10 list (SITC 845, SITC 841, SITC 842, SITC 843, and SITC 844) and contributed 83.3% share to national exports, whereas the contribution was 57.8% in 1995. The share of the above five RMG commodities in national exports were 9.7% (SITC 845), 34.2% (SITC 841), 10.6% (SITC 842), 1.6% (SITC 843), and 1.7% (SITC 844) in 1995 and increased to 31.7%, 27.6%, 13.2%, 5.6%, and 5.2%, respectively, in 2015. The other commodities in the top 10 lists (SITC 658, SITC 851, SITC 651, SITC 036, and SITC 611) contributed 8.7% share to national exports in 2015, and the contribution was 20.5% in 1995. The share of other commodities to national exports were 4.4% (SITC 658), 0.6% (SITC 851), 1.5% (SITC 651), 8.3% (SITC 036), and 5.7% (SITC 611) in 1995 and decreased to 2.5%, 2.2%, 1.8%, (excluding an increase from 0.6%, and 1.5% in 1995), 1.2%, and 0.9%, respectively, in 2015.

Table 2 also reveals that “Articles of textile apparel, n.e.s.” (SITC 845) recorded the highest NRCA value, 6.0, in 2015, increasing by 5.4 from 0.6 in 1995, and has secured the top position since 2005. “Men’s or boys’ clothing, not knitted” (SITC 841) recorded the second highest NRCA value, 5.3, in 2015, increasing by 2.9 from 2.4 in 1995—ranked first—and then declined to second place from 2005. The NRCA value of “Women’s or girls’ clothing, not knitted” (SITC 842) in 2015 increased by 1.8 from 0.7 in 1995 to the third position in 2015 from the second in 1995. The NRCA value of “Men’s or boys’ clothing, knitted” (SITC 843) was 1.1 in 2015, increasing by 1.0 from 0.1 in 1995, and achieved the fourth position in 2015 from twelfth in 1995. The NRCA value of “Women’s or girls’ clothing, knitted” (SITC 844) was 1.0 in 2015, increasing by 0.9 from 0.1 in 1995, and achieved the fifth position in 2015 from the eleventh in 1995. The NRCA value of “Made-up articles, n.e.s.” (SITC 658) was 0.4 in 2015, increasing by 0.1 starting at 0.3 in 1995, and the sixth position remains unchanged. The NRCA values of “Footwear” (SITC 851) were 0.3 in 2015, increasing by 0.3 from 0.0 in 1995, and improved its position from the twentieth in 1995 to seventh in 2015. Similarly, “Textile yarn” (SITC 651) was 0.3 in 2015 and increased by 0.2 from 0.1 in 1995, improving its position from fourteenth in 1995 to eighth in 2015. Both “Crustaceans, molluscs etc.” (SITC 036) and “Leather” (SITC 611) had an NRCA value of 0.2 in 2015 and declined by 0.4 and 0.2 from 0.6 and 0.4, respectively, in 1995. Both commodities dropped to ninth and tenth position from fourth and fifth, respectively, in 1995, and their competitiveness also declined.

Furthermore, Table 2 reveals that both NRCA values and export shares declined for traditional commodities, such as “Crustaceans, molluscs, etc.” (SITC 036) and “Leather” (SITC 611), compared to RMG commodities, such as “Articles of textile apparel, n.e.s.” (SITC 845) and “Men’s or boys’ clothing, not knitted” (SITC 841). The integrated NRCA value of five RMG commodities (SITC 845, SITC 841, SITC 842, SITC 843, and SITC 844) was 15.9 in 2015 and increased from 3.9 in 1995, which enhanced their competitive position as the top export commodities of Bangladesh. Most significantly, after the MFA phase-out in 2004, with the exceptions of SITC 841 and SITC 842, the NRCA value and export share for another three RMG commodities (SITC 845, SITC 843, and SITC 844) increased. SITC 841 lost

the top position by decreasing export share to SITC 845, and an inter-commodity shift occurred. In addition, though export share for five RMG commodities decreased to 73.2% in 2005 from 74.7% in 2000, the integrated NRCA value also increased to 6.5 in 2005 from 6.2 in 2000. Following the Rana Plaza accident in 2013, the export share increased for all RMG commodities except SITC 845. The integrated NRCA for five RMG commodities increased to 15.9 in 2015 from 9.6 in 2010, and export share rose to 83.3% from 77% during the same period. Table 2 also shows that the export competitiveness of the top five RMG commodities was not affected by the two events. For example, As the MFA phase-out took place at the end of 2004, the impact of this event on each product's competitiveness can be identified by evaluating the NRCA values of 2005 and 2010. Similarly, As the Rana Plaza collapse occurred in early 2013, the Rana Plaza collapse on each product's competitiveness can be found by evaluating the NRCA value of 2015

In sum, in the last 15 years, the Bangladesh RMG sector faced two critical events: the MFA phase-out and the Rana Plaza collapse. However, instead of negatively affecting it, the sector expanded its competitiveness. After the full abolishment of the MFA in 2004 and severe competition among the competing countries, Bangladesh enhanced its competitiveness even more than before. In addition, after the Rana Plaza collapse, despite the intense criticism worldwide on the labor safety compliance issues, the Bangladesh RMG sector continuously became more competitive over time and commodity.

**Table 2. The NRCA analysis of the top 10 export commodities of Bangladesh in the world market (1995–2015)**

SITC code	Commodities	1995				2000				2005				2010				2015			
		Export %	Rank	RCA	NRCA	Export %	Rank	RCA	NRCA	Export %	Rank	RCA	NRCA	Export %	Rank	RCA	NRCA	Export %	Rank	RCA	NRCA
845	Articles of textile apparel, n.e.s.	9.7	3	10.8	0.6	19.6	2	20.2	1.6	28.4	1	31.5	2.5	32.3	1	40.2	4.0	31.7	1	35.0	6.0
841	Men's or boys' clothing, not knitted	34.2	1	47.7	2.4	36.6	1	56.2	3.1	24.6	2	47.7	2.2	25.5	2	64.4	3.2	27.6	2	57.6	5.3
842	Women's or girls' clothing, not knitted	10.6	2	14.5	0.7	14.5	3	21.5	1.2	11.4	3	18.0	1.0	10.0	3	21.1	1.2	13.2	3	22.5	2.5
843	Men's or boys' clothing, knitted	1.6	12	10.1	0.1	2.2	7	13.5	0.2	5.6	4	39.0	0.5	5.4	4	33.6	0.7	5.6	4	29.5	1.1
844	Women's or girls' clothing, knitted	1.7	11	6.3	0.1	1.8	8	6.7	0.1	3.2	6	12.4	0.3	3.8	5	12.9	0.5	5.2	5	14.8	1.0
658	Made-up articles, n.e.s.	4.4	6	16.5	0.3	2.9	6	10.5	0.2	3.0	7	9.8	0.2	3.5	6	11.8	0.4	2.5	6	7.1	0.4
851	Footwear	0.6	20	0.7	0.0	0.6	16	0.9	0.0	1.0	12	1.6	0.0	1.3	12	2.1	0.1	2.2	7	2.7	0.3
651	Textile yarn	1.5	14	2.2	0.1	1.2	11	2.3	0.1	2.1	9	5.4	0.2	3.0	7	9.2	0.3	1.8	8	5.7	0.3
036	Crustaceans, molluscs etc.	8.3	4	26.2	0.6	6.4	4	23.8	0.5	3.8	5	20.4	0.3	2.3	8	13.6	0.3	1.2	9	5.8	0.2
611	Leather	5.7	5	17.6	0.4	3.2	5	12.2	0.3	2.5	8	12.6	0.2	1.3	11	8.6	0.2	0.9	10	6.7	0.2

Note: (i) Rank is provided based on export value. (ii) For a better presentation of the NRCA values, the result is rescaled by multiplying a constant of 10,000 without changing the result.

Source: Author's calculation based on the UN Comtrade Database.

## 5. Discussion

Based on the empirical analysis, this section discusses the interpretation of results regarding the impacts of the MFA phase-out in 2004 and the Rana Plaza collapse in 2013 on the export competitiveness of the RMG sector. Several researchers anticipated that the Bangladesh RMG sector's significant competitiveness would decline after the full abolishment of the MFA at the end of 2004 (Dowla, 1999; Yang and Mlachila, 2007). However, by evaluating the NRCA values of the top 10 export commodities of Bangladesh in the previous section, it is found that RMG commodities have become more competitive. In the next part, the impact of the MFA phase-out on RMG competitiveness in Bangladesh will be explained.

After the MFA phase-out in 2004, Bangladesh has become more competitive than before, despite scholars' predictions. This section aims to explain the increase of competitiveness from policy perspectives, and presents possible factors influencing increasing export competitiveness after the two negative events. There are other possible explanations, but this section focuses on how these initiatives and policies affect competitiveness.

Possible reasons to become competitive are preferential market access facilities and Bangladesh government's proactive policies. The preferential market access facilities include duty-free and quota-free (DFQF) access of RMG commodities to the European Union market under the GSP from the early 1980s, provided that those commodities must fulfill the rules of origin (ROO) requirements. Under ROO, the country receives the market access facilities if significant portions of the exported items are produced in the exporting country (Ahmed, 2009). Later, exports were continued under the Everything but Arms (EBA) system in 2001—where least-developed countries (LDCs), including Bangladesh, obtain DFQF access to the EU for all commodities excluding ammunition and arms. In addition, since 2011, Bangladesh has benefited from the liberal ROO system of the EU, where the single transformation of manufacturing is acceptable. For example, the RMG factory can manufacture a commodity using imported fabric, and the domestic value addition for the commodity is reduced under the new system of ROO. Besides these, duty-free access to Japan, Canada, Australia, Switzerland, and New Zealand under the GSP program gave more space to increase the export share of RMG commodities. Bangladesh also benefited from China, South Korea, Malaysia, Thailand, and Russia by receiving duty-free access for major RMG commodities and from several South Asian countries following the South Asia Free Trade Area (SAFTA) agreement. (Alam et al., 2017).

Moreover, in 2004, the Bangladesh government formulated some proactive policies, including the formation of a National Coordination Council (NCC), to design the policy strategy for MFA phase-out challenges. Based on the recommendations by NCC, in 2005, a post-MFA Action Program (PMAP) was made by the Ministry of Commerce to look after the sector's challenges that might face difficulties after the MFA phase-out. In addition, in 2006, the Bangladesh government took further measures: including duty and tax exemptions of machinery importation for technical upgrading, providing assistance for market promotion, subsidizing for utility payments, providing cash incentives for developing the new market as well as using local input materials for exporting items, training workers for productivity enhancement, and so on. In addition, two leading trade associations in the Bangladesh RMG business, such as the Bangladesh Knitwear Manufacturers and Exporters Association (BKMEA), and the Bangladesh Garment Manufacturers and Exporters Association (BGMEA) also initiated several schemes, such as investing in research and development and strengthening the corporate social responsibility (CSR) policy to overcome the challenge smoothly (Staritz and Frederick, 2012). These initiatives and preferential market access facilities are considered to be influencing factors of the increase of Bangladesh RMG competitiveness during difficult times.

However, this competitiveness might have been challenged by the Rana Plaza collapse in 2013. After the incident, Bangladesh faced massive condemnation from foreign buyers and retailers regarding labor rights, work environment, and compliance issues (Barua and Ansary, 2017). Following the collapse, the US suspended the GSP facilities in Bangladesh.<sup>10</sup> On the other hand, the EU continued providing its GSP benefits to Bangladesh under the EBA scheme with the persuasion of the ILO. Overall, the sector gained more competitiveness after the Rana Plaza collapse as the empirical analysis in the previous section shows. A possible reason to become more competitive is to the introduction of corrective measures by the Bangladesh government to uphold the confidence level of the buyers in worldwide and providing several incentives, including the reduction of an advanced income tax rate, provision of low-interest rate loan facility for RMG entrepreneur, an increase of incentives for non-traditional market and rise of the minimum wage for workers (Centre for Policy Dialogue, 2014).

Furthermore, the National Tripartite Plan of Action (NTPA) was formed by the Government of Bangladesh, RMG employers, and RMG workers to look after the structural and fire safety issues of the sector. Based on the NTPA, the Bangladesh government, International Labor Organization (ILO), and the EU formed the Sustainability Compact for improving labor standards and codes of conduct for the Bangladesh RMG sector. Also, the United States Trade Representative (USTR) provided several plans regarding trade union-related activities and labor safety issues to

reinstate GSP facilities for Bangladesh in the US market. In 2013, Bangladesh amended its Labor Act of 2006 by adopting various provisions for labor rights, trade unions, and safety issues and then published the official gazette of the labor rules in 2015. It also reformed the labor inspection system, appointed more inspectors, and trained them with the ILO's help.

Besides these measures, two independent inspection programs were introduced. The Accord on Fire and Building Safety in Bangladesh (the Accord) was initiated by mostly from European buyers companies, and the Alliance for Bangladesh Worker Safety (the Alliance) were launched by North American apparel brands to ensure the fire, building safety and worker safety in the Bangladesh RMG sector (Barua and Ansary, 2017). Based on the recommendations of these organizations, the trade associations, BGMEA and BKMEA, helped to implement the Corrective Action Plans (CAPs) of the recommended factories. In this case, financial support in the form of long-term loan instruments was provided by international donors, such as International Finance Corporation (IFC), and Japan International Cooperation Agency (JICA) to the RMG factories for upgrading the fire safety and structural infrastructure (Barua and Ansary, 2017).

Furthermore, the Rana Plaza Coordination Committee was formed to provide medical and financial support for the victims of the incident. Different NGOs, brands and companies, and trade unions gave money to support the victims of Rana Plaza under the arrangement. These initiatives demonstrated Bangladesh's ability to successfully uphold global standards. Because of these efforts, in 2015, Bangladesh RMG commodities gained more competitiveness by increasing their NRCA values for all top-five commodities.

In sum, based on empirical analysis, this study finds that the Bangladesh RMG sector was more competitive after the MFA phase-out in 2004 and the Rana Plaza Collapse in 2013 than before. There is no adverse effect of the above events on Bangladesh RMG competitiveness; instead, it has served as an example of impressive growth, despite scholars' negative projections.

## 6. Conclusion

By using the NRCA index, this study empirically examined the competitiveness of the Bangladeshi RMG sector, focusing particularly on how the MFA phase-out and the Rana Plaza collapse affected the competitiveness of the top five RMG commodities from 1995 to 2015. Empirical evidence reveals that the top five RMG commodities achieved significant competitiveness in terms of NRCA values and export shares. They continue to remain competitive in the world market even after the MFA phase-out in 2004 and the Rana Plaza collapse in 2013. It was also noted that in a couple of cases NRCA values increased when export shares declined. This implies that even as export shares in a country decrease, export competitiveness in the world market may rise. This study also confirmed the significant presence of Bangladesh's RMG sector in the world market. The reasons behind this continued competitiveness are the Bangladeshi government's proactive policies, preferential market access facilities, the introduction of several incentives, and corrective measures by the Bangladeshi government after the MFA phase-out and the Rana Plaza collapse. These measures and initiatives have impacted the competitiveness of the top five export items positively.

Though the findings of the current study are meaningful, there is scope for further study. Future studies should analyze the sustainability of the Bangladeshi RMG sector in the long run. At present, Bangladesh's RMG sector, especially for its top five RMG products, is competitive. However, there is the important question of how long the sector will remain competitive. In the post-MFA world, Bangladesh has to compete not only with existing competitors such as China, but also with new entrants such as Vietnam and Cambodia into the market. There are also some challenges for the sector, including low labor productivity, high lead time, infrastructure problems, labor

safety, compliance issues, and so on. Thus, the sustainability of the RMG sector in the long run should be addressed in detail.

An additional challenge is that in 2024 Bangladesh is expected to graduate from the Least Developed Countries (LDC) and will lose some preferential treatments from developed countries. Currently, as the data discussed in this study indicate, Bangladesh's exports are highly dependent on RMG commodities. Given the intensification of international competition in the RMG export market, value addition of products as well as product diversification will be necessary for the further development of Bangladesh's economy.

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## Notes

- <sup>1</sup> According to Standard International Trade Classification (SITC) revision 3, ready-made garment (RMG) is classified as SITC 84 (articles of apparel & clothing accessories). It includes SITC 841 (Men's or boys' clothing not knitted), SITC 842 (Women's or girls' clothing, not knitted), SITC 843 (Men's or boys' clothing, knitted), SITC 844 (Women's or girls' clothing, knitted), SITC 845 (Articles of textile apparel, n.e.s.), SITC 846 (Clothing textile accessories), and SITC 848 (Articles of non-textile apparel; Statistical Papers, Series M, No. 34/Rev. 3, 1986, United Nations publications, Sales No. E. 86.XVII. 12). For Bangladesh RMG, SITC 841, SITC 842, SITC 843, SITC 844, and SITC 845 constitute 98.9% of SITC 84 (United Nations, 2020).
- <sup>2</sup> According to the Bangladesh Household Expenditure Survey (HES), people who consume a calorie intake of less than 2,122 or 1,805 kilocalories daily are regarded as living in absolute poverty or hard-core poverty, respectively (Bangladesh Economic Review, 2018).
- <sup>3</sup> In the US market, Bangladesh gets duty-free access for major commodities under the GSP scheme until 2013. However, RMG commodities excluded in GSP facilities. Bangladesh needs to pay a high duty on the export of RMG commodities to the US market.
- <sup>4</sup> See Easterly (2002). It describes how the garment production technology was diffused from Korea to Bangladesh.
- <sup>5</sup> As a result of irregularities in construction, cracks developed on the building floor before the fateful day. After the examination, industrial police requested to suspend the factory activities on that day. However, the factory management and building authority ignored the request and forced the workers to work on the next day. As a result, the collapse occurred which resulted in more than 1,000 death and 2,500 people were severely injured. (The Daily Star, 2016)
- <sup>6</sup> In 1976, the US formulated the Generalized System of Preferences (GSP) to support the developing countries through providing preferential access facilities for around 5000 products from 129 countries in the world.
- <sup>7</sup> UN Comtrade is the statistical database of the United Nations. For details, see [www.uncomtrade.un.org](http://www.uncomtrade.un.org)
- <sup>8</sup> SITC is a commodity classification system developed and maintained by the United Nations intended to categorize the imports and exports of a country to allow comparing various years and countries. The SITC classification is currently at revision four. It was formulated in 2006 started from SITC original in 1950, SITC revision one in 1960, SITC revision two in 1975, and SITC revision three in 1985.
- <sup>9</sup> According to the guideline of Yu et al. (2009), for a better presentation of the NRCA values, the result is rescaled by multiplying a constant of 10,000 without changing the result. Many studies, including Yu et al. (2009), used the rescaling of value to present the result in an understandable away.
- <sup>10</sup> Bangladesh needs to pay a high duty on the export of RMG commodities to the US market.

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Appendix

Top 5 RMG commodities of Bangladesh in 2015 (three-digit level SITC data, rev.3)

(A detailed explanation of this issue may be found in [www.unstats.un.org](http://www.unstats.un.org).)

SITC code	Commodities	Major items
845	Articles of textile apparel, n.e.s.	Babies' clothing, Jerseys, Ski suits, T-shirts, Swimwear, Brassieres.
841	Men's or boys' clothing, not knitted	Shirts, Trousers, Jackets, Suits, Ensembles, Overcoats, Blazers, Underwear, Nightwear.
842	Women's or girls' clothing, not knitted	Overcoats, Suits, Ensemble, Jackets, Blazers, Skirts, Trousers, Blouses, Nightdresses.
843	Men's or boys' clothing, knitted	Jackets, Blazers, Trousers, Overcoats, Suits, Ensembles, Shirts, Underwear.
844	Women's or girls' clothing, knitted	Slips, Trousers, Blouses, Shirt blouses, Overcoats, Suits, Ensembles, Jackets, Blazers, Skirts.

Note: n.e.s. stands for not elsewhere specified

Source: Author's Compilation from UN trade statistics